



# Release Notes for Cisco ASR 9000 Series Routers, IOS XR Release 26.2.1

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## Cisco ASR 9000 Series Routers, IOS XR Release 26.2.1

Cisco IOS XR Release 26.2.1 introduces comprehensive enhancements for ASR 9000 Series routers, focusing on network agility, security, and operational scalability. Key updates include P-BNG and cnBNG coexistence for seamless migration, expanded IPv4 and dual-stack support for routed subscriber sessions, and multiple control plane associations for improved cnBNG redundancy. Operational efficiency is bolstered by regex-based filtering for MPLS-TE, SRv6 load-balancing via source address entropy, and VRF-specific BFD multipath assignment. Security is strengthened by moving deprecated protocols like Telnet and FTP to optional RPMs, while licensing is streamlined via Smart Licensing for 8011-PE variants. Additionally, nV Satellite capabilities are significantly expanded with support for new 8000 Series hardware, bundle load-balancing auto mode, cross-layer QoS enforcement, MD5 authentication for ICCP links, and high-speed ICL support up to 400GbE, collectively optimizing high-scale WAN and metro aggregation deployments.

### New software features

**Table 1.** New software features for ASR 9000 Series Aggregation Services Routers, Release 26.2.1

Product impact	Feature	Description
<b>BNG</b>		
Software Reliability	<a href="#">P-BNG and cnBNG Coexistence</a>	Enhances network agility and migration efficiency by enabling the simultaneous operation of physical BNG and Cloud-Native BNG (cnBNG) on a single router. This feature provides a flexible mechanism for a phased transition with minimal disruption to cloud-native architectures, supporting interface-level configuration exclusivity, service continuity, and unified subscriber management across hybrid deployments.
<b>Cloud Native BNG User Plane</b>		
Software Reliability	<a href="#">Multiple Control Plane associations</a>	You can now improve cnBNG redundancy and flexibility by enabling a single User Plane (UP) to connect to multiple Control Plane (CP) instances at the same time. This allows Subscriber Redundancy Groups (SRG) to be mapped more flexibly across different CPs.
Software Reliability	<a href="#">Routed subscriber sessions</a>	We have enhanced this feature to support IPv4, and dual-stack routed subscriber sessions, including on bundle-ether VLAN interfaces, which improves scalability and deployment flexibility in Layer 3 access networks. Previously, only IPv6 was supported.
<b>Licensing</b>		
Licensing process	Support for Smart Licensing Using Policy	<p>Cisco Smart Licensing Using Policy streamlines the licensing process for Cisco IOS XR products. You no longer need to register your device during installation, and there is no evaluation license state or period.</p> <p>Smart Licensing support is now extended to the ASR 9000 host with the following port extender variants:</p> <ul style="list-style-type: none"> <li>• 8011-4G24Y4H-I-SAT</li> <li>• 8011-32Y8L2H2FH-SAT</li> </ul>
<b>MPLS</b>		
API experience	<a href="#">Regular expressions in</a>	This feature enhances operational scalability and usability by allowing regex-based tunnel name filtering for MPLS-TE show and

Product impact	Feature	Description
	<a href="#">MPLS-TE tunnel names</a>	<p>execution commands, without changing configuration models, architecture, or security posture.</p> <p>This feature supports regular expression in all MPLS-TE show and execution commands using tunnel names.</p>
<b>Routing</b>		
Software Reliability	<a href="#">VRF-specific BFD multipath location assignment</a>	This feature allows you to pin BFD MP sessions to specific LCs by associating a destination IP and VRF with a physical location. When configured, the system automatically migrates matching sessions to the designated LC. This prevents collateral service disruption for unrelated tenants by ensuring that an LC reload only impacts sessions pinned to that specific hardware.
<b>Segment Routing</b>		
Ease of Use	SRv6 Flow Label entropy via source address	<p>This feature improves SRv6 load balancing by encoding entropy from the IPv6 flow label into the IPv6 source address during SRv6 encapsulation. With this enhancement, the ingress node generates a flow-aware Ipv6 source address. This allows downstream devices to use standard IP-based hashing for consistent ECMP load balancing.</p> <p>This feature uses the modified source address for hashing, ensuring effective end-to-end load balancing even when the IPv6 flow label is ignored.</p> <p>Previously, SRv6 relied on Flow Label-based entropy for load balancing. However, some backbone nodes especially in cloud environments ignore the Flow Label. This caused traffic polarization and inefficient bandwidth utilization.</p> <p>The feature introduces these changes:</p> <p><b>CLI:</b></p> <ul style="list-style-type: none"> <li>The <b>add-entropy flow-label position</b> keyword is introduced in the <code>srv6 encapsulation</code> command.</li> </ul>
<b>Setup and Upgrade</b>		
Upgrade	<a href="#">Deprecated insecure protocols in optional RPMs</a>	<p>This feature improves platform security and reduces the threat surface of the Cisco Networking products by restricting insecure protocols such as Telnet, FTP, TFTP, and RCP (which were deprecated in Cisco IOS XR Release 25.4.1) from Cisco IOS XR base package.</p> <p>In this release, Telnet is added to the optional RPM, <code>{{Telnet.rpm}}</code>, and FTP, TFTP, and RCP are added to the optional RPM, <code>{{IP-Insecure-Apps.rpm}}</code>.</p> <p>We recommend you to migrate to secure alternatives such as SSH, SCP, SFTP as Telnet, FTP, TFTP, and RCP protocols will not be supported anymore starting from an upcoming Cisco IOS XR release.</p>
<b>nvSatellite</b>		
Hardware Reliability	<a href="#">Support for Cisco 8011-32Y8L2H2FH and Cisco 8011-4G24Y4H-I as Satellites on Cisco ASR 9000 Series Hosts</a>	<p>Cisco ASR 9000 Series hosts now support the Cisco 8011-32Y8L2H2FH and Cisco 8011-4G24Y4H-I as satellite devices.</p> <p>This expands the satellite portfolio by introducing new Cisco 8000 Series platforms that can be deployed with the ASR 9000 host for satellite-based access and aggregation. These new satellites provide greater deployment flexibility, support high-density and</p>

Product impact	Feature	Description
		high-speed interface options, and help optimize network scaling based on different port and bandwidth requirements. This allows users to extend ASR 9000 host capabilities while simplifying operational management across satellite deployments.
Software Reliability	<a href="#">Bundle interface load-balancing auto mode for nV Satellite ICL</a>	You achieve predictable, per-port traffic forwarding on nV Satellite Inter Chassis Link (ICL) bundles by automatically mapping each satellite access port to a specific host bundle member. This ensures consistent policing and simplifies troubleshooting by overriding dynamic load-sharing and pinning all traffic from each port to dedicated hardware.
Software Reliability	<a href="#">L2 interface ingress classification of L3 QoS parameters</a>	You can now match and enforce QoS policies using L3 fields, such as DSCP and IP address on L2 interfaces, and L2 fields, such as CoS on L3 interfaces. This enables consistent QoS policy enforcement across your network boundaries without manual mode switching; simply apply your policy and the system handles cross-layer matching.
Software Reliability	<a href="#">MD5 authentication for ICCP links</a>	You can enable MD5 password authentication for ICCP links in dual home mode by configuring the neighbor password command in MPLS LDP configuration mode. This secures TCP communication between hosts by generating and verifying MD5 checksums on messages. Both neighbors must have matching passwords for the session to establish successfully. This feature enhances link security and ensures reliable communication.
Software Reliability	<a href="#">Support for 10GbE, 100GbE, and 400GbE Inter-Chassis Links on Cisco 8000 Series Satellites</a>	Starting from Cisco IOS XR Release 26.2.1, Cisco 8000 Series satellites support 10GbE, 100GbE, and 400GbE Inter-Chassis Links (ICLs).  This feature introduces configurable ICL and access port speed combinations for the Cisco 8011-32Y8L2H2FH satellite, along with default 4x100GbE ICL support on the Cisco 8011-4G24Y4H-I satellite. It provides greater flexibility in satellite deployment by allowing you to choose port-speed combinations that align with different network design and bandwidth requirements. This helps optimize connectivity between the host and satellite while supporting a range of access interface speeds.
Software Reliability	<a href="#">Support for 1GbE, 10GbE, 25GbE access port speed Cisco 8000 Series Satellites</a>	Starting from Cisco IOS XR Release 26.2.1, Cisco 8000 Series satellites support 1GbE, 10GbE, and 25GbE access port speed.  This feature introduces configurable access port speed combinations for the Cisco 8011-32Y8L2H2FH satellite, along with default 4x100GbE ICL support on the Cisco 8011-4G24Y4H-I satellite. It provides greater flexibility in satellite deployment by allowing you to choose port-speed combinations that align with different network design and bandwidth requirements. This helps optimize connectivity between the host and satellite while supporting a range of access interface speeds.

## New hardware

There is no new hardware introduced in this release.

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## Changes in behavior

- Remove of Model-driven CLI Commands: Starting from Cisco IOS-XR software release 26.2.1, the Model-driven CLI specifically the show YANG operational data commands have been removed.
- SNMP Traps Dropped in the Buffer Queue: Starting with IOS-XR software release 24.1.2, SNMP traps will be dropped from the trap queue during the first five minutes after configuring a new NMS server or after a device reload.
  - This issue is observed on all current releases of the Cisco IOS XR routers running IOS XR Release 24.1.2.
  - The defect applies only to NMS servers that are located behind a firewall or within a security network where ICMP packets are blocked.
- Updated Command Syntax and Usage Guidelines
- As an enhancement to the show cef commands, the internal, brief, and hardware keywords have been removed from these commands:
  - show cef unresolved
  - show cef ipv6 linklocal unresolved
- The internal and brief keywords have been removed from these commands:
  - show cef mpls unresolved
  - show cef mpls local-label
- Exceptions
  - This command retains support for the internal and brief keywords when a specific prefix is provided: show cef unresolved <prefix>
  - Usage Constraints for show cef mpls: When executing any command beginning with show cef mpls, you may use only one of these keywords at a time: brief, detail, or internal
  - Note: The exception mentioned above applies: if the command includes unresolved or local-label, the internal and brief keywords are explicitly blocked.
- Change in forwarding information base manager identifier reporting: Previously, all forwarding information base manager (fib\_mgr) instances across different locations—such as the Route Processor (RP) and Line Cards (LCs)—shared the same identifier, fib\_mgr. Consequently, the show command output displayed only a single entry for application fib\_mgr.
- With this update, each fib\_mgr instance is assigned a unique identifier corresponding to its specific location. As a result, the show route afi-all summary command now lists all instances individually. For example, the output will display fib\_mgr for the RP and FIB node0\_3\_CPU0 for the LC located at node0\_3\_CPU0.
- Manual Remediation of Forward-Referenced SRLG Interfaces: The existing Shared Risk Link Groups (SRLG) feature allows configuring SRLG values on interfaces that do not yet exist (forward-reference interfaces). These configurations appear in the output of the show srlg command. To avoid inconsistencies, manually remove all SRLG configurations related to non-existent or forward-referenced interfaces. This manual cleanup is essential to maintain system consistency and prevent misleading information in the SRLG display.

- Enhanced MPLS interface activation for IS-IS address-family lifecycle events: Starting with Cisco IOS XR Release 26.2.1, IS-IS enables or disables MPLS on an interface when the first or last MPLS-enabled address family is created or deleted, instead of waiting for operational UP or DOWN state transitions. Previously, MPLS state changes occurred only during interface shutdown or link-down events. With this enhancement, MPLS state updates now also occur when the interface configuration is removed at the root level or when the last IPv4 or IPv6 address associated with an MPLS-enabled address family is removed from the interface.
- MPLS-TE tunnel event history for insufficient bandwidth events: Starting with Cisco IOS XR Release 26.2.1, MPLS-TE tunnel events for insufficient bandwidth conditions are recorded in the tunnel event history. Previously, when a tunnel failed to reoptimize because the requested bandwidth was unavailable, the router generated syslog messages, but the event was not shown in the show mpls traffic-eng event-history tunnels output. This update adds a tunnel event for insufficient bandwidth so that you can review historical bandwidth-demand failures for debugging and capacity planning.
- Mandatory LDAP TLS Validation: LDAP server certificate validation for TLS connections is now enabled by default. Unlike previous versions that skipped validation when no trustpoint was defined, the current implementation mandates the use of a configured ldaps trustpoint to establish a secure connection. If this trustpoint is absent, the connection is automatically rejected, ensuring that all LDAP traffic is strictly authenticated and verified.
- These behaviors apply based on the configuration of the ldaps trustpoint:
  - No trustpoint configured: The TLS connection to the LDAP server is rejected by the router.
  - CA certificate only: The router uses the configured CA certificate to validate the LDAP server's certificate; the connection is established only upon successful validation.
  - CA and client certificate configured: The router uses the CA certificate to validate the server's certificate while presenting the client certificate to satisfy mTLS requirements; the connection is established only if both validation checks pass.
- MACsec Licensing Tier Update: Effective with Cisco IOS XR Software Release 26.2.1, MACsec on Cisco IOS XR routers utilizing the FCM 2.0 Access licensing model now requires the Advantage tier instead of the Premier tier. When MACsec is enabled on a physical interface, the interface bandwidth triggers Right-to-Use (RTU) consumption for the Access Advantage tier, calculated in 10G increments. This license consumption is reclaimed once the MACsec configuration is removed or the interface is shut down.
- Deprecated Security Algorithms: Starting Cisco IOS XR Release 26.2.1, the 3DES-CBC cipher and Diffie-Hellman Group 1 SHA1 key exchange are insecure and deprecated. You will see syslog warning messages for deprecated commands.
- Change in show media CLI output: The directory path previously shown as /var/lib/docker now appears as apphost in the show media CLI output. This change enhances clarity for users managing third-party applications and Docker containers. It also accurately reflects the directory's role within the Cisco IOS XR application hosting architecture.
- A deprecation notice is shown when you run the show tech-support netconf command.
- Starting Cisco IOS XR Release 26.2.1, you can set the ipv6 nd ns-interval value to less than 60 seconds on these virtual interfaces:
  - Bundle Ethernet interfaces

- BVI interfaces
- Pseudowire Ethernet interfaces
- NACM show command visibility improvements: Starting from Release 26.2.1, you get better visibility of NACM rules and groups in show nacm command outputs when dynamic NACM is used. This enhancement improves how information is displayed without changing existing functionality, ensuring NACM rules continue to operate as before.
- Enhanced syslog reporting for discard-extra-paths limits: Starting in Release 26.2.1, syslog notifications for the discard-extra-paths limit have been enhanced to provide per-neighbor and per-address-family reporting. This replaces the previous global notification behavior, which applied a 5-minute rate limit across the entire BGP process. The updated notifications are rate-limited to 30 seconds and reset automatically if the neighbor session flaps.
- LOS Alarm Based on Total Power Support: Starting with IOS-XR software release 26.1.1, a new Loss of Signal (LOS) alarm based on total received power has been introduced.

#### Alarm Behavior

- The existing payload-based LOS alarm has been renamed to LOS-P to accurately reflect its function.
- Automation scripts and operational procedures that previously relied on the old LOS alarm may misinterpret alarms if not updated.

## Open issues

Bug ID	Description
<a href="#">CSCwt81929</a>	The process restart of ifmgr results in route flapping and traffic loss.
<a href="#">CSCwu32085</a>	cfmd abnormal process restart

## Known issues

During a software upgrade to IOS XR Release 26.1.1, the system may not complete the Auto-FPD upgrade as expected. After the upgrade, the FPD status shows 'RLOAD REQ', indicating that you must perform an additional reload to activate the updated FPD.

## Compatibility

### Compatibility matrix for EPNM and Crosswork with Cisco IOS XR software

The compatibility matrix lists the version of EPNM and Crosswork that are supported with Cisco IOS XR Release in this release.

Cisco IOS XR	Crosswork	EPNM
Release 26.2.1	<a href="#">Crosswork Optimization Engine 6.0</a>	<a href="#">Evolved Programmable Network Manager 8.1.1</a>

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## Memory

The available memory for Cisco ASR 9000 Series Aggregation Services Router running Cisco IOS XR Software Release consist of the following:

- 32 GB memory on the A99-RP-F
- 24 GB memory on the RP3 transport optimised (TR) variant and 40 GB memory on the RP3 service edge (SE) variant
- 24 GB memory on the RP3-X transport optimized (TR) variant and 48 GB memory on the RP3-X service edge (SE) variant
- 24 GB memory on the RSP5 transport optimized (TR) variant and 40 GB memory on the RSP5 service edge (SE) variant
- 24 GB memory on the RSP5-X transport optimized (TR) variant and 48 GB memory on the RSP5-X service edge (SE) variant
- 2 GB compact flash on route switch processors (RSPs)
- 8 GB memory on the line cards (LCs) running Cisco IOS XR 64-bit image

Caution: Do not remove the media where the software image or configuration is stored. Removing this media may make the router unstable and can cause failure.

## Software compatibility

Cisco IOS XR Software Release is compatible with the following Cisco ASR 9000 Series Aggregation Services Router systems.

- Cisco ASR 9900 Series Chassis
  - Cisco ASR 9922 Chassis
  - Cisco ASR 9912 Chassis
  - Cisco ASR 9910 Chassis
  - Cisco ASR 9906 Chassis
  - Cisco ASR 9904 Chassis
  - Cisco ASR 9903 Chassis
  - Cisco ASR 9902 Chassis
- Cisco ASR 9000 Series Chassis
  - Cisco ASR 9010 Chassis
  - Cisco ASR 9006 Chassis

For Cisco license support, please contact your Cisco Sales Representative or Customer Service at 800-553-NETS (6387) or 408-526-4000. For questions on the program other than ordering, please send e-mail to: [cwm-license@cisco.com](mailto:cwm-license@cisco.com).

## Supported hardware

Table of supported hardware components and the minimum required software versions.

Part Number	Description	Support Initially Provided in IOS XR 64 bit Release
<b>Cisco ASR 9000 Series Aggregation Services Router - Route Switch Processor Cards</b>		
A9K-RSP5-X-SE	ASR 9000 Series Route Switch Processor 5 for Service Edge, Premium	Release 7.6.2
A9K-RSP5-X-TR	ASR 9000 Series Route Switch Processor 5 for Packet Transport, Premium	Release 7.6.2
A9K-RSP5-SE	ASR 9000 Route Switch Processor 5 for Service Edge	Release 6.5.15
A9K-RSP5-TR	ASR 9000 Route Switch Processor 5 for Packet Transport	Release 6.5.15
<b>Cisco ASR 9000 Series Aggregation Services Router - Route Processor Cards</b>		
A99-RP3-X-SE	ASR 9900 Route Processor 3 for Service Edge, Premium	Release 7.6.2
A99-RP3-X-TR	ASR 9900 Route Processor 3 for Packet Transport, Premium	Release 7.6.2
A99-RP3-SE	ASR 9900 Route Processor 3 for Service Edge	Release 6.5.15
A99-RP3-TR	ASR 9900 Route Processor 3 for Packet Transport	Release 6.5.15
<b>Cisco ASR 9902 Router</b>		
ASR-9902	Cisco ASR 9902 2RU Chassis with fixed ports	Release 7.4.1
A99-RP-F	Cisco ASR 9900 Fixed Chassis Route Processor	Release 7.1.3
ASR-9902-4P-KIT	Cisco ASR 9902 4-Post Mounting Kit for 19-Inch and 23-Inch Rack	Release 7.4.1
ASR-9902-4P-KIT-L	ASR 9902 4-Post Mounting Kit for 19 and 23 inch Rack - Long	Release 7.4.1
ASR-9902-2P-KIT	Cisco ASR 9902 2-Post Mounting Kit for 19-Inch and 23-Inch Rack	Release 7.4.1
ASR-9902-CAB-MGMT	Cisco ASR 9902 Cable Management	Release 7.4.1
ASR-9902-FILTER	Cisco ASR 9902 Air Filter	Release 7.4.1
ASR-9902-FAN	Cisco ASR 9902 Fan Tray	Release 7.4.1
<b>Cisco ASR 9903 Router</b>		
ASR-9903	Cisco ASR 9903 Compact High-Performance Router with fixed ports and PEC (Port Expansion Card) slot.	Release 7.1.3
A99-RP-F	Cisco ASR 9900 Fixed Chassis Route Processor	Release 7.1.3
ASR-9903-FAN	Cisco ASR 9903 Router Fan Tray	Release 7.1.3

Part Number	Description	Support Initially Provided in IOS XR 64 bit Release
ASR-9903-4P-KIT	ASR 9903 4-Post Mounting Kit for 19-inch Rack	Release 7.1.3
ASR-9903-CAB-MGMT	ASR 9903 Cable Management Brackets	Release 7.1.3
ASR-9903-FILTER	ASR 9903 Air Filter	Release 7.1.3
<b>Cisco ASR 9904 Router</b>		
ASR-9904	Cisco ASR 9000 Series Aggregation Services Router 4-Slot 2 Line Card Slot Chassis, 6 RU	Release 6.1.2
ASR-9904-AC	Cisco ASR 9000 Series Aggregation Services Router 4-Slot 2 Line Card Slot AC Chassis w/ PEM V2	Release 6.1.2
ASR-9904-DC	Cisco ASR 9000 Series Aggregation Services Router 4-Slot 2 Line Card Slot DC Chassis w/ PEM V2	Release 6.1.2
ASR-9904-FAN	Cisco ASR 9000 Series Aggregation Services Router 4-Slot Fan Tray	Release 6.1.2
ASR-9904-FILTER	Cisco ASR 9000 Series Aggregation Services Router 4-Slot Filter	Release 6.1.2
ASR-9904-BAFFLE	Cisco ASR 9000 Series Aggregation Services Router 4-Slot Baffle	Release 6.1.2
<b>Cisco ASR 9912 Router</b>		
ASR-9912	Cisco ASR 9000 Series Aggregation Services Router 12-Slot 10 Line Card Slot Chassis	Release 6.1.2
ASR-9912-AC	Cisco ASR 9000 Series Aggregation Services Router 12-Slot 10 Line Card Slot AC Chassis w/ PEM V2	Release 6.1.2
ASR-9912-DC	Cisco ASR 9000 Series Aggregation Services Router 12-Slot 10 Line Card Slot DC Chassis w/ PEM V2	Release 6.1.2
A99-SFC3	Cisco ASR 9900 Switch Fabric Card 3	Release 6.5.15
ASR-9912-FAN	Cisco ASR 9000 Series Aggregation Services Router 12-Slot Fan Tray	Release 6.1.2
<b>Cisco ASR 9922 Router</b>		
ASR-9922	Cisco ASR 9922 20 Line Card Slot Chassis, 44 RU	Release 6.1.2
ASR-9922-AC	Cisco ASR 9000 Series Aggregation Services Router 22-Slot 20 Line Card Slot AC Chassis w/ PEM V2	Release 6.1.2
ASR-9922-DC	Cisco ASR 9000 Series Aggregation Services Router 22-Slot 20 Line Card Slot DC Chassis w/ PEM V2	Release 6.1.2
A99-SFC3	Cisco ASR 9900 Switch Fabric Card 3	Release 6.5.15

Part Number	Description	Support Initially Provided in IOS XR 64 bit Release
ASR-9922-FAN-V3	Cisco ASR 9000 Series Aggregation Services Router 22-Slot Fan Tray version 3	Release 6.5.15
ASR-9922-FLTR-CV2	Cisco ASR 9000 Series Aggregation Services Router 22-Slot Air Filter with Media, Center	Release 6.1.2
ASR-9922-FLTR-LR	Cisco ASR 9000 Series Aggregation Services Router 22-Slot Air Filter with Media, Left & Right	Release 6.1.2
ASR-9922-RP-FILR	Cisco ASR 9000 Series Aggregation Services Router 22-Slot Route Processor Filler	Release 6.1.2
ASR-9922-FAN-V2	Cisco ASR 9000 Series Aggregation Services Router 22-Slot Version 2 Fan Tray	Release 6.1.2
<b>Cisco ASR 9006 Router</b>		
ASR-9006-SYS	Cisco ASR 9000 Series Aggregation Services Router 6-Slot System	Release 6.1.2
ASR-9006-AC-V2	Cisco ASR 9000 Series Aggregation Services Router 6-Slot AC Chassis Version 2	Release 6.1.2
ASR-9006-DC-V2	Cisco ASR 9000 Series Aggregation Services Router 6-Slot DC Chassis Version 2	Release 6.1.2
ASR-9006-FAN	Cisco ASR 9000 Series Aggregation Services Router 6-Slot Fan Tray	Release 6.1.2
ASR-9006-FAN-V2	Cisco ASR 9000 Series Aggregation Services Router 6-Slot Version 2 Fan Tray	Release 6.1.2
ASR-9006-DOOR	Cisco ASR 9000 Series Aggregation Services Router 6-Slot Door Kit	Release 6.1.2
ASR-9006-FILTER	Cisco ASR 9000 Series Aggregation Services Router 6-Slot Air Filter	Release 6.1.2
<b>Cisco ASR 9906 Router</b>		
ASR-9906	Cisco ASR 9000 Series Aggregation Services Router 6-Slot chassis	Release 6.3.1
ASR-9906-FAN	Cisco ASR 9000 Series Aggregation Services Router 6-Slot Fan Tray	Release 6.3.1
ASR-9906-FILTER	Cisco ASR 9000 Series Aggregation Services Router 6-Slot Fan Filter	Release 6.3.1
A99-SFC3-T	ASR 9906 Switch Fabric Card	Release 6.5.15
<b>Cisco ASR 9010 Router</b>		
ASR-9010-SYS	Cisco ASR 9000 Series Aggregation Services Router 10-Slot System	Release 6.1.2
ASR-9010-AC-V2	Cisco ASR 9000 Series Aggregation Services Router 10-Slot AC Chassis Version 2	Release 6.1.2

Part Number	Description	Support Initially Provided in IOS XR 64 bit Release
ASR-9010-DC-V2	Cisco ASR 9000 Series Aggregation Services Router 10-Slot DC Chassis Version 2	Release 6.1.2
ASR-9010-FAN	Cisco ASR 9000 Series Aggregation Services Router 10-Slot Fan Tray	Release 6.1.2
ASR-9010-FAN-V2	Cisco ASR 9000 Series Aggregation Services Router 10-Slot Version 2 Fan Tray	Release 6.1.2
ASR-9010-DOOR	Cisco ASR 9000 Series Aggregation Services Router 10-Slot Door Kit	Release 6.1.2
ASR-9010-2P-KIT	Cisco ASR 9000 Series Aggregation Services Router 2 Post Mounting Kit	Release 6.1.2
ASR-9010-4P-KIT	Cisco ASR 9000 Series Aggregation Services Router 4 Post Mounting Kit	Release 6.1.2
ASR-9010-FILTER	Cisco ASR 9000 Series Aggregation Services Router 10-Slot Air Filter	Release 6.1.2
<b>Cisco ASR 9910 Router</b>		
ASR-9910	Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) System	Release 6.2.1
ASR-9910-FAN	Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) Fan Tray	Release 6.2.1
ASR-9910-ACC-KIT	Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) Accessory Kit	Release 6.2.1
ASR-9910-4P-KIT	Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) 4 Post Rack Mounting Kit	Release 6.2.1
ASR-9910-2P-KIT	Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) 2 Post Rack Mounting Kit	Release 6.2.1
ASR-9910-AIRREF	Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) Air Reflector	Release 6.2.1
ASR-9910-FILTER	Cisco ASR 9000 Series Aggregation Services Router 10-Slot (9910) Air Filter	Release 6.2.1
A99-SFC3-S	ASR 9910 Switch Fabric Card 3	Release 6.5.15
<b>Cisco ASR 9000 Series Aggregation Services Router - Route Switch Processor Cards</b>		
A9K-RSP5-X-SE	ASR 9000 Series Route Switch Processor 5 for Service Edge, Premium	Release 7.6.2
A9K-RSP5-X-TR	ASR 9000 Series Route Switch Processor 5 for Packet Transport, Premium	Release 7.6.2
A9K-RSP5-SE	ASR 9000 Route Switch Processor 5 for Service Edge	Release 6.5.15
A9K-RSP5-TR	ASR 9000 Route Switch Processor 5 for Packet Transport	Release 6.5.15

Part Number	Description	Support Initially Provided in IOS XR 64 bit Release
<b>Cisco ASR 9000 Series Aggregation Services Router - Power Modules</b>		
PWR-2KW-DC-V2	Cisco ASR 9000 Series Aggregation Services Router 2KW DC Power Module, version 2	Release 6.1.2
PWR-3KW-AC-V2	Cisco ASR 9000 Series Aggregation Services Router 3KW AC Power Module, version 2	Release 6.1.2
A9K-AC-PEM-V2	Cisco ASR 9000 Series Aggregation Services Router AC Power Entry Module Version 2	Release 6.1.2
A9K-DC-PEM-V2	Cisco ASR 9000 Series Aggregation Services Router DC Power Entry Module Version 2	Release 6.1.2
A9K-PEM-V2-FILR	Cisco ASR 9000 Series Aggregation Services Router Power Entry Module Version 2 Filler	Release 6.1.2
A9K-AC-PEM-V3	Cisco ASR 9000 Series Aggregation Services Router AC Power Enclosure Module Version 3	Release 6.1.2
A9K-DC-PEM-V3	Cisco ASR 9000 Series Aggregation Services Router DC Power Enclosure Module Version 3	Release 6.1.2
PWR-6KW-AC-V3	Cisco ASR 9000 Series Aggregation Services Router 6kW AC Power Module Version 3	Release 6.1.2
PWR-4.4KW-DC-V3	Cisco ASR 9000 Series Aggregation Services Router 4.4kW DC Power Module Version 3	Release 6.1.2
PWR-1.6KW-AC	ASR 9900 Fixed Chassis AC Power Supply	Release 7.1.25
PWR-1.6KW-DC	ASR 9900 Fixed Chassis DC Power Supply	Release 7.1.25
<b>Cisco ASR 9000 Series Aggregation Services Router - Line Cards</b>		
A99-4HG-FLEX-X-SE	ASR 9900 400GE Combo Service Edge Line Card Enhanced - 5th Generation	Release 25.2.1
A9K-4HG-FLEX-X-SE	ASR 9000 400GE Combo Service Edge Line Card Enhanced - 5th Generation	Release 25.1.1
A9K-4HG-FLEX-SE	ASR 9000 400GE Combo Service Edge Line Card - 5th Generation	Release 7.4.1
A9K-4HG-FLEX-TR	ASR 9000 400GE Combo Packet Transport Line Card - 5th Generation	Release 7.4.1
A99-4HG-FLEX-SE	ASR 9900 400GE Combo Service Edge Line Card - 5th Generation	Release 7.4.1
A99-4HG-FLEX-TR	ASR 9900 400GE Combo Packet Transport Line Card - 5th Generation	Release 7.4.1

Part Number	Description	Support Initially Provided in IOS XR 64 bit Release
A9903-8HG-PEC	ASR 9903 800G Multi-rate Port Expansion Card	Release 7.4.1
A99-10X400GE-X-SE	ASR 9900 4T Service Edge Line Card - 5th Generation	Release 7.3.1
A99-10X400GE-X-TR	ASR 9900 4T Packet Transport Line Card - 5th Generation	Release 7.3.1
A9903-20HG-PEC	ASR 9903 2T Multi-rate Port Expansion Card	Release 7.1.3
A99-32X100GE-X-SE	ASR 9000 32-Port 100GE QSFP28/QSFP+ Service Edge optimized Line Card - 5th Generation	Release 7.1.15
A99-32X100GE-X-TR	ASR 9000 32-Port 100GE QSFP28/QSFP+ Packet Transport optimized Line Card - 5th Generation	Release 7.1.15
A9K-20HG-FLEX-SE	ASR 9000 2T Service Edge Combo Line Card - 5th Generation	Release 7.1.15
A9K-20HG-FLEX-TR	ASR 9000 2T Packet Transport Combo Line Card - 5th Generation	Release 7.1.15
A9K-8HG-FLEX-SE	ASR 9000 800G Service Edge Combo Line Card - 5th Generation	Release 7.1.15
A9K-8HG-FLEX-TR	ASR 9000 800G Packet Transport Combo Line Card - 5th Generation	Release 7.1.15

## Supported software packages

### Feature set (software images)

Visit the [Cisco Software Download](#) page to download the Cisco IOS XR software.

#### Cisco IOS XR 64 bit

This table lists the feature set matrix (ISO and RPM files) and associated filenames available for the Cisco IOS XR 64 bit 26.2.1 Release supported on the Cisco ASR 9000 Series Aggregation Services Router.

Feature Set	Filename	Description
Cisco IOS XR IP/MPLS Core Software [for RSP and RP systems]	ASR9K-x64-iosxr-px-26.2.1.tar	Cisco IOS XR Manageability Package Cisco IOS XR MPLS Package Cisco IOS XR MPLS -TE and RSVP Package Cisco IOS XR Multicast Package Cisco IOS XR Optics Package Cisco IOS XR BNG Package Cisco IOS XR Lawful Intercept Package

Feature Set	Filename	Description
		Cisco IOS XR Satellite Package Cisco IOS XR EIGRP Package Cisco IOS XR ISIS Package Cisco IOS XR OSPF Package Cisco IOS XR Service Package
Cisco IOS XR IP/MPLS Core Software 3DES [for RSP and RP systems]	ASR9K-x64-iosxr-px-k9-26.2.1.tar	Cisco IOS XR Manageability Package Cisco IOS XR MPLS Package Cisco IOS XR MPLS -TE and RSVP Package Cisco IOS XR Multicast Package Cisco IOS XR Optics Package Cisco IOS XR BNG Package Cisco IOS XR Lawful Intercept Package Cisco IOS XR Satellite Package Cisco IOS XR Security Package Cisco IOS XR EIGRP Package Cisco IOS XR ISIS Package Cisco IOS XR OSPF Package Cisco IOS XR Service Package
Cisco IOS XR IP Unicast Routing Core Bundle and Migration to IOS XR 64 bit tar image	asr9k-mini-x64-migrate_to_eXR.tar-26.2.1	Contains the required core packages, including OS, Admin, Base, Forwarding, Modular Services Card, Routing, FPD, SNMP Agent, and Alarm Correlation. Contains mini.iso file for XR 64 bit 24.3.2 and additional software for migration to 64 bit.

Feature Set	Filename	Description
<b>Composite Package</b>		
Cisco IOS XR IP Unicast Routing Core Bundle	asr9k-mini-x64-26.2.1.iso	Contains the required core packages, including OS, Admin, Base, Forwarding, Modular Services Card, Routing, FPD, SNMP Agent, and Alarm Correlation.  The mini iso file is used for upgrading to the new release.
<b>Individually Installable Optional Packages</b>		
Cisco IOS XR 64 bit EIGRP package	asr9k-eigrp-x64-1.0.0.0-r2621.x86_64.rpm	Includes EIGRP protocol support software
Cisco IOS XR BNG Package	asr9k-bng-x64-1.1.0.0-r2621.x86_64.rpm	Includes binaries to support BNG features.
Cisco IOS XR 64 bit ISIS package	asr9k-isis-x64-1.1.0.0-r2621.x86_64.rpm	Includes IS-IS Link state protocol support software
Cisco IOS XR 64 bit OSPF package	asr9k-ospf-x64-1.1.0.0-r2621.x86_64.rpm	Includes OSPF link state protocol support software

Feature Set	Filename	Description
Cisco IOS XR Manageability Package	asr9k-mgbl-x64-3.0.0.0-r2621.x86_64.rpm	CORBA2 agent, XML3 Parser, and HTTP server packages. This RPM also contains some SNMP MIB infrastructure. Certain MIBs won't work if this RPM is not installed.  IPSLA and environment MIBs are part of the mgbl rpm.
Cisco IOS XR 64 bit MPLS-TE and RSVP package	asr9k-mpls-te-rsvp-x64-1.2.0.0-r2621.x86_64.rpm	MPLS Traffic Engineering (MPLS-TE), Resource Reservation Protocol (RSVP).
Cisco IOS XR 64 bit MPLS Package	asr9k-mpls-x64-2.1.0.0-r2621.x86_64.rpm	Label Distribution Protocol (LDP), MPLS Forwarding, MPLS Operations, Administration, and Maintenance (OAM), Link Manager Protocol (LMP), Optical User Network Interface (OUNI) and Layer-3 VPN.
Cisco IOS XR 64 bit Multicast Package	asr9k-mcast-x64-2.0.0.0-r2621.x86_64.rpm	Multicast Routing Protocols (PIM, Multicast Source Discovery Protocol [MSDP], Internet Group Management Protocol [IGMP], Auto-RP), Tools (SAP, MTrace), and Infrastructure [(Multicast Routing Information Base [MRIB], Multicast-Unicast RIB [MURIB], Multicast forwarding [MFWD]), and Bidirectional Protocol Independent Multicast (BIDIR-PIM).
Cisco IOS XR 64 bit Optics Package	asr9k-optic-x64-1.0.0.0-r2621.x86_64.rpm	Firmware for the optics feature for Cisco ASR 9000 Series Aggregation Services Router Chassis. It enables Transport / OTN feature under interfaces.
Cisco IOS XR 64 bit Lawful Intercept (LI) Package	asr9k-li-x64-1.1.0.0-r2621.x86_64.rpm	Includes LI software images.
Cisco IOS XR Security Package	asr9k-k9sec-x64-3.1.0.0-r2621.x86_64.rpm	Support for Encryption, Decryption,, Secure Shell (SSH), Secure Socket Layer (SSL), and Public-key infrastructure (PKI).
Cisco IOS XR Satellite Package - ASR9000v	asr9k-9000v-nV-x64-1.0.0.0-r2621.x86_64.rpm	Includes RPM to support Cisco ASR9000v Series Router Software and to support Cisco ASR 9000v Series Router as a satellite for Cisco ASR 9000 Series Router
Cisco IOS XR 64 bit Services Package	asr9k-services-x64-1.0.0.0-r2621.x86_64.rpm	Includes RPM to support Cisco IOS XR 64-bit inline MAP-T function

## Related resources

Resource	Description
<a href="#">Ask AI about this product</a>	Provides access to Cisco product documentation for checking product support details. Start by selecting the product family, then use <i>Ask AI About This Product</i> tab for further information.

Resource	Description
<a href="#">Cisco ASR 9000 documentation</a>	Provides CDC documentation for Cisco ASR 9000 series routers.
<a href="#">Cisco IOS XR Error messages</a>	Allows searching by release number, error strings, or comparing release numbers to view a detailed repository of error messages and descriptions.
<a href="#">Cisco IOS XR MIBs</a>	Allows selecting the MIB of your choice from a drop-down to explore an extensive repository of MIB information.
<a href="#">Feature deprecation and removal details</a>	Outlines the features currently supported by each operating system.
<a href="#">Feature deprecation phasing out insecure capabilities</a>	Provides a list of insecure features and protocols that are scheduled for systematic deprecation and eventual removal from specified Cisco products.
<a href="#">Feature removal and suggested alternatives</a>	Details the reasons why certain features or protocols are deemed insecure and offers secure alternatives when available.
<a href="#">Recommended release</a>	Provides a general guide in case of upgrading IOS XR routers or new deployments that involve IOS XR routers.
<a href="#">Smart licensing</a>	Provides information about Smart Licensing Using Policy solutions and their deployment on IOS XR routers.
<a href="#">Transceiver Module Group (TMG) compatibility matrix</a>	Allows searching by product family, product ID, data rate, reach, cable type, or form factor to determine the transceivers that Cisco hardware device supports.
<a href="#">Yang data models in GitHub</a>	Provides yang data models introduced and enhanced in every IOS XR release.

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