



System Requirements for Cisco IOS XE 3S Releases

The following sections describe the system requirements for Cisco IOS XE 3S releases:

- [Software Packaging on the Cisco ASR 1000 Series Routers, page 5](#)
- [Cisco IOS XE 3S Software Package Compatibility for ISSU, page 7](#)
- [Hardware Supported, page 15](#)
- [ROMmon Version Requirements, page 15](#)
- [Determining the Software Version, page 15](#)
- [Cisco IOS XE 3S to Cisco IOS Version Number Mapping, page 21](#)
- [Upgrading to a New Software Release, page 21](#)

Software Packaging on the Cisco ASR 1000 Series Routers

The Cisco ASR 1000 Series Routers run Cisco IOS XE 3S Software and use a software packaging model consisting of:

- Consolidated packages
- Individual software subpackages within a consolidated package
- Optional software subpackages outside of consolidated packages

Each Cisco IOS XE 3S consolidated package contains a collection of individual software subpackages. Each individual software subpackage is an individual software file that controls a different element or elements of the Cisco ASR 1000 Series Router. Some individual subpackages may be installed per element (for example, per SPA).



Note

The subpackage functionality is intended for both upgrade and field support, and not all combinations of subpackages are supported.



Americas Headquarters:

Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

Each individual software subpackage can be upgraded individually, or all individual software subpackages for a specific Cisco IOS XE 3S consolidated package can be upgraded as part of a complete Cisco IOS XE 3S consolidated package upgrade.

Importantly, IOS (the RPIOS individual software subpackage) is considered one of the individual software subpackages that makes up the complete Cisco IOS XE 3S consolidated package.

The following are the individual software subpackages within a consolidated package:

- Route Processor
 - RPBBase: Provides the Route-Processor operating system.
 - RPControl: Provides the control-plane processes that interface between Cisco IOS Software and the rest of the platform.
 - RPIOS: Provides the Cisco IOS Software kernel, which is where Cisco IOS Software features are stored and run; each consolidated image variant has a different RPIOS subpackage: RPIOS-ipbase, RPIOS-ipbasek9, RPIOS-advipservices, RPIOS-advipservicesk9, RPIOS-adventservices, and RPIOS-adventservicesk9.



Note

The RPIOS-advipservices and RPIOS-adventservices subpackages are only available beginning with Cisco IOS XE Release 2.2.1 and later releases. These two subpackages are not available with Cisco IOS XE Release 2.1.2 and earlier releases.

- RPAAccess: Provides components to manage enhanced router access functionality.
- ESP
 - ESPBase: Provides the ESP operating system and control processes, and the Cisco QuantumFlow Processor client, driver, and ucode.
- SIP
 - SIPBase: Provides the SIP operating system and control processes
 - SIPSPA: Provides the SPA drivers and associated field-programmable device (FPD) image (SPA FPGA image)

A Cisco IOS XE 3S consolidated package allows users to upgrade all individual software subpackages on the router with a single Cisco IOS XE 3S image download. The Cisco IOS XE 3S consolidated packages available vary based on the Route Processor (RP1 or RP2) installed in the system and the Cisco IOS XE 3S Release.

The following are the RP1 consolidated packages:

- Cisco ASR 1000 Series RP1 IP BASE W/O CRYPTO
- Cisco ASR 1000 Series RP1 IP BASE
- Cisco ASR 1000 Series RP1 ADVANCED IP SERVICES
- Cisco ASR 1000 Series RP1 ADVANCED IP SERVICES W/O CRYPTO
- Cisco ASR 1000 Series RP1 ADVANCED ENTERPRISE SERVICES
- Cisco ASR 1000 Series RP1 ADVANCED ENTERPRISE SERVICES W/O CRYPTO

The following are the RP2 consolidated packages:

- Cisco ASR 1000 Series RP2 IP BASE W/O CRYPTO
- Cisco ASR 1000 Series RP2 IP BASE
- Cisco ASR 1000 Series RP2 ADVANCED IP SERVICES

- Cisco ASR 1000 Series RP2 ADVANCED IP SERVICES W/O CRYPTO
- Cisco ASR 1000 Series RP2 ADVANCED ENTERPRISE SERVICES
- Cisco ASR 1000 Series RP2 ADVANCED ENTERPRISE SERVICES W/O CRYPTO

The individual software subpackages within the consolidated packages cannot be downloaded from Cisco.com; only the Cisco IOS XE S consolidated packages and optional subpackages can be downloaded from Cisco.com. Users who want to run the router using individual software subpackages must first download the consolidated package from Cisco.com and extract the individual software subpackages from the consolidated package.

In addition to the individual software subpackages within a consolidated package, optional software subpackages that are not part of a consolidated package are available. Optional software subpackages are downloaded separately from Cisco.com and their installation is similar to the installation of an individual software subpackage using a provisioning file. The optional subpackage must be located in the same directory with the provisioning file and the other individual subpackage files. The optional software subpackages available vary based on the Route Processor (RP) installed in the system: RP1 or RP2:

- For the RP1, the optional software subpackage available is the Cisco ASR 1000 Series RP1 WebEx Node (asr1000rp1-sipspawmak9.version.pkg)
- For the RP2, the optional software subpackage available is the Cisco ASR 1000 Series RP2 WebEx Node (asr1000rp2-sipspawmak9.version.pkg)

**Note**

The Cisco ASR 1000 Series RP1 WebEx Node and Cisco ASR 1000 Series RP2 WebEx Node optional software subpackages are only available beginning with Cisco IOS XE Release 2.4.0 and later releases and are only supported in conjunction with a related RP-based Cisco ASR 1000 Series RPx IP BASE, Cisco ASR 1000 Series RPx ADVANCED IP SERVICES, or Cisco ASR 1000 Series RPx ADVANCED ENTERPRISE SERVICES consolidated package. These optional software subpackages are not supported with earlier Cisco IOS XE releases or with any of the non-CRYPTO consolidated packages.

**Note**

ISSU operation on the Cisco ASR 1002 and Cisco ASR 1004 systems requires the system to be operating in subpackage mode.

**Note**

USB (or any other removable media) cannot be used to boot the system into subpackage mode.

For further information about the advantages and disadvantages of running individual subpackages or a complete Cisco IOS XE 3S consolidated package, and the process of extracting the individual subpackages, see *Cisco ASR 1000 Series Aggregation Services Router Software Configuration Guide* at the following location:

<http://www.cisco.com/en/US/docs/routers/asr1000/configuration/guide/chassis/asrswcfg.html>

Cisco IOS XE 3S Software Package Compatibility for ISSU

Cisco IOS XE Release 3.1S is an ISSU break release. In Cisco IOS XE Release 3.1S, ISSU upgrade and subpackage software upgrade from Cisco IOS XE Release 2.x to Cisco IOS XE Release 3.xS, including Release 3.1S, is not supported. The ISSU downgrade from Cisco IOS XE Release 3.xS, including Release 3.1S to 2.x, is not supported either.

ISSU upgrade and subpackage software upgrade are restarted from Cisco IOS XE Release 3.1S. Therefore, rebuilds and releases after Cisco IOS XE Release 3.1S will support ISSU and software upgrade and downgrade, based on the ISSU compatibility matrix tables. For example, ISSU upgrade and downgrade between Cisco IOS XE Release 3.1.0S (15.0(1)S) to Cisco IOS XE Release 3.xS are supported.

For information about Cisco IOS XE 3.x releases that supports ISSU and software upgrade and downgrade, based on the ISSU compatibility matrix tables in Cisco IOS XE Release 3 releases, see the [“Cisco ASR 1000 Series Aggregation Services Routers Software Package Compatibility for ISSU”](#) section in *Cisco ASR 1000 Series Aggregation Services Routers Release Notes*.

For information about Cisco IOS XE 2.x releases that supports ISSU and software upgrade and downgrade, based on the ISSU compatibility matrix tables in Cisco IOS XE Release 2 releases, see the [“Cisco IOS XE Release Compatibility Tables”](#) section in *Release Notes for Cisco ASR 1000 Series Aggregation Services Routers for Cisco IOS XE Release 2*.

**Note**

Cisco IOS XE software compatibility is between “like” images, for example, advipservicesk9 to advipservicesk9, adventerprise9 to adventerprise9, and so on. Cross-image-type upgrades or installations are not supported in the ISSU process. For example, you cannot upgrade ipbase to advipservicesk9 or advipservices to advipservicesk9.

RP Memory Recommendations

- [Cisco ASR 903 Series Aggregation Services Router, page 8](#)
- [Cisco ASR 1000 Series Aggregation Services Routers, page 10](#)

Cisco ASR 903 Series Aggregation Services Router

The Cisco IOS XE 3S images and packages available vary based on the route processor (either RSP1 or RSP1+) installed in the system:

[Table 1](#) describes the consolidated package image, the individual software subpackage contents, and the memory recommendations.

Table 1 **Memory Recommendations for the Cisco ASR 903 Series Router Consolidated Package Image**

Platform	Image Name	Software Image	Individual Subpackage Contents	DRAM Memory
Cisco ASR 903 Router	Cisco ASR 903 Series RSP1 UNIVERSAL W/O CRYPTO	asr903rsp1-universal.version.bin	asr903rsp1-rpbase.version.pkg	2 GB (RSP1)
			asr903rsp1-rpcontrol.version.pkg	4 GB (RSP1+)
			asr903rsp1-rpaccess.version.pkg	
			asr903rsp1-rpios-universal.version.pkg	
			asr903rsp1-espbases.version.pkg	
			asr903rsp1-sipbase.version.pkg	
			asr903rsp1-sipspace.version.pkg	
			asr903rsp1-packages-universal.version.conf	
			packages.conf	
Cisco ASR 903 Router	Cisco ASR 903 Series RSP1 UNIVERSAL	asr903rsp1-universalk9.version.bin	asr903-hw-programmables.version.pkg	2 GB (RSP1)
			asr903rsp1-espbases.version.pkg	4 GB (RSP1+)
			asr903rsp1-packages-universalk9.version.conf	
			asr903rsp1-rpaccess.version.pkg	
			asr903rsp1-rpbase.version.pkg	
			asr903rsp1-rpcontrol.version.pkg	
			asr903rsp1-rpios-universalk9.version.pkg	
			asr903rsp1-sipbase.version.pkg	
			asr903rsp1-sipspace.version.pkg	
			packages.conf	
Cisco ASR 903 Router	Cisco ASR 903 Series RSP1 UNIVERSAL NPE	asr903rsp1-universalk9_npe.version.bin	asr903-hw-programmables.version.pkg	2 GB (RSP1)
			asr903rsp1-espbases.version.pkg	4 GB (RSP1+)
			asr903rsp1-packages-universalk9.version.conf	
			asr903rsp1-rpaccess.version.pkg	
			asr903rsp1-rpbase.version.pkg	
			asr903rsp1-rpcontrol.version.pkg	
			asr903rsp1-rpios-universalk9_npe.version.pkg	
			asr903rsp1-sipbase.version.pkg	
			asr903rsp1-sipspace.version.pkg	
			packages.conf	

Cisco ASR 1000 Series Aggregation Services Routers

The Cisco IOS XE 3S images and packages available vary based on the route processor (either RP1 or RP2) installed in the system:

- [Table 2](#) describes the RP1 consolidated package images, their individual software subpackage contents, and their memory recommendations.
- [Table 3](#) describes the RP1 optional subpackage images and their memory recommendations.
- [Table 4](#) describes the RP2 consolidated package images, their individual software subpackage contents, and their memory recommendations.
- [Table 5](#) describes the RP2 optional subpackage images and their memory recommendations.

Each Cisco IOS XE 3S image also contains two provisioning files:

asr1000rpx-packages.*image.version*.conf and packages.conf. A provisioning file is used for booting only in cases where the individual modules are extracted from the Cisco IOS XE 3.1S image and then used to run the router. Either provisioning file can be used.

Table 2 RP1 Memory Recommendations for the Cisco ASR 1000 Series Routers Consolidated Package Images

Platforms	Image Name	Software Image	Individual Subpackage Contents	DRAM Memory
Cisco ASR 1002 Router Cisco ASR 1004 Router Cisco ASR 1006 Router	Cisco ASR 1000 Series RP1 IP BASE W/O CRYPTO	asr1000rp1-ipbase. <i>version</i> .bin	asr1000rp1-rpbase. <i>version</i> .pkg	4 GB (for Cisco ASR 1002 Router) 2 GB–4 GB (for Cisco ASR 1004 and Cisco ASR 1006 routers)
			asr1000rp1-rpcontrol. <i>version</i> .pkg	
			asr1000rp1-rpaccess. <i>version</i> .pkg	
			asr1000rp1-rpios-ipbase. <i>version</i> .pkg	
			asr1000rp1-espbases. <i>version</i> .pkg	
			asr1000rp1-sipbase. <i>version</i> .pkg	
			asr1000rp1-sipspa. <i>version</i> .pkg	
			asr1000rp1-packages-ipbase. <i>version</i> .conf	
			packages.conf	
Cisco ASR 1002 Router Cisco ASR 1004 Router Cisco ASR 1006 Router	Cisco ASR 1000 Series RP1 IP BASE	asr1000rp1-ipbasek9. <i>version</i> .bin	asr1000rp1-rpbase. <i>version</i> .pkg	4 GB (for Cisco ASR 1002 Router) 2 GB–4 GB (for Cisco ASR 1004 and Cisco ASR 1006 routers)
			asr1000rp1-rpcontrol. <i>version</i> .pkg	
			asr1000rp1-rpaccess. <i>version</i> .pkg	
			asr1000rp1-rpios-ipbasek9. <i>version</i> .pkg	
			asr1000rp1-espbases. <i>version</i> .pkg	
			asr1000rp1-sipbase. <i>version</i> .pkg	
			asr1000rp1-sipspa. <i>version</i> .pkg	
			asr1000rp1-packages-ipbasek9. <i>version</i> .conf	
			packages.conf	

Table 2 **RP1 Memory Recommendations for the Cisco ASR 1000 Series Routers Consolidated Package Images**

Platforms	Image Name	Software Image	Individual Subpackage Contents	DRAM Memory
Cisco ASR 1002 Router Cisco ASR 1004 Router Cisco ASR 1006 Router	Cisco ASR 1000 Series RP1 ADVANCED IP SERVICES W/O CRYPTO	asr1000rp1-advipservices. <i>version</i> .bin	asr1000rp1-rpbase. <i>version</i> .pkg	4 GB (for Cisco ASR 1002 Router) 2 GB–4 GB (for Cisco ASR 1004 and Cisco ASR 1006 routers)
			asr1000rp1-rpcontrol. <i>version</i> .pkg	
			asr1000rp1-rpaccess. <i>version</i> .pkg	
			asr1000rp1-rpios-advipservices. <i>version</i> .pkg	
			asr1000rp1-espbased. <i>version</i> .pkg	
			asr1000rp1-sipbased. <i>version</i> .pkg	
			asr1000rp1-sipspace. <i>version</i> .pkg	
			asr1000rp1-packages-advipservices. <i>version</i> .conf	
			packages.conf	
Cisco ASR 1002 Router Cisco ASR 1004 Router Cisco ASR 1006 Router	Cisco ASR 1000 Series RP1 ADVANCED IP SERVICES	asr1000rp1-advipservicesk9. <i>version</i> .bin	asr1000rp1-rpbase. <i>version</i> .pkg	4 GB (for Cisco ASR 1002 Router) 2 GB–4 GB (for Cisco ASR 1004 and Cisco ASR 1006 routers)
			asr1000rp1-rpcontrol. <i>version</i> .pkg	
			asr1000rp1-rpaccess. <i>version</i> .pkg	
			asr1000rp1-rpios-ipbasek9. <i>version</i> .pkg	
			asr1000rp1-espbased. <i>version</i> .pkg	
			asr1000rp1-sipbased. <i>version</i> .pkg	
			asr1000rp1-sipspace. <i>version</i> .pkg	
			asr1000rp1-packages-advipservicesk9. <i>version</i> .conf	
			packages.conf	
Cisco ASR 1002 Router Cisco ASR 1004 Router Cisco ASR 1006 Router	Cisco ASR 1000 Series RP1 ADVANCED ENTERPRISE SERVICES W/O CRYPTO	asr1000rp1-adventservices. <i>version</i> .bin	asr1000rp1-rpbase. <i>version</i> .pkg	4 GB (for Cisco ASR 1002 Router) 2 GB–4 GB (for Cisco ASR 1004 and Cisco ASR 1006 routers)
			asr1000rp1-rpcontrol. <i>version</i> .pkg	
			asr1000rp1-rpaccess. <i>version</i> .pkg	
			asr1000rp1-rpios-adventservices. <i>version</i> .pkg	
			asr1000rp1-espbased. <i>version</i> .pkg	
			asr1000rp1-sipbased. <i>version</i> .pkg	
			asr1000rp1-sipspace. <i>version</i> .pkg	
			asr1000rp1-packages-adventservices. <i>version</i> .conf	
			packages.conf	

Table 2 *RP1 Memory Recommendations for the Cisco ASR 1000 Series Routers Consolidated Package Images*

Platforms	Image Name	Software Image	Individual Subpackage Contents	DRAM Memory
Cisco ASR 1002 Router Cisco ASR 1004 Router Cisco ASR 1006 Router	Cisco ASR 1000 Series RP1 ADVANCED ENTERPRISE SERVICES	asr1000rp1-adventservicesk9.vers on.bin	asr1000rp1-rpbase.version.pkg	4 GB (for Cisco ASR 1002 Router)
			asr1000rp1-rpcontrol.version.pkg	
			asr1000rp1-rpaccess.version.pkg	2 GB–4 GB (for Cisco ASR 1004 and Cisco ASR 1006 routers)
			asr1000rp1-rpios-adventservicesk9.version.pkg	
			asr1000rp1-espbase.version.pkg	
			asr1000rp1-sipbase.version.pkg	
			asr1000rp1-sipspa.version.pkg	
			asr1000rp1-packages-adventservicesk9.version.conf	
			packages.conf	

Table 3 *RP1 Memory Recommendations for the Cisco ASR 1000 Series Routers Optional Subpackage Image*

Platforms	Image Name	Software Image	Flash Memory
Cisco ASR 1002 Router Cisco ASR 1004 Router Cisco ASR 1006 Router	Cisco ASR 1000 Series RP1 WebEx Node ¹	asr1000rp1-sipspawmak9.version.XND.pkg	100MB

1. The Cisco ASR 1000 Series RP1 WebEx Node (asr1000rp1-sipspawmak9.version.pkg) optional software subpackage is only available beginning with Cisco IOS XE Release 2.4.0 and later releases and only supported in conjunction with the Cisco ASR 1000 Series RP1 IP BASE, Cisco ASR 1000 Series RP1 ADVANCED IP SERVICES, or Cisco ASR 1000 Series RP1 ADVANCED ENTERPRISE SERVICES consolidated package. This subpackage is not supported with earlier Cisco IOS XE releases or with any of the non-CRYPTO consolidated packages.

**Note**

RP2 images are available from Cisco IOS XE Release 2.3.0.

Table 4 *RP2 Memory Recommendations for the Cisco ASR 1000 Series Routers Consolidated Package Images*

Platforms	Image Name	Software Image	Individual Subpackage Contents	DRAM Memory
Cisco ASR 1004 Router Cisco ASR 1006 Router Cisco ASR 1013 Router	Cisco ASR 1000 Series RP2 IP BASE W/O CRYPTO	asr1000rp2-ipbase.version.bin	asr1000rp2-rpbase.version.pkg	8 GB–16 GB (for Cisco ASR 1004 Cisco ASR 1006 and Cisco ASR 1013 routers)
			asr1000rp2-rpcontrol.version.pkg	
			asr1000rp2-rpaccess.version.pkg	
			asr1000rp2-rpios-ipbase.version.pkg	
			asr1000rp2-espbases.version.pkg	
			asr1000rp2-sipbase.version.pkg	
			asr1000rp2-sipspace.version.pkg	
			asr1000rp2-packages-ipbase.version.conf	
			packages.conf	
Cisco ASR 1004 Router Cisco ASR 1006 Router Cisco ASR 1013 Router	Cisco ASR 1000 Series RP2 IP BASE	asr1000rp2-ipbasek9.version.bin	asr1000rp2-rpbase.version.pkg	8 GB–16 GB (for Cisco ASR 1004 Cisco ASR 1006 and Cisco ASR 1013 routers)
			asr1000rp2-rpcontrol.version.pkg	
			asr1000rp2-rpaccess.version.pkg	
			asr1000rp2-rpios-ipbasek9.version.pkg	
			asr1000rp2-espbases.version.pkg	
			asr1000rp2-sipbase.version.pkg	
			asr1000rp2-sipspace.version.pkg	
			asr1000rp2-packages-ipbasek9.version.conf	
			packages.conf	
Cisco ASR 1004 Router Cisco ASR 1006 Router Cisco ASR 1013 Router	Cisco ASR 1000 Series RP2 ADVANCED IP SERVICES W/O CRYPTO	asr1000rp2-advipservices.version.bin	asr1000rp2-rpbase.version.pkg	8 GB–16 GB (for Cisco ASR 1004 Cisco ASR 1006 and Cisco ASR 1013 routers)
			asr1000rp2-rpcontrol.version.pkg	
			asr1000rp2-rpaccess.version.pkg	
			asr1000rp2-rpios-advipservices.version.pkg	
			asr1000rp2-espbases.version.pkg	
			asr1000rp2-sipbase.version.pkg	
			asr1000rp2-sipspace.version.pkg	
			asr1000rp2-packages-advipservices.version.conf	
			packages.conf	

Table 4 **RP2 Memory Recommendations for the Cisco ASR 1000 Series Routers Consolidated Package Images**

Platforms	Image Name	Software Image	Individual Subpackage Contents	DRAM Memory
Cisco ASR 1004 Router Cisco ASR 1006 Router Cisco ASR 1013 Router	Cisco ASR 1000 Series RP2 ADVANCED IP SERVICES	asr1000rp2-advipservicesk9. version.bin	asr1000rp2-rpbase.version.pkg	8 GB–16 GB (for Cisco ASR 1004 Cisco ASR 1006 and Cisco ASR 1013 routers)
			asr1000rp2-rpcontrol.version.pkg	
			asr1000rp2-rpaccess.version.pkg	
			asr1000rp2-rpios-advipservicesk9. version.pkg	
			asr1000rp2-espbases.version.pkg	
			asr1000rp2-sipbase.version.pkg	
			asr1000rp2-sipspa.version.pkg	
			asr1000rp2-packages-advipservicesk9. version.conf	
			packages.conf	
Cisco ASR 1004 Router Cisco ASR 1006 Router Cisco ASR 1013 Router	Cisco ASR 1000 Series RP2 ADVANCED ENTERPRISE SERVICES W/O CRYPTO	asr1000rp2-adventservices.version. bin	asr1000rp2-rpbase.version.pkg	8 GB–16 GB (for Cisco ASR 1004 Cisco ASR 1006 and Cisco ASR 1013 routers)
			asr1000rp2-rpcontrol.version.pkg	
			asr1000rp2-rpaccess.version.pkg	
			asr1000rp2-rpios-adventservices. version.pkg	
			asr1000rp2-espbases.version.pkg	
			asr1000rp2-sipbase.version.pkg	
			asr1000rp2-sipspa.version.pkg	
			asr1000rp2-packages-adventservices. version.conf	
			packages.conf	
Cisco ASR 1004 Router Cisco ASR 1006 Router Cisco ASR 1013 Router	Cisco ASR 1000 Series RP2 ADVANCED ENTERPRISE SERVICES	asr1000rp2-adventservicesk9. version.bin	asr1000rp2-rpbase.version.pkg	8 GB–16 GB (for Cisco ASR 1004 Cisco ASR 1006 and Cisco ASR 1013 routers)
			asr1000rp2-rpcontrol.version.pkg	
			asr1000rp2-rpaccess.version.pkg	
			asr1000rp2-rpios-adventservicesk9. version.pkg	
			asr1000rp2-espbases.version.pkg	
			asr1000rp2-sipbase.version.pkg	
			asr1000rp2-sipspa.version.pkg	
			asr1000rp2-packages-adventservicesk9. version.conf	
			packages.conf	

Table 5 *RP2 Memory Recommendations for the Cisco ASR 1000 Series Routers Optional Subpackage Image*

Platforms	Image Name	Software Image	Flash Memory
Cisco ASR 1004 Router Cisco ASR 1006 Router Cisco ASR 1013 Router	Cisco ASR 1000 Series RP2 WebEx Node ¹	asr1000rp2-sipsawmak9.version.XND.pkg	100 MB

1. The Cisco ASR 1000 Series RP2 WebEx Node (asr1000rp1-sipsawmak9.version.pkg) optional software subpackage is only available beginning with Cisco IOS XE Release 2.4.0 and later releases and only supported in conjunction with the Cisco ASR 1000 Series RP2 IP BASE, Cisco ASR 1000 Series RP2 ADVANCED IP SERVICES, or Cisco ASR 1000 Series RP2 ADVANCED ENTERPRISE SERVICES consolidated package. This subpackage is not supported with earlier Cisco IOS XE releases or with any of the non-CRYPTO consolidated packages.

Hardware Supported

Cisco IOS XE 3S releases support the following Cisco ASR 1000 Series Routers and the Cisco ASR 903 Router:

- Cisco ASR 1001 Router
- Cisco ASR 1002 Router
- Cisco ASR 1002-F Router
- Cisco ASR 1004 Router
- Cisco ASR 1006 Router
- Cisco ASR 1013 Router
- Cisco ASR 903 Router (introduced in Cisco IOS XE Release 3.5.0S)

ROMmon Version Requirements

This section describes the recommended and minimum ROMmon version requirements for Cisco IOS XE releases up to and including Cisco IOS XE Release 3.10S.

For information about recommended and minimum ROMmon version requirements see the [“ROMmon Release Requirements”](#) section in *Cisco ASR 1000 Series Aggregation Services Routers Release Notes*.

Determining the Software Version

This section provides information about determining the software version.

Determining the Consolidated Package Version

To determine the version of the Cisco IOS XE Software (consolidated package) running on your Cisco ASR 1000 Series Router, log in to the router and enter the **show version EXEC** command.

The following is sample output of the **show version** command. The actual output displayed when you run the command will vary depending on the version of the product that you are using.

Router# **show version**

```
Cisco IOS Software, IOS-XE Software (X86_64_LINUX_IOSD-ADVENTERPRISEK9-M), Version
15.2(1)S, RELEASE SOFTWARE (fc1)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2011 by Cisco Systems, Inc.
Compiled Sun 27-Nov-11 21:19 by mcpre
```

```
Cisco IOS-XE software, Copyright (c) 2005-2011 by cisco Systems, Inc.
All rights reserved. Certain components of Cisco IOS-XE software are
licensed under the GNU General Public License ("GPL") Version 2.0. The
software code licensed under GPL Version 2.0 is free software that comes
with ABSOLUTELY NO WARRANTY. You can redistribute and/or modify such
GPL code under the terms of GPL Version 2.0. For more details, see the
documentation or "License Notice" file accompanying the IOS-XE software,
or the applicable URL provided on the flyer accompanying the IOS-XE
software.
```

```
ROM: IOS-XE ROMMON
```

```
Router uptime is 1 minute
Uptime for this control processor is 3 minutes
System returned to ROM by reload
System restarted at 22:07:05 UTC Sun Nov 27 2011
System image file is "tftp://auto/tftp-smoke2/mcpdt-rp2-14/vmlinux"
Last reload reason: PowerOn
```

```
This product contains cryptographic features and is subject to United
States and local country laws governing import, export, transfer and
use. Delivery of Cisco cryptographic products does not imply
third-party authority to import, export, distribute or use encryption.
Importers, exporters, distributors and users are responsible for
compliance with U.S. and local country laws. By using this product you
agree to comply with applicable laws and regulations. If you are unable
to comply with U.S. and local laws, return this product immediately.
```

```
A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html
```

```
If you require further assistance please contact us by sending email to
export@cisco.com.
```

```
cisco ASR1006 (RP2) processor with 4252282K/6147K bytes of memory.
5 Gigabit Ethernet interfaces
2 Channelized T3 ports
32768K bytes of non-volatile configuration memory.
8388608K bytes of physical memory.
1925119K bytes of eUSB flash at bootflash:.
78085207K bytes of SATA hard disk at harddisk:.
```

```
Configuration register is 0x2102
```

Determining the Individual Subpackages Installed

To determine the version of the individual subpackages running on your Cisco ASR 1000 Series Router, log in to the router and enter the **show version installed** command in the User EXEC, Privileged EXEC, or Diagnostic mode.

The following is sample output of the **show version installed** command. The actual output displayed when you run the command will vary depending on the version of the product that you are using.

Router# **show version installed**

```

Package: Provisioning File, version: n/a, status: active
  File: consolidated:packages.conf, on: RP0
  Built: n/a, by: n/a
  File SHA1 checksum: 96de495067ade7bb7e17f833fb3e4136adddf0a7

Package: rpbase, version: 03.05.00.S.152-1.S, status: active
  File: consolidated:asr1000rp2-rpbase.03.05.00.S.152-1.S.pkg, on: RP0
  Built: 2011-11-27_15.35, by: mcpre
  File SHA1 checksum: aadf1bfa5ff97720c3eeaed32e4d9941e54b0ea8

Package: rpcontrol, version: 03.05.00.S.152-1.S, status: active
  File: consolidated:asr1000rp2-rpcontrol.03.05.00.S.152-1.S.pkg, on: RP0/0
  Built: 2011-11-27_15.35, by: mcpre
  File SHA1 checksum: 57f1f2c5536098d761d228d3a4d5031bf1f885fb

Package: rprios-adventerprisek9, version: 03.05.00.S.152-1.S, status: active
  File: consolidated:asr1000rp2-rpios-adventerprisek9.03.05.00.S.152-1.S.pkg, on: RP0/0
  Built: 2011-11-27_15.41, by: mcpre
  File SHA1 checksum: 632836be203f1f5a94d7cbb4eb042890649d5b0d

Package: rpaccess, version: 03.05.00.S.152-1.S, status: active
  File: consolidated:asr1000rp2-rpaccess.03.05.00.S.152-1.S.pkg, on: RP0/0
  Built: 2011-11-27_15.35, by: mcpre
  File SHA1 checksum: adc4045026a793a1523431f10860b6bf1fa1fb2c

Package: rpcontrol, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-rpcontrol.03.05.00.S.152-1.S.pkg, on: RP0/1
  Built: 2011-11-27_15.35, by: mcpre
  File SHA1 checksum: 57f1f2c5536098d761d228d3a4d5031bf1f885fb

Package: rprios-adventerprisek9, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-rpios-adventerprisek9.03.05.00.S.152-1.S.pkg, on: RP0/1
  Built: 2011-11-27_15.41, by: mcpre
  File SHA1 checksum: 632836be203f1f5a94d7cbb4eb042890649d5b0d

Package: rpaccess, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-rpaccess.03.05.00.S.152-1.S.pkg, on: RP0/1
  Built: 2011-11-27_15.35, by: mcpre
  File SHA1 checksum: adc4045026a793a1523431f10860b6bf1fa1fb2c

Package: rpbase, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-rpbase.03.05.00.S.152-1.S.pkg, on: RP1
  Built: 2011-11-27_15.35, by: mcpre
  File SHA1 checksum: aadf1bfa5ff97720c3eeaed32e4d9941e54b0ea8

Package: rpcontrol, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-rpcontrol.03.05.00.S.152-1.S.pkg, on: RP1/0
  Built: 2011-11-27_15.35, by: mcpre
  File SHA1 checksum: 57f1f2c5536098d761d228d3a4d5031bf1f885fb

Package: rprios-adventerprisek9, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-rpios-adventerprisek9.03.05.00.S.152-1.S.pkg, on: RP1/0

```

```

Built: 2011-11-27_15.41, by: mcpre
File SHA1 checksum: 632836be203f1f5a94d7cbb4eb042890649d5b0d

Package: rpaccess, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-rpaccess.03.05.00.S.152-1.S.pkg, on: RP1/0
Built: 2011-11-27_15.35, by: mcpre
File SHA1 checksum: adc4045026a793a1523431f10860b6bf1fa1fb2c

Package: rpcontrol, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-rpcontrol.03.05.00.S.152-1.S.pkg, on: RP1/1
Built: 2011-11-27_15.35, by: mcpre
File SHA1 checksum: 57f1f2c5536098d761d228d3a4d5031bf1f885fb

Package: rpios-adventerprisek9, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-rpios-adventerprisek9.03.05.00.S.152-1.S.pkg, on: RP1/1
Built: 2011-11-27_15.41, by: mcpre
File SHA1 checksum: 632836be203f1f5a94d7cbb4eb042890649d5b0d

Package: rpaccess, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-rpaccess.03.05.00.S.152-1.S.pkg, on: RP1/1
Built: 2011-11-27_15.35, by: mcpre
File SHA1 checksum: adc4045026a793a1523431f10860b6bf1fa1fb2c

Package: espbase, version: 03.05.00.S.152-1.S, status: active
File: consolidated:asr1000rp2-espbase.03.05.00.S.152-1.S.pkg, on: ESP0
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 6867ebbf53d4e17b88c45859175ad70891c49f05

Package: esp86base, version: 03.05.00.S.152-1.S, status: inactive
File: consolidated:asr1000rp2-esp86base.03.05.00.S.152-1.S.pkg, on: ESP0
Built: 2011-11-27_15.35, by: mcpre
File SHA1 checksum: 6d11715ea722191f6d5e8bec077512fd22c473ae

Package: espbase, version: 03.05.00.S.152-1.S, status: active
File: consolidated:asr1000rp2-espbase.03.05.00.S.152-1.S.pkg, on: ESP1
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 6867ebbf53d4e17b88c45859175ad70891c49f05

Package: esp86base, version: 03.05.00.S.152-1.S, status: inactive
File: consolidated:asr1000rp2-esp86base.03.05.00.S.152-1.S.pkg, on: ESP1
Built: 2011-11-27_15.35, by: mcpre
File SHA1 checksum: 6d11715ea722191f6d5e8bec077512fd22c473ae

Package: sipbase, version: 03.05.00.S.152-1.S, status: active
File: consolidated:asr1000rp2-sipbase.03.05.00.S.152-1.S.pkg, on: SIP0
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 216029d6fb614f3b65225015008d25e70b513169

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP0/0
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP0/1
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: active
File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP0/2
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: active

```

```

File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP0/3
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipbase, version: 03.05.00.S.152-1.S, status: active
File: consolidated:asr1000rp2-sipbase.03.05.00.S.152-1.S.pkg, on: SIP1
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 216029d6fb614f3b65225015008d25e70b513169

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP1/0
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP1/1
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP1/2
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP1/3
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipbase, version: 03.05.00.S.152-1.S, status: active
File: consolidated:asr1000rp2-sipbase.03.05.00.S.152-1.S.pkg, on: SIP2
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 216029d6fb614f3b65225015008d25e70b513169

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP2/0
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP2/1
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP2/2
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP2/3
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipbase, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-sipbase.03.05.00.S.152-1.S.pkg, on: SIP3
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 216029d6fb614f3b65225015008d25e70b513169

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP3/0
Built: 2011-11-27_15.14, by: mcpre
File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

```

```

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP3/1
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP3/2
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP3/3
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipbase, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipbase.03.05.00.S.152-1.S.pkg, on: SIP4
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 216029d6fb614f3b65225015008d25e70b513169

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP4/0
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP4/1
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP4/2
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP4/3
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipbase, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipbase.03.05.00.S.152-1.S.pkg, on: SIP5
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 216029d6fb614f3b65225015008d25e70b513169

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP5/0
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP5/1
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP5/2
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

Package: sipspa, version: 03.05.00.S.152-1.S, status: n/a
  File: consolidated:asr1000rp2-sipspa.03.05.00.S.152-1.S.pkg, on: SIP5/3
  Built: 2011-11-27_15.14, by: mcpre
  File SHA1 checksum: 58250807ef37ef9da6c3952babce9a9a5b5e29b5

```


Cisco IOS XE 3S to Cisco IOS Version Number Mapping

Each version of Cisco IOS XE 3S has an associated Cisco IOS version. [Table 6](#) lists these mappings for all released versions of Cisco IOS XE 3S.

Table 6 *Cisco IOS XE 3S to Cisco IOS Version Number Mapping*

Cisco IOS XE 3S Version	Cisco IOS Version
3.1.0S	15.0(1)S
3.1.1S	15.0(1)S1
3.1.2S	15.0(1)S2
3.1.3S	15.0(1)S3
3.1.4S	15.0(1)S4
3.1.4aS	15.0(1)S4a
3.2.0S	15.1(1)S
3.2.1S	15.1(1)S1
3.2.2S	15.1(1)S2
3.3.0S	15.1(2)S
3.3.1S	15.1(2)S1
3.3.2S	15.1(2)S2
3.4.0S	15.1(3)S
3.4.0aS	15.1(3)S0a
3.4.1S	15.1(3)S1
3.4.2S	15.1(3)S2
3.4.3S	15.1(3)S3
3.4.4S	15.1(3)S4
3.4.5S	15.1(3)S5
3.4.6S	15.1(3)S6
3.5.0S	15.2(1)S
3.5.1S	15.2(1)S1
3.5.2S	15.2(1)S2

Upgrading to a New Software Release

Only Cisco IOS XE 3S consolidated packages can be downloaded from Cisco.com; users who want to run the router using individual subpackages must first download the image from Cisco.com and extract the individual subpackages from the consolidated package.

For information about upgrading to a new software release, see *Cisco ASR 1000 Series Aggregation Services Router Software Configuration Guide* at the following location:

<http://www.cisco.com/en/US/docs/routers/asr1000/configuration/guide/chassis/asrswcfg.html>