

Cisco ASR 1000 Series Aggregation Services Routers

Ordering Guide

March 2016

Contents

Overview	3
Getting Started	3
Cisco ASR 1000 Series High-Level Overview and Part Numbers	4
Cisco ASR 1000 Series Router Hardware	7
Chassis	7
Embedded Services Processor	8
Route Processor	9
Route Processor Types	10
Route Processor Memory and Storage	10
Route Processor Redundancy	11
USB Flash Memory Token	11
Ports and Media Interface Modules: SIP and SPA	11
Power Supplies	12
Accessories	13
Ordering Cisco ASR 1000 Series Router Software: Cisco ASR 1000 RP1 and RP2 Software	14
Ordering Cisco ASR 1000 Series Router Software: Cisco ASR 1001, ASR 1001-X, and ASR 1002-X Software	16
Ordering Cisco ASR 1000 Series Router Feature Licenses	17
Cisco ONE	19
Broadband and Service Provider Wi-Fi Service	20
Ordering Cisco ASR 1001, ASR 1001-X, and ASR 1002-X Series Feature Licenses	23
Ordering Cisco ASR 1000 Series Bundles	24
Configuration Examples	25
Example 1: Cisco ASR 1000 Series Router for Application Experience (ASR1000-AX)	25
Example 2: Cisco ASR 1000 Series Router as a Broadband Aggregation Router	28
Example 3: Cisco ASR 1000 Series Router as a Quadruple-Play Edge Router	39
Example 4: Cisco ASR 1000 Series Router as an LNS Router with Per-Subscriber Firewall	40
Example 5: Cisco ASR 1000 Series Router as High-End Customer Premises Equipment	41
Example 6: Cisco ASR 1000 Series Router as a Provider-Edge Router	42
Example 7: Cisco ASR 1000 Series Router as a Route Reflector	43
Example 8: Cisco ASR 1000 Series Router as a Secure Headend Router	44
Example 9: Cisco ASR 1000 Series Router as an Internet Gateway Router	44
Example 10: Cisco ASR 1000 Series Router as an SBC in a Centralized SIP Trunking Data Center Deployment	45
Example 11: Cisco ASR 1000 Series Router as an SBC in an Intercompany Telepresence Solution Deployed in a Service Provider Data Center	46
Example 11: Cisco ASR 1000 Series Router as a Stateful NAT64 Translator (Cloud Provider Edge)	47
Example 12: Cisco ASR 1000 Series Router as a Carrier-Grade NAT Router	47
Example 13: Cisco ASR 1000 Series Router as a Secure WAN Router	48
Example 14: Cisco ASR 1000 Series Router with Cisco ONE Software Suites	48
Ordering Information	49

Overview

This guide provides an overview and guidance for ordering and configuring the Cisco® ASR 1000 Series Aggregation Services Routers with their respective hardware components, Cisco IOS® XE Software, and feature licenses. It first addresses ordering of individual components, including hardware, software, and licenses. Then several ordering examples are presented, as well as a step-by-step walk-through of the Cisco Dynamic Configuration Tool, and of a typical deployment, including bundles. Finally, a list of part numbers, also referred to as product identifiers (PIDs), is included.

The Cisco ASR 1000 Series consists of nine platforms:

- Cisco ASR 1001 Router
- Cisco ASR 1001-X Router
- Cisco ASR 1002 Router
- Cisco ASR 1002-X Router
- Cisco ASR 1004 Router
- Cisco ASR 1006 Router
- Cisco ASR 1006-X Router
- Cisco ASR 1009-X Router
- Cisco ASR 1013 Router

The Cisco ASR 1000 Series delivers multiple services embedded in the Cisco QuantumFlow Processor (QFP) at wire speeds from 2.5 to 200 Gbps. The services supported on the Cisco QFP include security services (for example, up to 78-Gbps [78G] encryption throughput and up to 6M firewall sessions), quality of service (QoS), Application Visibility and Control (AVC), Cisco Performance Routing (PfR), broadband aggregation, Cisco Unified Border Element (SP Edition), and Cisco Unified Border Element (Enterprise Edition). Additionally, the Cisco ASR 1000 offers feature-rich scalable Data Center Interconnect (DCI) solutions that include Cisco Overlay Transport Virtualization (OTV) and Virtual Private Label Switching (VPL) to connect geographically dispersed data centers. Advanced routing techniques such as the Locator Identity Separation Protocol (LISP) allow host mobility within and across subnets.

With separation of the control and data planes in the Cisco ASR 1000 Series Router architecture, software redundancy (on the Cisco ASR 1001, ASR 1001-X, ASR 1002, ASR 1002-X, and ASR 1004 Routers), and hardware redundancy (on the Cisco ASR 1006, ASR 1006-X, ASR 1009-X, and ASR 1013 Routers), the highly reliable Cisco ASR 1000 Series demonstrates a consistently high throughput, even when new services are added. Additionally, the modular Cisco IOS XE Software that is introduced with the Cisco ASR 1000 Series facilitates In-Service Software Upgrade (ISSU) on the ASR 1006, ASR 1006-X, ASR 1009-X, and ASR 1013 models.

Getting Started

To ensure that you order the correct Cisco ASR 1000, you must first know the answers to the following questions:

- Is this deployment for a service provider or an enterprise network?
- Do you have a form factor requirement? How many rack units (RUs) do you need?
- What total throughput do you need in the router?
- Do you need hardware or software redundancy?
- What types of interfaces do you need, and how many?

1. What services need to be enabled, and how many services do you need to be running concurrently?

Cisco ASR 1000 Series High-Level Overview and Part Numbers

This section gives a brief overview of the Cisco ASR 1000 Series Router components.

- **Chassis**
 - The chassis houses all of the router components.
- **Processor modules**
 - Cisco ASR 1000 Series Route Processors: Route processors provide advanced routing features and also monitor and manage other resources on the router. They comprise the memory, hard disk, and USB flash memory token.
 - Cisco ASR 1000 Series Embedded Services Processor (ESP): Based on the Cisco QFP, the ESP performs forwarding, network security, deep packet inspection, firewalling, data center interconnect, and many other advanced features.
- **Interfaces and modules**
 - Cisco ASR 1000 Series Shared Port Adapters (SPAs): These media modules connect to a variety of service provider and enterprise media types. All SPAs connect to the Cisco ASR 1000 Series Routers through the SPA interface processor (SIP) modules.
 - Cisco ASR 1000 Series SPA Interface Processors (SIPs): The SIPs house and interconnect up to 4 SPAs each, depending on the router model.
 - Cisco ASR 1000 Series Ethernet Line Cards (ELCs): ELCs come in two different types: two 10G and twenty 1G, and six 10G. Both of these Ethernet line cards have built-in SIP.
 - Cisco ASR 1000 Series Modular Interface Processor (MIP): 100 Gbps carrier card to house and interconnect up to 2 Ethernet Port Adapters.
- **Cisco IOS XE Software images**
 - Software feature licenses are required to turn on services on Cisco ASR 1000 Series Routers. Currently, two types of feature licenses are available. Certain services require only a right-to-use (RTU) license, whereas other services require both a RTU license and one or more number-of-sessions licenses. All the licenses on the Cisco ASR 1000 Series are honor-based and are not enforced through a product activation key (PAK).
 - For fixed platforms ASR 1001, ASR 1001-X, and ASR 1002-X, one of the following five packages is required:
 - Cisco ASR 1001 IOS XE UNIVERSAL - NO ENCRYPTION
 - Cisco ASR 1001 IOS XE UNIVERSAL - NO PAYLOAD ENCRYPTION
 - Cisco ASR 1001 IOS XE UNIVERSAL
 - Cisco ASR 1001 IOS XE UNIVERSAL without Lawful Intercept
 - Cisco ASR 1001 IOS XE UNIVERSAL - NO PAYLOAD ENCRYPTION without Lawful Intercept
- **For fixed platforms ASR 1001, ASR 1001-X, and ASR 1002-X, to enable a set of required features, one of the following three technology packages is required:**
 - Cisco ASR 1000 IP BASE license
 - Cisco ASR 1000 Advanced IP Services license

- Cisco ASR 1000 Advanced Services license
- **For modular platforms ASR 1002, ASR 1004, ASR 1006, ASR 1006-X, ASR 1009-X, and ASR1013, you can choose from eight supported consolidated packages in each Cisco IOS XE Software release:**
 - IP Base without crypto
 - IP Base
 - Advanced IP Services
 - Advanced IP Services without crypto
 - Advanced IP Services without Lawful Intercept
 - Advanced Enterprise Services
 - Advanced Enterprise Services without crypto
 - Advanced Enterprise Services without Lawful Intercept
- **Cisco IOS XE Software feature licenses**
 - Certain functions supported on the Cisco ASR 1000 Series require feature licenses.
 - All Cisco ASR 1000 feature and performance upgrade licenses are honor-based; that is, they are not enforced through a Product Activation Key (PAK). **Note:** Prior to Cisco IOS XE Software Release 3.7S, performance upgrade licenses that are required to upgrade the Cisco ASR 1001 from 2.5 to 5 Gbps or the Cisco ASR 1002-X from 5 to 10 to 20 to 36 Gbps are enforced through a PAK. Similarly, prior to Cisco IOS XE Software Release 3.6S, technology package licenses are enforced through a PAK.
- **Cisco ASR 1000 application part numbers**
 - When ordering a Cisco ASR 1000 Series Router, please choose the application part number from Table 1 that most closely matches the type of deployment for the Cisco ASR 1000 Series Router.
Note: Although you must make a selection, your choice of application part number has no effect on the Cisco ASR 1000 Series Routers. This part number is used only for Cisco internal tracking purposes in order to better understand the customer use cases for the platform.

Table 1. Application Part Number

Application	
Name	Part Number
ASR1000 BNG/LNS	ASR1K-BB
ASR1000 DCI - including LISP, OTV, VXLAN, VPLS, etc.	ASR1K-DCI
ASR1000 Internet Edge/Peering - including BGP/NAT/ZBFW	ASR1K-INTERNET
ASR1000 Multi-Service Edge - including MPLS, L2/L3VPN	ASR1K-MSE
ASR1000 Managed Services	ASR1K-MSP
ASR1000 Route Reflector	ASR1K-RR
ASR1000 SP WiFi	ASR1K-SP-WIFI
ASR1000 WAN Aggregation - with or without Encryption	ASR1K-WAN-AGGR
ASR1000 Other	ASR1K-OTHER

Table 2 lists system part numbers for chassis, route processors, ESPs, SIPs, and SPAs.

Table 2. Chassis, Route Processor, ESP, SIP, and SPA Part Numbers

Chassis	
Name	Part Number
Cisco ASR 1001	ASR1001
Cisco ASR 1001-X	ASR1001-X
Cisco ASR 1002 Modular	ASR1002
Cisco ASR 1002-X	ASR1002-X
Cisco ASR 1004	ASR1004
Cisco ASR 1006	ASR1006
Cisco ASR 1006-X	ASR1006-X
Cisco ASR 1009-X	ASR1009-X
Cisco ASR 1013	ASR1013
Route Processors (RP)	
Route Processor 1	ASR1000-RP1
Route Processor 2	ASR1000-RP2
Embedded Services Processors (ESP)	
ESP5, 5 Gbps	ASR1000-ESP5
ESP10, 10 Gbps	ASR1000-ESP10
ESP10-N (non-encryption), 10 Gbps	ASR1000-ESP10-N
ESP20, 20 Gbps	ASR1000-ESP20
ESP40, 40 Gbps	ASR1000-ESP40
ESP100, 100 Gbps	ASR1000-ESP100
ESP200, 200 Gbps	ASR1000-ESP200
SPA Interface Processors (SIP) and Ethernet Line Cards	
SIP10, 10 Gbps	ASR1000-SIP10
SIP40, 40 Gbps	ASR1000-SIP40
Fixed Ethernet Line Card, 6x10GE	ASR1000-6TGE
Fixed Ethernet Line Card, 2x10GE + 20x1GE	ASR1000-2T+20X1GE
MIP100 (EPA carrier card), 100 Gbps	ASR1000-MIP100
1-port 100 Gigabit Ethernet Port Adapter	EPA-1X100GE
2-port 40 Gigabit Ethernet Port Adapter (breakout cable)	EPA-CPAK-2X40GE
Shared Port Adapters (SPA)	
8-port Channelized T1/E1 to DS0	SPA-8XCHT1/E1
4-port Channelized T3 to DS0	SPA-4XCT3/DS0
2-port Channelized T3 to DS0	SPA-2XCT3/DS0
2-port Clear Channel T3/E3	SPA-2XT3/E3
4-port Clear Channel T3/E3	SPA-4XT3/E3
Cisco 4-Port Fast Ethernet (TX)	SPA-4X1FE-TX-V2
Cisco 8-Port Fast Ethernet (TX)	SPA-8X1FE-TX-V2
Cisco 2-Port Gigabit Ethernet	SPA-2X1GE-V2
Cisco 5-Port Gigabit Ethernet	SPA-5X1GE-V2
Cisco 8-Port Gigabit Ethernet	SPA-8X1GE-V2
Cisco 10-Port Gigabit Ethernet	SPA-10X1GE-V2

Cisco 1-Port 10GE LAN-PHY	SPA-1X10GE-L-V2
2-port OC3/STM1 POS	SPA-2XOC3-POS-V2
4-port OC3/STM1 POS	SPA-4XOC3-POS-V2
1-port OC12/STM4 POS	SPA-1XOC12-POS-V2
Cisco 4 port serial SPA	SPA-4XT-SERIAL
Shared Port Adapters (SPA)	
1-port Channelized STM-1/OC-3c to DS0	SPA-1XCHSTM1/OC3
2-port OC48/STM16 POS/RPR	SPA-2XOC48POS/RPR
4-port OC48/STM16 POS/RPR	SPA-4XOC48POS/RPR
Cisco SPA, WebEx Node	SPA-WMA-K9
1 port OC-3c/STM-1 ATM	SPA-1XOC3-ATM-V2
3 port OC-3c/STM-1 ATM	SPA-3XOC3-ATM-V2
1-port OC48/STM16 POS/RPR	SPA-1XOC48POS/RPR
2-port OC12/STM4 POS	SPA-2XOC12-POS
4-port OC-12/STM-4 POS	SPA-4XOC12-POS
8-port OC12/STM4 POS	SPA-8XOC12-POS
8-port OC-3/STM-1 POS	SPA-8XOC3-POS
1-port OC192/STM64 POS/RPR XFP Optics	SPA-OC192POS-XFP
1 port OC12 STM	SPA-1XOC12-ATM-V2
Synchronous Ethernet	SPA-2X1GE-SYNCE
Digital Signal Processor	SPA-DSP
1-port Channelized OC12 to DS0	SPA-1XCHOC12/DS0
Cisco 1-port 10GE LAN/WAN-PHY	SPA-1X10GE-WL-V2
1 Port Channelized OC3/STM-1 ATM and Circuit Emulation	SPA-1CHOC3-CE-ATM
2 Port Channelized T3/E3 ATM and Circuit Emulation	SPA-2CHT3-CE-ATM
24 Port Channelized T1/E1/J1 ATM and Circuit Emulation	SPA-24CHT1-CE-ATM

Cisco ASR 1000 Series Router Hardware

This section discusses Cisco ASR 1000 hardware rules, including the default and maximum values for chassis, modules, power supplies, and accessories.

Chassis

Cisco ASR 1000 Series Routers have five form factors (1RU, 2RU, 4RU, 6RU, and 13RU). Table 3 lists the rack-unit (RU) height for the Cisco ASR 1000 chassis.

Table 3. Cisco ASR 1000 Chassis Rack-Unit Sizes

Form Factor	
Chassis Part Number	Rack Units (RU)
ASR1001	1
ASR1001-X	1
ASR1002	2
ASR1002-X	2
ASR1004	4
ASR1006	6
ASR1006-X	6
ASR1009-X	9
ASR1013	13

Embedded Services Processor

Depending on the Cisco ASR 1000 Series model, the ESP is either integrated into the chassis or modular.

Depending on the overall throughput or encryption performance needed, you can choose among eight different modular ESP versions: 2.5-, 5-, 10-, 10-N-, 20-, 40-, 100-, and 200-Gbps ESPs.

Table 4 lists relevant ESP specifics.

Table 4. ESP Specifics

ESP Specifics										
Chassis Part Number	Bandwidth	Max ESP	ESP-2.5	ESP-5	ESP-10	ESP-10-N	ESP-20	ESP-40	ESP-100	ESP-200
ASR1001	2.5, upgradable to 5 Gbps	1	Integrated	Integrated						
ASR1001-X	2.5, upgradable to 5, 10 or 20 Gbps	1								
ASR1002	5-10 Gbps	1		Integrated	Module	Module				
ASR1002-X**	5, upgradable to 10, 20, or 36 Gbps	1								
ASR1004	10-40 Gbps	1			Module	Module	Module	Module		
ASR1006	10-100 Gbps	2: Redundant			Module	Module	Module	Module	Module	
ASR1006-X	40-100 Gbps	2: Redundant						Module	Module	
ASR1009-X	40-200 Gbps	2: Redundant						Module	Module	Module
ASR1013	40-200 Gbps	2: Redundant						Module	Module	Module

* You can upgrade the Cisco ASR 1001 throughput from 2.5 to 5 Gbps by purchasing one of the following licenses: system paper license: FLS-ASR1001-5G; spare paper license; and electronic license: L-FLS-ASR1001-5G=.

** ASR1001-X and ASR1002-X have their own built-in ESP; you can upgrade the Cisco ASR1001-X throughput from 2.5 to 5, 10, or 20 Gbps or the Cisco ASR1002-X throughput from 5 to 10, 20, or 36 Gbps by purchasing one of the following licenses:

Part Number	Description
FLSA1-1X-2.5-5G	Upgrade from 2.5 Gbps to 5 Gbps License for ASR 1001-X
FLSA1-1X-2.5-5G=	Upgrade from 2.5 Gbps to 5 Gbps Paper PAK for ASR 1001-X
L-FLA1-1X-2.5G-5G=	Upgrade from 2.5 Gbps to 5 Gbps E-Deliver PAK for ASR 1001-X
FLSA1-1X-2.5-10G	Upgrade from 2.5 Gbps to 10 Gbps License for ASR 1001-X
FLSA1-1X-2.5-10G=	Upgrade from 2.5 Gbps to 10 Gbps Paper PAK for ASR 1001-X
L-FLA1-1X-2.5G-10G=	Upgrade from 2.5 Gbps to 10 Gbps E-Deliver PAK for ASR 1001-X
FLSA1-1X-2.5-20G	Upgrade from 2.5 Gbps to 20 Gbps License for ASR 1001-X
FLSA1-1X-2.5-20G=	Upgrade from 2.5 Gbps to 20 Gbps Paper PAK for ASR 1001-X
L-FLA1-1X-2.5-20G=	Upgrade from 2.5 Gbps to 20 Gbps E-Deliver PAK for ASR 1001-X
FLSA1-1X-5-10G	Upgrade from 5 Gbps to 10 Gbps License for ASR 1001-X
FLSA1-1X-5-10G=	Upgrade from 5 Gbps to 10 Gbps Paper PAK for ASR 1001-X
L-FLA1-1X-5-10G=	Upgrade from 5 Gbps to 10 Gbps E-Deliver PAK for ASR 1001-X
FLSA1-1X-5-20G	Upgrade from 5 Gbps to 20 Gbps License for ASR 1001-X
FLSA1-1X-5-20G=	Upgrade from 5 Gbps to 20 Gbps Paper PAK for ASR 1001-X
L-FLA1-1X-5G-20G=	Upgrade from 5 Gbps to 20 Gbps E-Deliver PAK for ASR 1001-X
FLSA1-1X-10-20G	Upgrade from 10 Gbps to 20 Gbps License for ASR 1001-X

Part Number	Description
FLSA1-1X-10-20G=	Upgrade from 10 Gbps to 20 Gbps Paper PAK for ASR 1001-X
L-FLA1-1X-10G-20G=	Upgrade from 10 Gbps to 20 Gbps E-Deliver PAK for ASR 1001-X
FLSA1-2X-5-10G	Upgrade from 5 Gbps to 10 Gbps License for ASR 1002-X
FLSA1-2X-5-10G=	Upgrade from 5 Gbps to 10 Gbps Paper PAK for ASR 1002-X
L-FLSA1-2X-5-10G=	Upgrade from 5 Gbps to 10 Gbps E-Delivery PAK for ASR 1002-X
FLSA1-2X-5-20G	Upgrade from 5 Gbps to 20 Gbps License for ASR 1002-X
FLSA1-2X-5-20G=	Upgrade from 5 Gbps to 20 Gbps Paper PAK for ASR 1002-X
L-FLSA1-2X-5-20G=	Upgrade from 5 Gbps to 20 Gbps E-Delivery PAK for ASR 1002-X
FLSA1-2X-5-36G	Upgrade from 5 Gbps to 36 Gbps License for ASR 1002-X
FLSA1-2X-5-36G=	Upgrade from 5 Gbps to 36 Gbps Paper PAK for ASR 1002-X
L-FLSA1-2X-5-36G=	Upgrade from 5 Gbps to 36 Gbps E-Delivery PAK for ASR 1002-X
FLSA1-2X-10-20G	Upgrade from 10 Gbps to 20 Gbps License for ASR 1002-X
FLSA1-2X-10-20G=	Upgrade from 10 Gbps to 20 Gbps Paper PAK for ASR 1002-X
L-FLSA1-2X-10-20G=	Upgrade from 10 Gbps to 20 Gbps E-Delivery PAK for ASR 1002-X
FLSA1-2X-10-36G	Upgrade from 10 Gbps to 36 Gbps License for ASR 1002-X
FLSA1-2X-10-36G=	Upgrade from 10 Gbps to 36 Gbps Paper PAK for ASR 1002-X
L-FLSA1-2X-10-36G=	Upgrade from 10 Gbps to 36 Gbps E-Delivery PAK for ASR 1002-X
FLSA1-2X-20-36G	Upgrade from 20 Gbps to 36 Gbps License for ASR 1002-X
FLSA1-2X-20-36G=	Upgrade from 20 Gbps to 36 Gbps Paper PAK for ASR 1002-X
L-FLSA1-2X-20-36G=	Upgrade from 20 Gbps to 36 Gbps E-Delivery PAK for ASR 1002-X

Release Information:

The Cisco ASR 1001-X is supported on the following software release:

- Cisco ASR 1001-X support begins as of Cisco IOS XE Software Release 3.12S.

The 200-Gbps ESP is supported only on the following software releases:

- Cisco ASR 1013 support begins as of Cisco IOS XE Software Release 3.10S.
- Cisco ASR 1006-X and ASR 1009-X support begins as of Cisco IOS XE Software Release 3.16S.

The 100-Gbps ESP is supported only on the following software releases:

- Cisco ASR 1006 and ASR 1013 support begins as of Cisco IOS XE Software Release 3.7S.
- Cisco ASR 1006-X and ASR 1009-X support begins as of Cisco IOS XE Software Release 3.16S.

The 40-Gbps ESP is supported only on the following software releases:

- Cisco ASR 1004 support begins as of Cisco IOS XE Software Release 3.2S.
- Cisco ASR 1006 and ASR 1013 support begins as of Cisco IOS XE Software Release 3.1S.
- Cisco ASR 1006-X and ASR 1009-X support begins as of Cisco IOS XE Software Release 3.16S.

Route Processor

The disk drive on the route processor is used for storage purposes, such as for the Cisco IOS XE Software consolidated package, logs, and core dump files.

Route Processor Types

Route processors come in two main categories, integrated and modular. Depending on the chassis type, one or two can be running in a redundant mode. Table 5 lists relevant route processor specifics.

Table 5. Route Processor Specifics

Route Processor Specifics					
Chassis Part Number	Maximum Number of Route Processors	Cisco ASR 1001 Route Processor	ASR 1002-X Route Processor	Route Processor 1	Route Processor 2
ASR1001	1	Integrated [*]			
ASR1001-X	1				
ASR1002	1			Integrated [*]	
ASR1002-X	1		Integrated [*]		
ASR1004	1			Module	Module
ASR1006	2			Module	Module
ASR1006-X	2				Module
ASR1009-X	2				Module
ASR1013	2				Module

^{*} Because the Cisco ASR 1001, ASR1001-X, ASR 1002-X, and ASR 1002 have integrated route processors, configuring or adding a separate route processor at the time of ordering is not necessary.

Route Processor Memory and Storage

When ordering a route processor module, please consider the following components: memory, storage device, and USB flash memory token.

Table 6 lists relevant route processor memory and storage specifics.

Table 6. Route Processor Memory and Storage Specifics

Route Processor Memory			
Chassis Part Number	Default Memory	Maximum Memory	Default and Maximum Storage
ASR1001	4G	16G	8G EUSB [*]
ASR1001-X	8G	16G	8G EUSB [*]
ASR1002	4G	4G	8G EUSB [*]
ASR1002-X	4G	16G	8G EUSB [*]
ASR1004	RP1/RP1-N 4G, RP1-N, and RP2 8G	RP1/RP1-N 4G, and RP2 16G	RP1/RP1-N 40GB; 1G EUSB; RP2 80 GB; and 1G EUSB ^{**}
ASR1006	RP1/RP1-N 4G, RP1-N, and RP2 8G	RP1/RP1-N 4G, and RP2 16G	RP1/RP1-N 40GB; 1G EUSB; RP2 80 GB; and 1G EUSB [*]
ASR1006-X	RP2 8G	RP2 16G	RP2 80 GB and 1G EUSB
ASR1009_X	RP2 8G	RP2 16G	RP2 80 GB and 1G EUSB [*]
ASR1013	RP2 8G	RP2 16G	RP2 80 GB and 1G EUSB ^{**}

^{*} There is no hard disk on the Cisco ASR 1001 and ASR 1002. Instead, the integrated route processors on the Cisco ASR 1001 and ASR 1002 come with an 8-GB embedded USB (EUSB) flash drive for mass storage and for booting images. This EUSB is not field-replaceable. ASR 1002-X also comes with an 8-GB EUSB flash drive; in addition, ASR 1002-X has an optional 160-GB hard-disk drive (HDD), orderable with part number MASR1002X-HD-160G or MASR1002X-HD-160G=.

^{**} The RP1/RP1-N module comes with a 1-GB EUSB flash drive, which is field-replaceable (part number M-ASR1K-EUSB-1GB=). The RP2 module comes with a 2-GB EUSB flash drive, which is field-replaceable (part number M-ASR1K-EUSB-2GB=).

Release information follows:

- Maximum DRAM increased on Cisco ASR 1001 from 8 to 16 GB as of Cisco IOS XE Software Release 3.3S.
- As of Cisco IOS XE Software Release 3.3S, the Cisco ASR 1004, ASR 1006, and ASR 1013 Routers can be booted from the hard disk drive that is on the RP1 or RP2 module.

Note: All of the Cisco ASR 1000 spare route processors (ASR1000-RP1= and ASR1000-RP2=) and the route processors in spare chassis orders (ASR1001= and ASR1002=) are not configurable at the time of order, and they ship without any software.

Note: For Internet peering and edge and route reflector deployments, we highly recommend that you configure the Cisco ASR 1001 or ASR 1002-X with 8G of shared memory instead of the default 4G of shared memory. The Cisco ASR 1001-X comes with 8G of shared memory as a default.

Route Processor Redundancy

The Cisco ASR 1000 is a highly redundant router; the type of redundancy depends on the model. Table 7 lists relevant route processor memory redundancy requirements.

Table 7. Memory Requirements for Route Processor Redundancy

Redundancy Requirements				
Chassis Part Number	Inbox Redundancy Type	Default Memory	Minimum Memory for Redundancy	Redundancy Feature License
ASR1001	SW No ISSU*	4G	8G	FLSASR1-IOSRED(=) or L-FLSASR1-IOSRED=
ASR1001-X	SW No ISSU*	8G	8G	FLSASR1-IOSRED(=) or L-FLSASR1-IOSRED=
ASR1002	SW No ISSU*	4G	4G	FLASR1-IOSRED-RTU(=)
ASR1002-X	SW No ISSU*	4G	8G	FLSASR1-IOSRED(=) or L-FLSASR1-IOSRED=
ASR1004	SW No ISSU*	RP1/RP1-N 4G, RP1-N, and RP2 8G	RP1/RP1-N 4G, and RP2 8G	FLASR1-IOSRED-RTU(=)
ASR1006	HW ISSU**	RP1/RP1-N 4G, RP1-N, RP2	RP1/RP1-N 4G, RP2 8G	N/A
ASR1006-X	HW ISSU	8G	RP2 8G	N/A
ASR1009-X	HW ISSU	RP2 8G	RP2 8G	N/A
ASR1013	HW ISSU**	RP2 8G	RP2 8G	N/A

* Supports dual Cisco IOS Software redundancy.

** Supports hardware route processor and ESP redundancies, but does not support software redundancy.

USB Flash Memory Token

You can order a 1-GB USB flash memory token (MEMUSB-1024FT) separately for Cisco ASR 1000 Series Routers to store configurations or Cisco IOS XE Software consolidated packages.

Ports and Media Interface Modules: SIP and SPA

The media port adapter SPAs are housed by the SIP modules. The maximum number of SPA modules depends on both the type and number of SIPs supported by each router. SPA cards on the same SIP card do not need to be of the same type. Please refer to the [Cisco ASR 1000 Series Shared Port Adapter Support](#) data sheet for details about supported SPAs.

Certain routers have built-in Gigabit Ethernet ports. These built-in ports require Small Form-Factor Pluggable (SFP) optic or copper media. An SFP is a hot-swappable input/output device that plugs into a Gigabit Ethernet port, linking the port with the network. You can order the SFP at the same time you order the SPAs or later as a spare.

Table 8 lists relevant SIP and SPA specifics.

Table 8. SIP and SPA Specifics

SIPS, SPAs, and Port Specifics							
Chassis Part Number	Maximum SPA Slots	Maximum NIM Slots	Maximum SIP	SIP10	SIP40	Built-in GE/SFP	Built-in 10GE/SFP+
ASR1001	1	N/A	N/A	Integrated		4	
ASR1001-X	1	1	N/A	N/A	Integrated	6	2*
ASR1002	3	N/A	N/A	Integrated		4	
ASR1002-X	3	N/A	N/A		Integrated	6	
ASR1004	8	N/A	2	Module	Module	N/A	
ASR1006	12	N/A	3	Module	Module	N/A	
ASR1006-X	8	N/A	2	N/A	Module	N/A	
ASR1009-X	12	N/A	3	N/A	Module	N/A	
ASR1013	24	N/A	6		Module	N/A	

* ASR1001-X built-in 10 GE ports are turned on using port-based licenses. However, if the ASR1001-X is upgraded to 20G, then the two built-in ports are automatically included.

Release information follows:

The Cisco ASR 1000 Series 40-Gbps SIP (ASR1000-SIP40) is supported on the following routers:

- Cisco ASR 1004 as of Cisco IOS XE Software Release 3.2S
- Cisco ASR 1006 and ASR 1013 as of Cisco IOS XE Software Release 3.1S
- Cisco ASR 1006-X and ASR 1009-X as of Cisco IOS XE Software Release 3.16S

Power Supplies

All Cisco ASR 1000 chassis come by default with either dual AC or dual DC power supplies. At the time of ordering, you can choose between dual AC and dual DC power supplies. **AC and DC in the same chassis is not supported.** Table 9 lists relevant power-supply specifics.

Table 9. Power-Supply Specifics

Power Supplies					
Chassis Part Number	Default Number	Maximum Number	AC	DC	Mix of AC and DC
ASR1001	2: Redundant	2: Redundant	Yes	Yes	No
ASR1001-X	2: Redundant	2: Redundant	Yes	Yes	No
ASR1002	2: Redundant	2: Redundant	Yes	Yes	No
ASR1002-X	2: Redundant	2: Redundant	Yes	Yes	No
ASR1004	2: Redundant	2: Redundant	Yes	Yes	No
ASR1006	2: Redundant	2: Redundant	Yes	Yes	No
ASR1006-X	2: Nonredundant	4: Redundant	Yes	Yes	No
ASR1009-X	2: Nonredundant	6: Redundant	Yes	Yes	No
ASR1013	4: 2 redundant pairs	4: 2 redundant pairs	Yes	Yes	No

Note: The dual power supplies for a spare chassis are optional, and they must either be configured with the spare chassis or ordered separately as power-supply spares.

Accessories

Every router chassis comes by default with an accessory kit. The accessory kit for a spare chassis is optional, and you must configure the spare chassis with it at the time of purchase or order it separately as a spare. The Cisco ASR 1000 accessory kit comes as a default on all Cisco ASR 1000 models and can be bought as a spare.

The Federal Information Processing Standards (FIPS) kits are sold only as spares. FIPS140-2 requires that routers have tamper-evident labels affixed across all removable component seams. In addition to tamper-evident labels, FIPS specifies that the view of internal components where cryptography is processed must be obscured.

Table 10 lists the accessories that come with the routers.

Table 10. Accessories

Accessories	
Description	Part Number
Cisco ASR 1006-X Accessory Kit	ASR1006X-ACS
Cisco ASR 1006-X Accessory Kit, Spare	ASR1006X-ACS=
Cisco ASR 1009-X Accessory Kit	ASR1009X-ACS
Cisco ASR 1009-X Accessory Kit, Spare	ASR1009X-ACS=
Cisco ASR 1000-X Fan Module	ASR1000X-FAN
Cisco ASR 1000-X Fan Module, Spare	ASR1000X-FAN=
Blank Cover for ASR 1000-X Chassis Power Supply	ASR1KX-PWR-BLANK
Blank Cover for ASR 1000-X Chassis Power Supply, Spare	ASR1KX-PWR-BLANK=
Cisco ASR 1006 Accessory Kit, Spare	ASR1006-ACS=
Cisco ASR 1004 Accessory Kit, Spare	ASR1004-ACS=
Cisco ASR 1002 Accessory Kit, Spare	ASR1002-ACS=
Cisco ASR 1001-X Accessory Kit	ASR1001X-ACS
Cisco ASR 1001-X Accessory Kit, Spare	ASR1001X-ACS=
NIM Carrier Card for SSD Drives	NIM-SSD
NIM Carrier Card for SSD Drives, Spare	NIM-SSD=
Blank faceplate for NIM slot on Cisco ISR 4400*	NIM-BLANK=
Cisco ASR 1006 FIPS Opacity Kit	ASR1006-FIPS-KIT=
Cisco ASR 1004 FIPS Opacity Kit	ASR1004-FIPS-KIT=
Cisco ASR 1002 FIPS Opacity Kit	ASR1002-FIPS-KIT=
Cisco ASR 1001 Accessory Kit, Spare	ASR1001-ACS=
Cisco ASR 1001 FIPS Opacity Kit, Spare	ASR1001-FIPS-KIT=
Cisco ASR 1013 Accessory Kit, Spare	ASR1013-ACS=
Cisco ASR 1013 Accessory Kit	ASR1013-ACS
Cisco ASR 1001 Accessory Kit	ASR1001-ACS
Blank Cover ASR 1000 SIP, Spare	ASR1000-SIP-BLANK=
Blank Cover for ASR 1000 ESP, spare	ASR1000-ESP-BLANK=
Blank Cover for ASR 1000 RP, spare	ASR1000-RP-BLANK=
Blank Cover for regular SPA	SPA-BLANK=

Accessories	
Cisco ASR 1002-X Accessory Kit	ASR1002X-ACS
Cisco ASR 1002-X Accessory Kit, Spare	ASR1002X-ACS=
Blank Cover for ASR 1002-X HDD	ASR1002X-HD-BLANK
Blank Cover for ASR 1002-X HDD, Spare	ASR1002X-HD-BLANK=

Note: * NIM-BLANK= (spare) is the same hardware component/product identified supported on Cisco ASR1001-X and ASR 4451-X Integrated Services Routers.

Note: Please note that Cisco ASR 1001-X Network Interface Module (NIM) support will come after first customer shipment (FCS).

Ordering Cisco ASR 1000 Series Router Software: Cisco ASR 1000 RP1 and RP2 Software

Twelve consolidated packages (six for each route processor) are provided in each Cisco IOS XE Software release starting with Cisco IOS XE Software Release 2.3. The same set of six consolidated packages is available for RP1 (the RP1 module or the integrated RP1 on Cisco ASR 1002 Routers) in a 32-bit version and for RP2 in a 64-bit version.

The six consolidated packages (six for RP1 and six for RP2) follow:

- IP Base without crypto
- IP Base
- Advanced IP Services without crypto
- Advanced IP Services
- Advanced Enterprise Services without crypto
- Advanced Enterprise Services

Note: For managed service providers, software part numbers (part number ends with "...-MS") that default to the latest shipping release for the respective software image are in place.

For the Cisco ASR 1001, ASR1001-X, and ASR 1002-X, the concept of universal images is introduced as well as three different technology package licenses (IP Base, Advanced IP Services, and Advanced Enterprise Services) to enable the respective feature sets. Please refer to the section "Ordering Cisco ASR 1000 Series Router Software: Cisco ASR 1001, ASR 1001-X, and ASR 1002-X Software", in particular Tables 11, 12, and 13).

Table 11 describes the Cisco IOS XE Software consolidated packages for the Cisco ASR 1000 RP1 and RP2.

Table 11. Cisco IOS XE Consolidated Packages for Cisco ASR 1000 RP1 and RP2

Cisco IOS XE Consolidated Packages	Image Type	Part Number	Description
Cisco ASR 1000 Series RP1 IP Base w/o crypto	32-bit (RP1)	SASR1R1-IPB	<ul style="list-style-type: none"> • Offers low-cost base image • Offers only basic IP feature support • Satisfies export requirements for non-cryptographic software
Cisco ASR 1000 Series RP2 IP Base w/o crypto	64-bit (RP2)	SASR1R2-IPB	
Cisco ASR 1000 Series RP1 IP Base	32-bit (RP1)	SASR1R1-IPBK9	<ul style="list-style-type: none"> • Offers low-cost base image • Offers only basic IP feature support, including Secure Shell (SSH) protocol support
Cisco ASR 1000 Series RP2 IP Base	64-bit (RP2)	SASR1R2-IPBK9	

Cisco IOS XE Consolidated Packages	Image Type	Part Number	Description
Cisco ASR 1000 Series RP1 Advanced IP Services w/o crypto	32-bit (RP1)	SASR1R1-AIS	<ul style="list-style-type: none"> Targeted for export restricted customers Targeted for service provider customers Supports all features, including Lawful Intercept, and CUBE (SP Edition) and CUBE (Enterprise Edition) (SBC (Session Border Controller) functions) Does not include support for legacy protocols Does not support encryption (SSH, IP Security [IPsec], Digital Encryption Standard [DES], Triple Digital Encryption Standard [3DES], and Advanced Encryption Standard [AES])
Cisco ASR 1000 Series RP2 Advanced IP Services w/o crypto	64-bit (RP2)	SASR1R2-AIS	
Cisco ASR 1000 Series RP1 Advanced IP Services	32-bit (RP1)	SASR1R1-AISK9*	<ul style="list-style-type: none"> Targeted for service provider customers Supports all features, including encryption (SSH, IPsec, 1 DES, 3DES, AES, Lawful Intercept, CUBE (SP Edition), and CUBE (Enterprise Edition) - (SBC (Session Border Controller) functions) Does not include support for traditional protocols
Cisco ASR 1000 Series RP2 Advanced IP Services	64-bit (RP2)	SASR1R2-AISK9	
Cisco ASR 1000 Series RP1 Advanced IP Services W/O LI	32-bit (RP1)	SASR1R1AIS9NLI	<ul style="list-style-type: none"> Targeted for service provider customers Supports all features, including encryption (SSH, IPsec, 1 DES, 3DES, AES, Lawful Intercept, CUBE (SP Edition), and CUBE (Enterprise Edition) - (SBC (Session Border Controller) functions) Does not include support for legacy protocols Without Lawful Intercept
Cisco ASR 1000 Series RP2 Advanced IP Services W/O LI	64-bit (RP2)	SASR1R2AIS9NLI	
Cisco ASR 1000 Series RP1 Advanced Enterprise Services w/o crypto	32-bit (RP1)	SASR1R1-AES	<ul style="list-style-type: none"> Targeted for export restricted customers Supports all features, including Lawful Intercept, and CUBE (SP Edition) and CUBE (Enterprise Edition) (SBC (Session Border Controller) functions), as well as traditional protocols Does not support encryption (SSH, IPsec DES, 3DES, and AES)
Cisco ASR 1000 Series RP2 Advanced Enterprise Services w/o crypto	64-bit (RP2)	SASR1R2-AES	
Cisco ASR 1000 Series RP1 Advanced Enterprise Services	32-bit (RP1)	SASR1R1-AESK9	<ul style="list-style-type: none"> Targeted for enterprise customers Supports all features, including encryption (SSH, IPsec DES, 3DES and AES), Lawful Intercept, and CUBE (SP Edition) and CUBE (Enterprise Edition) (SBC (Session Border Controller) Functions), as well as traditional protocols
Cisco ASR 1000 Series RP2 Advanced Enterprise Services	64-bit (RP2)	SASR1R2-AESK9	
Cisco ASR 1000 Series RP1 Advanced Enterprise Services W/O LI	32-bit (RP1)	SASR1R1AES9NLI	<ul style="list-style-type: none"> Targeted for enterprise customers Supports all features, including encryption (SSH, IPsec DES, 3DES and AES), Lawful Intercept, and CUBE (SP Edition) and CUBE (Enterprise Edition) (SBC (Session Border Controller) Functions), as well as traditional protocols Without Lawful Intercept
Cisco ASR 1000 Series RP2 Advanced Enterprise Services W/O LI	64-bit (RP2)	SASR1R2AES9NLI	

* The "K9" consolidated packages include software developed by Cavium Networks.

For more details about these images, please refer to the Cisco IOS Software packaging product bulletin at: http://cisco.com/en/US/products/sw/iosswrel/ps5460/prod_bulletin0900aecd80281b17.html. For information about Cisco IOS XE Software, please refer to "Cisco IOS XE Software for Cisco ASR 1000 Series Routers" at: http://www.cisco.com/en/US/products/ps9343/prod_bulletins_list.html.

In general, the following rules apply for enterprises and service providers:

- If you have Cisco ASR 1000 Series Routers deployed in your enterprise environment, you should order the Advanced Enterprise Services consolidated package.
- If one Cisco ASR 1000 Series Router is deployed in your service provider environment, you should order the Advanced IP Services consolidated package. The Advanced IP Services RP1 and RP2 consolidated packages and the Advanced IP Services technology package feature license (for the Cisco ASR 1001) do not support traditional protocols (for example, DECnet and AppleTalk), whereas the Advanced Enterprise Services version does.

Ordering Cisco ASR 1000 Series Router Software: Cisco ASR 1001, ASR 1001-X, and ASR 1002-X Software

With the Cisco ASR 1001, ASR 1001-X, and ASR 1002-X, the concept of a universal software image in combination with a technology package license to enforce a certain feature set by software activation, that is, with a PAK, has been introduced. However, for ASR 1001, as of Cisco IOS XE Software Release 3.6S, technology package licenses, and as of 3.7S, a performance upgrade license to upgrade from 2.5 to 5 Gbps, are both honor-based. For ASR1001-X and ASR 1002-X, both technology package licenses and performance upgrade licenses are honor-based.

In summary:

- A PAK or license key enforces two types of licenses on the Cisco ASR 1001 prior to Cisco IOS XE Software Release 3.6S:
 - Technology package licenses (feature set licenses); part numbers and descriptions follow:
 - SLASR1-IPB: Cisco ASR 1000 IP Base license
 - SLASR1-AIS: Cisco ASR 1000 Advanced IP Services license
 - SLASR1-AES: Cisco ASR 1000 Advanced Enterprise Services license
 - Performance Upgrade license; part number FLS-ASR1001-5G to upgrade from 2.5 to 5 Gbps
- To enable a certain feature set on the Cisco ASR 1001, ASR 1001-X, or ASR 1002-X, you must order a universal image in combination with a technology package license.

Note: As of Cisco IOS XE Software Release 3.7S, the technology package licenses, the performance upgrade licenses, and all other licenses required for certain features on the Cisco ASR 1001, ASR 1001-X, and ASR 1002-X are not enforced.

Table 12 lists the part numbers you must purchase to enable feature sets; Table 13 lists the part numbers for universal Cisco IOS XE Software consolidated packages with an integrated route processor; and Table 14 gives part numbers for the technology package licenses for the Cisco ASR 1001, ASR 1001-X, and ASR 1002-X.

Table 12. Part Numbers for Cisco ASR 1001, ASR 1001-X, and ASR 1002-X Software Feature Set Enablement

For the Equivalent Feature Set on ASR 1000 Series (Cisco ASR 1002/ASR1004/ASR1006/ASR1013)	To Order Universal Software Image Part Number	With Technology Package License Part Number
IP Base without crypto (IPB)	SASR1001U/SASR1K2XU	SLASR1-IPB
IP Base (IPBK9)	SASR1001NPEK9/SASR1K2XNPEK9	SLASR1-IPB
IP Base (IPBK9) W/O LI	SASR1001NP9NLI/SASR1K2XNP9NLI	SLASR1-IPB
Advanced IP Services without crypto (AIS)	SASR1001U//SASR1K2XU	SLASR1-AIS
Advanced IP Services (AISK9)	SASR1001UK9/SASR1K2XUK9	SLASR1-AIS
Advanced IP Services (AISK9) W/O LI	SASR1001UK9NLI/SASR1K2XUK9NLI	SLASR1-AIS
Advanced Enterprise Services without crypto (AES)	SASR1001U/SASR1K2XU	SLASR1-AES
Advanced Enterprise Services (AESK9)	SASR1001UK9/SASR1K2XUK9	SLASR1-AES
Advanced Enterprise Services (AESK9) W/O LI	SASR1001UK9NLI/SASR1K2XUK9NLI	SLASR1-AES

Table 13. Descriptions of Universal Cisco IOS XE Software Consolidated Packages for Cisco ASR 1001, ASR 1001-X, and ASR 1002-X with an Integrated Route Processor

Cisco IOS XE Consolidated Package	Part Number	Description
Cisco IOS XE UNIVERSAL ASR1001/ASR 1002-X	SASR1001U/SASR1K2XU	<ul style="list-style-type: none"> Provides low-cost base consolidated package Offers only basic IP feature support - in combination with IPB Technology Package License Satisfies export requirements for noncryptographic software
Cisco IOS XE - NO PAYLOAD ENCRYPTION UNIVERSAL ASR1001/ASR 1002-X	SASR1001NPEK9/SASR1K2XNPEK9	<ul style="list-style-type: none"> Provides low-cost base consolidated package Offers only basic IP feature support, including Secure Shell (SSH) Protocol and Simple Network Management Protocol Version 3 (SNMPv3) support - in combination with IPB Technology Package License
Cisco IOS XE - NO PAYLOAD ENCRYPTION UNIVERSAL W/O LI ASR1001/ASR 1002-X	SASR1001NP9NLI/SASR1K2XNP9NLI	<ul style="list-style-type: none"> Provides low-cost base consolidated package Offers only basic IP feature support, including Secure Shell (SSH) Protocol and Simple Network Management Protocol Version 3 (SNMPv3) support - in combination with IPB Technology Package License Without Lawful Intercept
Cisco IOS XE - ENCRYPTION UNIVERSAL ASR1001/ASR 1002-X	SASR1001UK9/SASR1k2XUK9	<ul style="list-style-type: none"> Supports all features, including encryption (IPsec, Triple Digital Encryption Standard [3DES], Advanced Encryption Standard [AES], and SSH), Lawful Intercept, and SBC as well as older protocols - in combination with AIS or AES Technology Package License (with AES Technology Package License, older protocols are supported, e.g. DECnet, AppleTalk, etc.)
Cisco IOS XE - ENCRYPTION UNIVERSAL W/O LI ASR1001/ASR 1002-X	SASR1001UK9NLI/SASR1k2XUK9NLI	<ul style="list-style-type: none"> Supports all features, including encryption (IPsec, Triple Digital Encryption Standard [3DES], Advanced Encryption Standard [AES], and SSH), Lawful Intercept, and SBC as well as older protocols - in combination with AIS or AES Technology Package License (with AES Technology Package License, older protocols are supported, e.g. DECnet, AppleTalk, etc.) Without Lawful Intercept

Table 14. Descriptions of Cisco ASR 1001, ASR 1001-X, and ASR 1002-X Technology Package Licenses

ASR1001 Technology Package Licenses	
SLASR1-IPB	Cisco ASR 1000 IP BASE License
SLASR1-AIS	Cisco ASR 1000 Advanced IP Services License
SLASR1-AES	Cisco ASR 1000 Advanced Enterprise Services License
SLASR1-IPB=	Cisco ASR 1000 IP BASE Paper PAK
L-SLASR1-IPB=	Cisco ASR 1000 IP BASE E-Delivery PAK
SLASR1-IPB-AIS=	Cisco ASR 1000 IPB to AIS Upgrade Paper PAK
SLASR1-IPB-AES=	Cisco ASR 1000 IPB to AES Upgrade Paper PAK
SLASR1-AIS-AES=	Cisco ASR 1000 AIS to AES Upgrade Paper PAK
L-SLASR1-IPB-AIS=	Cisco ASR 1000 IPB to AIS Upgrade E-Delivery PAK
L-SLASR1-IPB-AES=	Cisco ASR 1000 IPB to AES Upgrade E-Delivery PAK
L-SLASR1-AIS-AES=	Cisco ASR 1000 AIS to AES Upgrade E-Delivery PAK

Ordering Cisco ASR 1000 Series Router Feature Licenses

Software feature licenses are required to turn on services on Cisco ASR 1000 Series Routers, in addition to the appropriate Cisco IOS XE Software as described in the previous section.

Currently, two types of feature licenses are available. Certain services require only a right-to-use (RTU) license, whereas other services require both an RTU license and one or more number-of-sessions licenses.

All the licenses on the Cisco ASR 1000 Series (with some exceptions for the Cisco ASR 1001 licenses prior to Cisco IOS XE Software Release 3.6S; refer to the section “Ordering Cisco ASR 1001, ASR1001-X, and ASR 1002-X Series Feature Licenses”) are honor-based; that is, the licenses are not enforced through a product activation or license key.

Services that require only an RTU license include the following:

- IP Security (IPsec) service: The Cisco ASR 1000 Series Router IPsec application requires an RTU license (FLASR1-IPSEC-RTU(=), and FLSA1-2X-IPS4G(=) on ASR 1002-X), which allows you to enable IPsec Triple Digital Encryption Standard (3DES) and Advanced Encryption Standard (AES), Dynamic Multipoint VPN (DMVPN), and Easy VPN.
- Firewall service: The Cisco ASR 1000 Series Router Firewall application requires an RTU license (FLASR1-FW-RTU(=)), which allows you to enable Firewall Services at Layer 4. Additionally:
 - To enable per-subscriber or -user firewall in broadband and enterprise deployments, the firewall RTU license as well as the number-of-sessions licenses listed in the “Broadband and Service Provider Wi-Fi Service” bullet later in this list are required.
- Firewall or Network Address Translation (NAT) stateful interchassis redundancy: Enabling interchassis redundancy for firewall and NAT requires an RTU license (FLASR1-FWNAT-RED(=)) on any Cisco ASR 1000 Router that supports interchassis redundancy.
- Stateful Network Address Translation 64 (Stateful NAT64) service (available as of Cisco IOS XE Software Release 3.4S): The Cisco ASR 1000 Series Router NAT64 service helps solve the IPv4 exhaust problem, enables IPv6 adoption, and requires an RTU license (FLASR1-NAT64-2M (=)) that enables up to 2M translations depending on the selected ESP (for example, ESP20 or ESP40 supports 2M translations, whereas ESP10 supports 1M). Stateless NAT64 service that is available as of Cisco IOS XE Software Release 3.2S does not require any license. Stateful NAT64 service is available as of Cisco IOS XE Software Release 3.4S.
- Carrier Grade Network Address Translation 44 (CGN) service (available as of Cisco IOS XE Software Release 3.6S): The Cisco ASR 1000 Series Router CGN is positioned between a private and public IP network and uses nonglobal, private IP addresses and a public IP address for translation. Carrier Grade NAT dynamically maps one or more private IP addresses into one or more public (globally routable) IP addresses that use Network Address and Port Translation (NAPT) techniques. Traditionally, NAT boxes are deployed in residential home gateways (HGWs) to translate multiple private IP addresses that are configured on multiple devices inside the home to a single public IP address that is configured and provisioned on the HGW by the service provider. Service providers deploy NAT in such a way that multiple subscribers can share a single global IP address. The Carrier Grade NAT scales to several millions of NAT translations. CGN on the Cisco ASR 1000 Series Router requires an RTU license (FLASR1-CGN-2M (=)) that enables up to 2M translations or (FLASR1-CGN-6M (=)) that enables up to 6M translations depending on the selected ESP. For hardware models that support more than 2M or 6M translations, you can order more than one license. For example, with the Cisco ASR 1000 ESP100, you can have up to 12M translations, so you can order 2 x FLASR1-CGN-6M(=) to give you RTU of up to 12M translations. You can configure CGN by using the `ipnat settings mode cgn` command. Use the `ipnat settings mode default` command to change to the default or traditional NAT operating mode. In the default mode, you do not need any license. In CGN mode, you will need one of the following part numbers: FLASR1-CGN-2M (=) or FLASR1-CGN-6M (=).

- Cisco IOS Flexible Packet Inspection (FPI) service: The Cisco ASR 1000 Series Router FPI application requires an RTU license (FLASR1-FPI-RTU(=)), which allows you to enable Flexible Packet Matching (FPM). As of Cisco IOS XE Software Release 3.4S, Network-Based Application Recognition (NBAR) requires the Application Visibility and Control license and is no longer covered under the FPI license.
- Cisco Application Visibility and Control (AVC) (available as of Cisco IOS XE Software Release 3.4S): Cisco AVC provides a powerful pervasive, integrated service management solution based on stateful deep packet inspection (DPI). With Cisco AVC, instead of processing packets as individual events, the Cisco ASR 1000 Series Router fully reconstructs flows and the Layer 7 state of each application flow for application- and session-based classification and management of IP traffic.
 - The Cisco ASR 1000 Series Router Application Visibility and Control RTU license (FLASR1-AVC-RTU(=)) enables you to configure NBAR and advanced application awareness on the Cisco ASR 1000 Series Routers or application reporting (visibility) and usage in application control in QoS policies.
 - The Cisco ASR 1000 Series Router Application Visibility and Control Upgrade license (FLASR1-AVC-UPG(=)) enables you to upgrade from your current existing FPI license to the new advanced Application Visibility and Control (AVC) license.
 - The Cisco Insight reporting RTU license ((FLASR1-NSIGHT-RTU(=)) is a complementary external software component to the Cisco ASR 1000 Series Router Application Visibility and Control RTU license; Cisco Insight is an external web-based reporting tool that you can install on any external generic server that complies to its prerequisites; the license is per Cisco ASR 1000 unit.
- Cisco IOS Software redundancy: The Cisco ASR 1000 Series Router software redundancy requires an RTU license (FLASR1-IOSRED-RTU(=) on ASR 1002; and FLSASR1-IOSRED(=) on ASR 1001, ASR 1001-X, and ASR 1002-X), which allows you to enable software redundancy on the Cisco ASR 1001, ASR 1002, ASR 1001-X, ASR 1002-X, and ASR 1004 chassis. Software redundancy requires 4-GB DRAM on the RP1, and 8-GB DRAM on the ASR 1001 or ASR 1002-X. The Cisco ASR 1001, ASR 1002, and ASR 1002-X come by default with 4-GB DRAM on the built-in route processor, and the ASR 1001-X comes by default with 8-GB DRAM.

Cisco ONE

Cisco ONE is a new software subscription model that allows you to transfer software from one generation to the next, provided you pay a 15-percent yearly Cisco Software Support Service (SWSS) charge. This subscription model offers software portability and lowers customer total cost of ownership (TCO). The SWSS charge is applied only to the Cisco ONE software suite. Cisco SMARTnet® support is optional.

For more information about Cisco ASR 1000 Cisco ONE, please visit:

<http://ecm-link.cisco.com/ecm/view/objectId/090dcae185afc624/versionLabel/CURRENT>.

Cisco ONE comprises hardware and software PIDs. When you enter a hardware PID beginning with “C1-”, you need to then configure the Foundation and/or AUC suites (refer to Tables 15 and 16).

Table 15. Hardware PIDs

PID	Description	US List Price
C1-ASR1001-X/K9	Cisco1 ASR1001-X Chassis, IPBase, APIC EM, APIs	\$22,000
C1-ASR1002-X/K9	Cisco1 ASR1002-X Chassis, IPBase, APIC EM, APIs	\$38,000
C1-ASR1004/K9	Cisco1 ASR1004 Chassis, IPBase, APIC EM, APIs	\$10,000

PID	Description	US List Price
C1-ASR1006/K9	Cisco1 ASR1006 Chassis, IPBase, APIC EM, APIs	\$21,000
C1-ASR1013/K9	Cisco1 ASR1013 Chassis, IPBase, APIC EM, APIs	\$23,000

Table 16. Software PIDs

PID	Description	US List Price
C1F1PASR1K9	Cisco1 FND Perpetual Suite AES IPSec FW AVC Prime	\$17,500
C1AUPASR1K9	Cisco1 AUC Perpetual AES CUBE Ent 100 Session	\$9,950
C1AUPASR1100RK9	Cisco1 AUC Perpetual AES CUBE Ent 100 Ssn Redund Upgrade	\$12,935
C1AUPASR1500SK9	Cisco1 AUC Perpetual AES CUBE Ent 500 Session Upgrade	\$49,750
C1AUPASR1500RK9	Cisco1 AUC Perpetual AES CUBE Ent 500 Ssn Redund Upgrade	\$64,675
C1AUPASR11KSK9	Cisco1 AUC Perpetual AES CUBE Ent 1k Session Upgrade	\$99,500
C1AUPASR11KRK9	Cisco1 AUC Perpetual AES CUBE Ent 1k Ssn Redund Upgrade	\$129,350
C1AUPASR14KSK9	Cisco1 AUC Perpetual AES CUBE Ent 4k Session Upgrade	\$240,000
C1AUPASR14KRK9	Cisco1 AUC Perpetual AES CUBE Ent 4k Ssn Redund Upgrade	\$312,000
C1AUPASR116KSK9	Cisco1 AUC Perpetual AES CUBE Ent 16k Session Upgrade	\$400,000
C1AUPASR116KRK9	Cisco1 AUC Perpetual AES CUBE Ent 16k Ssn Redund	\$520,000

Broadband and Service Provider Wi-Fi Service

You must order an RTU license to enable Broadband, Service Provider Wi-Fi (SP Wi-Fi), Intelligent Services Gateway (ISG), and Intelligent Wireless Access Gateway (iWAG) applications on the Cisco ASR 1000 Series Router. The **FLASR1-BB-RTU(=)** license allows you to enable Broadband, SP Wi-Fi, ISG, and iWAG applications for up to 500 sessions. To increase the number of sessions, you must order one or more number-of-sessions licenses. Part numbers for these licenses follow:

- FLASR1-BB-4K(=)
- FLASR1-BB-16K(=)
- FLASR1-BB-32K(=)
- FLASR1-BB-48K(=)
- FLASR1-BB-64K(=)

For example, the FLASR1-BB-4K(=) license allows you to enable up to 4,000 sessions (+500 from RTU), whereas the FLASR1-BB-64K(=) license allows you to enable up to 64,000 (+500 from RTU) sessions.

- You can combine multiple session licenses for the session count desired; for example, you can purchase two 4,000-session licenses for 8,000 additional sessions, and you can combine a 16,000-session license with a 4,000-session license for 20,000 additional sessions.
- The maximum number of sessions supported with a particular Cisco ASR1000 RP-ESP combination depends on the features enabled with those sessions. Please refer to the Broadband scaling document for further details:
http://www.cisco.com/en/US/docs/routers/asr1000/configuration/guide/chassis/scaling_ps9343_TSD_Products_Configuration_Guide.html - wp1115111.

Cisco ASR 1000 Broadband Bundles are created to provide ordering convenience. Depending on the number of users supported, you can choose the following bundles:

- Part number ASR1006-10G-B16/K9: Supports 16,000 sessions
- Part number ASR1006-10G-B24/K9: Supports 24,000 sessions
- Part number ASR1K6R2-20G-B32/K9: Supports 32,000 sessions

Note: For Cisco ASR 1000 Series bundles, please refer to the Cisco ASR 1000 Series Price List or contact your local Cisco representative.

Features sets provided in the above bundles include:

- LAC and LNS: For Layer 2 Tunneling Protocol access concentrator (LAC) and L2TP Network Server (LNS) functions, sessions are counted as the number of Point-to-Point Protocol (PPP) sessions. The numbers of Layer 2 Tunneling Protocol (L2TP) tunnels are not counted as sessions and do not require an additional license. L2TS: For L2TP Tunnel Switch (L2TS) functions, session licenses required are based on the number of L2TP tunnels being switched. For example, if the Cisco ASR 1000 Series Router is used to switch 8,000 L2TP tunnels, you must order two 4,000-session licenses (FLASR1-BB-4K(=)).
- ISG: The ISG feature set is covered under the Broadband RTU license. Session licenses apply similar to LAC and LNS based on PPP or IP over Ethernet (IPoE) sessions being enabled.
- PMIPv6 MAG: The PMIPv6 MAG feature set is covered under the Broadband RTU license. Session licenses are required in addition, based on the number of subscribers tunneled using PMIPv6.
- iWAG: The iWAG feature set is covered under the Broadband RTU license. Session licenses are required in addition, based on the number of subscribers supported by iWAG. The number of tunnels coming in and out of the Cisco ASR 1000 as iWAGs are not counted toward the sessions or licenses. For example, if the Cisco ASR 1000 Series Router is aggregating 8,000 subscribers, then you must order two 4,000-session licenses (FLASR1-BB-4K(=)). In cases where the ISG Walk-By subscriber management feature is used, the required session count is based only on the maximum number of active subscriber sessions being supported.
- Per-Subscriber Firewall: The Cisco ASR 1000 Series Router per-subscriber or per-user firewall service requires both an RTU license (FLA SR1-FW-RTU(=)) and one or more session licenses.

Services that require only number-of-sessions licenses follow:

- Cisco Unified Border Element (SP Edition) service: Cisco Unified Border Element (SP Edition) is a highly scalable, carrier-grade SBC integrated into Cisco ASR 1000 Series Routers.
 - Cisco Unified Border Element (SP Edition) licenses authorize the use of both distributed and unified SBC deployment models.
 - For the purpose of session license ordering, an SBC session is a bidirectional media flow and associated signaling. A session represents a complete voice call through the SBC: two call legs consisting of two media legs for a bidirectional media flow and associated signaling on both call legs.

A videophone call uses two sessions: one session for a bidirectional media flow and associated signaling (as in a voice call) and one more session for the second bidirectional media flow for video.

An instant messaging session consists of signaling between two endpoints through the SBC; there is typically no associated media.

- You can combine multiple session licenses for the session count desired. Part numbers for these licenses follow:

- FLASR1-CUBES-250P(=)
- FLASR1-CUBES-2KP(=)
- FLASR1-CUBES-4KP(=)
- FLASR1-CUBES-16KP(=)
- FLASR1-CUBES-32KP(=)
- FLASR1-CUBES-LAB(=)
- FLASR1-CUBES-TPEX(=)

When using an ACTIVE/STANDBY pair of routers, a single license for both is required for redundancy:

- CUBESP-250P-RED (=)
- CUBESP-2K-RED (=)
- CUBESP-4K-RED (=)
- CUBESP-10K-RED (=)
- CUBESP-16K-RED (=)
- CUBESO-32K-RED (=)
- CUBESP-TPEX-RED (=)

- Cisco Unified Border Element (Enterprise Edition) service: For this service the SBC functions are integrated into Cisco ASR 1000 Series Routers. Cisco Unified Border Element (Enterprise Edition) licenses authorize the use of SBC for enterprise deployments. These licenses are session-count-based licenses.

- Part numbers for these licenses follow:

- FLASR1-CUBEE-100P
- FLASR1-CUBEE-100P=
- FLASR1-CUBEE-500P
- FLASR1-CUBEE-500P=
- FLASR1-CUBEE-1KP
- FLASR1-CUBEE-1KP=
- FLASR1-CUBEE-4KP
- FLASR1-CUBEE-4KP=
- FLASR1-CUBEE-16KP
- FLASR1-CUBEE-16KP=

- When using an ACTIVE/STANDBY pair of routers, a single license for both is required for redundancy:

- FLASR1-CUBEE-100R
- FLASR1-CUBEE-100R=
- FLASR1-CUBEE-500R
- FLASR1-CUBEE-500R=
- FLASR1-CUBEE-1K-R
- FLASR1-CUBEE-1K-R=

- FLASR1-CUBEE-4K-R
- FLASR1-CUBEE-4K-R=
- FLASR1-CUBEE-16K-R
- FLASR1-CUBEE-16K-R=

Note: For Cisco ASR 1000 demo licenses to test the Cisco ASR 1000 (ASR 1001, ASR 1001-X, ASR 1002, ASR 1002-X, ASR 1004, ASR 1006, and ASR 1013) in the lab, please contact your local Cisco representative.

Note: No feature license is required to run Cisco Overlay Transport Virtualization (OTV), Virtual Private LAN Services (VPLS), or LISP on Cisco ASR 1000 Series.

Ordering Cisco ASR 1001, ASR 1001-X, and ASR 1002-X Series Feature Licenses

In order to turn on services on the Cisco ASR 1001, ASR 1001-X, or ASR 1002-X Router, software feature licenses are required as on the other Cisco ASR 1000 Series Routers (part numbers ASR1002, ASR1004, ASR1006, and ASR1013).

However, with the Cisco ASR 1001, ASR 1001-X, and ASR 1002-X, the concept of a universal software image and a feature license to enable and enforce a certain feature set through a license (referred to as a technology package license) is introduced.

The technology package licenses as well as the performance upgrade license to upgrade from 2.5 to 5 Gbps on the Cisco ASR 1001 are enforced through a PAK prior to Cisco IOS XE Software Release 3.6S. All the other feature licenses that are required on the rest of the Cisco ASR 1000 Series are also required on the Cisco ASR 1001, but those licenses are all honor-based; that is, there is no enforcement. For ASR 1001-X and ASR 1002-X, all licenses, including technology package licenses, performance upgrade licenses from 2.5 to 5, 10, or 20 Gbps (on ASR 1001-X) and 5 to 10, 20, or 36 Gbps (on ASR 1002-X), are honor-based.

- Please note, though, that for the feature licenses on the Cisco ASR 1001, you must order different part numbers for the same type of functions. All the Cisco ASR 1001 feature set license part numbers are listed on the Cisco ASR 1000 Series Price List.

Following is also an example related to the part numbers: If you want to deploy firewall on a Cisco ASR 1001, ASR 1001-X, or ASR 1002-X, you must order part number FLSASR1-FW when you purchase the router.

The part number for deployment of firewall on the other Cisco ASR 1000 chassis (part numbers ASR1002, ASR1004, ASR1006, and ASR1013) is FLASR1-FW-RTU.

If you want to upgrade to firewall after the time of purchase of the router, for the Cisco ASR 1001, ASR 1001-X, or ASR 1002-X you must order either part number FLSASR1-FW= or L-FLSASR1-FW=.

For the other Cisco ASR 1000 chassis (part numbers ASR1002, ASR1004, ASR1006, ASR 1006-X, ASR 1009-X, and ASR1013), you must order part number FLASR1-FW-RTU. All of the Cisco ASR 1001 and ASR 1002-X feature license part numbers are listed on the Cisco ASR 1000 Price List.

If a customer needs to purchase a Cisco ASR 1001, ASR 1001-X, or ASR 1002-X spare license (for example, for a technology package upgrade from IP Base to Advanced Enterprise Services, for a performance upgrade from 2.5 to 5 Gbps on the Cisco ASR 1001 chassis, or for a feature that requires a license and the license was not purchased at the time of order), two types of spare licenses are available. The SLASR1-xxx= license provides a

PAK or license file with paper delivery, and the L-SLASR1-xxx= license provides a PAK or license file through e-delivery.

- The spares can also be purchased as a “multiuse PAK”, by ordering either SLFL-ASR1= (for paper delivery) or L-SLFL-ASR1= (for e-delivery).

Note: For Cisco ASR 1001 demo licenses to test the Cisco ASR 1001 in the lab, please contact your local Cisco representative.

Ordering Cisco ASR 1000 Series Bundles

Numerous Cisco ASR 1000 bundle part numbers are available to ease the ordering process. All bundles come by default with dual power supplies and power cable (if AC power supply is chosen), an ESP, a route processor module, and a SIP. The ESP, route processor, or SIP is either fixed in the chassis or added as a default component to the bundle, depending on the type of chassis.

All bundles are in general further configurable and related to hardware components:

- Additional route processor and ESP (applicable only to the Cisco ASR 1006 and ASR 1013 bundles)
- Additional SIP (applicable only to Cisco ASR 1004, ASR 1006, and ASR 1013 bundles)
- SPAs
- Additional feature licenses
- Dual AC or DC power supplies
- Type of power cord
- USB flash memory

Following are the categories of Cisco ASR 1000 bundles:

- Base bundles: No feature license included
- HA bundles: Software redundancy license for Cisco ASR 1002, ASR 1001-X, ASR 1002-X, and ASR 1004, or redundant route processors and ESPs for Cisco ASR 1006 and ASR 1013
- VPN bundles: IPsec license
- Security bundles: IPsec and firewall licenses
- FPI bundles: Cisco IOS Flexible Packet Inspection license
- SHA (Security + HA) bundles: IPsec, firewall, FPI, and software redundancy license for Cisco ASR 1002, ASR 1002-X, and ASR 1004, or redundant route processors and ESPs for Cisco ASR 1006 and ASR 1013
- Broadband bundles: Broadband RTU license (covers up to 500 broadband sessions) and broadband session licenses

The Cisco IOS XE Software in the Cisco ASR 1000 bundles is not configurable. In general the bundles come with the latest Cisco IOS XE Software release, but it is subject to change without further notice.

All Cisco ASR 1000 bundles except the broadband bundles come with the AESK9 consolidated package; the broadband bundles come with the AISK9 consolidated package.

Note: For the Cisco ASR 1001, ASR 1001-X, and ASR 1002-X, one universal software image and one technology package license is included in the bundle. For example, the “equivalent” of the software image AESK9 on the Cisco ASR 1002, ASR 1004, ASR 1006, and ASR 1013 is obtained for the Cisco ASR 1001 or ASR 1002-X with the UK9 universal image and the Advanced Encryption Standard (AES) technology package license.

Please go to the “Ordering Information” section of this document for the complete listing of available bundles.

Configuration Examples

The following examples describe the products you need for certain network deployments, and they list the part numbers to order.

Note: These examples are not exhaustive, and you should not follow them exactly as presented. You should customize your order based on your needs.

Example 1: Cisco ASR 1000 Series Router for Application Experience (ASR1000-AX)

The ASR 1000-AX bundles offer optimal application experience from anywhere. Cisco is enabling customers to deploy application-centric networking, designed to help IT deliver applications from anywhere the business requires, with an optimal user experience that results in greater employee productivity and customer satisfaction.

- Your business applications can run faster: We work with leading application vendors to tune their applications to run more efficiently on a Cisco network, automatically... reducing bandwidth by up to 70 percent and supporting more sessions and a better user experience. The business investment on mission-critical applications will be more productive with Cisco, giving a better return on their investment (ROI).
- IT gains pervasive visibility to more than 1000 apps across the network, without expensive or difficult-to-deploy probes that are often deployed in selective areas of the network: Thus IT can quickly answer why an application is running slowly, validate service-level agreements (SLAs), and verify the ROI on network services.

All of these benefits are available at **lower TCO**, with lower operating expenses (OpEx) for maintenance and troubleshooting.

The ASR 1000 Application Experience (AX) bundles consist of the following items:

- AVC license with NBAR2 DPI, Flexible NetFlow (FNF) and Performance Monitoring
- AppNav for WAN optimization
- Option to purchase heavily discounted Cisco Virtual Wide Area Application (vWAAS) licenses, to be run on a standalone server

Table 17 lists the part numbers associated with the new Cisco ASR 1000-AX offering.

Table 17. Cisco ASR 1000 Series Router for Application Experience

Part Number	Product Description	Quantity
ASR1001-5G-AES-AX	ASR1001 AX, AVC, AES, 5G, vWAAS, Bundle	1
ASR1001-5G-AIS-AX	ASR1001 AX, AVC, AIS, 5G, vWAAS, Bundle	1
ASR1002X-AES-AX	ASR1002X AX, AVC, AES, vWAAS Bundle	1
ASR1002X-AIS-AX	ASR1002X AX, AVC, AIS, vWAAS Bundle	1
FLASR1-AX-IPB-AES	Cisco ASR 1000 Series IP BASE to ADV ENT SERVICES Upg For AX	1
FLASR1-AX-IPB-AIS	Cisco ASR 1000 Series IP BASE to ADV IP SERVICES Upg For AX	1

Part Number	Product Description	Quantity
SLASR1-1AX-5G-AES=	ASR1001 AX Upg with AVC, AES, 5G Upgrade License	1
SLASR1-1AX-5G-AIS=	ASR1001 AX Upg with AVC, AIS, 5G Upgrade License	1
SLASR1-1AX-5G=	ASR1001 AX Upg with AVC and 5G Upgrade License	1
SLASR1-1AX-AES=	ASR1001 AX Upg with AVC, AES Licenses	1
SLASR1-1AX-AIS=	ASR1001 AX Upg with AVC, AIS Licenses	1
SLASR1-2XAX-AES=	ASR1002X AX Upg with AVC, AES Licenses	1
SLASR1-2XAX-AIS=	ASR1002X AX Upg with AVC, AIS Licenses	1
SLASR1-2XAX-AVC=	ASR1002X AX Upg with AVC	1
FLASR1-AX-VWAAS12K	Cisco ASR 1000 Series vWAAS License with 12K sessions	1
FLASR1-AX-VWAAS50K	Cisco ASR 1000 Series vWAAS License with 50K sessions	1

Table 18 lists the part numbers associated with the Cisco ASR 1000 Series Router bundles. Note that with each of the bundles, Cisco is providing the option to purchase discounted vWAAS licenses (FLASR1-AX-VWAAS12K and FLASR1-AX-VWAAS50K).

Table 18. Cisco ASR 1000 Series Router Bundles for Application Experience

Part Number	Product Description	Quantity
ASR1001-5G-AES-AX	ASR1001 AX, AVC, AES, 5G, vWAAS, Bundle, includes:	
	ASR1001	1
	SLASR1-AES	1
	FLS-ASR1001-5G	1
	FLSASR1-AVC	1
ASR1001-5G-AIS-AX	ASR1001 AX, AVC, AIS, 5G, vWAAS, Bundle, includes:	
	ASR1001	1
	SLASR1-AIS	1
	FLS-ASR1001-5G	1
	FLSASR1-AVC	1
ASR1002X-AES-AX	ASR1002X AX, AVC, AES, vWAAS Bundle, includes:	
	ASR1002-X	1
	SLASR1-AES	1
	FLSASR1-AVC	1
ASR1002X-AIS-AX	ASR1002X AX, AVC, AIS, vWAAS Bundle, includes:	
	ASR1002-X	1
	SLASR1-AES	1
	FLSASR1-AVC	1

Following is a walk-through example of an AX upgrade license using the Cisco Dynamic Configuration Tool found at: <https://apps.cisco.com/qtc/config/jsp/configureHome.jsp>.

Step 1. Enter SLASR1-2XAX-AES= in the Dynamic Configuration Tool homepage and select the AX upgrade license.

Cisco Dynamic Configuration Tool

Dynamic Configuration Tool (DCT) is scheduled to retire in September 2013.

Use [Cisco Commerce Workspace \(CCW\)](#) as your integrated workspace to register deals, quote, configure, price, and order products, software, and services.

For CCW information and training materials, visit [Partner Central](#) or [Distribution Central](#). Questions? Please contact your Account Manager or [Cisco Customer Service](#).

Product Search

☐ Enable Configuration Guidance
[Tell Me About Configuration Guidance](#)

Search by: Enter Product Number

Product Number: **SLASR1-2XAX-AES=**

Price List: Global Price List US Availability

Search

Step 2. Select the Options tab and click “ASR1K AX vWAAS Bundle Options”.

Cisco Configuration Tool

Configure

Configuration Details | **Select Options** | Enter Options | Classic Menu Option

SLASR1-2XAX-AES=
ASR1002X AX Upg with AVC, AES Licenses

To add options, select item category on the left, then select options from the list displayed on the right.

Use the [Cisco Feature Navigator](#) for software selection assistance.

[View My Selections](#)

[Configuration Guidance](#) OFF
[Enable Error Correction](#) ☒

STEP 1: Select Item Category **STEP 2: Choose Options and Select Desired Quantity Below**

ASR1K AX vWAAS Bundle Options	Quantity	Option Name	Price
<input checked="" type="checkbox"/>	1	FLASR1-AX-VWAAS12K ASR VWAAS 12K Bundle	USD 10,600.00
<input type="checkbox"/>	0	FLASR1-AX-VWAAS50K ASR VWAAS 50K Bundle	USD 21,000.00

Step 3. [Optional] Select the quantity and type of the vWAAS license bundle to be purchased with the bundle.

Cisco Configuration Tool

Configure

Configuration Details | **Select Options** | Enter Options | Classic Menu Option

SLASR1-2XAX-AES=
ASR1002X AX Upg with AVC, AES Licenses

To add options, select item category on the left, then select options from the list displayed on the right.

Use the [Cisco Feature Navigator](#) for software selection assistance.

[View My Selections](#)

[Configuration Guidance](#) OFF
[Enable Error Correction](#) ☒

STEP 1: Select Item Category **STEP 2: Choose Options and Select Desired Quantity Below**

ASR1K AX vWAAS Bundle Options	Quantity	Option Name	Price
<input type="checkbox"/>	0	FLASR1-AX-VWAAS12K ASR VWAAS 12K Bundle	USD 10,600.00
<input type="checkbox"/>	0	FLASR1-AX-VWAAS50K ASR VWAAS 50K Bundle	USD 21,000.00

Step 4. Click “Check Configuration” to see the selected configuration.

Cisco Configuration Tool

Configure

You are logged in as:

Configuration Details | **Select Options** | Enter Options | Classic Menu Option

Get Saved Configs | LogOut | HELP

SLASR1-2XAX-AES=

ASR1002X AX Upg with AVC, AES Licenses

To add options, select item category on the left, then select options from the list displayed on the right.

Use the [Cisco Feature Navigator](#) for software selection assistance.

[View My Selections](#)

[Configuration Guidance](#) OFF

[Enable Error Correction](#) ☒

STEP 1: Select Item Category | **STEP 2: Choose Options and Select Desired Quantity Below**

ASR1K AX VWAAS Bundle Options	Quantity	Option Name	Price
<input checked="" type="checkbox"/> 1	FLASR1-AX-VWAAS12K	USD 10,600.00	
	ASR VWAAS 12K Bundle		
<input type="checkbox"/> 0	FLASR1-AX-VWAAS50K	USD 21,000.00	
	ASR VWAAS 50K Bundle		

Delete All | New Configuration | Save | **Check Configuration**

Step 5. The selected configuration with the price is as shown in the following screenshot.

Cisco Configuration Tool

Completed Configuration

You are logged in as:

Configurator Home | Get Saved Configs | LogOut | HELP

You have successfully completed your configuration!

Price List: Global Price List US Availability

Service Level: No Service

Service Length: N/A

[Change BID](#) | [Update](#)

Show Discount: ☒ Yes ☐ No

Product Number and Description	% Discount	Qty	Estimated Price	Estimated Lead Time
SLASR1-2XAX-AES=	0.0	1	N/A	
ASR1002X AX Upg with AVC, AES Licenses				
FLASR1-AX-VWAAS12K	0.0	1	USD 10600.00	
ASR VWAAS 12K Bundle				
Included: FLASR1-AX-IPB-AES	0.00	1	USD 0.00	
Cisco ASR 1000 Series IP BASE to ADV ENT SERVICES Upg For AX				
Included: FLSASR1-AVC	0.00	1	USD 0.00	
Appl. Visibility and Control License for ASR1000 Series				

Estimated Lead Time: **Estimated Price:** USD 10600.0

Email Configuration | Print | Download | Apply Discount | New Configuration | Edit Configuration | Save

Example 2: Cisco ASR 1000 Series Router as a Broadband Aggregation Router

In this example, a Cisco ASR 1000 Series Router is used for broadband aggregation, such as a Point-to-Point Termination and Aggregation (PTA) device or as a(n):

- IP-over-Ethernet (IPoE) broadband remote access server
- LAC
- LNS
- L2TS

A 6RU chassis (Cisco ASR 1006) with redundant RP2s and 20-Gbps ESPs is configured in order to achieve five-nines availability. The Cisco ASR 1000 Series RP2 comes by default with an 80-GB hard disk. You should select RP2 16-GB DRAM memory (part number M-ASR1K-RP2-16GB). Additional memory is required when the broadband RTU license (part number FLASR1-BB-RTU) is selected with RP2 (part number ASR1000-RP2). You need three SIP cards to host two double-height, 10 Gigabit Ethernet SPA cards and four single-height, 8-Gigabit Ethernet SPA cards.

The Cisco IOS XE Advanced IP Services consolidated package facilitates broadband and Multiprotocol Label Switching (MPLS) features on the router.

A 32,000-subscriber broadband number-of-sessions license and the broadband RTU license allow you to scale up to 32,000 subscribers on the system.

Table 19 lists the part numbers to order for this scenario.

Table 19. Cisco ASR 1000 Series Router as a Broadband Aggregation Router

Part Number	Product Description	Quantity
ASR1006	Cisco ASR1006 Chassis, Dual P/S	1
ASR1006-PWR-AC	Cisco ASR1006 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
ASR1000-RP2	Cisco ASR1000 Route Processor 2, 8GB DRAM	2
M-ASR1K-RP2-16GB	Cisco ASR1000 RP2 16GB DRAM	2
M-ASR1K-HDD-80GB	Cisco ASR1000 RP2 80GB HDD	2
ASR1000-ESP20	Cisco ASR1000 Embedded Services Processor, 20Gbps	2
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10	3
SPA-1X10GE-L-V2	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter	2
XFP-10GLR-OC192SR	Multirate XFP module for 10GBASE-LR and OC192 SR-1	2
SPA-8X1GE-V2	Cisco 8-Port Gigabit Ethernet Shared Port Adapter	4
SFP-GE-L	1000BASE-LX/LH SFP (DOM)	32
SASR1R2-AISK9-23	Cisco ASR1000 Series RP2 Advanced IP SERVICES	1
FLASR1-BB-RTU	Broadband Right-To-Use with 500 BB Sessions Lic for ASR1000	1
FLASR1-BB-32K	Broadband 32K Sessions Feature License for ASR1000 Series	1

Following is a walk-through using the Cisco Dynamic Configuration Tool found at:

<https://apps.cisco.com/qtc/config/jsp/configureHome.jsp>.

Step 1. Enter ASR1006 in the config tool homepage and select the Search button.

Cisco Dynamic Configuration Tool

You are logged in as: BROOKEXX

Set Defaults Get Saved Configs LogOut HELP

Product Search

Search by: Enter Product Number

Product Number: ASR1006

Price List: Global Price List in US Dollars

Search

Resources: [Getting Started](#), [Quick Tips](#), [News & Enhancements](#), [Cisco Feature Navigator](#)

Step 2. At the next screen select the Select Options tab.

Cisco Configuration Tool

You are logged in as: BROOKEXX

Configure Home Get Saved Configs LogOut HELP

Configurations Details: Select Options Enter Options Classic Menu Option

ASR1006
Cisco ASR1006 Chassis, Dual P/S

Your configuration details are shown below. You can print, save, or check configuration.

Configuration Guidance OFF
Enable Error Correction ☒

Product Number and Description	Estimated List Price	Qty.	Estimated Lead Time	Status
ASR1006 Cisco ASR1006 Chassis, Dual P/S	USD 16,000.00	1	21 Days	Unconfigured

Step 3.

2. Select ASR1006 Power Option.
3. Select ASR1006-PWR-AC.

Cisco Configuration Tool

You are logged in as: BROOKEXX

Configure Home Get Saved Configs LogOut HELP

Configuration Details Select Options Enter Options Classic Menu Option

ASR1006
Cisco ASR1006 Chassis, Dual P/S

To add options, select item category on the left, then select options from the list displayed on the right.

Use the [Cisco Feature Navigator](#) for software selection assistance.

STEP 1: Select Item Category

- ASR1000 Embedded Services Processor Option
- ASR1000-RP Slot 0
- ASR1000-RP Slot 1
- SIP Slot 0
- SIP Slot 1
- SIP Slot 2
- ASR1000 RP1 Software Option
- ASR1000 RP2 Software Option
- ASR1000 Managed Services Software Option
- ASR1000 Licenses Option
- ASR1006 Power Option**
- ASR1006 Power Cables Option
- USB Flash Option

STEP 2: Choose Options and Select Desired Quantity Below

None Selected

- (2) **ASR1006-PWR-AC** USD 0.00
Cisco ASR1006 AC Power Supply
- (2) ASR1006-PWR-DC USD 0.00
Cisco ASR1006 DC Power Supply
- (2) ASR1013/06-PWR-AC USD 0.00
Cisco ASR1000 1600w AC Power Supply
- (2) ASR1013/06-PWR-DC USD 0.00
Cisco ASR1000 1600w DC Power Supply

Step 4.

1. Select ASR1006 Power Cables Option.
2. Select the appropriate power cable.

Cisco Configuration Tool

Cisco Home RPM Login Profile

You are logged in as: BROOKEXX

Configurator Home Get Saved Configs LogOut HELP

Configuration Details Select Options Enter Options Classic Menu Option

ASR1006
Cisco ASR1006 Chassis, Dual P/S
To add options, select item category on the left, then select options from the list displayed on the right.
Use the [Cisco Feature Navigator](#) for software selection assistance.

[View My Selections](#)
[Configuration Guidance](#) OFF
[Enable Error Correction](#) ☒

STEP 1: Select Item Category

- ASR1000 Embedded Services Processor Option
 - ASR1000-RP Slot 0
 - ASR1000-RP Slot 1
 - SIP Slot 0
 - SIP Slot 1
 - SIP Slot 2
 - ASR1000 RP1 Software Option
 - ASR1000 RP2 Software Option
 - ASR1000 Managed Services Software Option
 - ASR1000 Licenses Option
 - ASR1006 Power Option**
 - ASR1006 Power Cables Option**
 - USB Flash Option

STEP 2: Choose Options and Select Desired Quantity Below

Quantity	Option	Price
(2)	CAB-1900W-INT Power Cord, 250VAC 16A, Right Angle C19, IEC 309 Plug, INTL	USD 0.00
(2)	CAB-9K20A-NA Power Cord, 125VAC 20A NEMA 5-20 Plug, North America/Japan	USD 0.00
(2)	CAB-1900W-US2 Power Cord, 250VAC 20A, Right Angle C19, NEMA L6-20 Plug, US	USD 0.00
(2)	CAB-1900W-EU	USD 0.00

Step 5.

1. Select ASR1000-RP Slot 0 and it should expand.
2. Select ASR1000-RP2.

Cisco Configuration Tool

Cisco Home RPM Login Profile

You are logged in as: BROOKEXX

Configurator Home Get Saved Configs LogOut HELP

Configuration Details Select Options Enter Options Classic Menu Option

ASR1006
Cisco ASR1006 Chassis, Dual P/S
To add options, select item category on the left, then select options from the list displayed on the right.
Use the [Cisco Feature Navigator](#) for software selection assistance.

[View My Selections](#)
[Configuration Guidance](#) OFF
[Enable Error Correction](#) ☒

STEP 1: Select Item Category

- ASR1000 Embedded Services Processor Option
 - ASR1000-RP Slot 0**
 - ASR1000-RP1
 - ASR1000-RP2**
 - ASR1000-RP Slot 1
 - SIP Slot 0
 - SIP Slot 1
 - SIP Slot 2
 - ASR1000 RP1 Software Option
 - ASR1000 RP2 Software Option
 - ASR1000 Managed Services Software Option
 - ASR1000 Licenses Option
 - ASR1006 Power Option
 - ASR1006 Power Cables Option
 - USB Flash Option

STEP 2: Choose Options and Select Desired Quantity Below

Quantity	Option	Price
(1)	ASR1000-RP2 Cisco ASR1000 Route Processor 2, 8GB DRAM	USD 24,000.00

1. Select ASR1000-RP Slot 1 and it should expand.
2. Select ASR1000-RP2.



1. Select ASR1000-RP Slot 0.
2. Select ASR1000-RP2.
3. Select ASR1000 Route Processor 2 Memory.
4. Select M-ASR1K-RP2-16GB.



Step 8.

1. Select ASR1000-RP Slot 1.
2. Select ASR1000-RP2.
3. Select ASR1000 Route Processor 2 Memory.
4. Select M-ASR1K-RP2-16GB.

Cisco Configuration Tool

CISCO Configure

You are logged in as: BROOKEXX

Configurator Home Get Saved Configs LogOut HELP

Configuration Details Select Options Enter Options Classic Menu Option

ASR1006
Cisco ASR1006 Chassis, Dual P/S
To add options, select item category on the left, then select options from the list displayed on the right.
Use the [Cisco Feature Navigator](#) for software selection assistance.

[View My Selections](#)
[Configuration Guidance](#) OFF
[Enable Error Correction](#) ☒

STEP 1: Select Item Category **STEP 2: Choose Options and Select Desired Quantity Below**

1 ASR1000 Embedded Services Processor Option

2 ASR1000-RP Slot 0

3 ASR1000-RP Slot 1

4 ASR1000-RP2

ASR1000 Route Processor 2 Memory

ASR1000 Route Processor 2 Disk Drive

SIP Slot 0

SIP Slot 1

SIP Slot 2

ASR1000 RP1 Software Option

ASR1000 RP2 Software Option

ASR1000 Managed Services Software Option

ASR1000 Licenses Option

ASR1006 Power Option

ASR1006 Power Cables Option

USB Flash Option

None Selected

(1) M-ASR1K-RP2-8GB USD 0.00
Cisco ASR1000 RP2 8GB DRAM

(1) M-ASR1K-RP2-16GB USD 11,000.00
Cisco ASR1000 RP2 16GB DRAM

Step 9.

1. Select ASR1000-RP Slot 0.
2. Select ASR1000-RP2.
3. Select ASR1000 Route Processor 2 Disk Drive.
4. Select M-ASR1K-HDD-80GB.

Cisco Configuration Tool

CISCO Configure

You are logged in as: BROOKEXX

Configurator Home Get Saved Configs LogOut HELP

Configuration Details Select Options Enter Options Classic Menu Option

ASR1006
Cisco ASR1006 Chassis, Dual P/S
To add options, select item category on the left, then select options from the list displayed on the right.
Use the [Cisco Feature Navigator](#) for software selection assistance.

[View My Selections](#)
[Configuration Guidance](#) OFF
[Enable Error Correction](#) ☒

STEP 1: Select Item Category **STEP 2: Choose Options and Select Desired Quantity Below**

1 ASR1000 Embedded Services Processor Option

2 ASR1000-RP Slot 0

3 ASR1000-RP2

4 ASR1000 Route Processor 2 Memory

ASR1000 Route Processor 2 Disk Drive

ASR1000-RP Slot 1

SIP Slot 0

SIP Slot 1

SIP Slot 2

ASR1000 RP1 Software Option

ASR1000 RP2 Software Option

ASR1000 Managed Services Software Option

ASR1000 Licenses Option

ASR1006 Power Option

ASR1006 Power Cables Option

USB Flash Option

None Selected

(1) M-ASR1K-HDD-80GB USD 0.00
Cisco ASR1000 RP2 80GB HDD

Step 10.

1. Select ASR1000-RP Slot 1.
2. Select ASR1000-RP2.
3. Select ASR1000 Route Processor 2 Disk Drive.
4. Select M-ASR1K-HDD-80GB.

Cisco Configuration Tool
Configure
You are logged in as: BROOKEXX

Configurator Home Get Saved Configs LogOut HELP

Configuration Details Select Options Enter Options Classic Menu Option

ASR1006
Cisco ASR1006 Chassis, Dual P/S
To add options, select item category on the left, then select options from the list displayed on the right.
Use the [Cisco Feature Navigator](#) for software selection assistance.

[View My Selections](#)
[Configuration Guidance](#) OFF
[Enable Error Correction](#) ☒

STEP 1: Select Item Category STEP 2: Choose Options and Select Desired Quantity Below

ASR1000 Embedded Services Processor Option

1 ☒ ASR1000-RP Slot 1

2 ☒ ASR1000-RP2

3 ☒ ASR1000 Route Processor 2 Disk Drive

4 ☒ M-ASR1K-HDD-80GB

None Selected

USD 0.00

Cisco ASR1000 RP2 80GB HDD

Step 11.

1. Select ASR1000 Embedded Services Processor Option.
2. Select ASR1000-ESP20 and enter a value of 2.

Cisco Configuration Tool
Configure
You are logged in as: BROOKEXX

Configurator Home Get Saved Configs LogOut HELP

Configuration Details Select Options Enter Options Classic Menu Option

ASR1006
Cisco ASR1006 Chassis, Dual P/S
To add options, select item category on the left, then select options from the list displayed on the right.
Use the [Cisco Feature Navigator](#) for software selection assistance.

[View My Selections](#)
[Configuration Guidance](#) OFF
[Enable Error Correction](#) ☒

STEP 1: Select Item Category STEP 2: Choose Options and Select Desired Quantity Below

ASR1000 Embedded Services Processor Option

1 ☒ ASR1000-RP Slot 1

2 ☒ ASR1000-RP2

ASR1000 Route Processor 2 Memory

ASR1000 Route Processor 2 Disk Drive

ASR1000-RP Slot 1

SIP Slot 0

SIP Slot 1

SIP Slot 2

ASR1000 RP1 Software Option

ASR1000 RP2 Software Option

ASR1000 Managed Services Software Option

ASR1000 Licenses Option

ASR1006 Power Option

ASR1006 Power Cables Option

USB Flash Option

None Selected

0 ASR1000-ESP10 USD 27,000.00
Cisco ASR1000 Embedded Services Processor, 10G

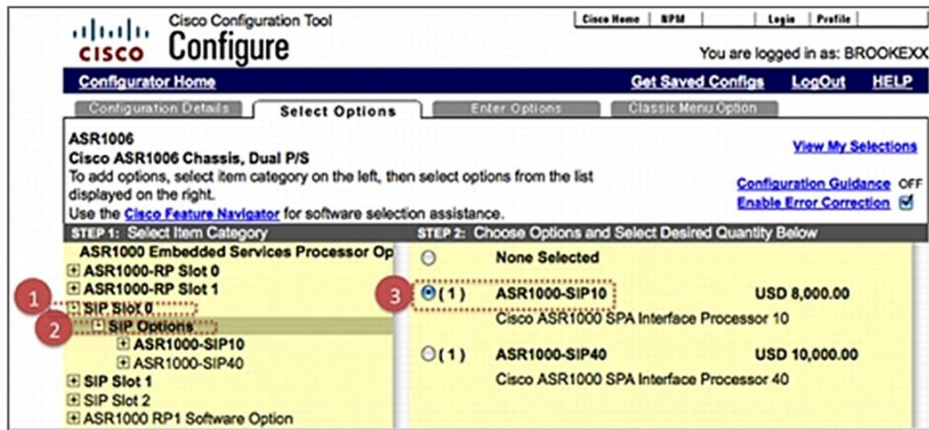
0 ASR1000-ESP10-N USD 27,000.00
Cisco ASR1K Embedded Services Processor, 10G, Non Crypto

2 ASR1000-ESP20 USD 35,000.00
Cisco ASR1000 Embedded Services Processor, 20G

0 ASR1000-ESP40 USD 40,000.00
Cisco ASR1000 Embedded Services Processor, 40G

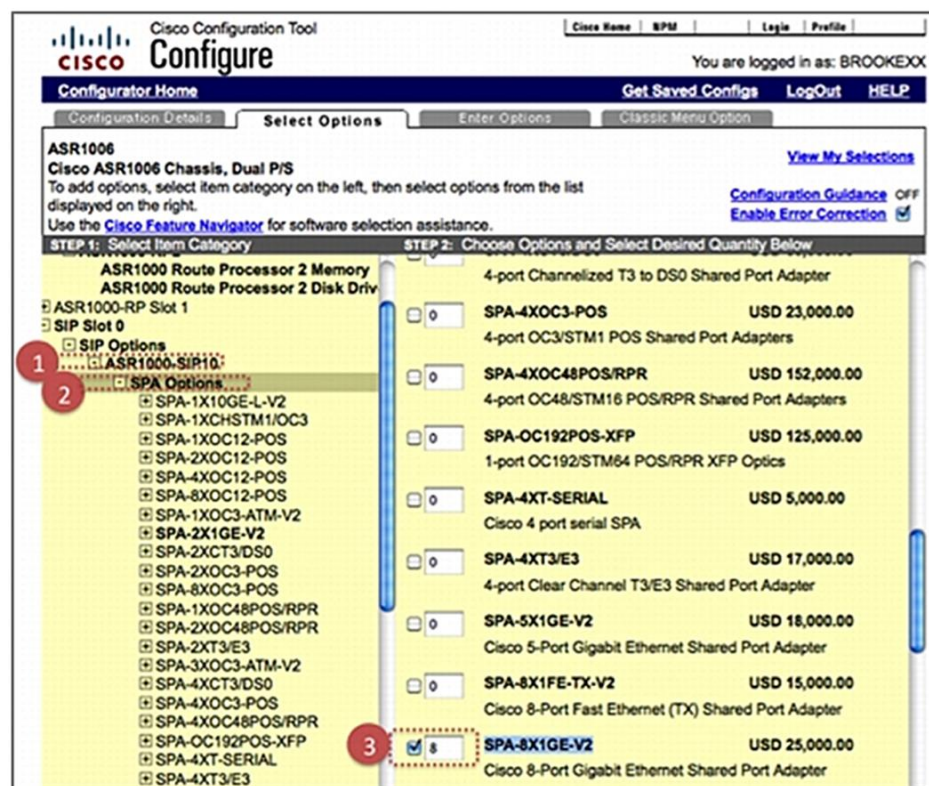
Step 12.

1. Select SIP Slot 0 and it should expand.
2. Select SIP Options.
3. Select ASR1000-SIP10.



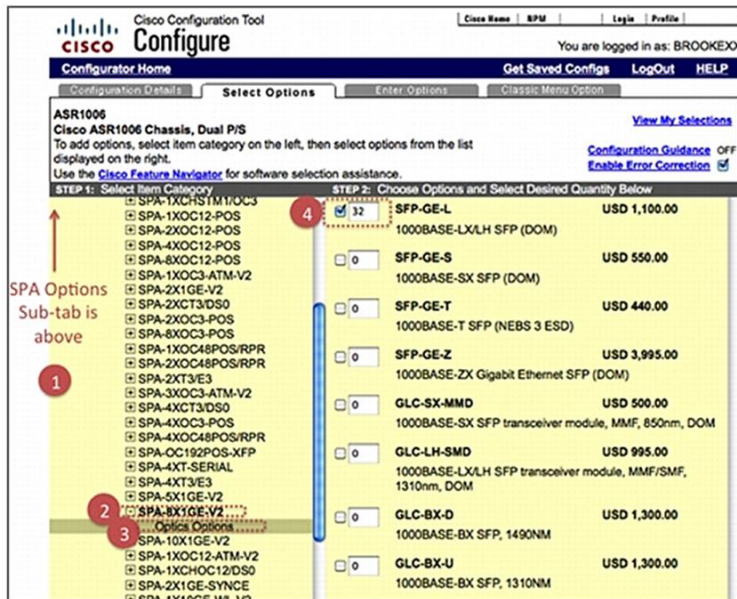
Step 13.

1. Select ASR1000-SIP10.
2. Select SPA Options.
3. Select the type of SPA and enter quantity.



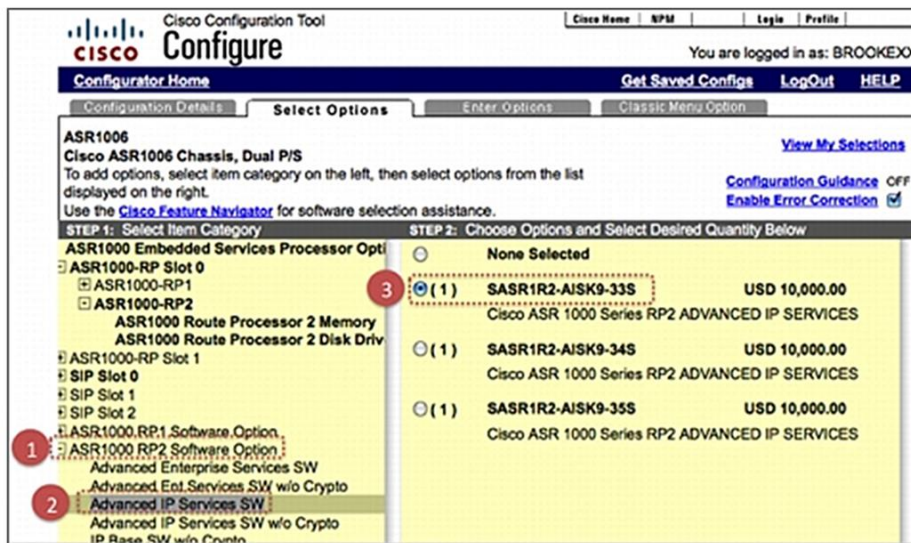
Step 14.

1. You are still under the SPA Options Sub-tab.
2. Select SPA-8X1GE-V2.
3. Select Optics Options.
4. Select SFP-GE-L and enter quantity 32.



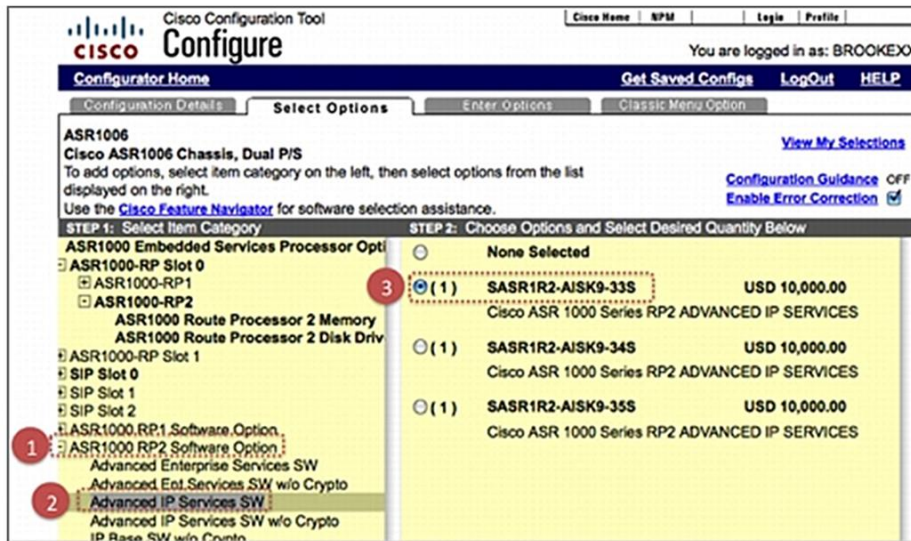
Step 15.

1. Select SIP Slot 1.
2. Select SIP Options.
3. Select ASR1000-SIP10.



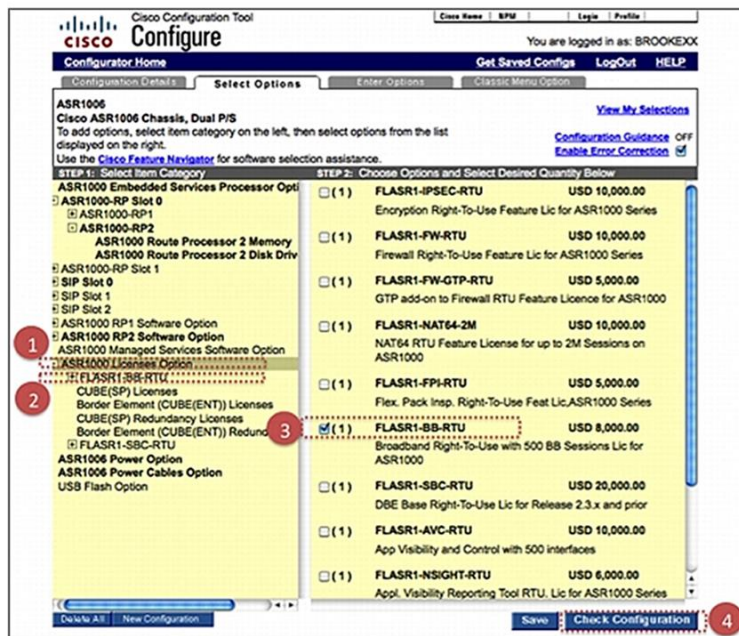
Step 18.

1. Select ASR1000 RP2 Software Option.
2. Select Advanced IP Services SW.
3. Select SASR1R2-AISK9-33S.



Step 19.

1. Select ASR1000 RP2 Software Option.
2. Select ASR1000 Licenses Option.
3. Select FLASR1-BB-RTU.
4. Select Check Configuration.



Step 20. The finished configuration is shown in the following screenshot:

Product Number and Description	% Discount	Qty	Estimated Price	Estimated Lead Time
ASR1006 Cisco ASR1006 Chassis, Dual P/S	0.0	1	USD 16000.00	21 Days
ASR1000-ESP20 Cisco ASR1000 Embedded Services Processor, 20G	0.0	2	USD 70000.00	21 Days
ASR1000-RP2 Cisco ASR1000 Route Processor 2, 8GB DRAM	0.0	1	USD 24000.00	21 Days
M-ASR1K-RP2-16GB Cisco ASR1000 RP2 16GB DRAM	0.0	1	USD 11000.00	21 Days
M-ASR1K-HDD-80GB Cisco ASR1000 RP2 80GB HDD	0.00	1	USD 0.00	21 Days
ASR1000-RP2 Cisco ASR1000 Route Processor 2, 8GB DRAM	0.0	1	USD 24000.00	21 Days
M-ASR1K-RP2-16GB Cisco ASR1000 RP2 16GB DRAM	0.0	1	USD 11000.00	21 Days
M-ASR1K-HDD-80GB Cisco ASR1000 RP2 80GB HDD	0.00	1	USD 0.00	21 Days
ASR1000-SIP10 Cisco ASR1000 SPA Interface Processor 10	0.0	1	USD 8000.00	21 Days
SPA-8X1GE-V2 Cisco 8-Port Gigabit Ethernet Shared Port Adapter	0.0	4	USD 10000.00	21 Days
SFP-GE-L 1000BASE-LX/LH SFP (DOM)	0.0	32	USD 35200.00	14 Days
ASR1000-SIP10 Cisco ASR1000 SPA Interface Processor 10	0.0	1	USD 8000.00	21 Days

Alternatively, you can use the Cisco ASR 1006 broadband bundles to build the same bill of materials (BOM) as shown in Table 20.

Table 20. Cisco ASR 1000 Series Router as a Broadband Aggregation Router (with Bundle PID)

Part Number	Product Description	Quantity
ASR1K6R2-20-B32/K9	ASR1006 BB Bundle w/2xESP-20G, 2xRP2, SIP10, AISK9, 32K BB Lic	1
M-ASR1K-RP2-16GB	Cisco ASR1000 RP2 16GB DRAM	2
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10	2
SPA-1X10GE-L-V2	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter	2
XFP-10GLR-OC192SR	Multirate XFP module for 10GBASE-LR and OC192 SR-1	2
SPA-8X1GE-V2	Cisco 8-Port Gigabit Ethernet Shared Port Adapter	4
SFP-GE-L	1000BASE-LX/LH SFP (DOM)	32

The only difference, in terms of navigating the Cisco Dynamic Configuration Tool, is that for the route processor and SIP modules the PID you select will end in “-BUN”.

Example 3: Cisco ASR 1000 Series Router as a Quadruple-Play Edge Router

In this example, a Cisco ASR 1000 Series Router provides quadruple-play (data, voice, video, and mobility) services, including voice over IP (VoIP), video conferencing, Internet Protocol Television (IPTV), and Internet, to subscribers. A Cisco ASR 1006 chassis with redundant route processors and 20-Gbps ESPs is configured in order to achieve five-nines availability. The Cisco ASR 1000 Series RP2 comes with an 80-GB hard disk. You should select RP2 16-GB DRAM memory (part number M-ASR1K-RP2-16GB). Additional memory is required when the broadband RTU license (part number FLASR1-BB-RTU) is selected with RP2 (part number ASR1000-RP2).

You need three SIP cards to host two full-height 10 Gigabit Ethernet SPA cards and four half-height 8 Gigabit Ethernet SPA cards.

The Cisco IOS XE Advanced IP Services consolidated package facilitates broadband, Cisco Unified Border Element (SP Edition), and Multiprotocol Label Switching (MPLS) features on the router.

You need a 16,000-subscriber broadband number-of-sessions license and a broadband RTU license to scale up to 16,000 broadband subscribers on the Cisco ASR 1000 Series Router. In addition, you must order Cisco Unified Border Element (SP Edition) licenses to enable the SBC services: You need a 16,000-subscriber Cisco Unified Border Element number-of-sessions license to scale up to 16,000 SBC sessions. Table 21 lists the components you need for using a Cisco ASR 1000 Series Router as a quadruple-play edge router.

Table 21. Cisco ASR 1000 Series Router as a Quadruple-Play Edge Router

Part Number	Product Description	Quantity
ASR1006	Cisco ASR1006 Chassis, Dual P/S	1
ASR1006-PWR-AC	Cisco ASR1006 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
ASR1000-RP2	Cisco ASR1000 Route Processor 2, 8GB DRAM	2
M-ASR1K-RP2-16GB	Cisco ASR1000 RP2 16GB DRAM	2
M-ASR1K-HDD-80GB	Cisco ASR1000 RP2 80GB HDD	2
ASR1000-ESP20	Cisco ASR1000 Embedded Services Processor, 20G, Crypto	2
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10	3
SPA-1X10GE-L-V2	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter	2
XFP-10GLR-OC192SR	Multirate XFP module for 10GBASE-LR and OC192 SR-1	2
SPA-8X1GE-V2	Cisco 8-Port Gigabit Ethernet Shared Port Adapter	4
SFP-GE-L	1000BASE-LX/LH SFP (DOM)	32
SASR1R1-AISK9	Cisco ASR1000 Series RP1 Advanced IP Services	1
FLASR1-BB-RTU	Broadband Right-To-Use with 500 BB Sessions Lic for ASR1000	1
FLASR1-BB-16K	Broadband 16K Sessions Feature Lic for ASR1000 Series	1
FLASR1-CUBES-16KP	CUBE(SP) 16K Calls Perpetual Lic for ASR 1000 Series	1

Example 4: Cisco ASR 1000 Series Router as an LNS Router with Per-Subscriber Firewall

In this example, a Cisco ASR 1000 Series Router provides per-subscriber firewall service to end users on an LNS router. A Cisco ASR 1006 chassis with redundant route processors and 10-Gbps ESPs is configured in order to achieve six-nines high availability. The Cisco ASR 1000 Series RP1 comes with a 40-GB hard disk. You need three SIP cards to host two full-height 10 Gigabit Ethernet SPA cards and four half-height 8 Gigabit Ethernet SPA cards.

The Cisco IOS XE Advanced IP Services consolidated package facilitates broadband, firewall, and MPLS features on the router.

You need a 16,000-subscriber broadband number-of-sessions license, in addition to the broadband and firewall RTU license, to scale up to 16,000 broadband subscribers and provide per-subscriber firewall services to the end users on the Cisco ASR 1000 Series Router.

Table 22 lists the components for using a Cisco ASR 1000 Series Router as an LNS router with per-subscriber firewall.

Table 22. Cisco ASR 1000 Series Router as an LNS Router with Per-Subscriber Firewall

Part Number	Product Description	Quantity
ASR1006	Cisco ASR1006 Chassis, Dual P/S	1
ASR1006-PWR-AC	Cisco ASR1006 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
ASR1000-RP1	Cisco ASR1000 Route Processor 1, 2GB DRAM	2
M-ASR1K-HDD-40GB	Cisco ASR1000 RP1 40GB HDD	2
ASR1000-ESP10	Cisco ASR1000 Embedded Services Processor, 10G, Crypto	2
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10	3
SPA-1X10GE-L-V2	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter	2
XFP-10GLR-OC192SR	Multirate XFP module for 10GBASE-LR and OC192 SR-1	2
SPA-8X1GE-V2	Cisco 8-Port Gigabit Ethernet Shared Port Adapter	4
SFP-GE-L	1000BASE-LX/LH SFP (DOM)	32
SASR1R1-AISK9	Cisco ASR1000 Series RP1 Advanced IP Services	1
FLASR1-BB-RTU	Broadband Right-To-Use with 500 BB Sessions Lic for ASR1000	1
FLASR1-FW-RTU	Firewall Right-To-Use Feature Lic for ASR1000 Series	1
FLASR1-BB-16K	Broadband 16K Sessions Feature Lic for ASR1000 Series	1

Alternatively, you can use the Cisco ASR 1006 broadband bundles to build the same BOM, as shown in Table 23.

Table 23. Cisco ASR 1000 Series Router as an LNS Router with Per-Subscriber Firewall (with Bundle PID)

Part Number	Product Description	Quantity
ASR1006-10G-B16/K9	ASR1006 BB Bundle w/2xESP-10G, 2xRP1, SIP10, AISK9, 16K BB Lic	1
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10	2
SPA-1X10GE-L-V2	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter	2
XFP-10GLR-OC192SR	Multirate XFP module for 10GBASE-LR and OC192 SR-1	2
SPA-8X1GE-V2	Cisco 8-Port Gigabit Ethernet Shared Port Adapter	4
SFP-GE-L	1000BASE-LX/LH SFP (DOM)	32
FLASR1-FW-RTU	Firewall Right-To-Use Feature Lic for ASR1000 Series	1

Example 5: Cisco ASR 1000 Series Router as High-End Customer Premises Equipment

In this example, a Cisco ASR 1000 Series Router is used as managed high-end customer premises equipment (CPE). A 2RU chassis with a 5-Gbps ESP is configured, offering a great price-performance ratio.

The Cisco ASR 1002 comes with four built-in Gigabit Ethernet ports and 4-GB DRAM by default. The SIP card and the route processor are built into the chassis. The 3-slot 2RU chassis can host up to three SPAs; for example, it can host two single-height Channelized T3-to-DS-0 SPA cards and one single-height 8-port Fast Ethernet SPA card.

The Cisco IOS XE Advanced Enterprise Services consolidated package facilitates IPsec, firewall, and other advanced features on the router.

IPsec and firewall RTU licenses allow service providers to provide advanced services such as IPsec and firewall service to their end customers.

Table 24 lists the part numbers for deployment of this scenario. Alternatively, you can use the Cisco ASR 1002 security bundles to build the same BOM, as shown in Table 25. Another great high-end branch-office router solution is the compact-form-factor 1RU Cisco ASR 1001. Table 26 lists the part numbers for a possible deployment based on the Cisco ASR 1001 chassis with four built-in Gigabit Ethernet ports and an additional four integrated T3 ports (example listed is with the ASR1001-4XT3).

Table 24. Cisco ASR 1000 Series Router as High-End Customer Premises Equipment

Part Number	Product Description	Quantity
ASR1002	Cisco ASR1002 Chassis, 4 built-in GE, Dual P/S, 4GB DRAM	1
ASR1002-PWR-AC	Cisco ASR1002 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
ASR1000-ESP5	ASR1K Embedded Services Processor, 5Gbps, Crypto, ASR1002 only	1
SPA-4XCT3/DS0	4-port Channelized T3 to DS0 Shared Port Adapter	2
SPA-8X1FE-TX-V2	Cisco 8-Port Fast Ethernet (TX) Shared Port Adapter	1
SASR1R1-AESK9	Cisco ASR1000 Series RP1 Advanced Enterprise Services	1
FLASR1-IPSEC-RTU	Encryption Right-To-Use Feature Lic for ASR1000 Series	1
FLASR1-FW-RTU	Firewall Right-To-Use Feature Lic for ASR1000 Series	1

Table 25. Cisco ASR 1000 Series Router as High-End Customer Premises Equipment (with Bundle PID)

Part Number	Product Description	Quantity
ASR1002-5G-SEC/K9	ASR1002 VPN+FW Bundle w/ESP-5G, AESK9, License, 4GB DRAM	1
SPA-4XCT3/DS0	4-port Channelized T3 to DS0 Shared Port Adapter	2
SPA-8X1FE-TX-V2	Cisco 8-Port Fast Ethernet (TX) Shared Port Adapter	1

Table 26. Cisco ASR 1000 Series Router as High-End Customer Premises Equipment
(Example Based on Chassis with Part Number ASR1001-4XT3)

Part Number	Product Description	Quantity
ASR1001-4XT3	Cisco ASR1001 System, Crypto, 4 built-in GE, T3 IDC, Dual P/S	1
ASR1001-PWR-AC	Cisco ASR1001 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
SASR1001UK9-32S	Cisco ASR 1001 IOS XE - ENCRYPTION UNIVERSAL	1
SLASR1-AES	Cisco ASR 1000 Advanced Enterprise Services License ****	1
FLS-ASR1001-5G	Upgrade from 2.5 Gbps to 5 Gbps License for ASR 1001 ****	1
FLSASR1-IPSEC	IPSEC License for ASR1000 Series	1
FLSASR1-FW	FW License for ASR1000 Series	1
FLSASR1-FWNAT-R	Firewall/NAT Stateful Inter-Chassis Redundancy License	1

**** Enforced Licenses on ASR1001

Example 6: Cisco ASR 1000 Series Router as a Provider-Edge Router

In this example, a Cisco ASR 1000 Series Router is used as a provider-edge router in a service provider network. A 6RU chassis with redundant route processors and ESPs is configured in order to achieve six-nines high availability. The Cisco ASR 1000 Series RP2 comes with an 80-GB hard disk.

You need three SIP cards to host two full-height 10 Gigabit Ethernet SPA cards and four half-height 8-port Gigabit Ethernet SPA cards.

A Cisco IOS XE Advanced IP Services consolidated package facilitates MPLS and other advanced features on the router.

Table 27 lists the part numbers for deployment of this scenario.

Table 27. Cisco ASR 1000 Series Router as a Provider-Edge Router

Part Number	Product Description	Quantity
ASR1006	Cisco ASR1006 Chassis, Dual P/S	1
ASR1006-PWR-AC	Cisco ASR1006 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
ASR1000-RP2	Cisco ASR1000 Route Processor 2, 8GB DRAM	2
M-ASR1K-HDD-80GB	Cisco ASR1000 RP2 80GB HDD	2
ASR1000-ESP20	Cisco ASR1000 Embedded Services Processor, 20G, Crypto	2
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10	3
SPA-1X10GE-L-V2	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter	2
XFP-10GLR-OC192SR	Multirate XFP module for 10GBASE-LR and OC192 SR-1	2
SPA-8X1GE-V2	Cisco 8-Port Gigabit Ethernet Shared Port Adapter	4
SFP-GE-L	1000BASE-LX/LH SFP (DOM)	32
SASR1R1-AISK9	Cisco ASR1000 Series RP1 Advanced IP Services	1

Note: It is not recommended to configure ESP10 with RP2. RP2 has a much faster control CPU than ESP 10; it could over-program ESP10 to exhaust system resources (for example, memory).

Example 7: Cisco ASR 1000 Series Router as a Route Reflector

In this example, a Cisco ASR 1000 Series Router is used as a route reflector because of its high and scalable control-plane performance. A Cisco ASR 1001 chassis with an integrated route processor is chosen because of its great control-plane scaling and great price-performance ratio.

The performance upgrade license allows you to upgrade the Cisco ASR 1001 chassis to 5-Gbps total aggregate throughput without any hardware module exchange.

A Cisco IOS XE Advanced Enterprise Services technology package license in combination with the Cisco ASR 1001 universal K9 software image facilitates Border Gateway Protocol (BGP), Multiprotocol BGP (MBGP), MPLS, and other advanced features on the router.

Table 28 lists the part numbers for deployment of this scenario.

Table 28. Cisco ASR 1000 Series Router as a Route Reflector

Part Number	Product Description	Quantity
ASR1001	Cisco ASR1001 System, Crypto, 4 built-in GE, Dual P/S	1
ASR1001-PWR-AC	Cisco ASR1001 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
ESP is integrated into the ASR1001 chassis-upgradeable from 2.5-Gbps to 5-Gbps via a license	NA	NA
RP is integrated into the ASR1001	NA	NA
SIP is integrated into the ASR1001 chassis	NA	NA
M-ASR1K-1001-16GB	Cisco ASR1001 16GB DRAM	1
SPA-5X1GE-V2	Cisco 5-Port Gigabit Ethernet Shared Port Adapter	1

Part Number	Product Description	Quantity
SFP-GE-L	1000BASE-LX/LH SFP (DOM)	9
SASR1001UK9-32S	Cisco ASR 1001 IOS XE UNIVERSAL - ENCRYPTION	1
SLASR1-AES	Cisco ASR 1000 Advanced Enterprise Services License	1
FLS-ASR1001-5G	Upgrade from 2.5 Gbps to 5 Gbps License for ASR 1001	1

Example 8: Cisco ASR 1000 Series Router as a Secure Headend Router

In this example, a Cisco ASR 1000 Series Router is used as a secure headend router in an enterprise network. A 6RU chassis with redundant route processors and ESPs is configured in order to achieve six-nines high availability. The Cisco ASR 1000 Series RP1 comes with a 40-GB hard disk.

You need one SIP card to host one single-height, 5-port Gigabit Ethernet SPA card and one single-height Packet over SONET/SDH (PoS) OC-12 SPA card.

A Cisco IOS XE Advanced Enterprise consolidated package facilitates advanced security features on the router.

Table 29 lists the part numbers for deployment of this scenario.

Table 29. Cisco ASR 1000 Series Router as a Secure Headend Router

Part Number	Product Description	Quantity
ASR1006	Cisco ASR1006 Chassis, Dual P/S	1
ASR1006-PWR-AC	Cisco ASR1006 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
ASR1000-RP1	Cisco ASR1000 Route Processor 1, 2GB DRAM	2
M-ASR1K-HDD-40GB	Cisco ASR1000 RP1 40GB HDD	2
ASR1000-ESP10	Cisco ASR1000 Embedded Services Processor, 10G, Crypto	2
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10	2
SPA-1XOC12-POS	1-port OC12/STM4 POS Shared Port Adapters	1
SFP-OC12-LR1	OC-12/STM-4 SFP, Long Reach (40km)	1
SPA-5X1GE-V2	Cisco 5-Port Gigabit Ethernet Shared Port Adapter	1
SFP-GE-L	1000BASE-LX/LH SFP (DOM)	5
SASR1R1-AESK9	Cisco ASR1000 Series RP1 Advanced Enterprise Services	1
FLASR1-IPSEC-RTU	Encryption Right-To-Use Feature Lic for ASR1000 Series	1

Example 9: Cisco ASR 1000 Series Router as an Internet Gateway Router

In this example, a Cisco ASR 1000 Series Router is used as an Internet gateway router in an enterprise network. A 1RU router (Cisco ASR 1001) and a 2RU router (Cisco ASR 1002-X) are configured as Internet gateway routers. The minimum route processor memory for an Internet gateway router is 8 GB; 4-GB memory cannot support Internet gateway deployments. In addition, software redundancy (FLSASR1-IOSRED) is not recommended for Internet gateway deployments.

Cisco ASR 1001 comes with 4 built-in Gigabit Ethernet ports, and the Cisco ASR 1002-X comes with 6 built-in Gigabit Ethernet ports. SPAs can be configured if more ports are required. A Cisco IOS XE Advanced Enterprise consolidated package facilitates advanced security features on the router.

Firewall, IPsec, and FPI RTU licenses facilitate firewall, IPsec, and FPM functions on the router.

Table 30 lists the part numbers for Cisco ASR 1001 deployment of this scenario.

Table 30. Cisco ASR 1001 as an Internet Gateway Router

Part Number	Product Description	Quantity
ASR1001	Cisco ASR1001 System, Crypto, built-in GE, Dual P/S	1
ASR1001-PWR-AC	Cisco ASR1001 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
M-ASR1K-1001-8GB	Cisco ASR1001 8GB DRAM	1
GLC-SX-MMD	1000Base-SX SFP transceiver module, MMF, 850nm, DOM	4
SASR1001UK9	Cisco ASR1001 IOS XE UNIVERSAL	1
SLASR1-AES	Cisco ASR 1000 Advanced Enterprise Services License	1
FLSASR1-FW	FW License for ASR1000 Series	1
FLSASR1-IPSEC	IPSEC License for ASR1000 Series	1
FLSASR1-FPI	Flex. Pack. Insp License for ASR1000 Series	1

Alternatively, you can use the Cisco ASR 1002-X to build the same BOM, as shown in Table 31.

Table 31. Cisco ASR 1002-X as an Internet Gateway Router

Part Number	Product Description	Quantity
ASR1002-X	Cisco ASR1002-X Chassis, 6 built-in GE, Dual P/S	1
ASR1002-PWR-AC	Cisco ASR1002 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
M-ASR1002X-8GB	Cisco ASR1002-X 8GB DRAM	1
GLC-SX-MMD	1000Base-SX SFP transceiver module, MMF, 850nm, DOM	5
SASR1K2XUK9	Cisco ASR1002-X IOS XE UNIVERSAL	1
SLASR1-AES	Cisco ASR 1000 Advanced Enterprise Services License	1
FLSASR1-FW	FW License for ASR1000 Series	1
FLSASR1-IPSEC	IPSEC License for ASR1000 Series	1
FLSASR1-FPI	Flex. Pack. Insp License for ASR1000 Series	1

Example 10: Cisco ASR 1000 Series Router as an SBC in a Centralized SIP Trunking Data Center Deployment

In this example, a Cisco ASR 1006 Series Router is used as an SBC in an enterprise data center, where it performs session control and security, demarcation, and interworking with a SIP trunk service provider to support the real-time voice transmission of the enterprise user for up to 16,000 SIP sessions.

The router uses a 6RU chassis with redundant route processors and ESPs in order to achieve high availability. The Cisco ASR 1000 Series RP2 comes with an 80-GB hard disk.

You need two SIP cards to host two full-height 10 Gigabit Ethernet SPA cards.

A Cisco IOS XE Advanced IP Services consolidated package facilitates the Cisco Unified Border Element (SP Edition) feature on the router.

For other variations on ASR configurations as a session border controller based on Cisco Unified Border Element (Enterprise Edition), please refer to the configuration guide at:

http://www.cisco.com/en/US/prod/collateral/voicesw/ps6790/gatecont/ps5640/order_guide_c07_462222.pdf.

Table 32 lists the part numbers for deployment of this scenario.

Table 32. Cisco ASR 1000 Series Router Deployed as an Enterprise Session Border Controller

Part Number	Product Description	Quantity
ASR1006	Cisco ASR1006 Chassis, Dual P/S	1
ASR1006-PWR-AC	Cisco ASR1006 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
ASR1000-RP2	Cisco ASR1000 Route Processor 2, 8GB DRAM	2
M-ASR1K-HDD-80GB	Cisco ASR1000 RP2 80GB HDD	2
ASR1000-ESP20	Cisco ASR1000 Embedded Services Processor, 20G, Crypto	2
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10	2
SPA-1X10GE-L-V2	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter	2
XFP-10GLR-OC192SR	Multirate XFP module for 10GBASE-LR and OC192 SR-1	2
SASR1R2-AISK9	Cisco ASR1000 Series RP2 ADVANCED IP SERVICES	1
FLASR1-CUBEE-16KP	CUBE(ENT) Perpetual Lic for ASR 1000 Series	1

Example 11: Cisco ASR 1000 Series Router as an SBC in an Intercompany Telepresence Solution Deployed in a Service Provider Data Center

In this example, a Cisco ASR 1000 Series Router is used as an SBC in a service provider data center (also referred to as a Cisco TelePresence® Intercompany Exchange), where it enables business-to-business telepresence service provided by the service provider to its enterprise customers. The router uses a 6RU chassis with redundant route processors and ESPs in order to achieve high availability. The Cisco ASR 1000 Series RP2 comes with an 80-GB hard disk.

You need two SIP cards to host two full-height 10 Gigabit Ethernet SPA cards.

A Cisco IOS XE Advanced IP Services consolidated package facilitates the Cisco Unified Border Element (SP Edition) feature on the router.

Table 33 lists the part numbers for deployment of this scenario.

Table 33. Cisco ASR 1000 Series Router as a Provider-Edge Router

Part Number	Product Description	Quantity
ASR1006	Cisco ASR1006 Chassis, Dual P/S	1
ASR1006-PWR-AC	Cisco ASR1006 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
ASR1000-RP2	Cisco ASR1000 Route Processor 2, 8GB DRAM	2
M-ASR1K-HDD-80GB	Cisco ASR1000 RP2 80GB HDD	2
ASR1000-ESP20	Cisco ASR1000 Embedded Services Processor, 20G, Crypto	2
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10	2
SPA-1X10GE-L-V2	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter	2
XFP-10GLR-OC192SR	Multirate XFP module for 10GBASE-LR and OC192 SR-1	2
SASR1R2-AISK9	Cisco ASR1000 Series RP2 ADVANCED IP SERVICES	1
FLASR1-CUBES-TPEX	CUBE(SP) Perpetual Lic for ASR 1000 Series in B2BTP Exchange	1

Example 11: Cisco ASR 1000 Series Router as a Stateful NAT64 Translator (Cloud Provider Edge)

In this example, a Cisco ASR 1000 Series Router is used as a provider-edge router in a cloud provider network. The Stateful NAT64 translation solution allowed the cloud provider to deploy new enterprises with IPv6 networks (helps IPv6 adoption) and enable them to reach the IPv4 Internet or networks (helps IPv4 exhaust through Port Address Translation [PAT]). A 6RU chassis with redundant route processors and ESPs is configured in order to achieve six-nines high availability. The Cisco ASR 1000 Series RP2 comes with an 80-GB hard disk.

A Cisco IOS XE IP Base consolidated package facilitates the NAT64 feature on the router.

Table 34 lists the part numbers for deployment of this scenario.

Table 34. Cisco ASR 1000 Series Router as a Cloud Provider-Edge Router

Part Number	Product Description	Quantity
ASR1006	Cisco ASR1006 Chassis, Dual P/S	1
ASR1006-PWR-AC	Cisco ASR1006 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
ASR1000-RP2	Cisco ASR1000 Route Processor 2, 8GB DRAM	2
M-ASR1K-HDD-80GB	Cisco ASR1000 RP2 80GB HDD	2
ASR1000-ESP20	Cisco ASR1000 Embedded Services Processor, 20G, Crypto	2
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10	1
SPA-1X10GE-L-V2	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter	1
XFP-10GLR-OC192SR	Multirate XFP module for 10GBASE-LR and OC192 SR-1	1
SPA-8X1GE-V2	Cisco 8-Port Gigabit Ethernet Shared Port Adapter	1
SFP-GE-L	1000BASE-LX/LH SFP (DOM)	8
SASR1R2-IPBK9-31S	Cisco ASR 1000 Series RP2 IP BASE	1
FLASR1-NAT64-2M	NAT64 RTU Feature License for up to 2M Sessions on ASR1000	1

Example 12: Cisco ASR 1000 Series Router as a Carrier-Grade NAT Router

In this example, a Cisco ASR 1000 Series Router is used as a CGN router in a service provider network. A 6RU chassis with redundant route processors and ESPs is configured in order to achieve six-nines high availability. The Cisco ASR 1000 Series RP2 comes with an 80-GB hard disk.

A Cisco IOS XE IP Base consolidated package and CGN license facilitate the CGN feature on the router.

Table 35 lists the part numbers for deployment of this scenario.

Table 35. Cisco ASR 1000 Series Router as a CGN Router

Part Number	Product Description	Quantity
ASR1006	Cisco ASR1006 Chassis, Dual P/S	1
ASR1006-PWR-AC	Cisco ASR1006 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
ASR1000-RP2	Cisco ASR1000 Route Processor 2, 8GB DRAM	2
M-ASR1K-HDD-80GB	Cisco ASR1000 RP2 80GB HDD	2
ASR1000-ESP20	Cisco ASR1000 Embedded Services Processor, 20G, Crypto	2
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10	1
SPA-1X10GE-L-V2	Cisco 1-Port 10GE LAN-PHY Shared Port Adapter	1

Part Number	Product Description	Quantity
XFP-10GLR-OC192SR	Multirate XFP module for 10GBASE-LR and OC192 SR-1	1
SPA-8X1GE-V2	Cisco 8-Port Gigabit Ethernet Shared Port Adapter	1
SFP-GE-L	1000BASE-LX/LH SFP (DOM)	8
SASR1R2-IPBK9-36S	Cisco ASR 1000 Series RP2 IP BASE	1
FLASR1-CGN-2M	CGN RTU Feature License for up to 2M Sessions on ASR1000	2

Example 13: Cisco ASR 1000 Series Router as a Secure WAN Router

In this example, a Cisco ASR 1000 Series Router is used as a secure WAN router in an enterprise network. A 1RU router (Cisco ASR 1001-X) is configured as a secure WAN router.

Cisco ASR 1001-X comes with 6 built-in Gigabit Ethernet ports, and built-in 10G Ethernet ports to allow connectivity to 1G or 10G LAN or WAN circuits. The support SPA slot can be installed with additional Gigabit Ethernet, 10G, or older connectivity ports. A Cisco IOS XE Advanced Enterprise consolidated package facilitates advanced security features such as Crypto and Zone-Based Firewall on the router.

To improve user experience, you can add value-add services such as Application Visibility and Control. You can further use this application visibility to enable advance features such as Performance Routing and dynamically route traffic on a desired WAN link based on its live performance (for example, latency, delay, and jitter measurements).

Table 36 lists the part numbers for Cisco ASR 1001-X deployment of this scenario.

Table 36. Cisco ASR 1001-X as Secure WAN Router

Part Number	Product Description	Quantity
ASR1001-X	Cisco ASR1001-X System, Crypto, 6 built-in GE, Dual P/S	1
ASR1001-PWR-AC	Cisco ASR1001 AC Power Supply	2
Part number depends on required power cable	Power Cable	2
SFP-10G-LR	Cisco 10GBASE-LR SFP+ Module for SMF	4
GLC-LH-SMD	1000BASE-LX/LH long-wavelength; with DOM	
SASR1K1XUK9	Cisco ASR1001-X IOS XE UNIVERSAL	1
SLASR1-AES	Cisco ASR 1000 Advanced Enterprise Services License	1
FLSASR1-FW	FW License for ASR1000 Series	1
FLSASR1-IPSEC	IPSEC License for ASR1000 Series	1
FLSASR1-AVC	Appl. Visibility and Control License for ASR1000 Series	1

Note: The ASR 1001-X comes with 8G default control-plane memory that is shared with the Cisco ASR Route Processor, ESP, and SPA Interface Processor modules.

Example 14: Cisco ASR 1000 Series Router with Cisco ONE Software Suites

The difference in ordering C1 PIDs is how you order feature sets. You must order at least one C1 PID, and then you can choose none or many of the traditional feature sets.

The first example shows Cisco ASR 1002-X with C1-ASR1002-X/K9 with the Foundation Suite. You can order only quantity 1. This suite contains AES, FW, AVC, and IPsec, so there is no need to select it in the “Feature License” section. For the rest of the configuration, you can configure it as you would any other ASR 1002-X.

Quantity	List Price (\$)
CISCO ONE SUITES AND UPGRADES	
Cisco ONE Suites	
C1F1PASR1K9	1 \$17,500.00
Cisco ONE Suite Upgrades	
Software Version and Type	
Feature Licenses	
Application	
Performance Upgrade Licenses	
Technology Package Licenses	
SLASR1-IPB	1 \$0.00

SKU	Description	Quantity	Estimated Lead Time (days)	Unit List Price
<input checked="" type="checkbox"/> C1F1PASR1K9 CP NPH SVIP SA	Cisco1 FND Perpetual Suite AES IPsec FW AVC Prime	1	NPH	\$17,500.00
<input type="checkbox"/> C1AUPASR1K9 CP NPH SVIP SA	Cisco1 AUC Perpetual AES CUBE Ent 100 Session	Qty	NPH	\$9,950.00

[Show incompatible skus](#)

The next example shows the customer ordering an ASR 1000 router with AUC using 700 CUBEE licenses. The general rule is that you use the same session rules and guidelines when ordering the AUC Suite that you use to order existing CUBEE licenses. However, you must always order the base C1AU*ASR1K9 license. This license comes with 100 nonredundant CUBE sessions. In this example you want AUC with 700 nonredundant CUBEE sessions.

Step 1. Start by ordering two of the base licenses. Add 500 more sessions by selecting “CISCO ONE Suite Upgrades” in the left window and then choose the 500-session nonredundant license, where 200 + 500 = 700 sessions.

Quantity	List Price (\$)
CISCO ONE SUITES	
C1AUPASR1K9	2 \$19,900.00
CISCO ONE Suite Upgrades	
C1AUPASR14KRK9	1 \$312,000.00
Software Version and Type	
Feature Licenses	
Application	
Performance Upgrade Licenses	
Technology Package Licenses	
SLASR1-IPB	1 \$0.00
Subtotal:	\$ 369,900.00
Est. Product Lead Time	21 days

[Reset Configuration](#) [Cancel](#) [Done](#)

SKU	Description	Quantity	Estimated Lead Time (days)	Unit List Price
<input type="checkbox"/> C1AUPASR11KRK9 CP NPH SA	Cisco1 AUC Perpetual AES CUBE Ent 1k Ssn Redund Upgrade	Qty	NPH	\$129,350.00
<input type="checkbox"/> C1AUPASR1500RK9 CP NPH SA	Cisco1 AUC Perpetual AES CUBE Ent 500 Ssn Redund Upgrade	Qty	NPH	\$64,675.00
<input type="checkbox"/> C1AUPASR14KSK9 CP NPH SA	Cisco1 AUC Perpetual AES CUBE Ent 4k Session Upgrade	Qty	NPH	\$240,000.00
<input type="checkbox"/> C1AUPASR1100RK9 CP NPH SA	Cisco1 AUC Perpetual AES CUBE Ent 100 Ssn Redund Upgrade	Qty	NPH	\$12,935.00
<input type="checkbox"/> C1AUPASR11KSK9 CP NPH SA	Cisco1 AUC Perpetual AES CUBE Ent 1k Session Upgrade	Qty	NPH	\$99,500.00
<input checked="" type="checkbox"/> C1AUPASR14KRK9 CP NPH SA	Cisco1 AUC Perpetual AES CUBE Ent 4k Ssn Redund Upgrade	1	NPH	\$312,000.00
<input type="checkbox"/> C1AUPASR1500SK9 CP NPH SA	Cisco1 AUC Perpetual AES CUBE Ent 500 Session Upgrade	Qty	NPH	\$49,750.00

Ordering Information

Table 37 lists the part numbers of the hardware components you need for a Cisco ASR 1000 Series Router.

For more details and available bundles, please contact your local Cisco account representative. The Cisco ASR 1000 Series supports most Cisco SPAs. For details about the supported SPAs on the Cisco ASR 1000 Series, please refer to the [Cisco ASR 1000 Series Shared Port Adapter Support](#) data sheet.

Table 38 lists the Cisco ASR 1000 software and software licenses (except for the Cisco ASR 1001 and ASR 1002-X); Table 39 lists the Cisco ASR 1001 and ASR 1002-X software and software licenses; and Table 40 lists the Cisco ASR 1000 bundles.

Table 37. Ordering Information for Cisco ASR 1000 Series Hardware

Product Number	Product Description
Cisco ASR 1000 Series Chassis	
ASR1001	Cisco ASR1001 System, Crypto, 4 built-in GE, Dual P/S

Product Number	Product Description
ASR1001=	Cisco ASR1001 System, Crypto, 4 built-in GE, Dual P/S, spare
ASR1001-2XOC3POS	Cisco ASR1001 System, Crypto, 4 built-in GE, OC3 IDC, Dual P/S
ASR1001-2XOC3POS=	Cisco ASR1001 System, 4 built-in GE, OC3 IDC, Dual P/S, Spare
ASR1001-4XT3	Cisco ASR1001 System, Crypto, 4 built-in GE, T3 IDC, Dual P/S
ASR1001-4XT3=	Cisco ASR1001 System, 4 built-in GE, T3 IDC, Dual P/S, Spare
ASR1001-HDD⁺	Cisco ASR1001 System, 4 built-in GE, HDD, Dual P/S
ASR1001-HDD=⁺	Cisco ASR1001 System, 4 built-in GE, HDD, Dual P/S, Spare
ASR1001-4X1GE⁺	Cisco ASR1001 System, 4 built-in GE, 4X1GE IDC, Dual P/S
ASR1001-4X1GE=⁺	Cisco ASR1001 System, 4 built-in GE, 4X1GE IDC, Dual P/S, Spare
ASR1001-8XCHT1E1⁺	Cisco ASR1001 System, 4 built-in GE, CHT1 IDC, Dual P/S
ASR1001-8XCHT1E1=⁺	Cisco ASR1001 System, 4 built-in GE, CHT1 IDC, Dual P/S, Spare
ASR1001-X	Cisco ASR1001-X System, Crypto, 6 built-in GE, Dual P/S
ASR1001-X=	Cisco ASR1001-X System, Crypto, 6 built-in GE, Dual P/S, Spare
ASR1002	Cisco ASR1002 Chassis, 4 built-in GE, Dual P/S, 4GB DRAM
ASR1002=	Cisco ASR1002 Chassis, 4 built-in GE, 4GB DRAM, spare
ASR1002-X	Cisco ASR1002-X System, Crypto, 6 built-in GE, Dual P/S
ASR1002-X=	Cisco ASR1002-X System, Crypto, 6 built-in GE, Dual P/S, Spare
ASR1004	Cisco ASR1004 Chassis, Dual P/S
ASR1004=	Cisco ASR1004 Chassis, spare
ASR1006	Cisco ASR1006 Chassis, Dual P/S
ASR1006=	Cisco ASR1006 Chassis, spare
ASR1006-X	Cisco ASR 1006-X Chassis
ASR1006-X=	Cisco ASR 1006-X Chassis, Spare
ASR1009-X	Cisco ASR 1009-X Chassis
ASR1009-X=	Cisco ASR 1009-X Chassis, Spare
ASR1013	Cisco ASR1013 Chassis, Quad P/S
ASR1013=	Cisco ASR1013 Chassis, spare
Cisco ASR 1000 Series Embedded Services Processor	
ASR1000-ESP5	ASR1K Embedded Services Processor, 5Gbps, Crypto, ASR1002 only
ASR1000-ESP5=	ASR1K Embedded Services Processor, 5G, Crypto, 1002 only, spare
ASR1000-ESP10	Cisco ASR1000 Embedded Services Processor, 10G, Crypto
ASR1000-ESP10=	Cisco ASR1000 Embedded Services Processor, 10G, Crypto, Spare
ASR1000-ESP10-N	Cisco ASR1000 Embedded Services Processor, 10G, Non Crypto
ASR1000-ESP10-N=	Cisco ASR1000 Embedded Services Processor, 10G, Non Crypto, Spare
ASR1000-ESP20	Cisco ASR1000 Embedded Services Processor, 20G, Crypto
ASR1000-ESP20=	Cisco ASR1000 Embedded Services Processor, 20G, Crypto, Spare
ASR1000-ESP40	Cisco ASR1000 Embedded Services Processor, 40G, Crypto
ASR1000-ESP40=	Cisco ASR1000 Embedded Services Processor, 40G, Crypto, Spare
ASR1000-ESP100	Cisco ASR1000 Embedded Services Processor, 100G, Crypto
ASR1000-ESP100=	Cisco ASR1000 Embedded Services Processor, 100G, Crypto, Spare
ASR1000-ESP200	Cisco ASR1000 Embedded Services Processor, 200G, Crypto
ASR1000-ESP200=	Cisco ASR1000 Embedded Services Processor, 200G, Crypto, Spare
Cisco ASR 1000 Series Route Processor	
ASR1000-RP1	Cisco ASR1000 Route Processor 1, 2GB DRAM

Product Number	Product Description
ASR1000-RP1=	Cisco ASR1000 Route Processor 1, 2GB DRAM, Spare
ASR1000-RP2	Cisco ASR1000 Route Processor 2, 8GB DRAM
ASR1000-RP2=	Cisco ASR1000 Route Processor 2, 8GB DRAM, Spare
Cisco ASR 1000 Series SPA Interface Processor and Ethernet Line Cards	
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10
ASR1000-SIP10=	Cisco ASR1000 SPA Interface Processor 10, Spare
ASR1000-SIP40	Cisco ASR1000 SPA Interface Processor 40
ASR1000-SIP40=	Cisco ASR1000 SPA Interface Processor 40, Spare
ASR1000-6TGE	Cisco ASR1000 Fixed Ethernet Line Card, 6x10GE
ASR1000-6TGE=	Cisco ASR1000 Fixed Ethernet Line Card, 6x10GE, Spare
ASR1000-2T+20X1GE	Cisco ASR1000 Fixed Ethernet Line Card, 2x10GE + 20x1GE
ASR1000-2T+20X1GE	Cisco ASR1000 Fixed Ethernet Line Card, 2x10GE + 20x1GE, Spare
ASR1000-MIP100	Cisco ASR 1000 Ethernet Line Card, 100G Modular Interface Processor
ASR1000-MIP100=	Cisco ASR 1000 Ethernet Line Card, 100G Modular Interface Processor, spare
EPA-1X100GE	Cisco ASR 1000 1x100GE Ethernet Port Adapter
EPA-1X100GE=	Cisco ASR 1000 1x100GE Ethernet Port Adapter, spare
EPA-CPAK-2X40GE	Cisco ASR 1000 2x40GE Ethernet Port Adapter (breakout cable)
EPA-CPAK-2X40GE=	Cisco ASR 1000 2x40GE Ethernet Port Adapter (breakout cable), spare
Cisco ASR 1000 Series RP1 Memory	
M-ASR1K-RP1-2GB	Cisco ASR1000 RP1 2GB DRAM
M-ASR1K-RP1-2GB=	Cisco ASR1000 RP1 2GB DRAM, spare
M-ASR1K-RP1-4GB	Cisco ASR1000 RP1 4GB DRAM
M-ASR1K-RP1-4GB=	Cisco ASR1000 RP1 4GB DRAM, spare
M-ASR1K-HDD-40GB	Cisco ASR1000 RP1 40GB HDD
M-ASR1K-HDD-40GB=	Cisco ASR1000 RP1 40GB HDD, spare
M-ASR1K-SSD-32GB	Cisco ASR1000 RP1 32GB SSD
M-ASR1K-SSD-32GB=	Cisco ASR1000 RP1 32GB SSD, spare
Cisco ASR 1000 Series RP2 Memory	
M-ASR1K-RP2-8GB	Cisco ASR1000 RP2 8GB DRAM
M-ASR1K-RP2-8GB=	Cisco ASR1000 RP2 8GB DRAM, Spare
M-ASR1K-RP2-16GB	Cisco ASR1000 RP2 16GB DRAM
M-ASR1K-RP2-16GB=	Cisco ASR1000 RP2 16GB DRAM, Spare
M-ASR1K-HDD-80GB=	Cisco ASR1000 RP2 80GB HDD, Spare
M-ASR1K-EUSB-2GB=	Cisco ASR1000 RP2 2GB EUSB+ FLASH, Spare
Cisco ASR 1001 Series RP Memory	
M-ASR1K-1001-4GB	Cisco ASR1001 4GB DRAM
M-ASR1K-1001-4GB=	Cisco ASR1001 4GB DRAM, spare
M-ASR1K-1001-8GB	Cisco ASR1001 8GB DRAM
M-ASR1K-1001-8GB=	Cisco ASR1001 8GB DRAM, spare
M-ASR1K-1001-16GB*	Cisco ASR1001 16GB DRAM
M-ASR1K-1001-16GB=*	Cisco ASR1001 8GB DRAM, spare
Cisco ASR 1002 Series RP Memory	
M-ASR1001X-8GB	Cisco ASR1001-X 8GB DRAM
M-ASR1001X-8GB=	Cisco ASR1001-X 8GB DRAM, Spare

Product Number	Product Description
M-ASR1001X-16GB	Cisco ASR1001-X 16GB DRAM
M-ASR1001X-16GB=	Cisco ASR1001-X 16GB DRAM, Spare
ASR1001X-SSD-100G	Cisco ASR1001-X 100GB Solid State Drive
ASR1001X-SSD-100G=	Cisco ASR1001-X 100GB Solid State Drive, Spare
ASR1001X-SSD-200G	Cisco ASR1001-X 200GB, SATA Solid State Disk
ASR1001X-SSD-200G=	Cisco ASR1001-X 200GB, SATA Solid State Disk, Spare
ASR1001X-SSD-400G	Cisco ASR1001-X 400GB, SATA Solid State Disk
ASR1001X-SSD-400G=	Cisco ASR1001-X 400GB, SATA Solid State Disk, Spare
Cisco ASR 1002-X Series RP Memory	
M-ASR1002X-4GB	Cisco ASR1002-X 4GB DRAM
M-ASR1002X-4GB=	Cisco ASR1002-X 4GB DRAM, Spare
M-ASR1002X-8GB	Cisco ASR1002-X 8GB DRAM
M-ASR1002X-8GB=	Cisco ASR1002-X 8GB DRAM, Spare
M-ASR1002X-16GB	Cisco ASR1002-X 16GB DRAM
M-ASR1002X-16GB=	Cisco ASR1002-X 16GB DRAM, Spare
MASR1002X-HD-160G	Cisco ASR1002-X 160GB Hard Disk Drive
MASR1002X-HD-160G=	Cisco ASR1002-X 160GB Hard Disk Drive, Spare
Cisco ASR 1000 Series USB Flash Memory Options	
MEMUSB-1024FT	1GB USB Flash Token for Cisco ASR 1000 Series
MEMUSB-1024FT=	1GB USB Flash Token for Cisco ASR 1000 Series, spare
Cisco ASR 1000 Series Power Supply	
ASR1001-PWR-AC	Cisco ASR1001 AC Power Supply
ASR1001-PWR-AC=	Cisco ASR1001 AC Power Supply, Spare
ASR1001-X-PWR-AC	Cisco ASR1001-X AC Power Supply
ASR1001-X-PWR-AC=	Cisco ASR1001-X AC Power Supply, Spare
ASR1002-PWR-AC	Cisco ASR1002 AC Power Supply
ASR1002-PWR-AC=	Cisco ASR1002 AC Power Supply, Spare
ASR1004-PWR-AC	Cisco ASR1004 AC Power Supply
ASR1004-PWR-AC=	Cisco ASR1004 AC Power Supply, Spare
ASR1006-PWR-AC	Cisco ASR1006 AC Power Supply
ASR1006-PWR-AC=	Cisco ASR1006 AC Power Supply, Spare
ASR1000X-AC-1100W	Cisco ASR 1000-X 1100W AC Power Supply
ASR1000X-AC-1100W=	Cisco ASR 1000-X 1100W AC Power Supply, Spare
ASR1000X-DC-950W	Cisco ASR 1000-X 950W DC Power Supply
ASR1000X-DC-950W=	Cisco ASR 1000-X 950W DC Power Supply, Spare
ASR1013/06-PWR-AC*	Cisco ASR1000 1600w AC Power Supply
ASR1013/06-PWR-AC=*	Cisco ASR1000 1600w AC Power Supply, Spare
ASR1001-X-PWR-DC	Cisco ASR1001-X DC Power Supply
ASR1001-X-PWR-DC=	Cisco ASR1001-X DC Power Supply, Spare
ASR1002-PWR-DC	Cisco ASR1002 DC Power Supply
ASR1002-PWR-DC=	Cisco ASR1002 DC Power Supply, Spare
ASR1004-PWR-DC	Cisco ASR1004 DC Power Supply
ASR1004-PWR-DC=	Cisco ASR1004 DC Power Supply, Spare
ASR1006-PWR-DC	Cisco ASR1006 DC Power Supply

Product Number	Product Description
ASR1006-PWR-DC=	Cisco ASR1006 DC Power Supply, Spare
ASR1013/06-PWR-DC	Cisco ASR1000 1600w DC Power Supply
ASR1013/06-PWR-DC=	Cisco ASR1000 1600w DC Power Supply, Spare
Cisco ASR 1000 Series Accessories	
ASR1013-ACS=	Cisco ASR1013 Accessory Kit, Spare
ASR1006-ACS=	Cisco ASR1006 Accessory Kit, Spare
ASR1006X-ACS=	Cisco ASR 1006-X Accessory Kit, Spare
ASR1009X-ACS=	Cisco ASR 1009-X Accessory Kit, Spare
ASR1004-ACS=	Cisco ASR1004 Accessory Kit, Spare
ASR1002X-ACS=	Cisco ASR1002-X Accessory Kit, Spare
ASR1002-ACS=	Cisco ASR1002 Accessory Kit, Spare
ASR1001X-ACS=	Cisco ASR1001-X Accessory Kit, Spare
ASR1001-ACS=	Cisco ASR1001 Accessory Kit, Spare
SPA-BLANK=	Blank Cover for regular SPA
ASR1000-SIP-BLANK=	Blank Cover ASR1000 SIP, Spare
ASR1000-ESP-BLANK=	Blank Cover for ASR1000 ESP, spare
ASR1000-RP-BLANK=	Blank Cover for ASR1000 RP, spare
ASR1002X-HD-BLANK=	Blank Cover for ASR1002-X HDD, Spare
ASR1002-FIPS-KIT=	ASR1002 FIPS Opacity Kit
ASR1004-FIPS-KIT=	ASR1004 FIPS Opacity Kit
ASR1006-FIPS-KIT=	ASR1006 FIPS Opacity Kit

* Available with Cisco IOS XE Software Release 3.3S

Table 38. Ordering Information for Cisco ASR 1000 Series Software and Software Licenses
(Except for Cisco ASR 1001 and ASR 1002-X)

Product Number	Product Description
Cisco ASR 1000 Series Software*	
SASR1R1-AES-32S	Cisco ASR 1000 Series RP1 ADVANCED ENTERPRISE W/O CRYPTO
SASR1R1-AESK9-32S	Cisco ASR 1000 Series RP1 ADVANCED ENTERPRISE SERVICES
SASR1R1-AISK9-32S	Cisco ASR 1000 Series RP1 ADVANCED IP SERVICES
SASR1R1-IPB-32S	Cisco ASR 1000 Series RP1 IP BASE W/O CRYPTO
SASR1R1-IPBK9-32S	Cisco ASR 1000 Series RP1 IP BASE
SASR1R2-AES-32S	Cisco ASR 1000 Series RP2 ADVANCED ENTERPRISE W/O CRYPTO
SASR1R2-AESK9-32S	Cisco ASR 1000 Series RP2 ADVANCED ENTERPRISE SERVICES
SASR1R2-AISK9-32S	Cisco ASR 1000 Series RP2 ADVANCED IP SERVICES
SASR1R2-IPB-32S	Cisco ASR 1000 Series RP2 IP BASE W/O CRYPTO
SASR1R2-IPBK9-32S	Cisco ASR 1000 Series RP2 IP BASE
Cisco ASR 1000 Series Licenses - Security	
FLASR1-IPSEC-RTU=	Encryption Right-To-Use Feature Lic for ASR1000 Series, spare
FLASR1-IPSEC-RTU	Encryption Right-To-Use Feature Lic for ASR1000 Series
FLASR1-FW-RTU=	Firewall Right-To-Use Feature Lic for ASR1000 Series, spare
FLASR1-FW-RTU	Firewall Right-To-Use Feature Lic for ASR1000 Series
FLASR1-FPI-RTU=	Flex. Pack Insp. Right-To-Use Feat Lic, ASR1000 Series, spare
FLASR1-FPI-RTU	Flex. Pack. Insp. Right-To-Use Feat Lic for ASR1000 Series
FLASR1-NAT64-2M=	NAT64 RTU Feature License for up to 2M Sessions on ASR1000

Product Number	Product Description
FLASR1-NAT64-2M	NAT64 RTU Feature License for up to 2M Sessions on ASR1000
FLASR1-CGN-2M	CGN RTU Feature License for up to 2M Sessions on ASR1000
FLASR1-CGN-6M	CGN RTU Feature License for up to 6M Sessions on ASR1000
FLASR1-FWNAT-RED=	Firewall/NAT Stateful Inter-Chassis Redundancy License, spare
FLASR1-FWNAT-RED	Firewall/NAT Stateful Inter-Chassis Redundancy License
Cisco ASR 1000 Series Licenses - Application Visibility and Control****	
FLASR1-AVC-RTU=	Appl. Visibility & Control RTU Feat. Lic for ASR1000 Series, spare
FLASR1-AVC-RTU	Appl. Visibility & Control RTU Feat. Lic for ASR1000 Series
FLASR1-AVC-UPG=	Upgrade from FPI to AVC
FLASR1-NSIGHT-RTU=	Appl. Visibility Reporting Tool RTU. Lic for ASR1000 Series, spare
FLASR1-NSIGHT-RTU	Appl. Visibility Reporting Tool RTU. Lic for ASR1000 Series
Cisco ASR 1000 Series Licenses - High Availability	
FLASR1-IOSRED-RTU=	SW Redundancy Right-To-Use Feat Lic for ASR1000 Series, spare
FLASR1-IOSRED-RTU	SW Redundancy Right-To-Use Feat Lic for ASR1000 Series
Cisco ASR 1000 Series Licenses - Broadband	
FLASR1-BB-RTU=	Broadband Right-To-Use with 500 BB Sessions Lic for ASR1000, spare
FLASR1-BB-RTU	Broadband Right-To-Use with 500 BB Sessions Lic for ASR1000
FLASR1-BB-4K=	Broadband 4K Sessions Feature Lic for ASR1000 Series, spare
FLASR1-BB-4K	Broadband 4K Sessions Feature Lic for ASR1000 Series
FLASR1-BB-16K=	Broadband 16K Sessions Feature Lic for ASR1000 Series, spare
FLASR1-BB-16K	Broadband 16K Sessions Feature Lic for ASR1000 Series
FLASR1-BB-32K=	Broadband 32K Sessions Feature Lic for ASR1000 Series, spare
FLASR1-BB-32K	Broadband 32K Sessions Feature Lic for ASR1000 Series
FLASR1-BB-48K=	Broadband 48K Sessions Feature Lic for ASR1000 Series, spare
FLASR1-BB-48K	Broadband 48K Sessions Feature Lic for ASR1000 Series
FLASR1-BB-64K=	Broadband 64K Sessions Feature Lic for ASR1000 Series, spare
FLASR1-BB-64K	Broadband 64K Sessions Feature Lic for ASR1000 Series
Cisco ASR 1000 Series Licenses - Cisco Unified Border Element (SP Edition)	
FLASR1-CUBES-250P	CUBE(SP) 250 Calls Perpetual Lic for ASR 1000 Series
FLASR1-CUBES-250P=	CUBE(SP) 250 Calls Perpetual Lic for ASR 1000 Series, Spare
FLASR1-CUBES-2KP	CUBE(SP) 2K Calls Perpetual Lic for ASR 1000 Series
FLASR1-CUBES-2KP=	CUBE(SP) 2K Calls Perpetual Lic for ASR 1000 Series, Spare
FLASR1-CUBES-4KP	CUBE(SP) 4K Calls Perpetual Lic for ASR 1000 Series
FLASR1-CUBES-4KP=	CUBE(SP) 4K Calls Perpetual Lic for ASR 1000 Series, Spare
FLASR1-CUBES-10KP	CUBE(SP) 10K Calls Perpetual Lic for ASR 1000 Series
FLASR1-CUBES-10KP=	CUBE(SP) 10K Calls Perpetual Lic for ASR 1000 Series, spare
FLASR1-CUBES-16KP	CUBE(SP) 16K Calls Perpetual Lic for ASR 1000 Series
FLASR1-CUBES-16KP=	CUBE(SP) 16K Calls Perpetual Lic for ASR 1000 Series, Spare
FLASR1-CUBES-32KP	CUBE(SP) 32K Calls Perpetual Lic for ASR 1000 Series
FLASR1-CUBES-32KP=	CUBE(SP) 32K Calls Perpetual Lic for ASR 1000 Series, Spare
FLASR1-CUBES-LAB	CUBE(SP) Lab Use Only Perpetual Lic for ASR 1000 Series
FLASR1-CUBES-LAB=	CUBE(SP) Lab Use Only Perpetual Lic for ASR 1000 Series, Spare
FLASR1-CUBES-TPEX	CUBE(SP) Perpetual Lic for ASR 1000 Series in B2BTP Exchange
FLASR1-CUBES-TPEX=	CUBE(SP) Perpetual Lic for ASR 1000 Series in B2BTP Exchange, Spare

Product Number	Product Description
CUBESP-250P-RED	CUBE(SP) redundant 250 Session Perpetual Lic for ASR1k Series
CUBESP-250P-RED=	CUBE(SP) redundant 250 Session Perpetual Lic for ASR1k Series, Spare
CUBESP-2K-RED	CUBE(SP) redundant 2k Session Perpetual Lic for ASR1k Series
CUBESP-2K-RED=	CUBE(SP) redundant 2k Session Perpetual Lic for ASR1k Series, Spare
CUBESP-4K-RED	CUBE(SP) redundant 4k Session Perpetual Lic for ASR1k Series
CUBESP-4K-RED=	CUBE(SP) redundant 4k Session Perpetual Lic for ASR1k Series, Spare
CUBESP-10K-RED	CUBE(SP) redundant 10k Session Perpetual Lic for ASR1k Series
CUBESP-10K-RED=	CUBE(SP) redundant 10k Session Perpetual Lic for ASR1k Series, Spare
CUBESP-16K-RED	CUBE(SP) redundant 16k Session Perpetual Lic for ASR1k Series
CUBESP-16K-RED=	CUBE(SP) redundant 16k Session Perpetual Lic for ASR1k Series, Spare
CUBESO-32K-RED	CUBE(SP) redundant 32k Session Perpetual Lic for ASR1k Series
CUBESO-32K-RED=	CUBE(SP) redundant 32k Session Perpetual Lic for ASR1k Series, Spare
CUBESP-TPEX-RED	CUBE(SP) B2B redundant TP Session Perpetual Lic for ASR1k Series
CUBESP-TPEX-RED=	CUBE(SP) B2B redundant TP Session Perpetual Lic for ASR1k Series, Spare
Cisco ASR 1000 Series Licenses - Cisco Unified Border Element (Enterprise Edition)	
FLASR1-CUBEE-100P	Unified Border Element - Enterprise Edition 100 Sessions
FLASR1-CUBEE-100P=	Unified Border Element - Enterprise Edition 100 Sessions, Spare
FLASR1-CUBEE-500P	Unified Border Element - Enterprise Edition 500 Sessions
FLASR1-CUBEE-500P=	Unified Border Element - Enterprise Edition 500 Sessions, Spare
FLASR1-CUBEE-1KP	Unified Border Element - Enterprise Edition 1000 Sessions
FLASR1-CUBEE-1KP=	Unified Border Element - Enterprise Edition 1000 Sessions, Spare
FLASR1-CUBEE-4KP	Unified Border Element - Enterprise Edition 4000 Sessions
FLASR1-CUBEE-4PP=	Unified Border Element - Enterprise Edition 4000 Sessions, Spare
FLASR1-CUBEE-100R	Unified Border Element EntLic, 100 Sessions, Redundancy
FLASR1-CUBEE-100R=	Unified Border Element EntLic, 100 Sessions, Redundancy, Spare
FLASR1-CUBEE-500R	Unified Border Element EntLic, 500 Sessions, Redundancy
FLASR1-CUBEE-500R=	Unified Border Element EntLic, 500 Sessions, Redundancy, Spare
FLASR1-CUBEE-1K-R	Unified Border Element EntLic, 1000 Sessions, Redundancy
FLASR1-CUBEE-1K-R=	Unified Border Element EntLic, 1000 Sessions, Redundancy, Spare
FLASR1-CUBEE-4K-R	Unified Border Element EntLic, 4000 Sessions, Redundancy
FLASR1-CUBEE-4K-R=	Unified Border Element EntLic, 4000 Sessions, Redundancy, Spare
FLASR1-CUBEE-16K-R	Unified Border Element EntLic, 16000 Sessions, Redundancy
FLASR1-CUBEE-16K-R=	Unified Border Element EntLic, 16000 Sessions, Redundancy, Spare
Cisco ASR 1000 Series Licenses - Lawful Intercept License	
FLASR1-LI	Cisco ASR1000 Lawful Intercept License

* For part numbers of specific releases, please refer to Cisco ASR 1000 Series Global Price List.

** These software part numbers are for Cisco IOS XE Software Release 3.2S - as examples of software part numbers to order for the Cisco ASR 1000 Series, with the exception of the Cisco ASR 1001, ASR 1001-X, and ASR 1002-X. For Cisco ASR 1001, ASR 1001-X, and ASR 1002-X software part numbers, please refer to Table 39.

***** The application visibility and control feature licenses for the Cisco ASR 1000 (ASR1002, ASR1004, ASR1006, and ASR1013) and Cisco ASR 1001 are available as of Cisco IOS XE Software Release 3.4S.

Table 39. Ordering Information for Cisco ASR 1001, ASR 1001-X, and ASR 1002-X Software and Software Licenses

Product Number	Product Description
Cisco ASR1001 IOS XE Software Universal Software ***	
SASR1001U-32S	Cisco ASR1001 IOS XE UNIVERSAL
SASR1001NPEK9-32S	Cisco ASR1001 IOS XE - NO PAYLOAD ENCRYPTION UNIVERSAL
SASR1001UK9-32S	Cisco ASR1001 IOS XE - ENCRYPTION UNIVERSAL
Cisco ASR1001-X IOS XE Software Universal Software	
SASR1K1XU-312S	Cisco ASR1001-X IOS XE UNIVERSAL - NO ENCRYPTION
SASR1K1XNPEK9-312S	Cisco ASR1001-X IOS-XE UNIVERSAL - NO PAYLOAD ENCRYPTION
SASR1K1XUK9-312S	Cisco ASR1001-X IOS XE UNIVERSAL
Cisco ASR1002-X IOS XE Software Universal Software	
SASR1K2XU-37S	Cisco ASR1002-X IOS XE UNIVERSAL
SASR1K2XNPEK9-37S	Cisco ASR1002-X IOS XE - NO PAYLOAD ENCRYPTION UNIVERSAL
SASR1K2XUK9-37S	Cisco ASR1002-X IOS XE - ENCRYPTION UNIVERSAL
Cisco ASR1001 IOS XE Software Activation Technology Package Licenses - Enforced via Software Activation Prior to 3.6S Release	
SLASR1-IPB	Cisco ASR 1000 IP BASE License
SLASR1-AIS	Cisco ASR 1000 Advanced IP Services License
SLASR1-AES	Cisco ASR 1000 Advanced Enterprise Services License
SLASR1-IPB=	Cisco ASR 1000 IP BASE Paper PAK
SLASR1-IPB-AIS=	Cisco ASR 1000 IPB to AIS Upgrade Paper PAK
SLASR1-IPB-AES=	Cisco ASR 1000 IPB to AES Upgrade Paper PAK
SLASR1-AIS-AES=	Cisco ASR 1000 AIS to AES Upgrade Paper PAK
L-SLASR1-IPB-AIS=	Cisco ASR 1000 IPB to AIS Upgrade E-Delivery PAK
L-SLASR1-IPB-AES=	Cisco ASR 1000 IPB to AES Upgrade E-Delivery PAK
L-SLASR1-AIS-AES=	Cisco ASR 1000 AIS to AES Upgrade E-Delivery PAK
Cisco ASR1001 IOS XE Software Activation Feature Licenses - Enforced via Software Activation Prior to 3.7S Release	
FLS-ASR1001-5G	Upgrade from 2.5 Gbps to 5 Gbps License for ASR 1001
FLS-ASR1001-5G=	Upgrade from 2.5 Gbps to 5 Gbps Paper PAK for ASR 1001
L-FLS-ASR1001-5G=	Upgrade from 2.5 Gbps to 5 Gbps E-Delivery PAK for ASR 1001
Cisco ASR1001-X IOS XE Software Activation Feature Licenses	
FLSA1-BIN-1X10GE	ASR1001-X Built-in 10GE 1-port License
FLSA1-BIN-1X10GE=	ASR1001-X Built-in 10GE 1-port License
L-FLA1-1X-2.5G-5G=	Upgrade from 2.5 Gbps to 5 Gbps License for ASR 1001-X
FLSA1-1X-2.5-5G=	Upgrade from 2.5 Gbps to 5 Gbps Paper PAK for ASR 1001-X
L-FLSA1-1X-2.5-5G=	Upgrade from 2.5 Gbps to 5 Gbps E-Deliver PAK for ASR 1001-X
L-FLA1-1X-2.5G-10G=	Upgrade from 2.5 Gbps to 10 Gbps License for ASR 1001-X
FLSA1-1X-2.5-10G=	Upgrade from 2.5 Gbps to 10 Gbps Paper PAK for ASR 1001-X
L-FLSA1-1X-2.5-10G=	Upgrade from 2.5 Gbps to 10 Gbps E-Deliver PAK for ASR 1001-X
L-FLA1-1X-2.5G-20G=	Upgrade from 2.5 Gbps to 20 Gbps License for ASR 1001-X
FLSA1-1X-2.5-20G=	Upgrade from 2.5 Gbps to 20 Gbps Paper PAK for ASR 1001-X
L-FLSA1-1X-2.5-20G=	Upgrade from 2.5 Gbps to 20 Gbps E-Deliver PAK for ASR 1001-X
L-FLA1-1X-5-10G=	Upgrade from 5 Gbps to 10 Gbps License for ASR 1001-X
FLSA1-1X-5-10G=	Upgrade from 5 Gbps to 10 Gbps Paper PAK for ASR 1001-X
L-FLSA1-1X-5-10G=	Upgrade from 5 Gbps to 10 Gbps E-Deliver PAK for ASR 1001-X

Product Number	Product Description
L-FLA1-1X-5G-20G=	Upgrade from 5 Gbps to 20 Gbps License for ASR 1001-X
FLSA1-1X-5-20G=	Upgrade from 5 Gbps to 20 Gbps Paper PAK for ASR 1001-X
L-FLSA1-1X-5-20G=	Upgrade from 5 Gbps to 20 Gbps E-Deliver PAK for ASR 1001-X
FLSA1-1X-10-20G	Upgrade from 10 Gbps to 20 Gbps License for ASR 1001-X
L-FLA1-1X-10G-20G=	Upgrade from 10 Gbps to 20 Gbps Paper PAK for ASR 1001-X
L-FLSA1-1X-10-20G=	Upgrade from 10 Gbps to 20 Gbps E-Deliver PAK for ASR 1001-X
Cisco ASR1002-X IOS XE Software Activation Feature Licenses	
FLSA1-2X-5-10G	Upgrade from 5 Gbps to 10 Gbps License for ASR 1002-X
FLSA1-2X-5-10G=	Upgrade from 5 Gbps to 10 Gbps Paper PAK for ASR 1002-X
L-FLSA1-2X-5-10G=	Upgrade from 5 Gbps to 10 Gbps E-Delivery PAK for ASR 1002-X
FLSA1-2X-5-20G	Upgrade from 5 Gbps to 20 Gbps License for ASR 1002-X
FLSA1-2X-5-20G=	Upgrade from 5 Gbps to 20 Gbps Paper PAK for ASR 1002-X
L-FLSA1-2X-5-20G=	Upgrade from 5 Gbps to 20 Gbps E-Delivery PAK for ASR 1002-X
FLSA1-2X-5-36G	Upgrade from 5 Gbps to 36 Gbps License for ASR 1002-X
FLSA1-2X-5-36G=	Upgrade from 5 Gbps to 36 Gbps Paper PAK for ASR 1002-X
L-FLSA1-2X-5-36G=	Upgrade from 5 Gbps to 36 Gbps E-Delivery PAK for ASR 1002-X
FLSA1-2X-10-20G	Upgrade from 10 Gbps to 20 Gbps License for ASR 1002-X
FLSA1-2X-10-20G=	Upgrade from 10 Gbps to 20 Gbps Paper PAK for ASR 1002-X
L-FLSA1-2X-10-20G=	Upgrade from 10 Gbps to 20 Gbps E-Delivery PAK for ASR 1002-X
FLSA1-2X-10-36G	Upgrade from 10 Gbps to 36 Gbps License for ASR 1002-X
FLSA1-2X-10-36G=	Upgrade from 10 Gbps to 36 Gbps Paper PAK for ASR 1002-X
L-FLSA1-2X-10-36G=	Upgrade from 10 Gbps to 36 Gbps E-Delivery PAK for ASR 1002-X
FLSA1-2X-20-36G	Upgrade from 20 Gbps to 36 Gbps License for ASR 1002-X
FLSA1-2X-20-36G=	Upgrade from 20 Gbps to 36 Gbps Paper PAK for ASR 1002-X
L-FLSA1-2X-20-36G=	Upgrade from 20 Gbps to 36 Gbps E-Delivery PAK for ASR 1002-X
Cisco ASR1001 IOS XE Feature Licenses - Not enforced via Software Activation	
Software Redundancy	
FLSASR1-IOSRED	SW Redundancy License for ASR1000 Series
FLSASR1-IOSRED=	SW Redundancy Paper PAK for ASR1000 Series
L-FLSASR1-IOSRED=	SW Redundancy E-Delivery PAK for ASR1000 Series
Security	
FLSASR1-IPSEC	IPSEC License for ASR1000 Series
FL-ASR1-IPSEC=	IPSEC Paper PAK for ASR1000 Series
L-FL-ASR1-IPSEC=	IPSEC E-Delivery PAK for ASR1000 Series
FLSA1-1X-4-8G-CRYP	IPSEC License for ASR1001-X 4G-8G Crypto Upgrade TRU
FLSA1-1X-4-8G-CRYP=	IPSEC License for ASR1001-X 4G-8G Crypto Upgrade TRU, Spare
FLSA1-2X-IPS4G	IPSEC License for ASR1002-X 4G Crypto BW
FLSA1-2X-IPS4G=	IPSEC Paper PAK for ASR1002-X 4G Crypto BW
L-FLSA1-2X-IPS4G=	IPSEC E-Delivery PAK for ASR1002-X 4G Crypto BW
FLSASR1-FW	FW License for ASR1000 Series
FLSASR1-FW=	FW Paper PAK for ASR1000 Series
L-FLSASR1-FW=	FW E-Delivery PAK for ASR1000 Series
FLSASR1-FPI	Flex. Pack. Insp License for ASR1000 Series
FLSASR1-FPI=	Flex. Pack. Insp Paper PAK for ASR1000 Series

Product Number	Product Description
L-FLSASR1-FPI=	Flex. Pack. Insp E-Delivery PAK for ASR1000 Series
FLSASR1-NAT64-2M	NAT64 RTU Feature License for up to 2M Sessions on ASR1000
FLSASR1-NAT64-2M=	NAT64 RTU Feature License for up to 2M Sessions on ASR1000
L-FLSASR1-NAT64-2M	NAT64 2M Session RTU E-Delivery PAK for ASR1001 Series
FLSASR1-FWNAT-R	Firewall/NAT Stateful Inter-Chassis Redundancy License
FLSASR1-FWNAT-R=	Firewall/NAT Stateful Inter-Chassis Redundancy Paper PAK for ASR1000 Series
L-FLSASR1-FWNAT-R=	Firewall/NAT Stateful Inter-Chassis Redundancy E-Delivery PAK for ASR1000 Series
Application Visibility and Control****	
FLSASR1-AVC	Appl. Visibility & Control License for ASR1000 Series
FLSASR1-AVC=	Appl. Visibility & Control Paper PAK for ASR1000 Series
L-FLSASR1-AVC=	Appl. Visibility & Control E-Delivery PAK for ASR1000 Series
Lawful Intercept	
FLSASR1-LI	Lawful Intercept License for ASR1000 Series
FLSASR1-LI=	Lawful Intercept Paper PAK for ASR1000 Series
L-FLSASR1-LI=	Lawful Intercept E-Delivery PAK for ASR1000 Series
Broadband	
FLSASR1-BB	Broadband License for ASR1000 Series
FLSASR1-BB=	Broadband Paper PAK for ASR1000 Series
L-FLSASR1-BB=	Broadband E-Delivery PAK for ASR1000 Series
FLSASR1-BB-4K	Broadband 4K Sessions for ASR1000 Series
FLSASR1-BB-4K=	Broadband 4K Sessions Paper PAK for ASR1000 Series
L-FLSASR1-BB-4K=	Broadband 4K Sessions E-Delivery PAK for ASR1000 Series
FLSASR1-BB-16K	Broadband 16K Sessions for ASR1000 Series
FLSASR1-BB-16K=	Broadband 16K Sessions Paper PAK for ASR1000 Series
L-FLSASR1-BB-16K=	Broadband 16K Sessions E-Delivery PAK for ASR1000 Series
FLSASR1-BB-32K	Broadband 32K Sessions for ASR1000 Series
FLSASR1-BB-32K=	Broadband 32K Sessions Paper PAK for ASR1000 Series
L-FLSASR1-BB-32K=	Broadband 32K Sessions E-Delivery PAK for ASR1000 Series
NOTE: For the complete list of Feature Licenses not enforced via Software Activation, please consult the Cisco ASR 1000 Price List since new licenses might be made available and this table does not represent the complete list.	

*** These software part numbers are for Cisco IOS XE Software Release 3.2S for the Cisco ASR 1001- as examples of software part numbers to order for the Cisco ASR 1001.

**** The Application Visibility and Control feature licenses for the Cisco ASR 1000 Series (ASR1002, ASR1004, ASR1006, and ASR1013) and Cisco ASR 1001 are available as of Cisco IOS XE Software Release 3.4S.

Table 40. Ordering Information for Cisco ASR 1000 Bundles

The following bundles are available for the Cisco ASR 1000 Series:

- Base bundles
- VPN bundles
- Security bundles
- Flexible Packet Inspection bundles
- Security and High Availability
- High Availability bundles

- Broadband Bundles
- Application Experience Bundles

Part Number	Default Components
Cisco ASR 1000 Series Base Bundles	
ASR1001X-2.5G-K9	Hardware <ul style="list-style-type: none"> • Chassis: ASR1001-X with 6-built-in GE ports • ESP • RP Software <ul style="list-style-type: none"> • Consolidated Package: SASR
ASR1001X-5G-K9	Hardware <ul style="list-style-type: none"> • Chassis: ASR1001-X with 6-built-in GE ports • ESP • RP Software <ul style="list-style-type: none"> • Consolidated Package: SASR
ASR1001X-10G-K9	Hardware <ul style="list-style-type: none"> • Chassis: ASR1001-X with 6-built-in GE ports • ESP • RP Software <ul style="list-style-type: none"> • Consolidated Package: SASR
ASR1001X-20G-K9	Hardware <ul style="list-style-type: none"> • Chassis: ASR1001-X with 6-built-in GE ports • ESP • RP Software <ul style="list-style-type: none"> • Consolidated Package: SASR
ASR1002-5G/K9	Hardware <ul style="list-style-type: none"> • Chassis: ASR1002 with 4-built-in GE ports • ESP: ASR1000-ESP5 • RP1 and SIP-10 are an integral part of the ASR1002 chassis Software <ul style="list-style-type: none"> • Consolidated Package: SASR1R1-AESK9-XYs
ASR1002-10G/K9	Hardware <ul style="list-style-type: none"> • Chassis: ASR1002 with 4 built-in GE ports • ESP: ASR1000-ESP10 • RP1 and SIP-10 are an integral part of the ASR1002 chassis Software <ul style="list-style-type: none"> • Consolidated Package: SASR1R1-AESK9-XYs
ASR1004-10G/K9	Hardware <ul style="list-style-type: none"> • Chassis: ASR1004 • ESP: ASR1000-ESP10 • RP: ASR1000-RP1 • SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> • Consolidated Package: SASR1R1-AESK9-XYs
ASR1002X-5G-K9	Hardware <ul style="list-style-type: none"> • ASR1002-X Software <ul style="list-style-type: none"> • Universal Image: SASR1K2XUK9-XYs • Technology Package License: FLASR1-AES

Part Number	Default Components
ASR1002X-10G-K9	Hardware <ul style="list-style-type: none"> ASR1002-X Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-10G
ASR1002X-20G-K9	Hardware <ul style="list-style-type: none"> ASR1002-X Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-20G
ASR1002X-36G-K9	Hardware <ul style="list-style-type: none"> ASR1002-X Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-36G
ASR1002X-36G-NB	Hardware <ul style="list-style-type: none"> ASR1002-X with 4GB memory M-ASR1002X-4GB SPA-1X10GE-L-V2 (Qty: 2) Software & Licenses <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASE1-IPB Performance Upgrade License: FLSA1-2X-5-36G
ASR1004-20G/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP20 RP: ASR1000-RP1 SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs
ASR1004-40G-NB	Hardware <ul style="list-style-type: none"> ASR1004 ASR1000-RP2 ASR1000-ESP40 ASR1000-SIP40 SPA-1X10GE-L-V2 (Qty: 4) Software <ul style="list-style-type: none"> SASR1R2-AESK9-XYs
Cisco ASR 1001 Series VPN Bundles**	
ASR1001-2.5G-VPNK9	Hardware <ul style="list-style-type: none"> ASR1001 ESP: Integrated at default of 2.5-Gbps - not configurable with 5-Gbps upgrade license RP and SIP are an integral part of the ASR1001 chassis Software <ul style="list-style-type: none"> Universal Image: SASR1001UK9-XYs Technology Package License: FLASR1-AES Feature License: FLSASR1-IPSEC

Part Number	Default Components
ASR1001-5G-VPNK9	Hardware <ul style="list-style-type: none"> ASR1001 ESP: Integrated and performance is enforced to up to 5-Gbps via license RP and SIP are an integral part of the ASR1001 chassis Software <ul style="list-style-type: none"> Universal Image: SASR1001UK9-XYs Technology Package License: FLASR1-AES Feature License: FLSASR1-IPSEC, FLS-ASR1001-5G
Cisco ASR 1001-X Series VPN Bundles	
ASR1001X-2.5G-VPN	Hardware <ul style="list-style-type: none"> ASR1001-X ESP: Integrated at default of 2.5-Gbps RP and SIP are an integral part of the ASR1001-X chassis Software <ul style="list-style-type: none"> Universal Image: SASR1K1XUK9-XYs Technology Package License: FLASR1-AES Feature License: FLSASR1-IPSEC
ASR1001X-5G-VPN	Hardware <ul style="list-style-type: none"> ASR1001-X ESP: Integrated and performance is enforced to up to 5-Gbps via license RP and SIP are an integral part of the ASR1001-X chassis Software <ul style="list-style-type: none"> Universal Image: SASR1K1XUK9-XYs Technology Package License: FLASR1-AES System Throughput Upgrade License: FLSA1-1X-2.5-5G Feature License: FLSASR1-IPSEC
ASR1001X-10G-VPN	Hardware <ul style="list-style-type: none"> ASR1001-X ESP: Integrated and performance is enforced to up to 10-Gbps via license RP and SIP are an integral part of the ASR1001-X chassis Software <ul style="list-style-type: none"> Universal Image: SASR1K1XUK9-XYs Technology Package License: FLASR1-AES System Throughput Upgrade License: FLSA1-1X-2.5-10G Feature License: FLSASR1-IPSEC
ASR1001X-20G-VPN	Hardware <ul style="list-style-type: none"> ASR1001-X ESP: Integrated and performance is enforced to up to 20-Gbps via license RP and SIP are an integral part of the ASR1001-X chassis Software <ul style="list-style-type: none"> Universal Image: SASR1K1XUK9-XYs Technology Package License: FLASR1-AES System Throughput Upgrade License: FLSA1-1X-2.5-20G Feature License: FLSASR1-IPSEC

Part Number	Default Components
Cisco ASR 1001-X Series VPN Bundles	
ASR1002-5G-VPN/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1002 with 4-built-in GE ESP: ASR1000-ESP5 RP1 and SIP-10 are an integral part of the ASR1002 chassis Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU
ASR1002-10G-VPN/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1002 with 4-built-in GE ESP: ASR1000-ESP10 RP1 and SIP-10 are an integral part of the ASR1002 chassis Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU
ASR1002X-5G-VPNK9	Hardware <ul style="list-style-type: none"> ASR1002-X Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Feature License: FLSA1-2X-IPS4G
ASR1002X-10G-VPNK9	Hardware <ul style="list-style-type: none"> ASR1002-X Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-10G Feature License: FLSA1-2X-IPS4G
ASR1002X-20G-VPNK9	Hardware <ul style="list-style-type: none"> ASR1002-X Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-20G Feature License: FLSA1-2X-IPS4G
ASR1002X-36G-VPNK9	Hardware <ul style="list-style-type: none"> ASR1002-X Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-36G Feature License: FLSA1-2X-IPS4G
ASR1004-10G-VPN/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP10; RP: ASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU
ASR1004-20G-VPN/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP20; RP: ASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU

Part Number	Default Components
Cisco ASR 1001-X Series VPN Bundles	
ASR1006-10G-VPN/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP10; RP: 1XASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU
ASR1006-20G-VPN/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP20; RP: 1XASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU
ASR1K4R2-20G-VPNK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP20; RP: ASR1000-RP2; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU
ASR1K6R2-20G-VPNK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP20; RP: 1XASR1000-RP2; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU
ASR1K4R2-40G-VPNK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP40; RP: ASR1000-RP2; SIP: 1XASR1000-SIP40 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU
ASR1K6R2-40G-VPNK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP40; RP: 1XASR1000-RP2; SIP: 1XASR1000-SIP40 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU
ASR1K6R2-100G-VPNK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP100; RP: 1XASR1000-RP2; SIP: 1XASR1000-SIP40 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-39S Feature License: FLASR1-IPSEC-RTU

Part Number	Default Components
Cisco ASR 1001 Series Security Bundles**	
ASR1001-2.5G-SECK9	Hardware <ul style="list-style-type: none"> ASR1001 ESP: Integrated at default of 2.5-Gbps - not configurable with 5-Gbps upgrade license RP and SIP are an integral part of the ASR1001 chassis Software <ul style="list-style-type: none"> Universal Image: SASR1001UK9-XYs Technology Package License: FLASR1-AES Feature License: FLSASR1-IPSEC, FLSASR1-FW
ASR1001-5G-SECK9	Hardware <ul style="list-style-type: none"> ASR1001 ESP: Integrated and performance is enforced to up to 5-Gbps via license RP and SIP are an integral part of the ASR1001 chassis Software <ul style="list-style-type: none"> Universal Image: SASR1001UK9-XYs Technology Package License: FLASR1-AES Feature License: FLSASR1-IPSEC, FLSASR1-FW, FLS-ASR1001-5G
Cisco ASR 1001-X Series Security Bundles	
ASR1001X-2.5G-SEC	Hardware <ul style="list-style-type: none"> ASR1001-X ESP: Integrated at default of 2.5-Gbps RP and SIP are an integral part of the ASR1001-X chassis Software <ul style="list-style-type: none"> Universal Image: SASR1K1XUK9-XYs Technology Package License: FLASR1-AES Feature License: FLSASR1-IPSEC, FLSASR1-FW
ASR1001X-5G-SEC	Hardware <ul style="list-style-type: none"> ASR1001-X Integrated and performance is enforced to up to 5-Gbps via license RP and SIP are an integral part of the ASR1001-X chassis Software <ul style="list-style-type: none"> Universal Image: SASR1K1XUK9-XYs Technology Package License: FLASR1-AES System Throughput Upgrade License: FLSA1-1X-2.5-5G Feature License: FLSASR1-IPSEC, FLSASR1-FW
ASR1001X-10G-SEC	Hardware <ul style="list-style-type: none"> ASR1001-X Integrated and performance is enforced to up to 10-Gbps via license RP and SIP are an integral part of the ASR1001-X chassis Software <ul style="list-style-type: none"> Universal Image: SASR1K1XUK9-XYs Technology Package License: FLASR1-AES System Throughput Upgrade License: FLSA1-1X-2.5-10G Feature License: FLSASR1-IPSEC, FLSASR1-FW
ASR1001X-20G-SEC	Hardware <ul style="list-style-type: none"> ASR1001-X Integrated and performance is enforced to up to 20-Gbps via license RP and SIP are an integral part of the ASR1001-X chassis Software <ul style="list-style-type: none"> Universal Image: SASR1K1XUK9-XYs Technology Package License: FLASR1-AES System Throughput Upgrade License: FLSA1-1X-2.5-20G Feature License: FLSASR1-IPSEC, FLSASR1-FW

Part Number	Default Components
Cisco ASR 1001-X Series Security Bundles	
ASR1002-5G-SEC/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1002 with 4-built-in GE ESP: ASR1000-ESP5 RP1 and SIP-10 are an integral part of the ASR1002 chassis Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU
ASR1002-10G-SECK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1002 ESP: ASR1000-ESP10 RP1 and SIP-10 are an integral part of the ASR1002 chassis Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU
ASR1002X-5G-SECK9	Hardware <ul style="list-style-type: none"> ASR1002-X Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Feature Licenses: FLSA1-2X-IPS4G; FLSASR1-FW
ASR1002X-10G-SECK9	Hardware <ul style="list-style-type: none"> ASR1002-X Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-10G Feature Licenses: FLSA1-2X-IPS4G; FLSASR1-FW
ASR1002X-20G-SECK9	Hardware <ul style="list-style-type: none"> ASR1002-X Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-20G Feature Licenses: FLSA1-2X-IPS4G; FLSASR1-FW
ASR1002X-36G-SECK9	Hardware <ul style="list-style-type: none"> ASR1002-X Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-36G Feature Licenses: FLSA1-2X-IPS4G; FLSASR1-FW
ASR1004-10G-SEC/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP10; RP: ASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU
ASR1004-20G-SEC/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP20; RP: ASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU

Part Number	Default Components
Cisco ASR 1001-X Series Security Bundles	
ASR1006-10G-SEC/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP10; RP:1X ASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU
ASR1006-20G-SEC/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP20; RP:1X ASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU
ASR1K4R2-20G-SECK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP20; RP: ASR1000-RP2; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU
ASR1K6R2-20G-SECK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP20; RP:1X ASR1000-RP2; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU
ASR1K6R2-100G-SECK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP100; RP:1XASR1000-RP2; SIP: 1XASR1000-SIP40 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-39S Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU
Cisco ASR 1000 Series Flexible Packet Inspection Bundles	
ASR1002-5G-FPI/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1002 with 4-built-in GE ESP: ASR1000-ESP5 RP1 and SIP-10 are an integral part of the ASR1002 chassis Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-FPI-RTU (covers NBAR and FPM)
ASR1002-10G-FPI/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1002 ESP: ASR1000-ESP10 RP-1 and SIP-10 are an integral part of the ASR1002 chassis Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-FPI-RTU (covers NBAR and FPM)
ASR1004-10G-FPI/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP10; RP: ASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-FPI-RTU (covers NBAR and FPM)

Part Number	Default Components
Cisco ASR 1001-X Series Security Bundles	
ASR1004-20G-FPI/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP20; RP: ASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYS Feature License: FLASR1-FPI-RTU (covers NBAR and FPM)
ASR1006-10G-FPI/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP10; RP: 1XASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYS Feature License: FLASR1-FPI-RTU (covers NBAR and FPM)
ASR1006-20G-FPI/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP20; RP: 1XASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYS Feature License: FLASR1-FPI-RTU (covers NBAR and FPM)
ASR1K4R2-20G-FPIK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP20; RP: ASR1000-RP2; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYS Feature License: FLASR1-FPI-RTU (covers NBAR and FPM)
ASR1K6R2-20G-FPIK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP20; RP: 1XASR1000-RP2; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYS Feature License: FLASR1-FPI-RTU (covers NBAR and FPM)
ASR1K4R2-40G-SECK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP40; RP: ASR1000-RP2; SIP: 1XASR1000-SIP40 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYS Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU
ASR1K6R2-40G-SECK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 1XASR1000-ESP40; RP: 1XASR1000-RP2; SIP: 1XASR1000-SIP40 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYS Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU

Part Number	Default Components
Cisco ASR 1001-X Series Security Bundles	
Cisco ASR 1000 Series Security + High Availability Bundles	
ASR1002F-SHA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1002-F with 4-built-in GE ESP-2.5, RP1 and SIP-10 are an integral part of the ASR1002-F chassis Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU, FLASR1-FPI-RTU, FLASR1-IOSRED-RTU
ASR1002-5G-SHA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1002 with 4-built-in GE ESP: ASR1000-ESP5 RP1 and SIP-10 are an integral part of the ASR1002 chassis Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU, FLASR1-FPI-RTU, FLASR1-IOSRED-RTU
ASR1002-10G-SHA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1002 ESP: ASR1000-ESP10 RP1 and SIP-10 are an integral part of the ASR1002 chassis Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU, FLASR1-FPI-RTU, FLASR1-IOSRED-RTU
ASR1004-10G-SHA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP10; RP: ASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU, FLASR1-FPI-RTU, FLASR1-IOSRED-RTU
ASR1002X-5G-SHAK9	Hardware <ul style="list-style-type: none"> ASR1002-X with 8GB memory M-ASR1002X-8GB Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Feature Licenses: FLA1-2X-IPS4G; FLSASR1-FW; FLSASR1-FPI; FLSASR1-IOSRED
ASR1002X-10G-SHAK9	Hardware <ul style="list-style-type: none"> ASR1002-X with 8GB memory M-ASR1002X-8GB Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Performance Upgrade License: FLA1-2X-5-10G Feature Licenses: FLA1-2X-IPS4G; FLSASR1-FW; FLSASR1-FPI; FLSASR1-IOSRED
ASR1002X-20G-SHAK9	Hardware <ul style="list-style-type: none"> ASR1002-X with 8GB memory M-ASR1002X-8GB Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES Performance Upgrade License: FLA1-2X-5-20G Feature Licenses: FLA1-2X-IPS4G; FLSASR1-FW; FLSASR1-FPI; FLSASR1-IOSRED
ASR1002X-36G-SHAK9	Hardware <ul style="list-style-type: none"> ASR1002-X with 8GB memory M-ASR1002X-8GB Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XYs Technology Package License: FLASR1-AES

Part Number	Default Components
	<ul style="list-style-type: none"> Performance Upgrade License: FLSA1-2X-5-36G Feature Licenses: FLSA1-2X-IPS4G; FLSASR1-FW; FLSASR1-FPI; FLSASR1-IOSRED
Cisco ASR 1001-X Series Security Bundles	
ASR1004-20G-SHA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP20; RP: ASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU, FLASR1-FPI-RTU, FLASR1-IOSRED-RTU
ASR1006-10G-SHA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 2XASR1000-ESP10; RP: 2XASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU, FLASR1-FPI-RTU
ASR1006-20G-SHA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 2XASR1000-ESP20; RP: 2XASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU, FLASR1-FPI-RTU
ASR1K4R2-20G-SHAK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP20; RP: ASR1000-RP2; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU, FLASR1-FPI-RTU, FLASR1-IOSRED-RTU
ASR1K6R2-20G-SHAK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 2XASR1000-ESP20; RP: 2XASR1000-RP2; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU, FLASR1-FPI-RTU
ASR1K6R2-40G-SHAK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 2XASR1000-ESP0; RP: 2XASR1000-RP2; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU, FLASR1-FPI-RTU
ASR1K6R2-100G-SHAK9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 2XASR1000-ESP100; RP: 2XASR1000-RP2; SIP: 1XASR1000-SIP40 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-39S Feature License: FLASR1-IPSEC-RTU, FLASR1-FW-RTU, FLASR1-FPI-RTU
Cisco ASR 1000 Series High Availability Bundles	
ASR1002-5G-HA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1002 with 4-built-in GE ESP: ASR1000-ESP5 RP1 and SIP-10 are an integral part of the ASR1002 chassis Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IOSRED-RTU

Part Number	Default Components
Cisco ASR 1001-X Series Security Bundles	
ASR1002-10G-HA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1002 ESP: ASR1000-ESP10 RP1 and SIP-10 are an integral part of the ASR1002 chassis Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IOsRED-RTU
ASR1004-10G-HA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP10; RP: ASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IOsRED-RTU
ASR1004-20G-HA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1004 ESP: ASR1000-ESP20; RP: ASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs Feature License: FLASR1-IOsRED-RTU
ASR1006-10G-HA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 2XASR1000-ESP10; RP: 2XASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs
ASR1006-20G-HA/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 2XASR1000-ESP20; RP: 2XASR1000-RP1; SIP: 1XASR1000-SIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AESK9-XYs
Cisco ASR 1000 Series Broadband Bundles	
ASR1K6R2-20-B32/K9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 2xASR1000-ESP20 RP: 2xRP2 SIP: 1XSIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AISK9-XYs Feature License: FLASR1-BB-RTU Feature License: FLASR1-BB-32K
ASR1006-10G-B16/k9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 2xASR1000-ESP10 RP: 2xRP1 SIP: 1XSIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AISK9-XYs Feature License: FLASR1-BB-RTU Feature License: FLASR1-BB-16K

Part Number	Default Components
Cisco ASR 1001-X Series Security Bundles	
ASR1006-10G-B24/k9	Hardware <ul style="list-style-type: none"> Chassis: ASR1006 ESP: 2xASR1000-ESP10 RP: 2xRP1 SIP: 1XSIP10 Software <ul style="list-style-type: none"> Consolidated Package: SASR1R1-AISK9-XYs Feature License: FLASR1-BB-RTU Feature License: FLASR1-BB-16K Feature License: 2x FLASR1-BB-4K

* The letters "XY" in the image name (for example, SASR1R1-AESK9-XYs and SASR1001UK9-XYs) are denoted as the latest major Cisco IOS XE Software release (for example, 32 means Cisco IOS XE Software Release 3.2S). However, the actual release is subject to change without notice.

** Available with Cisco IOS XE Software Release 3.3S.

Cisco ASR 1000 Application Experience

The Cisco ASR 1000 Application Experience (AX) bundles consist of the following items:

- AVC License with NBAR2 DPI, Flexible NetFlow (FNF), and Performance Monitoring
- AppNav for WAN optimization
- Option to purchase heavily discounted vWAAS licenses, to be run on a standalone server

Table 41 lists part numbers for Cisco ASR AX Router bundles.

Table 41. Cisco ASR AX Router Bundles

Part Number	Product Description	Quantity
ASR1001-5G-AES-AX	ASR1001 AX, AVC, AES, 5G, vWAAS, Bundle, includes:	
	ASR1001	1
	SLASR1-AES	1
	FLS-ASR1001-5G	1
	FLSASR1-AVC	1
ASR1001-5G-AIS-AX	ASR1001 AX, AVC, AIS, 5G, vWAAS, Bundle, includes:	
	ASR1001	1
	SLASR1-AIS	1
	FLS-ASR1001-5G	1
	FLSASR1-AVC	1
ASR1002X-AES-AX	ASR1002X AX, AVC, AES, vWAAS Bundle, includes:	
	ASR1002-X	1
	SLASR1-AES	1
	FLSASR1-AVC	1
ASR1002X-AIS-AX	ASR1002X AX, AVC, AIS, vWAAS Bundle, includes:	
	ASR1002-X	1
	SLASR1-AES	1
	FLSASR1-AVC	1

Virtual WAAS Ordering Option with Cisco ASR AX Bundles

With each of the ASR bundles in Table 41, Cisco is providing the option to purchase a discounted vWAAS license; these licenses may then be deployed on a standalone server; product IDs are shown in Table 42.

Table 42. vWAAS Product IDs for Specific ASR AX Configurations Only

Part Number	Product Description
FLASR1-AX-VWAAS12K	License for Virtual WAAS 12000 Connections
FLASR1-AX-VWAAS50K	License for Virtual WAAS 50000 Connections

Promotional Upgrades to Existing ASR to Include AX Features

Cisco is offering promotional upgrades for existing ASRs to include the AX features. You may upgrade an existing Cisco ASR 1001 or ASR 1002 to include the AX feature set for the ASR.



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