

Cisco Services-Ready Engine

General

Q. What is the Cisco® Services-Ready Engine (SRE)?

A. The Cisco Services-Ready Engine modules are high-performance router blades for Cisco Integrated Services Routers Generation 2 (ISR G2) that provide the capability to host Cisco, third-party, and custom applications. The modules have their own processors, storage, network interfaces, and memory that operate independently of the host router resources, helping ensure maximum concurrent routing and application performance while reducing physical-space footprint, lowering power consumption, and simplifying IT administration at the branch office.

Q. What form factors does the Cisco SRE support?

A. The Cisco SRE is available in two form factors, the Cisco SRE internal services module (ISM) and the Cisco SRE service module (SM).

Q. What are the module part numbers?

A. Table 1 lists the part numbers for the Cisco SRE ISM and Cisco SRE SM.

Table 1. Cisco SRE Part Numbers

Cisco SRE Module	Form Factor	Part Number
Cisco SRE 300 ISM	Internal service module	ISM-SRE-300-K9
Cisco SRE 700 SM	Service module	SM-SRE-700-K9
Cisco SRE 710 SM		SM-SRE-710-K9
Cisco SRE 900 SM		SM-SRE-900-K9
Cisco SRE 910 SM		SM-SRE-910-K9

Q. What is the service-module slot?

A. A service-module slot is an externally pluggable interface form factor for the Cisco ISR G2 routers. A service module is a router blade that plugs into the slot. The service-module slot represents the evolution of the network-module (NM) slot available on the earlier generation of Cisco Integrated Services Routers (ISRs). The slot provides increased power and throughput capabilities as well as connection to the new Multi-Gigabit Fabric (MGF). Existing network modules are supported in the new service-module slot with an adapter card.

Q. What is the internal-services-module slot?

A. An ISM slot is an internally pluggable interface form factor for the Cisco ISR G2 routers. An ISM is a router blade that plugs into the slot. The ISM slot represents the evolution of the advanced-integration-module (AIM) slot available on the earlier generation of Cisco ISRs. The slot provides increased power and throughput capabilities as well as connections to the new MGF. Existing AIMs are not supported in the new ISM slot.

Q. Is the enhanced network module (NME) supported on the Cisco ISR G2 routers?

A. Most of the NMEs are compatible with the new service-module form factor through the use of an adapter card (SM-NM-ADPTR).

- Q.** Is the AIM supported on the Cisco ISR G2 routers?
- A.** The AIM modules are not supported in the new Cisco ISR G2 routers.
- Q.** Which AIMS and NMEs have been discontinued on the Cisco ISR G2 routers?
- A.** Table 2 shows discontinued modules and their suggested replacements.

Table 2. Discontinued Modules

Application	Discontinued Modules on Cisco ISR G2 Routers	Replacement Modules
Cisco Application Extension Platform (AXP)	AIM-APPRE-102-K9	ISM-SRE-300-K9
Cisco IOS® Intrusion Prevention System (IPS)	AIM-IPS-K9	NME-IPS-K9*
	NM-CIDS-K9	NME-IPS-K9*
Cisco Content Engine	NM-CE-BP-40G-K9	SM-SRE-910-K9
	NM-CE-BP-80G-K9	SM-SRE-910-K9
Cisco Wireless LAN Controller (WLC)	NM-AIR-WLC6-K9	SM-SRE-710-K9 or SM-SRE-910-K9
Cisco Network Analysis Module (NAM)	NM-NAM	SM-SRE-710-K9 or SM-SRE-910-K9
Cisco Unity® Express	NM-CUE	SM-SRE-710-K9 or SM-SRE-910-K9
	NM-CUE-EC	SM-SRE-710-K9 or SM-SRE-910-K9
Cisco Network Capacity Expansion System (NCE)	AIM-TPO-1	SM-SRE-710-K9 or SM-SRE-910-K9
	AIM-TPO-2	SM-SRE-710-K9 or SM-SRE-910-K9
	NME-TPO	SM-SRE-710-K9 or SM-SRE-910-K9
Cisco Video Surveillance	NME-VMSS-16	SM-SRE-900-K9
	NME-VMSS-HP16	None
	NME-VMSS-HP32	SM-SRE-900-K9
	NME-VMSS2-16	SM-SRE-900-K9
	NME-VMSS2-HP32	SM-SRE-900-K9
Cisco Application Performance Assurance Engine (APA)	NME-APA-E2	None
	NME-APA-E3	None
Application-Oriented Networking (AON)	NM-AON-K9	None
	NME-AON-K9	None

* Requires network-module adapter card for NME modules (SM-NM-ADPTR)

- Q.** Is the Cisco SRE module supported on all Cisco Integrated Services Routers?
- A.** No. Cisco SRE modules are supported only on the Cisco 1900, 2900, and 3900 Series Integrated Services Routers.

Technical

- Q.** How do I install applications on a blank Cisco SRE module?
- A.** Applications are installed on the Cisco SRE module from Cisco IOS Software running on the Cisco ISR G2, Cisco Configuration Professional, or CiscoWorks LAN Management Solution (LMS). The procedure for installing applications directly from the module has been deprecated.
- Q.** How does Cisco SRE save power?
- A.** Cisco SRE consumes up to 80 percent less power than equivalent standalone servers or appliances. In addition, Cisco SRE supports remote scheduling of power-on/power-off. Electricity consumption can be reduced during off hours in the branch office or when the module is not provisioned with any software.

- Q.** What Cisco IOS Software release is required to support the Cisco SRE modules?
- A.** The Cisco SRE modules are supported with Cisco IOS Software Release 15.1(4)M and later.
- Q.** Do I need a special Cisco IOS Software image in order to use the Cisco SRE modules?
- A.** No. Cisco SRE modules are supported on the Cisco IOS Software IP Base license.
- Q.** What are the differences between the Cisco SRE 700 and SRE 710, and between the Cisco SRE 900 and SRE 910 modules?
- A.** Cisco SRE 700 and SRE 900 have 5400-rpm hard drives. Cisco SRE 710 and SRE 910 have 7200-rpm hard drives. There are no other differences.
- Q.** What are the main differences between the various Cisco SRE modules?
- A.** Table 3 compares the differences.

Table 3. Cisco SRE Module Differences

Feature	Cisco SRE 300 ISM	Cisco SRE 700 and SRE 710 SM	Cisco SRE 900 and SRE 910 SM
Form factor	Internal service module	Service module	Service module
CPU	Genuine Intel Processor, 1.06 GHz	Intel Core 2 Solo, 1.86 GHz	Intel Core ^T 2 Duo, 1.86 GHz
DRAM	512 MB	4 GB	4 GB (default) or 8 GB
Compact Flash memory	4-GB internal USB flash-memory module	2-GB internal USB flash-memory module	2-GB internal USB flash-memory module
Hard disk	None	One 500-GB Serial Advanced Technology Attachment (SATA) 5400 rpm (SRE 700) 7200 rpm (SRE 710)	Two 500-GB SATA (1 TB in non-Redundant Array of Independent Disks [RAID] mode) 5400 rpm (SRE 900) 7200 rpm (SRE 910)

- Q.** Can I run multiple Cisco applications simultaneously on a Cisco SRE module?
- A.** No. Only one Cisco application can run on the Cisco SRE at any one time.
- Q.** Can I populate two service-module slots on a router, one with an NME module and the other with a Cisco SRE module?
- A.** Yes. The Cisco SRE module works natively, but the NME requires an adapter card (SM-NM-ADPTR).
- Q.** Can I use all three of the Cisco SRE modules (Cisco SRE 300 ISM, Cisco SRE 700 and SRE 710 SM, and Cisco SRE 900 and SRE 910 SM) on the same chassis?
- A.** Yes. Any combination of Cisco SRE-enabled service modules is supported up to the slot limit of a specific Cisco ISR G2.
- Q.** Is there any hardware diagnostic tool available on the Cisco SRE modules?
- A.** An onboard hardware diagnostic utility is available on Cisco SRE 700 and SRE 710 SM and Cisco SRE 900 and SRE 910 SM modules (but not the Cisco SRE 300 ISM). With this utility you can:
- Test and verify that certain individual hardware components are functioning correctly
 - Diagnose and identify hardware-related problems
 - Provide troubleshooting information to a Cisco Technical Assistance Center (TAC) support agent
- Q.** Do the Cisco SRE modules support hardware-assisted virtualization?
- A.** Yes. The Cisco SRE 700 and SRE 710 SM and Cisco SRE 900 and SRE 910 SM modules support hardware-assisted virtualization.

-
- Q.** Do the Cisco SRE modules support high availability?
- A.** The Cisco SRE 900 and SRE 910 SM modules support RAID 0 and 1, depending on the application; the module is hot-swappable, with a field-replaceable-unit (FRU) hard drive. The Cisco SRE 700 and SRE 710 SM modules support a FRU hard drive.
- Q.** Do the Cisco SRE modules support a field-replaceable option?
- A.** Yes. The hard disks on the Cisco SRE 700 and SRE 710 SM and Cisco SRE 900 and SRE 910 SM modules are field-replaceable. (The part number for the spare hard disk is SM-DSK-SATA-500GB= for Cisco SRE 700 and SRE 900, and SM-HDD-SATA-500GB for Cisco SRE 710 and SRE 910.)
- Q.** Are RAID features supported on the Cisco SRE modules?
- A.** It depends on the application. For example, Cisco Wide Area Application Services (WAAS) software running on the Cisco SRE 900 and SRE 910 SM modules supports RAID 1. Cisco Unified Computing System™ Express (UCS Express) running on the Cisco SRE 900 and SRE 910 supports both RAID 0 and RAID 1. The hard disks are hot-swappable, and failed hard disks are easily replaced in the field.
- Q.** Is there an increase in application performance when running on the Cisco SRE modules compared to the AIMs and NMEs?
- A.** Yes. The Cisco SRE module performance is up to seven times better than the performance of current AIM and NME modules.
- Q.** Does the Cisco SRE module support Federal Information Processing Standard (FIPS) requirements?
- A.** No.
- Q.** What management capabilities are built into the Cisco SRE?
- A.** Three interfaces are provided for management:
- Cisco IOS Software command-line interface (CLI)
 - GUI management systems:
 - CiscoWorks LAN Management Solution (LMS)
 - Cisco Configuration Professional
 - Simple Network Management Protocol (SNMP)
- Q.** How will the CiscoWorks LMS help me manage my Cisco SRE modules?
- A.** CiscoWorks LMS provides a suite of applications that centralize the initial deployment and day-to-day monitoring and troubleshooting of integrated services across the enterprise, regardless of network size.

Critical capabilities include:

- Automated discovery of the router and the Cisco SRE modules
 - Determine the type and capacity of deployed modules
 - Detect deployed applications and their properties
- Centralized monitoring of the Cisco SRE modules
 - Monitor the health and status of the of the Cisco SRE modules
- Centralized provisioning of application on the Cisco SRE modules
 - Install, upgrade, and un-install applications in the branch office

Ordering

Q. Can I order a Cisco SRE module without an application?

A. Yes. You can order a Cisco SRE with or without any application. Management tools are provided to install applications in the field on the Cisco SRE modules at a later time.

Q. What software and application options do I have when I order the Cisco SRE?

A. Table 4 lists your application options.

Table 4. Application Options

Application	Supported Cisco SRE Part Numbers
Cisco Unity Express	ISM-SRE-300-K9 SM-SRE-700-K9 SM-SRE-710-K9 SM-SRE-900-K9 SM-SRE-910-K9
Cisco UCS Express	SM-SRE-700-K9 SM-SRE-710-K9 SM-SRE-900-K9 SM-SRE-910-K9
Cisco WLC	ISM-SRE-300-K9 SM-SRE-700-K9 SM-SRE-710-K9 SM-SRE-900-K9 SM-SRE-910-K9
Cisco WAAS	SM-SRE-700-K9 SM-SRE-710-K9 SM-SRE-900-K9 SM-SRE-910-K9
Cisco Prime NAM	SM-SRE-700-K9 SM-SRE-710-K9 SM-SRE-900-K9 SM-SRE-910-K9
Cisco Unified SIP Proxy	SM-SRE-700-K9 SM-SRE-710-K9 SM-SRE-900-K9 SM-SRE-910-K9
Cisco Unified Messaging Gateway (UMG)	SM-SRE-700-K9 SM-SRE-710-K9 SM-SRE-900-K9 SM-SRE-910-K9
Cisco Survivable Remote Site Voicemail (SRSV)	ISM-SRE-300-K9 SM-SRE-700-K9 SM-SRE-710-K9 SM-SRE-900-K9 SM-SRE-910-K9

Support

Q. What support contracts are available for Cisco SRE modules?

A. Two separate support contracts are available for the Cisco SRE, each serving a different purpose. One is hardware support that covers hardware failures, troubleshooting, and replacement. This support is provided through the Cisco SMARTnet[®] Service contract purchased for the Cisco ISR G2 chassis hosting the Cisco SRE module. No separate Cisco SMARTnet Service contract for the Cisco SRE module is required.

The other is software support that covers troubleshooting and upgrades for applications running on the Cisco SRE module. This support is provided through the Cisco Software Application Support plus Upgrades (SASU) contract, which you can purchase separately either at the time of Cisco SRE module purchase or at a later time.

Q. Do I need to purchase a new Cisco SMARTnet contract if I move a Cisco SRE module from one Cisco ISR G2 to another Cisco ISR G2?

A. As long as you inform Cisco about the move, a new Cisco SMARTnet contract is not required. Consider two possible cases:

1. If the router to which you move the SRE module has Cisco SMARTnet support attached, the terms and conditions of that contract would apply to the newly moved Cisco SRE module.
2. If the router to which you move the SRE module does not have Cisco SMARTnet support attached, the terms and conditions of the Cisco SMARTnet support on the original router will not apply to the moved SRE module. A separate Cisco SMARTnet contract on the new router may be required to ensure full coverage.

In either case, you must inform Cisco of the move in order to fulfill the terms and conditions of the Cisco SMARTnet contract.

Q. Do I need a different Cisco SASU contract for each application that runs on a Cisco SRE?

A. No. Cisco SASU for the SRE covers all the applications purchased and running on the module. A single SASU contract attaches to a single Cisco SRE module, and any Cisco application running on that module is covered. There are three different SASU contracts, each corresponding to one of the three Cisco SRE modules (Cisco SRE 300 ISM, Cisco SRE 700 and SRE 710 SM, and Cisco SRE 900 and SRE 910 SM modules), as shown in Table 5.

Table 5. SASU Service Contracts for Cisco SRE

Part Number	Description
CON-SAU-ISRE300	Software Application Support Plus Upgrade for Cisco SRE 300 ISM applications
CON-SAU-ISMSRE3	Software Application Support Plus Upgrade for Cisco SRE 300 ISM applications in ISR bundle
CON-SAU-SMSRE700	Software Application Support Plus Upgrade for Cisco SRE 700 and SRE 710 SM applications
CON-SAU-SMSRE7K	Software Application Support Plus Upgrade for Cisco SRE 700 and SRE 710 SM applications in ISR bundle
CON-SAU-SMSRE900	Software Application Support Plus Upgrade for Cisco SRE 900 and SRE 910 SM applications
CON-SAU-SMSRE9K	Software Application Support Plus Upgrade for Cisco SRE 900 and SRE 910 SM applications in ISR bundle

Q. Do I need to purchase a new support contract if I switch applications on my Cisco SRE module?

A. No. The Cisco SASU contract attached to the Cisco SRE module covers all current and future applications that may run on that module.

-
- Q.** Do I need to buy a new support contract if I move applications from one Cisco SRE module to another?
- A.** The answer depends on the model of Cisco SRE to which the application is moving and whether there is already a SASU contract attached to that module. Consider three cases:
1. If the Cisco SRE to which the application moves already has a SASU contract attached, support for the application would continue.
 2. If the application moves from one model of Cisco SRE (for example, SRE 710 SM) that **has** SASU attached to the same model of Cisco SRE (for example, SRE 710 SM) that **does not have** SASU attached, as long as you inform Cisco about the move a new SASU contract is not required. The terms and conditions of the original SASU contract would continue to apply.
 3. If the application moves from one model of Cisco SRE (for example, SRE 710 SM) that **has** SASU attached to a different model of Cisco SRE (for example, SRE 910 SM) that **does not have** SASU attached, you must purchase a new SASU contract that covers the applications on the Cisco SRE 910 SM. You can apply a credit from the original SASU contract toward purchase of the new one. Please inquire with your local Cisco account representative.
- Q.** Does Cisco SMARTnet support cover spares?
- A.** The Cisco SMARTnet contract covers both the system and spares. You must notify Cisco, however, when you replace a component of the router with a spare to ensure continued support coverage.
- Q.** Is the Cisco SMARTnet Service coverage different for system and spare part numbers on Cisco SRE modules?
- A.** No. System and spare part numbers are provided with the same Cisco SMARTnet Service coverage. You must notify Cisco, however, when you replace a component of the router with a spare to ensure continued support coverage.
- Q.** Are multiyear support contracts available for the SRE module or for the applications?
- A.** Multiyear SASU contracts for applications running on SRE modules are available in 2- and 3-year renewable terms.
- Q.** Cisco SRE 700 and SRE 710 SM and Cisco SRE 900 and SRE 910 SM modules support field-replaceable hard disks. Does my support contract cover hard disk replacement?
- A.** A Cisco SMARTnet Service contract on the Cisco ISR G2 chassis includes hardware replacement, including the field-replaceable hard drives.
- Q.** What is the return-materials-authorization (RMA) process for blank Cisco SRE modules?
- A.** The RMA process for Cisco SRE modules follows our standard support guidelines. Warranty support is provided by the point of sale. Customers should contact their authorized Cisco reseller or partner for support. Customers who purchased directly from Cisco should contact us through our Customer Interaction Network (CIN).
- Q.** What is the RMA process for Cisco SRE modules with preinstalled applications such as the Cisco SRE 710 shipped with Cisco Unity Express? Will the replacement Cisco SRE 710 module be shipped with Cisco Unity Express preinstalled?
- A.** The Cisco SRE module will be shipped with the back blank. When you receive the module, download the SRE application, Cisco Unity Express in this example, from Cisco Connection Online and install it on the blank Cisco SRE module. Use the application licenses from the original Cisco SRE module to activate the new application.

-
- Q.** What is the RMA process for Cisco SRE modules with AXP plus a third-party application such as a Cisco SRE 910 shipped with AXP and Infoblox Core Services? Will the replacement Cisco SRE 910 ship with AXP and the third-party application preinstalled?
- A.** The RMA process is the same as described previously; however, unless otherwise set forth in supplemental terms to the End User License Agreement, software from independent software vendors that is used with the Cisco SRE modules is subject to the terms and conditions of end-user license agreements or similar contracts provided by the applicable independent software vendor.
- Q.** Can one chassis carry multiple SASU contracts? If so, do they all need to have the same end date?
- A.** Because a chassis can have multiple Cisco SREs, it is necessary to order a service contract for each, but each of the service orders can be put under a single SASU contract. The service orders can have the same end date if applied to one contract when ordering, even if they are purchased at different times.
- Q.** Do multiple SASU contracts have to have the same end date as the Cisco SMARTnet contract on the chassis?
- A.** The SASU contract and the Cisco SMARTnet contract can have the same end date, but they do not have to.



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 of Cisco Systems, Inc. and/or its affiliates in the U.S. and other countries. A listing of Cisco's trademarks can be found at 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. (1005R)