

Cisco ASR 1000 Series Aggregation Services Routers

Ordering Guide

November 2013

For further information, questions and comments please contact ccbu-pricing@cisco.com

| | |
|---|----|
| <u>Overview</u> | 3 |
| <u>Getting Started</u> | 3 |
| <u>Cisco ASR 1000 Series High-Level Overview and Part Numbers</u> | 4 |
| <u>Cisco ASR 1000 Series Router Hardware Rules</u> | 6 |
| <u>Chassis</u> | 6 |
| <u>Embedded Services Processor</u> | 6 |
| <u>Route Processor</u> | 7 |
| <u>Route-Processor Types</u> | 7 |
| <u>Route-Processor Memory and Storage</u> | 8 |
| <u>Route Processor Redundancy</u> | 8 |
| <u>USB Flash Memory Token</u> | 9 |
| <u>Ports and Media Interface Modules: SIP and SPA</u> | 9 |
| <u>Power Supplies</u> | 10 |
| <u>Accessories</u> | 10 |
| <u>Ordering Cisco ASR 1000 Series Router Software: Cisco ASR 1000 RP1 and RP2 Software</u> | 11 |
| <u>Ordering Cisco ASR 1000 Series Router Software: Cisco ASR 1001/ASR 1002-X Software</u> | 12 |
| <u>Ordering Cisco ASR 1000 Series Router Feature Licenses</u> | 14 |
| <u>Broadband and Service Provider Wi-Fi</u> | 16 |
| <u>Ordering Cisco ASR 1001/ASR 1002-X Series Feature Licenses</u> | 19 |
| <u>Ordering Cisco ASR 1000 Series Bundles</u> | 19 |
| <u>Configuration Examples</u> | 20 |
| <u>Example 1: Cisco ASR 1000 Series Router for Application Experience (ASR1000-AX)</u> | 21 |
| <u>Example 2: Cisco ASR 1000 Series Router as a Broadband Aggregation Router</u> | 26 |
| <u>Example 3: Cisco ASR 1000 Series Router as a Quadruple-Play Edge Router</u> | 38 |
| <u>Example 4: Cisco ASR 1000 Series Router as an LNS Router with Per-Subscriber Firewall</u> | 39 |
| <u>Example 5: Cisco ASR 1000 Series Router as High-End Customer Premises Equipment</u> | 40 |
| <u>Example 6: Cisco ASR 1000 Series Router as a Provider-Edge Router</u> | 41 |
| <u>Example 7: Cisco ASR 1000 Series Router as a Route Reflector</u> | 41 |
| <u>Example 8: Cisco ASR 1000 Series Router as a Secure Headend Router</u> | 42 |
| <u>Example 9: Cisco ASR 1000 Series Router as an Internet Gateway Router</u> | 43 |
| <u>Example 10.1: Cisco ASR 1000 Series Router as an SBC in a Centralized SIP Trunking Data Center</u> | 44 |
| <u>Example 10.2: Cisco ASR 1000 Series Router as an SBC in an Intercompany Telepresence Solution Deployed in a Service Provider Data Center</u> | 45 |
| <u>Example 11: Cisco ASR 1000 Series Router as a Stateful NAT64 Translator (Cloud Provider Edge)</u> | 45 |
| <u>Example 12: Cisco ASR 1000 Series Router as a Mobile Border Gateway</u> | 46 |
| <u>Example 13: Cisco ASR 1000 Series Router as a Carrier-Grade NAT Router</u> | 47 |
| <u>Ordering Information</u> | 47 |

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. Secondly, there are several ordering examples, as well as a step-by-step walk-through of the Cisco Dynamic Configuration Tool, 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 six different versions: the Cisco ASR 1001 Router, the Cisco ASR 1002 Router, the Cisco ASR 1002-X Router, the Cisco ASR 1004 Router, the Cisco ASR 1006 Router, and the Cisco ASR 1013 Router. All six models use the innovative and powerful Cisco QuantumFlow Processor (QFP), which provides a huge leap in performance and resiliency for network processors.

The Cisco ASR 1000 Series delivers multiple services embedded in the Cisco QFP at wire speeds from 2.5 to 200 Gbps. The services supported on the Cisco QFP include security services (for example, upto 29G encryption throughput and upto 6M firewall sessions), quality of service (QoS), Application Visibility and Control, Cisco IOS Flexible Packet Matching (FPM), broadband aggregation, Cisco Unified Border Element (SP Edition), and Cisco Unified Border Element (Enterprise Edition). Additionally, Cisco ASR 1000 offers feature rich scalable Data Center Interconnect solutions that include OTV (Overlay Transport Virtualization) and VPLS (Virtual Private Label Switching) to connect geographically dispersed data centers. Advanced Routing techniques like LISP (Locate Identity Separation Protocol) allows 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 1002, ASR 1002-X, and ASR 1004 Routers), and hardware redundancy (on the Cisco ASR 1006 and ASR 1013 Routers), the Cisco ASR 1000 Series is highly reliable and 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 ASR1006 and ASR1013.

Getting Started

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

1. Is there a form factor requirement? How many rack units (RUs) are required?
2. What is the total throughput needed in the router?
3. Is hardware or software redundancy required?
4. What types of, and how many, interfaces are needed?
5. What services are to be enabled?
6. Is this deployment for a service provider or an enterprise?

Cisco ASR 1000 Series High-Level Overview and Part Numbers

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

For quick lookups, please view the index of tables located in the “Contents” section.

- Chassis: The chassis houses all of the router components.
 - Route processors: Route processors provide advanced routing features and also monitor and manage other resources on the Cisco ASR 1000. They comprise the memory, hard disk, and USB flash memory token.
 - Cisco ASR 1000 Series Embedded Services Processor (ESP): Based on the Cisco QuantumFlow Processor, the ESP performs forwarding, network security, deep packet inspection, firewalling, and many other advanced features.
 - 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 IOS XE Software:

There is a change in paradigm between Cisco ASR 1001/ASR 1002-X (universal image with Product Activation Keys [PAKs]) and all other Cisco ASR 1000 Series Routers (six consolidated images). When reading the software and license sections, make sure you are reading the correct section.

 - IP Base with and without crypto
 - Advanced IP services with and without crypto
 - Advanced Enterprise services with and without crypto
- Cisco ASR 1000 Series 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 PAK. **Note:** Prior to IOS XE release 3.7S, performance upgrade licenses used to upgrade the Cisco ASR 1001 from 2.5 to 5 Gbps or ASR 1002-X from 5 to 10 to 20 to 36 Gbps are enforced. Similarly, prior to IOS XE release 3.6S, technology package licenses are enforced.

Table 1 lists system part numbers for chassis, route processors, ESPs, SIPs, and SPAs.

Table 1. Chassis, Route-Processor, ESP, SIP, and SPA Part Numbers

| Chassis | |
|------------------------|-------------|
| Name | Part Number |
| Cisco ASR 1001 | ASR1001 |
| Cisco ASR 1002 Modular | ASR1002 |
| Cisco ASR 1002-X | ASR1002-X |
| Cisco ASR 1004 | ASR1004 |
| Cisco ASR 1006 | ASR1006 |
| Cisco ASR 1013 | ASR10013 |

| 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, 20Gbps | ASR1000-ESP20 |
| ESP40, 40 Gbps | ASR1000-ESP40 |
| ESP100, 100 Gbps | ASR1000-ESP100 |
| ESP200, 200 Gbps | ASR1000-ESP200 |
| SPA Interface Processors (SIP) | |
| SIP10, 10 Gbps | ASR1000-SIP10 |
| SIP40, 40 Gbps | ASR1000-SIP40 |
| 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 |
| h4-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 |
| 4-port OC3/STM1 POS | SPA-4XOC3-POS |
| 1-port OC12/STM4 POS | SPA-1XOC12-POS |
| Cisco 4 port serial SPA | SPA-4XT-SERIAL |
| 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 Rules

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. Table 2 lists the rack-unit (RU) height for the Cisco ASR 1000 chassis.

Table 2. Cisco ASR 1000 Chassis Rack-Unit Sizes

| Form Factor | |
|-------------|-----------------|
| Chassis | Rack Units (RU) |
| ASR1001 | 1 |
| ASR1002 | 2 |
| ASR1002-X | 2 |
| ASR1004 | 4 |
| ASR1006 | 6 |
| 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 3 lists relevant ESP specifics.

Table 3. ESP Specifics

| ESP Specifics | | | | | | | | | | |
|---------------|-------------------------------------|--------------|------------|------------|--------|----------|--------|--------|---------|---------|
| Chassis | 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 | | | | | | |
| 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 | |
| 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=.

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

| Part Number | Description |
|---------------------------|---|
| 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 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. 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.

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.

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 4 lists relevant route-processor specifics.

Table 4. Route-Processor Specifics

| RP Specifics | | | | | |
|--------------|-------------------|-------------|--------------|-------------|-----|
| Chassis | Max Number of RPs | ASR1001 RP | ASR1002-X RP | RP1 | RP2 |
| ASR1001 | 1 | Integrated* | | | |
| ASR1002 | 1 | | | Integrated* | |
| ASR1002-X | 1 | | Integrated* | | |

| RP Specifics | | | | | |
|--------------|---|--|--|--------|--------|
| ASR1004 | 1 | | | Module | Module |
| ASR1006 | 2 | | | Module | Module |
| ASR1013 | 2 | | | | Module |

* Because the Cisco ASR 1001, 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 5 lists relevant route-processor memory and storage specifics.

Table 5. Route-Processor Memory and Storage Specifics

| RP Memory | | | |
|-----------|-----------------------------|-----------------------|---|
| Chassis | Default Memory | Max memory | Default & Max Storage |
| ASR1001 | 4G | 16G | 8G EUSB* |
| ASR1002 | 4G | 4G | 8G EUSB* |
| ASR1002-X | 4G | 16G | 8G EUSB* |
| ASR1004 | RP1/RP1-N 4G, RP1-N, RP2 8G | RP1/RP1-N 4G, RP2 16G | RP1/RP1-N 40GB; 1G EUSB; RP2 80 GB; 1G EUSB** |
| ASR1006 | RP1/RP1-N 4G, RP1-N, RP2 8G | RP1/RP1-N 4G, RP2 16G | RP1/RP1-N 40GB; 1G EUSB; RP2 80 GB; 1G EUSB** |
| ASR1013 | RP2 8G | RP2 16G | RP2 80 GB; 1G EUSB** |

* There is no hard disk on the Cisco ASR1001, 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. ASR1002-X also comes with an 8-GB embedded USG (EUSB) flash drive; in addition, ASR1002-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:

- Maximum DRAM increased on Cisco ASR 1001 from 8 to 16 Gbps 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/Edge and Route Reflector deployments, it is highly recommended to configure ASR1001 or ASR1002-X with 8G of shared memory instead of the default 4G of shared memory.

Route Processor Redundancy

The Cisco ASR 1000 is a highly redundant router; the type of redundancy depends on the model. Table 6 lists relevant route-processor memory redundancy requirements.

Table 6. Memory Requirements for Route-Processor Redundancy

| Redundancy Requirements | | | | |
|-------------------------|-----------------------|-----------------------------|-------------------------------|--|
| Chassis | Inbox Redundancy Type | Default Memory | Minimum Memory for Redundancy | Redundancy Feature License |
| ASR1001 | SW No ISSU* | 4G | 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, RP2 8G | RP1/RP1-N 4G, RP2 8G | FLASR1-IOSRED-RTU(=) |
| ASR1006 | HW ISSU** | RP1/RP1-N 4G, RP1-N, RP2 8G | RP1/RP1-N 4G, 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 7 lists relevant SIP and SPA specifics.

Table 7. SIP and SPA Specifics

| SIPS, SPAs and Port Specifics | | | | | |
|-------------------------------|---------------|---------|------------|------------|-----------------|
| Chassis | Max SPA Slots | Max SIP | SIP10 | SIP40 | Built in GE/SFP |
| ASR1001 | 1 | N/A | Integrated | | 4 |
| ASR1002 | 3 | N/A | Integrated | | 4 |
| ASR1002-X | 3 | N.A | | Integrated | 6 |
| ASR1004 | 8 | 2 | Module | | N/A |
| ASR1006 | 12 | 3 | Module | | N/A |
| ASR1013 | 24 | 6 | | Module | N/A |

Release Information: 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 1013 as of Cisco IOS XE Software Release 3.1S

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 or dual DC power supplies. **AC and DC in the same chassis is not supported.** Table 8 lists relevant power-supply specifics.

Table 8. Power-Supply Specifics

| Power Supplies | | | | | |
|----------------|----------------------|----------------------|-----|-----|------------------|
| Chassis | Default Number | Max Number | AC | DC | Mix of AC And DC |
| ASR1001 | 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 |
| 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.

Table 9 lists the accessories that come with the routers.

Table 9. Accessories

| Accessories | |
|------------------------------------|--------------------|
| Description | Part Number |
| Cisco ASR1006 Accessory Kit, Spare | ASR1006-ACS= |
| Cisco ASR1004 Accessory Kit, Spare | ASR1004-ACS= |
| Cisco ASR1002 Accessory Kit, Spare | ASR1002-ACS= |
| ASR1006 FIPS Opacity Kit | ASR1006-FIPS-KIT= |
| ASR1004 FIPS Opacity Kit | ASR1004-FIPS-KIT= |
| ASR1002 FIPS Opacity Kit | ASR1002-FIPS-KIT= |
| Cisco ASR1001 Accessory Kit, Spare | ASR1001-ACS= |
| Cisco ASR1013 Accessory Kit, Spare | ASR1013-ACS= |
| Cisco ASR1013 Accessory Kit | ASR1013-ACS |
| Cisco ASR1001 Accessory Kit | ASR1001-ACS |
| Blank Cover ASR1000 SIP, Spare | ASR1000-SIP-BLANK= |
| Blank Cover for ASR1000 ESP, spare | ASR1000-ESP-BLANK= |
| Blank Cover for ASR1000 RP, spare | ASR1000-RP-BLANK= |
| Blank Cover for regular SPA | SPA-BLANK= |

| Accessories | |
|--------------------------------------|--------------------|
| Description | Part Number |
| Cisco ASR1002-X Accessory Kit | ASR1002X-ACS |
| Cisco ASR1002-X Accessory Kit, Spare | ASR1002X-ACS= |
| Blank Cover for ASR1002-X HDD | ASR1002X-HD-BLANK |
| Blank Cover for ASR1002-X HDD, Spare | ASR1002X-HD-BLANK= |

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.

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

Twelve consolidated packages 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 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 1002-X Software", in particular Tables 11, 12, and 13).

Table 10 describes the Cisco IOS XE Software consolidated packages for the Cisco ASR 1000 RP1 and RP2.

Table 10. 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) functionality) 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) functionality) Does not include support for legacy protocols |
| Cisco ASR 1000 Series RP2 Advanced IP Services | 64-bit (RP2) | SASR1R2-AISK9 | |
| 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) functionality), as well as legacy 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) Functionality), as well as legacy protocols |
| Cisco ASR 1000 Series RP2 Advanced Enterprise Services | 64-bit (RP2) | SASR1R2-AESK9 | |

* 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.

Service provider or enterprise: In general, one should apply the following rules:

- 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 1002-X Software

With the Cisco ASR 1001 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, performance upgrade license to upgrade from 2.5 to 5 Gbps, are both honor-based. For 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 IOS XE 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 or ASR 1002-X, you must order a universal image **in combination** with a technology package license.

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

Table 11 lists the part numbers you must purchase to enable feature sets; Table 12 lists the part numbers for universal Cisco IOS XE Software consolidated packages with an integrated route processor; and Table 13 gives part numbers for the technology package licenses for the Cisco ASR 1001/ASR 1002-X.

Table 11. Part Numbers for Cisco ASR 1001/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 |
| Advanced IP Services without crypto (AIS) | SASR1001U//SASR1K2XU | SLASR1-AIS |
| Advanced IP Services (AISK9) | SASR1001UK9/SASR1K2XUK9 | SLASR1-AIS |
| Advanced Enterprise Services without crypto (AES) | SASR1001U/SASR1K2XU | SLASR1-AES |
| Advanced Enterprise Services (AESK9) | SASR1001UK9/SASR1K2XUK9 | SLASR1-AES |

Table 12. Descriptions of Universal Cisco IOS XE Software Consolidated Packages for Cisco ASR 1001/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 - 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.) |

Table 13. Descriptions of Cisco ASR 1001/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 a 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 release 3.6S; refer to the section “Ordering Cisco ASR 1001 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 service” bullet later in this list are required. Please refer to the “Per-subscriber or -user firewall service” bullet.
 - To enable GPRS Tunnelling Protocol (GTP) Application Inspection Services (available as of Cisco IOS XE Software Release 3.4S), an add-on RTU License (FLASR1-FW-GTP-RTU(=)) is required. This RTU license covers existing and future GTP versions and enhancements.
- 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, making it a Carrier Grade NAT (CGN). 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 licenses. For example, with ASR1000-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, 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 licence to the new advanced Application Visibility and Control (AVC) licence.
 - The Cisco Insight reporting RTU licence ((FLASR1-NSIGHT-RTU(=)) is a complementary external software component to the Cisco ASR 1000 Series Router Application Visibility and Control RTU license - the Cisco Insight is an external web-based reporting tool that can be installed on any external generic server that complies to its prerequisites; the licence 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(=), and FLSASR1-IOSRED(=) on ASR 1001 and ASR 1002-X), which allows you to enable software redundancy on the Cisco ASR 1001, 1002, ASR 1002-X, and ASR 1004 chassis. Software redundancy requires 4-GB DRAM on the RP1, and 8-GB DRAM on 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.

Broadband and Service Provider Wi-Fi

Broadband and Service Provider Wi-Fi service: An RTU license must be ordered in order 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 will allow you to enable Broadband, SP Wi-Fi, ISG, and iWAG applications for up to 500 sessions. To increase the number of sessions, you will need to 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, FLASR1-BB-4K(=) will allow you enable up to 4,000 sessions (+500 from RTU), whereas FLASR1-BB-64K(=) will allow 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
- For Cisco ASR 1000 Series bundles, please refer to the Cisco ASR 1000 Series Price List or contact your local Cisco representative

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 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 an iWAG 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 sessions 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: In the Cisco Unified Border Element (Enterprise Edition), 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 (ASR1001, ASR1002, ASR1002-X, ASR1004, ASR1006, and ASR1013) in the lab, please contact your local Cisco representative.

Note: To run OTV, VPLS or LISP on Cisco ASR1000 series, no feature license is required.

Ordering Cisco ASR 1001/ASR 1002-X Series Feature Licenses

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

However, with the Cisco ASR 1001 and AR 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 IOS XE 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 1002-X, all licenses, including technology package licenses, performance upgrade licenses from 5 to 10, 20, 36 Gbps, are honor-based.

- Please take 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 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 (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 or ASR 1002-X you must order either part number FLSASR1-FW= (license file delivered by mail) or L-FLSASR1-FW= (license file delivered by email).

For the other Cisco ASR 1000 chassis (ASR1002, ASR1004, ASR1006, 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 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 either ordering 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 license included
- HA bundles - 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
- 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 BB sessions) and broadband session licenses

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

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

Note: For the Cisco ASR 1001 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 AES technology package license.

Please go to the “Ordering Information” section of this document for the complete listing of available bundles (refer to Table 33).

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 app vendors to tune their applications to run more efficiently on a Cisco network, automatically ... reducing bandwidth by up to 70% 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 ROI on their investment.
- **IT gains pervasive visibility across their network** to over 1000 apps, without expensive or difficult to deploy probes that are often deployed in selective areas of the network. This means IT can quickly answer why an application is running slow, validate SLAs, and verify the ROI on network services.

All of this is available at **lower TCO**, with lower OPEX for maintenance and troubleshooting.

The ASR 1000 Application Experience (AX) bundles consists 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 14 lists the part numbers associated with the new ASR 1000 AX offering.

Table 14. 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 |
| 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 15 lists the part numbers associated with the ASR 1000 series router bundles. Note that with each of the below bundles, Cisco is providing the option to purchase discounted vWAAS licenses (FLASR1-AX-VWAAS12K and FLASR1-AX-VWAAS50K).

Table 15. 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 config tool home main window and select the Search button.

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

Cisco Configuration Tool

Cisco Home | NPM | Login | Profile

You are logged in as:

Configure

Configurator Home | Get Saved Configs | LogOut | HELP

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 | <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 to be purchased with the bundle

Cisco Configuration Tool

Cisco Home | NPM | Login | Profile

You are logged in as:

Configure

Configurator Home | Get Saved Configs | LogOut | HELP

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 | <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

Cisco Home | NPM | Login | Profile

You are logged in as:

Configurator Home

Get Saved Configs

LogOut

HELP

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

☒ 1

FLASR1-AX-VWAAS12K

USD 10,600.00

ASR VWAAS 12K Bundle

☐ 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 below



Cisco Configuration Tool

Completed Configuration

Cisco Home

NPM

Login

Profile

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= ASR1002X AX Upg with AVC, AES Licenses | 0.0 | 1 | N/A | |
| FLASR1-AX-VWAAS12K ASR VWAAS 12K Bundle | 0.0 | 1 | USD 10600.00 | |
| Included: FLASR1-AX-IPB-AES Cisco ASR 1000 Series IP BASE to ADV ENT SERVICES Upg For AX | 0.00 | 1 | USD 0.00 | |
| Included: FLSASR1-AVC Appl. Visibility and Control License for ASR1000 Series | 0.00 | 1 | USD 0.00 | |

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 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 16 lists the part numbers to order for this scenario.

Table 16. 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 home main window and select the Search button.

Cisco Dynamic Configuration Tool

You are logged in as: BROOKEXX

[Set Defaults](#) [Get Saved Configs](#) [LogOut](#) [HELP](#)

Product Search

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

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

[Get Saved Configs](#) [LogOut](#) [HELP](#)

Configurator Home [Select Options](#) [Enter Options](#) [Classic Menu Option](#)

Configurations Details:

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.

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

Cisco Configuration Tool

You are logged in as: BROOKEXX

[Get Saved Configs](#) [LogOut](#) [HELP](#)

Configurator Home [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

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

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 | None Selected |
|--|--|
| <input checked="" type="checkbox"/> ASR1000-RP Slot 0 | <input checked="" type="radio"/> (2) CAB-1900W-INT USD 0.00 Power Cord, 250VAC 16A, Right Angle C19, IEC 309 Plug, INTL |
| <input checked="" type="checkbox"/> ASR1000-RP Slot 1 | <input type="radio"/> (2) CAB-9K20A-NA USD 0.00 Power Cord, 125VAC 20A NEMA 5-20 Plug, North America/Japan |
| <input checked="" type="checkbox"/> SIP Slot 0 | <input type="radio"/> (2) CAB-1900W-US2 USD 0.00 Power Cord, 250VAC 20A, Right Angle C19, NEMA L6-20 Plug, US |
| <input checked="" type="checkbox"/> SIP Slot 1 | <input type="radio"/> (2) CAB-1900W-EU USD 0.00 |
| <input checked="" type="checkbox"/> SIP Slot 2 | |
| <input checked="" type="checkbox"/> ASR1000 RP1 Software Option | |
| <input checked="" type="checkbox"/> ASR1000 RP2 Software Option | |
| <input checked="" type="checkbox"/> ASR1000 Managed Services Software Option | |
| <input checked="" type="checkbox"/> ASR1000 Licenses Option | |
| <input checked="" type="checkbox"/> ASR1006 Power Option | |
| <input checked="" type="checkbox"/> ASR1006 Power Cables Option | |
| <input checked="" type="checkbox"/> USB Flash Option | |

Step 5.

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

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.

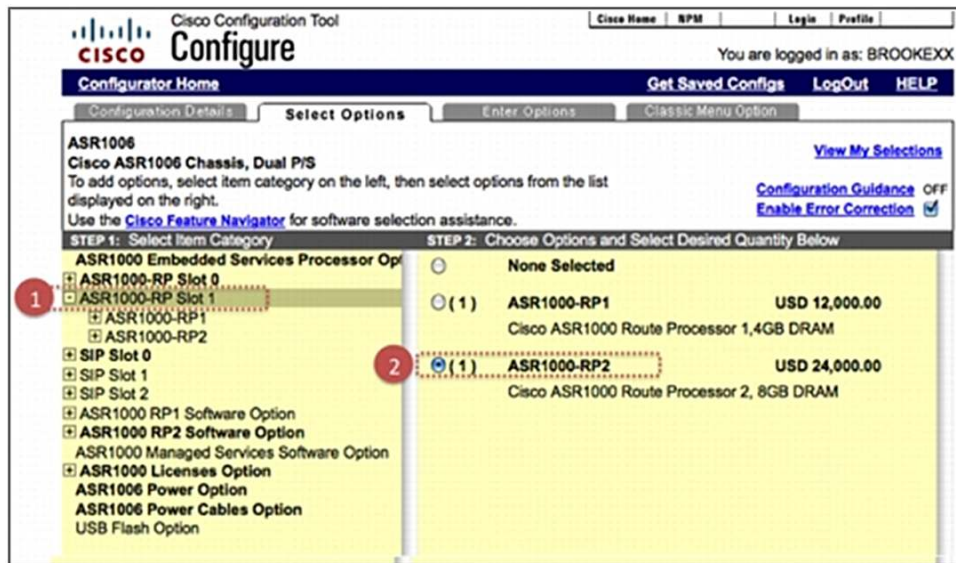
[View My Selections](#)
[Configuration Guidance](#) OFF
[Enable Error Correction](#) ☒

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

| ASR1000 Embedded Services Processor Option | None Selected |
|--|---|
| <input checked="" type="checkbox"/> ASR1000-RP Slot 0 | <input type="radio"/> (1) ASR1000-RP1 USD 12,000.00 Cisco ASR1000 Route Processor 1,4GB DRAM |
| <input checked="" type="checkbox"/> ASR1000-RP1 | <input checked="" type="radio"/> (1) ASR1000-RP2 USD 24,000.00 Cisco ASR1000 Route Processor 2, 8GB DRAM |
| <input checked="" type="checkbox"/> ASR1000-RP2 | |
| <input checked="" type="checkbox"/> ASR1000-RP Slot 1 | |
| <input checked="" type="checkbox"/> SIP Slot 0 | |
| <input checked="" type="checkbox"/> SIP Slot 1 | |
| <input checked="" type="checkbox"/> SIP Slot 2 | |
| <input checked="" type="checkbox"/> ASR1000 RP1 Software Option | |
| <input checked="" type="checkbox"/> ASR1000 RP2 Software Option | |
| <input checked="" type="checkbox"/> ASR1000 Managed Services Software Option | |
| <input checked="" type="checkbox"/> ASR1000 Licenses Option | |
| <input checked="" type="checkbox"/> ASR1006 Power Option | |
| <input checked="" type="checkbox"/> ASR1006 Power Cables Option | |
| <input checked="" type="checkbox"/> USB Flash Option | |

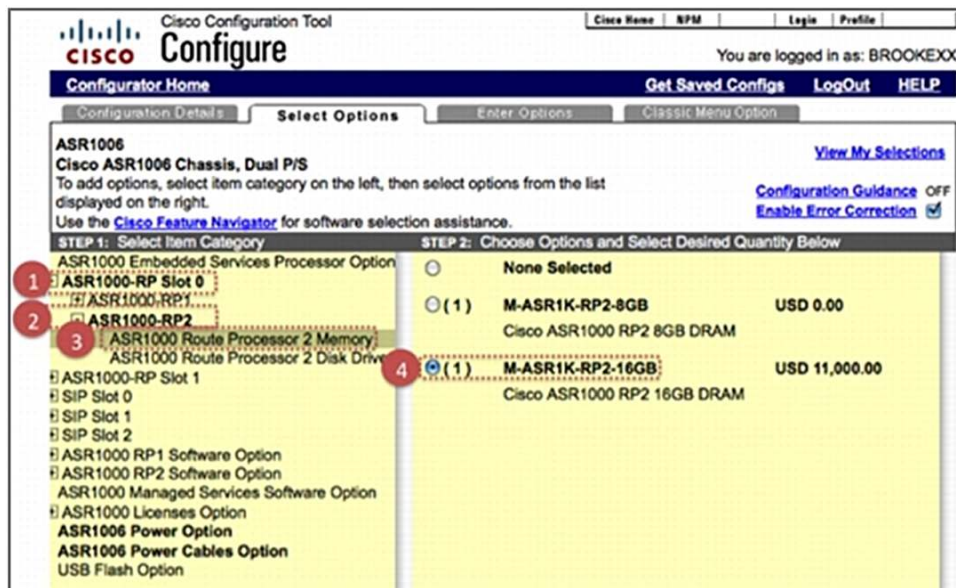
Step 6.

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



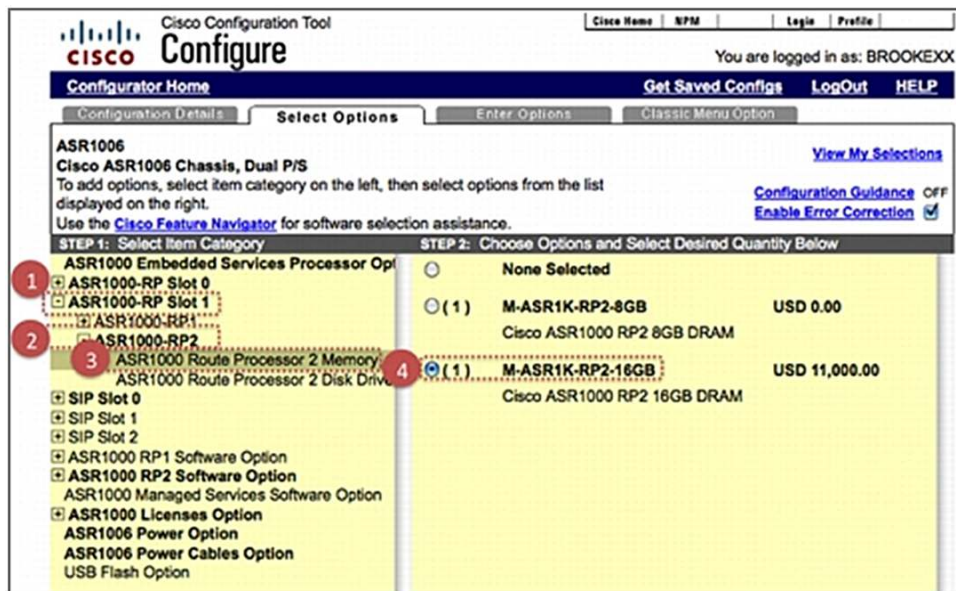
Step 7.

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



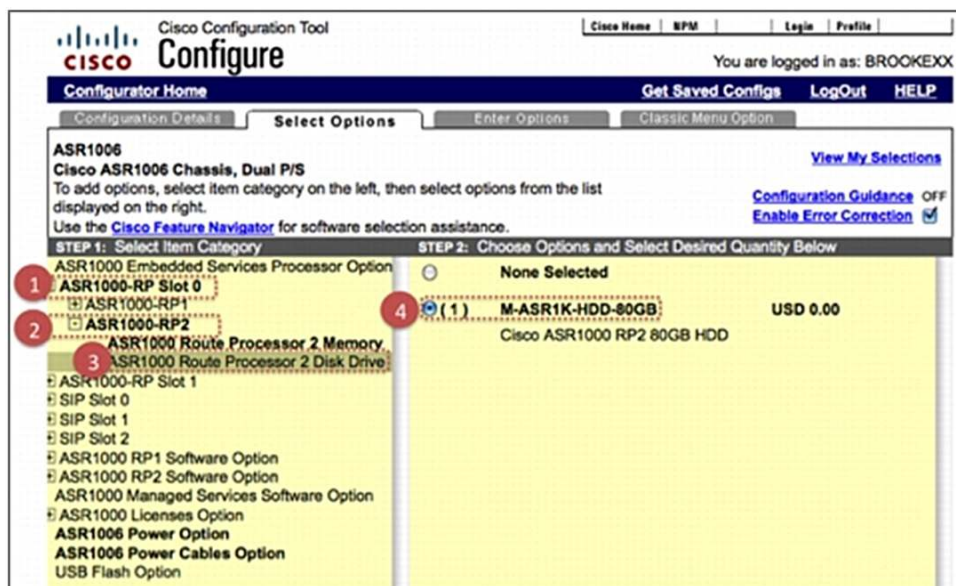
Step 8.

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



Step 9.

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



Step 10.

1. Select ASR1000-RP Slot 1.
2. Select ASR1000 Route Processor 2.
3. Select ASR1000 Route Processor 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 Options

- ASR1000-RP Slot 0
- ASR1000-RP Slot 1** (1)
- ASR1000-RP1
- ASR1000-RP2** (2)
- ASR1000 Route Processor 2 Memory
- ASR1000 Route Processor 2 Disk Drive** (3)
- ASR1000-RP Slot 0
- ASR1000-RP Slot 1
- ASR1000-RP 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 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 Options (1)

- ASR1000-RP Slot 0
- ASR1000-RP1
- ASR1000-RP2**
- ASR1000 Route Processor 2 Memory
- ASR1000 Route Processor 2 Disk Drive
- ASR1000-RP Slot 1
- ASR1000-RP Slot 0
- ASR1000-RP Slot 1
- ASR1000-RP 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

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

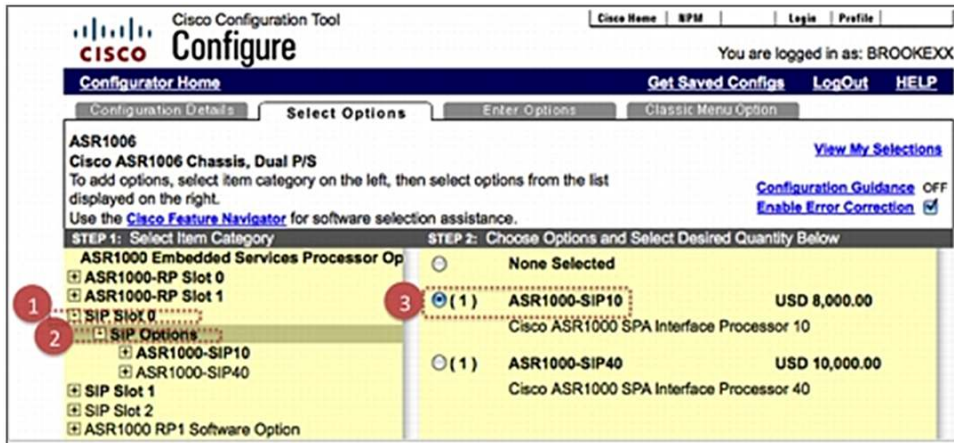
ASR1000-ESP10-N USD 27,000.00
Cisco ASR1K Embedded Services Processor, 10G, Non Crypto

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

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

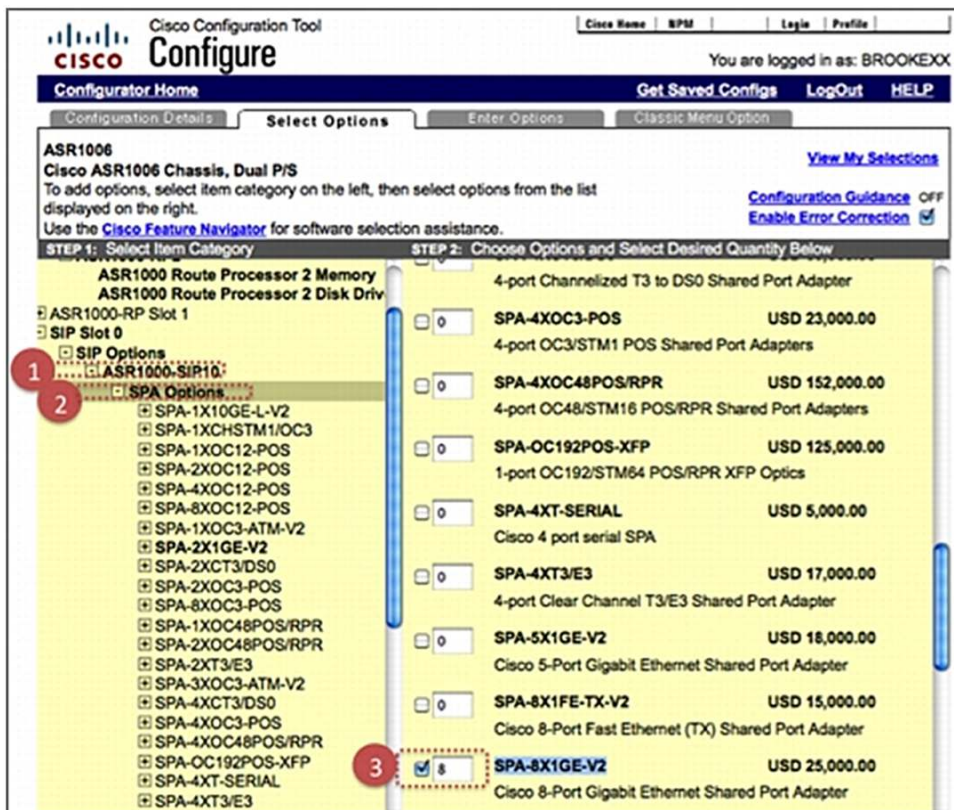
Step 12.

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 SPA-1X10GE-L-V2 and enter quantity 8.



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.

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**

SPA Options Sub-tab is above

1 (points to SPA Options sub-tab)

2 (points to SPA-8X1GE-V2)

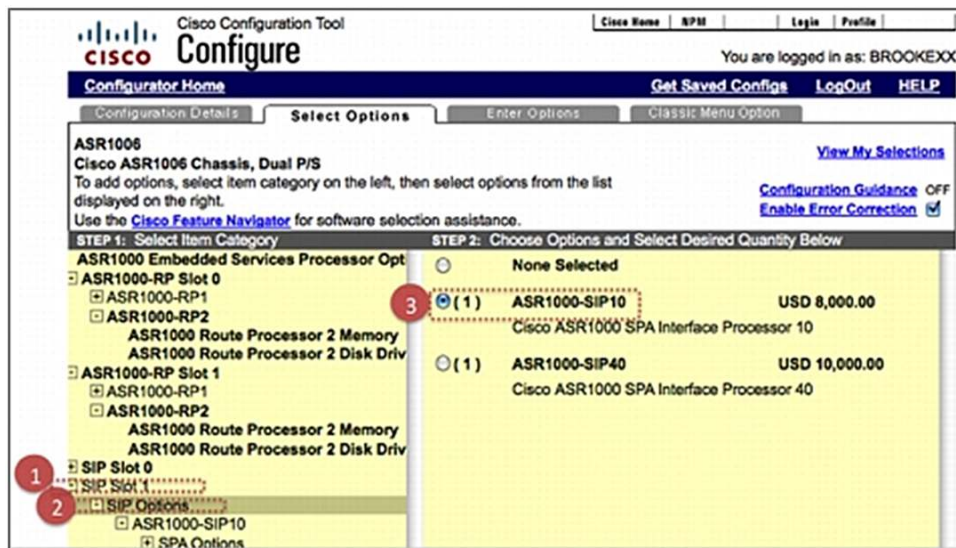
3 (points to Optics Options)

4 (points to SFP-GE-L)

| Item Category | Item Name | Price |
|---|---|--------------|
| SPA-1XCHS1M1OC3 | SPA-1XCHS1M1OC3 | |
| SPA-1XOC12-POS | SPA-1XOC12-POS | |
| SPA-2XOC12-POS | SPA-2XOC12-POS | |
| SPA-4XOC12-POS | SPA-4XOC12-POS | |
| SPA-8XOC12-POS | SPA-8XOC12-POS | |
| SPA-1XOC3-ATM-V2 | SPA-1XOC3-ATM-V2 | |
| SPA-2X1GE-V2 | SPA-2X1GE-V2 | |
| SPA-2XCT3/DS0 | SPA-2XCT3/DS0 | |
| SPA-2XOC3-POS | SPA-2XOC3-POS | |
| SPA-8XOC3-POS | SPA-8XOC3-POS | |
| SPA-1XOC48POS/RPR | SPA-1XOC48POS/RPR | |
| SPA-2XOC48POS/RPR | SPA-2XOC48POS/RPR | |
| SPA-2XT3/E3 | SPA-2XT3/E3 | |
| SPA-3XOC3-ATM-V2 | SPA-3XOC3-ATM-V2 | |
| SPA-4XCT3/DS0 | SPA-4XCT3/DS0 | |
| SPA-4XOC3-POS | SPA-4XOC3-POS | |
| SPA-4XOC48POS/RPR | SPA-4XOC48POS/RPR | |
| SPA-OC192POS-XFP | SPA-OC192POS-XFP | |
| SPA-4XT-SERIAL | SPA-4XT-SERIAL | |
| SPA-4XT3/E3 | SPA-4XT3/E3 | |
| SPA-5X1GE-V2 | SPA-5X1GE-V2 | |
| SPA-8X1GE-V2 | SPA-8X1GE-V2 | |
| Optics Options | Optics Options | |
| SPA-10X1GE-V2 | SPA-10X1GE-V2 | |
| SPA-1XOC12-ATM-V2 | SPA-1XOC12-ATM-V2 | |
| SPA-1XCHOC12/DS0 | SPA-1XCHOC12/DS0 | |
| SPA-2X1GE-SYNCE | SPA-2X1GE-SYNCE | |
| SPA-1X1GE-MR-1/2 | SPA-1X1GE-MR-1/2 | |
| SFP-GE-L | SFP-GE-L | USD 1,100.00 |
| 1000BASE-LX/LH SFP (DOM) | 1000BASE-LX/LH SFP (DOM) | |
| SFP-GE-S | SFP-GE-S | USD 550.00 |
| 1000BASE-SX SFP (DOM) | 1000BASE-SX SFP (DOM) | |
| SFP-GE-T | SFP-GE-T | USD 440.00 |
| 1000BASE-T SFP (NEBS 3 ESD) | 1000BASE-T SFP (NEBS 3 ESD) | |
| SFP-GE-Z | SFP-GE-Z | USD 3,995.00 |
| 1000BASE-ZX Gigabit Ethernet SFP (DOM) | 1000BASE-ZX Gigabit Ethernet SFP (DOM) | |
| GLC-SX-MMD | GLC-SX-MMD | USD 500.00 |
| 1000BASE-SX SFP transceiver module, MMF, 850nm, DOM | 1000BASE-SX SFP transceiver module, MMF, 850nm, DOM | |
| GLC-LH-SMD | GLC-LH-SMD | USD 995.00 |
| 1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM | 1000BASE-LX/LH SFP transceiver module, MMF/SMF, 1310nm, DOM | |
| GLC-BX-D | GLC-BX-D | USD 1,300.00 |
| 1000BASE-BX SFP, 1490NM | 1000BASE-BX SFP, 1490NM | |
| GLC-BX-U | GLC-BX-U | USD 1,300.00 |
| 1000BASE-BX SFP, 1310NM | 1000BASE-BX SFP, 1310NM | |

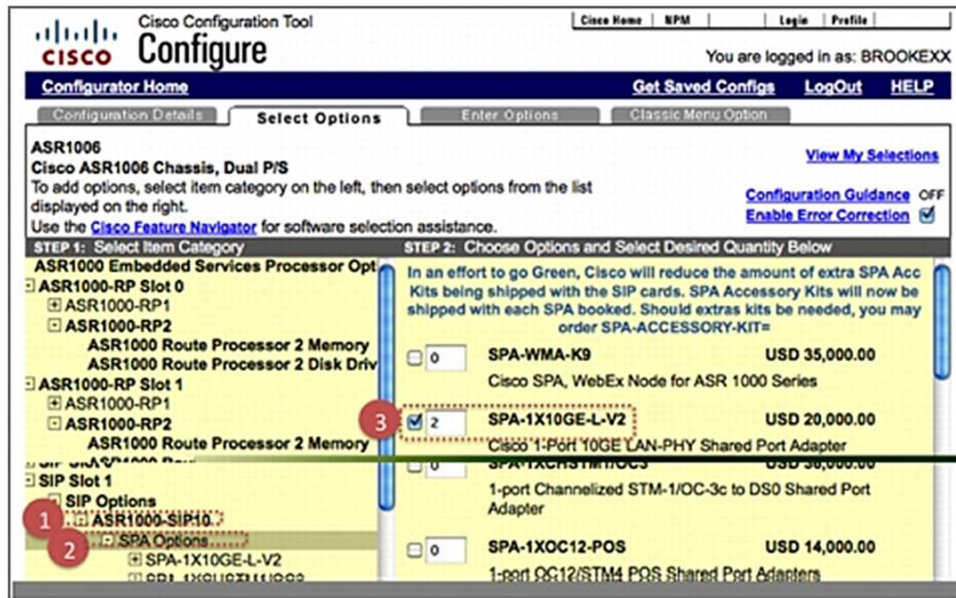
Step 15.

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



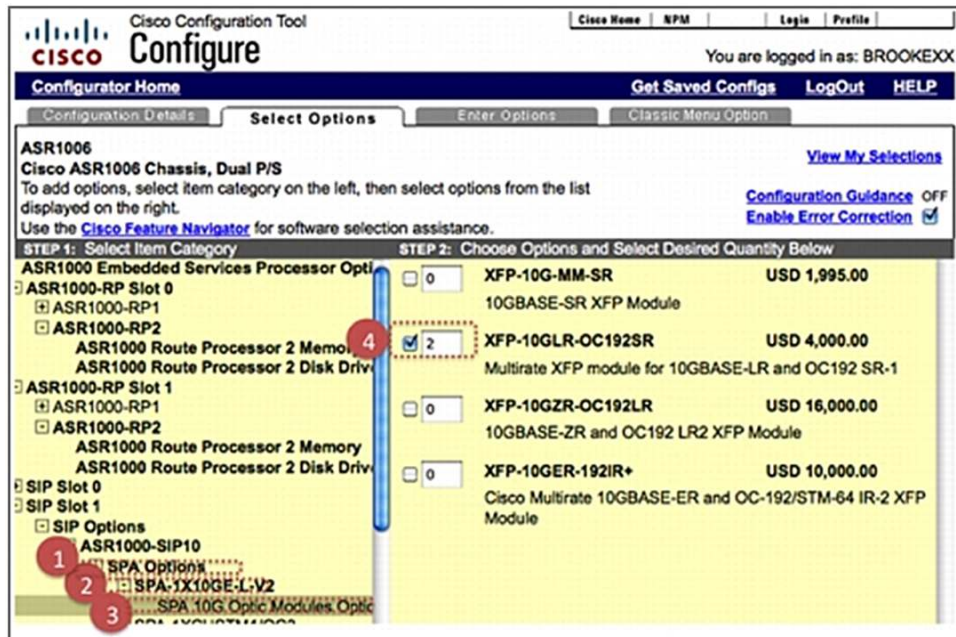
Step 16.

1. Select ASR1000-SIP10.
2. Select SPA Options.
3. Select SPA-1XGE-L-V2 and enter quantity 2.



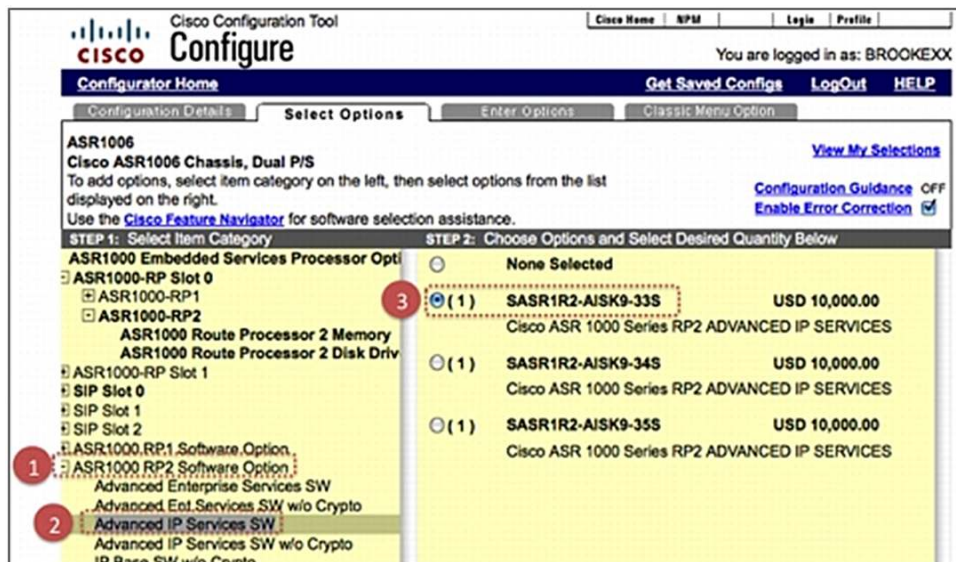
Step 17.

1. Select SPA Options.
2. Select SPA-1X10GE-L-V2.
3. Select SPA 10G Optic Modules Option.
4. Select XFP-10GLR-OC192SR and enter quantity 2.



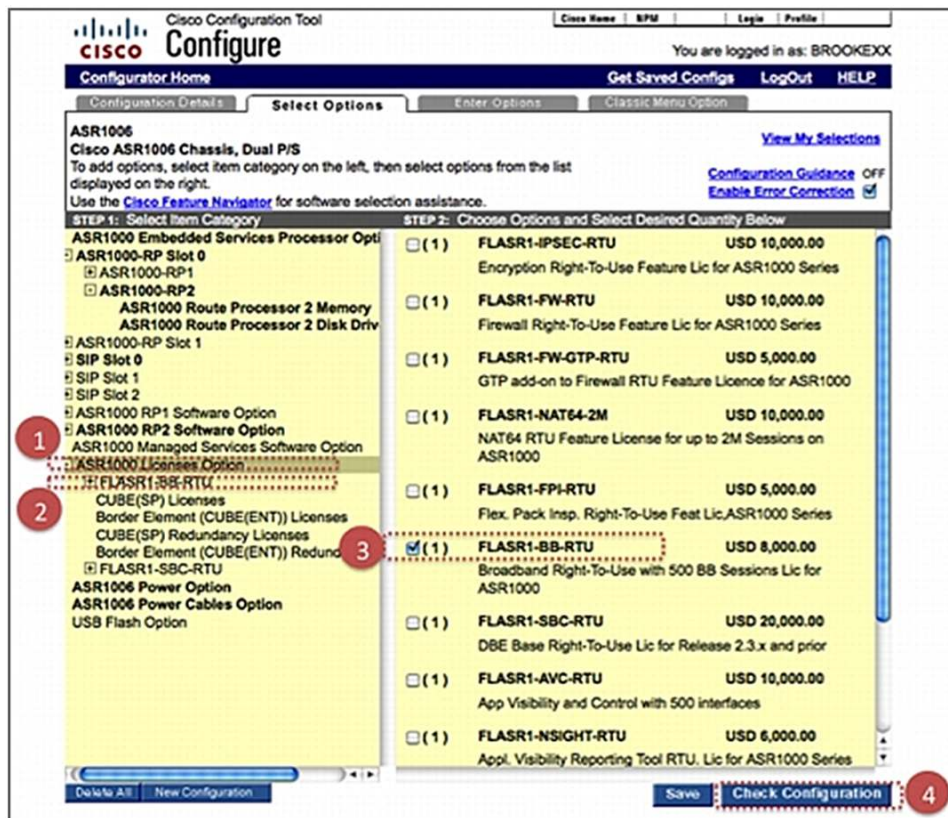
Step 18.

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



Step 19.

1. Select ASR100 RP2 Software Option.
2. Select ASR1000 Licenses Option.
3. Select FLASR1-BB-RTU.
4. Select Check Configuration.



Step 20. The finished configuration is shown as follows.

Cisco Configuration Tool
Completed Configuration
 You are logged in as: BROOKEXX

Configurator Home [Get Saved Configs](#) [LogOut](#) [HELP](#)

You have successfully completed your configuration!

Price List Global Price List in US Dollars
Service Level On-Site 24x7x4 Service
Service Length 1 Year(s) [Change Bid](#) [Update](#)

Show Discount ☒ Yes ☐ No

| 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 100000.00 | 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 17.

Table 17. 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 Config 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), videoconferencing, 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 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 18 lists the components you need for using a Cisco ASR 1000 Series Router as a quadruple-play edge router.

Table 18. 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 19 lists the components for using a Cisco ASR 1000 Series Router as an LNS router with per-subscriber firewall.

Table 19. 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 20.

Table 20. 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 21 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 22. Another great high-end branch-office router solution is the compact-form-factor 1RU Cisco ASR 1001. Table 23 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 21. 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 22. 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 23. 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 |

| Part Number | Product Description | Quantity |
|------------------------|--|----------|
| 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 24 lists the part numbers for deployment of this scenario.

Table 24. 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 |

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 Cisco ASR 1001 and Cisco IOS Software redundancy license for the Cisco ASR 1001 (FLSASR1-IOSRED) in combination with 8-GB DRAM allow configuration of software redundancy. The performance upgrade license allows the Cisco ASR 1001 chassis to be upgraded 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 25 lists the part numbers for deployment of this scenario.

Table 25. 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 |
| 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 |
| FLSASR1-IOSRED | SW Redundancy License for ASR1000 Series | 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 26 lists the part numbers for deployment of this scenario.

Table 26. 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 |

| Part Number | Product Description | Quantity |
|-------------------------|--|----------|
| 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 4RU router (Cisco ASR 1004) chassis is configured. The Cisco ASR 1000 Series RP1 is upgraded to 4-GB memory, and the Cisco IOS Software redundancy RTU license (FLASR1-IOSRED-RTU) allows you to configure software redundancy.

You need one SIP card to host one single-height 8-port Gigabit Ethernet SPA card.

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 27 lists the part numbers for deployment of this scenario.

Table 27. Cisco ASR 1000 Series Router as an Internet Gateway Router

| Part Number | Product Description | Quantity |
|--|--|----------|
| ASR1004 | Cisco ASR1004 Chassis, Dual P/S | 1 |
| ASR1004-PWR-AC | Cisco ASR1004 AC Power Supply | 2 |
| Part number depends on required power cable | Power Cable | 2 |
| ASR1000-RP1 | Cisco ASR1000 Route Processor 1, 2GB DRAM | 1 |
| M-ASR1K-RP1-4GB | Cisco ASR1000 RP1 4GB DRAM | 1 |
| M-ASR1K-HDD-40GB | Cisco ASR1000 RP1 40GB HDD | 1 |
| ASR1000-ESP10 | Cisco ASR1000 Embedded Services Processor, 10G, Crypto | 1 |
| ASR1000-SIP10 | Cisco ASR1000 SPA Interface Processor 10 | 1 |
| SPA-8X1GE-V2 | Cisco 8-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-IOSRED-RTU | SW Redundancy Right-To-Use Feat Lic for ASR1000 Series | 1 |
| FLASR1-FW-RTU | Firewall Right-To-Use Feature Lic for ASR1000 Series | 1 |
| FLASR1-IPSEC-RTU | Encryption Right-To-Use Feature Lic for ASR1000 Series | 1 |
| FLASR1-FPI-RTU | Flex. Pack Insp. Right-To-Use Feat Lic, ASR1000 Series | 1 |

Alternatively, you can use the Cisco ASR 1004 security and high-availability bundles to build the same BOM, as shown in Table 28.

Table 28. Cisco ASR 1000 Series Router as an Internet Gateway Router (with Bundle PID)

| Part Number | Product Description | Quantity |
|---------------------------|---|----------|
| ASR1004-10G-SHA/K9 | ASR1004 Sec+HA Bundle w/ESP-10G, RP1, SIP10, AESK9, License | 1 |
| SPA-8X1GE-V2 | Cisco 8-Port Gigabit Ethernet Shared Port Adapter | 1 |
| SFP-GE-L | 1000BASE-LX/LH SFP (DOM) | 8 |

Example 10.1: 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 UBE Enterprise, please refer to the Cisco UBE configuration guide at the following URL:

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

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

Table 29. 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 10.2: 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 30 lists the part numbers for deployment of this scenario.

Table 30. 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 31 lists the part numbers for deployment of this scenario.

Table 31. 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 Mobile Border Gateway

In this example, a Cisco ASR 1000 Series Router is used as a mobile border gateway, where it inspects the GTP traffic from users who roam in another mobile provider's network.

A 2RU chassis with a ASR1002-10G-SEC/K9 bundle offers 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.

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

The add-on GTP AIC RTU license (FLASR1-FW-GTP-RTU(=)) allows inspection of GTP traffic from users roaming into another mobile provider's network.

Table 32 lists the part numbers for deployment of this scenario using four ASR1002 SEC bundles.

Table 32. Cisco ASR 1000 Series Router as a Mobile Border Gateway

| Part Number | Product Description | Quantity |
|---------------------------|---|----------|
| ASR1002-10G-SEC/K9 | ASR1002 VPN+FW Bundle w/ESP-10G, AESK9, License, 4GB DRAM | 4 |
| SPA-5X1GE-V2 | Cisco 5-Port Gigabit Ethernet Shared Port Adapter | 4 |
| SFP-GE-L | 1000BASE-LX/LH SFP (DOM) | 20 |
| SFP-GE-S | 1000BASE-SX SFP (DOM) | 16 |
| FLASR1-FW-GTP-RTU | GTP add-on to Firewall RTU Feature License for ASR1000 | 4 |

Example 13: 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 33 lists the part numbers for deployment of this scenario.

Table 33. 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 |
| 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 |

Ordering Information

Table 34 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 35 lists the Cisco ASR 1000 software and software licenses (except for the Cisco ASR 1001 and ASR 1002-X); Table 36 lists the Cisco ASR 1001 and ASR 1002-X software and software licenses; and Table 37 lists the Cisco ASR 1000 bundles.

Table 34. 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 |
| 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 |

| Product Number | Product Description |
|--|---|
| 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 |
| 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 |
| 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 |
| 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 | |
| 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 |
| 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 |

| Product Number | Product Description |
|---|--|
| 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-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 |
| 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 |
| ASR1013/06-PWR-AC* | Cisco ASR1000 1600w AC Power Supply |
| ASR1013/06-PWR-AC=* | Cisco ASR1000 1600w AC Power Supply, Spare |
| ASR1002-PWR-DC | Cisco ASR1002 DC Power Supply |
| ASR1002-PWR-DC= | Cisco ASR1002 DC Power Supply, Spare |

| Product Number | Product Description |
|--|--|
| 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 |
| 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 |
| ASR1004-ACS= | Cisco ASR1004 Accessory Kit, Spare |
| ASR1002X-ACS= | Cisco ASR1002-X Accessory Kit, Spare |
| ASR1002-ACS= | Cisco ASR1002 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 35. 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-FW-GTP-RTU= | GTP add-on to Firewall RTU Feature License for ASR1000 |
| FLASR1-FW-GTP-RTU | GTP add-on to Firewall RTU Feature License for ASR1000 |

| Product Number | Product Description |
|---|--|
| 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 |
| 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 |

| Product Number | Product Description |
|---|---|
| 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 |
| 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 are software part numbers 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 and ASR 1002-X. For Cisco ASR 1001 and ASR 1002-X software part numbers, please refer to Table 36.

***** 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 36. Ordering Information for Cisco ASR 1001/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 ASR1002-X IOS XE Software Universal Software | |
| SASR1K2XU-37S | Cisco ASR1002-X IOS XE UNIVERSAL |
| SASR12KXNPEK9-37S | 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 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 |

| Product Number | Product Description |
|---|--|
| 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 |
| FLSA1-2X-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-FW-GTP | GTP add-on to Firewall RTU Feature License for ASR1000 |
| FLSASR1-FW-GTP= | GTP add-on to Firewall RTU Feature License for ASR1000 |
| L-FLSASR1-FW-GTP | FW GTP add-on 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 |
| 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 |

| Product Number | Product Description |
|---|--|
| 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 are software part numbers 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 37. Ordering Information for Cisco ASR 1000 Bundles

| Part Number | Default Components |
|--|---|
| Cisco ASR 1000 Series Base Bundles | |
| 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 |
| 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 |
| 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-VPN/K9 | 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 1000 Series VPN Bundles | |
| ASR1002F-VPN/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 |
| 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 |
| 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 |
| 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 |

| Part Number | Default Components |
|---|---|
| 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 |
| 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 |

| Part Number | Default Components |
|---|--|
| Cisco ASR 1000 Series Security Bundles | |
| ASR1002F-SEC/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 |
| 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 |
| 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 |
| 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 |

| Part Number | Default Components |
|---|---|
| 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) |
| 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) |

| Part Number | Default Components |
|---|---|
| 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 |
| 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 |

| Part Number | Default Components |
|---------------------|--|
| 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 |

| Part Number | Default Components |
|--|--|
| 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 |
| 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 |

| Part Number | Default Components |
|--|---|
| 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 |
| 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 |
| Cisco ASR 1002-X Series Base Bundles *** | |
| 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 |
| 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 |
| Cisco ASR 1002-X Series High Availability Bundles *** | |
| ASR1002X-5G-HA-K9 | 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 License: FLSASR1-IOSRED |

| Part Number | Default Components |
|---|---|
| ASR1002X-10G-HA-K9 | 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-XY5 Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-10G Feature License: FLSASR1-IOSRED |
| ASR1002X-20G-HA-K9 | 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-XY5 Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-20G Feature License: FLSASR1-IOSRED |
| ASR1002X-36G-HA-K9 | 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-XY5 Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-36G Feature License: FLSASR1-IOSRED |
| Cisco ASR 1002-X Series VPN Bundles*** | |
| ASR1002X-5G-VPNK9 | Hardware <ul style="list-style-type: none"> ASR1002-X Software <ul style="list-style-type: none"> Universal Image: SASR1K2XUK9-XY5 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-XY5 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-XY5 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-XY5 Technology Package License: FLASR1-AES Performance Upgrade License: FLSA1-2X-5-36G Feature License: FLSA1-2X-IPS4G |

| Part Number | Default Components |
|--|---|
| Cisco ASR 1002-X Series Security Bundles*** | |
| 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 |
| Cisco ASR 1002-X Series Security + High Availability Bundles*** | |
| 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: FLSA1-2X-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: FLSA1-2X-5-10G Feature Licenses: FLSA1-2X-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: FLSA1-2X-5-20G Feature Licenses: FLSA1-2X-IPS4G; FLSASR1-FW; FLSASR1-FPI; FLSASR1-IOsRED |

| Part Number | Default Components |
|---------------------------|---|
| 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 Performance Upgrade License: FLSA1-2X-5-36G Feature Licenses: FLSA1-2X-IPS4G; FLSASR1-FW; FLSASR1-FPI; FLSASR1-IOSRED |

* 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.

*** The ASR1002-X bundles will be orderable in mid-November 2012.



Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at www.cisco.com/go/offices.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: www.cisco.com/go/trademarks. Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)