



# Release Notes for the StarOS™ Software Version 2024.01.gah2

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## Introduction

This Release Notes identifies changes and issues related to the CUPS products.

## Release Lifecycle Milestones

Release Lifecycle Milestone	Milestone	Date
First Customer Ship	FCS	16-Feb-2024
End of Life	EoL	29-Feb-2024
End of Software Maintenance	EoSM	16-Aug-2025
End of Vulnerability and Security Support	EoVSS	16-Aug-2025
Last Date of Support	LDoS	31-Aug-2026

## Release Package Version Information

Software Packages	Version	Build Number
StarOS Package	2024.01.gah2	21.28.h7.93658

Descriptions for the various packages provided with this release are available in the

[Release Package](#) Descriptions section.

## Verified Compatibility

Products	Version
RCM	20240430-112301Z

## What's New in this Release

This version of Release Notes includes a new section titled **What's New in this Release** comprising all new features, enhancements, and behavior changes applicable for the release.

## Features and Enhancements

None in this Release.

## Related Documentation

For a complete list of documentation available for this release, go to:

<http://www.cisco.com/c/en/us/support/wireless/asr-5000-series/products-installation-and-configuration-guides-list.html>

## Installation and Upgrade Notes

This Release Note does not contain general installation and upgrade instructions. Refer to the existing installation documentation for specific installation and upgrade considerations.

## Firmware Updates

There are no firmware upgrades required for this release.

## Software Integrity Verification

To verify the integrity of the software image you have from Cisco, you can validate the SHA512 checksum information against the checksum identified by Cisco for the software.

Image checksum information is available through **Cisco.com Software Download Details**. To find the checksum, hover the mouse pointer over the software image you have downloaded.

## Ultra Packet Core

Release 2024.01.gah2

[▲ My Notifications](#)

Related Links and Documentation

[Ultra Software Release Notes](#)

File Information	Release Date	Size
StarOS SNMP MIBs, RADIUS dictionaries, ORBEM clients companion-vpc-2024.01.gah2.zip <a href="#">Advisories</a>	13-May-2024	2.84 MB
Intelligent On Boarding Signature Package intelligent_onboarding-2024.01.gah2.zip <a href="#">Advisories</a>	13-May-2024	9.58 MB
VPC-DI Binary Software Image qvpc-di-2024.01.gah2.bin.zip <a href="#">Advisories</a>		
VPC-DI ISO qvpc-di-2024.01.gah2.iso.zip <a href="#">Advisories</a>		

### Details

Description : Intelligent On Boarding Signature Package

Release : 2024.01.gah2

Release Date : 13-May-2024

FileName : intelligent\_onboarding-2024.01.gah2.zip

Size : 9.58 MB ( 10050171 bytes)

MD5 Checksum : ed1ef912ca5ae88b263a26e148822f91

SHA512 Checksum : a48829d4c706ce6eb9a7dc9af8ae0e9d ...

At the bottom you find the SHA512 checksum, if you do not see the whole checksum you can expand it by pressing the "..." at the end.

To validate the information, calculate a SHA512 checksum using the information in Table 1 and verify that it matches either the one provided on the software download page.

To calculate a SHA512 checksum on your local desktop see Table 1

**Table 1 - Checksum Calculations per Operating System**

Operating System	SHA512 checksum calculation command examples
Microsoft Windows	Open a command line window and type the following command  > certutil.exe -hashfile <filename>.<extension> SHA512
Apple MAC	Open a terminal window and type the following command  \$ shasum -a 512 <filename>.<extension>

Open Bugs for this Release

Linux	<p>Open a terminal window and type the following command</p> <pre>\$ sha512sum &lt;filename&gt;.&lt;extension&gt;</pre> <p>Or</p> <pre>\$ shasum -a 512 &lt;filename&gt;.&lt;extension&gt;</pre>
<p><b>NOTES:</b></p> <p>&lt;filename&gt; is the name of the file.</p> <p>&lt;extension&gt; is the file extension (e.g. .zip or .tgz).</p>	

If the SHA512 checksum matches, you can be sure that no one has tampered with the software image or the image has not been corrupted during download.

If the SHA512 checksum does not match, we advise you to not attempt upgrading any systems with the corrupted software image. Download the software again and verify the SHA512 checksum again. If there is a constant mismatch, please open a case with the Cisco Technical Assistance Center.

**NOTE:** Only RCM and NSO will have the new file naming convention, remaining images will have the existing file naming convention.

## Certificate Validation

In 2024.01 and later releases, software images for StarOS, VPC-DI, and VPC-SI, and the companion software packages for StarOS and VPC are signed via x509 certificates.

USP ISO images are signed with a GPG key.

For more information and instructions on how to validate the certificates, refer to the README file available with the respective software packages.

## Open Bugs for this Release

The following table lists the open bugs in this specific software release.

**NOTE:** This software release may contain open bugs first identified in other releases. Additional information for all open bugs for this release are available in the [Cisco Bug Search Tool](#).

**Table 2 - Open Bugs in this Release**

Bug ID	Headline	Product Found
<a href="#">CSCwj96506</a>	The values of bearrespdeniedOtherCause decrease	cups-cp
<a href="#">CSCwj33154</a>	sessmgr reload at uplane_sfw_create_nat_realm_info()	cups-up
<a href="#">CSCwi52632</a>	[BP-CUPS]egtpu_process_update_req_evt()egtpu_handle_user_sap_event()sessmgr_uplane_gtpu_tx_update()	cups-up
<a href="#">CSCwi59047</a>	[BP-CUPS] Fatal Signal 6: Aborted PC: [f7f63062/X] Id-linux.so.2/_dl_sysinfo_int80()	cups-up

## Resolved Bugs for this Release

Bug ID	Headline	Product Found
<a href="#">CSCwj24130</a>	Inconsistency in counters in gtpu bulkstats for UP	cups-up
<a href="#">CSCwh03670</a>	[CUPS-UP] Downlink total fp packets not shown correctly in case of http out of order packet	cups-up
<a href="#">CSCwi91038</a>	ePDG-VPC-DI-21.28.mh14.92736-Session loss and data loss observed post unplanned active SF reboot	epdg
<a href="#">CSCwj48267</a>	EPDG fails to update the NAT change seen in data traffic following a NAT reboot	epdg
<a href="#">CSCwj94159</a>	The counters txbytes in bulkstats PORT schema reset before reaching to its maximum value.	pdn-gw
<a href="#">CSCwi88706</a>	ADC detection accuracy is low for Telegram	pdn-gw
<a href="#">CSCwj17471</a>	Planned srp switchover is succeeded though bgp monitor in stby upf is down	staros
<a href="#">CSCwj67156</a>	RTNETLINK socket rcv buffer under run error code 105 on hermes branch sw build on CUPS CP	staros
<a href="#">CSCwi59036</a>	Port redundancy Failed in 4-port deployment VPC SI	staros
<a href="#">CSCwj44441</a>	CUPS upgrade failed to 21.28.mh14 release-all SF cards failed to boot	staros
<a href="#">CSCwd99519</a>	[UPF-ST] Error logs seen on UPF PDR not found with PDR ID 0x149 and Remove PDR PDR with ID 0x2ce	upf

## Resolved Bugs for this Release

The following table lists the resolved bugs in this specific software release.

**NOTE:** This software release may contain bug fixes first introduced in other releases. Additional information for all resolved bugs for this release are available in the [Cisco Bug Search Tool](#).

**Table 3 - Resolved Bugs in this Release**

Bug ID	Headline	Product Found
<a href="#">CSCwe61003</a>	[CUPS-CP] Unexpected "URR node not found at CP for URR-id" logs observed	cups-cp
<a href="#">CSCwf59908</a>	SAEGW does NOT send CSResp even if SAEGW receives CCA-i with DIAMETER_AUTHORIZATION_REJECTED (5003)	cups-cp
<a href="#">CSCwi19980</a>	Incorrect gtpc teid format in s8hr ims media packets	cups-cp
<a href="#">CSCwi71670</a>	[CUPS UP] X3 Lawful Intercept is marked as wrong EBI when using ipv6 session over dedicated bearer	cups-cp
<a href="#">CSCwi94768</a>	Documentation to update the max entries supported in Gx local-policy-service	cups-cp

Bug ID	Headline	Product Found
<a href="#">CSCwc99110</a>	[BP-CUPS]: Assertion failure at sess/smgr/sessmgr_gtpu.c sessmgr_egtpu_signalling_routine()	cups-up
<a href="#">CSCwj85083</a>	CUPS UP : npumgr crashes after upgrade to 21.28.m22	cups-up
<a href="#">CSCwi69056</a>	VPP buffer leak caused a VPP restart	cups-up
<a href="#">CSCwj58282</a>	[CUPS-LI] TCP retransmission are seen and connections are closed after ipsec rekey	cups-up
<a href="#">CSCwe54541</a>	[MME] mmedemux recovery is not supported for ENDC SON feature	mme
<a href="#">CSCwd25108</a>	DNS Failure - TCP READ, Kernel Closed - req_read_len = 0	mme
<a href="#">CSCwe40765</a>	[MME] GNodeB Lookup fails for the connected gnb received in config update message	mme
<a href="#">CSCwi55030</a>	[CP-MME] Observed multiple sessmgr went to warn/over state in 21.28.m18.92419 during regression	mme
<a href="#">CSCwj24901</a>	Empty APN list in "show s8hr config" after node reload	pdn-gw
<a href="#">CSCwj72598</a>	user-plane traffic stops when sgw-u (Sxa) and pgw-u (Sxb) functions are hosted on the same UP	pdn-gw
<a href="#">CSCwi39772</a>	Di-net drops on 21.28.mh branch	staros
<a href="#">CSCwi59951</a>	TCP length issue in DNS query causing time out	staros

## Operator Notes

### StarOS Version Numbering System

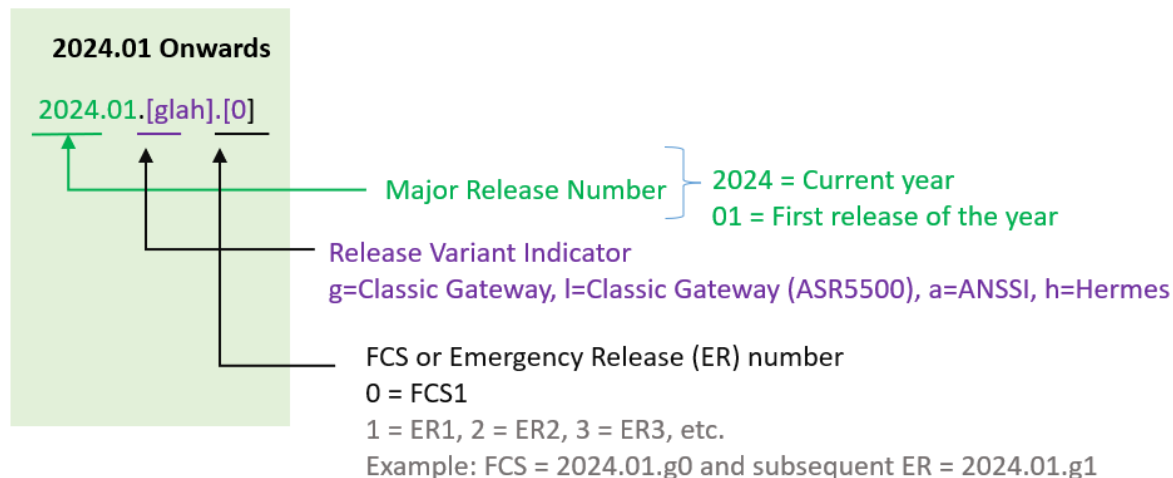
The output of the **show version** command displays detailed information about the version of StarOS currently running on the ASR 5500 or Cisco Virtualized Packet Core platform.

**NOTE:** Starting 2024.01.0 release (January 2024), Cisco is transitioning to a new release versioning scheme. The release version is based on the current year and product. Refer to [Figure 1](#) for more details.

During the transition phase, some file names will reflect the new versioning whereas others will refer to the 21.28.x-based naming convention. With the next release, StarOS-related packages will be completely migrated to the new versioning scheme.

### Version Numbering for FCS, Emergency, and Maintenance Releases

**Figure 1 - Version Numbering**



## Release Package Descriptions

**Table 4** provides descriptions for the packages that are available with this release. For more information about the release packages up to 21.28.x releases, refer to the corresponding releases of the release note.

**Table 4 - Release Package Information**

Software Package	Description
<b>ASR 5500</b>	
asr5500-<release>.zip	Contains the signed ASR 5500 software image, the signature file, a verification script, the x509 certificate, and a README file containing information on how to use the script to validate the certificate.
asr5500_T-<release>.zip	Contains the signed, trusted ASR 5500 software image, the signature file, a verification script, the x509 certificate, and a README file containing information on how to use the script to validate the certificate.
<b>StarOS Companion Package</b>	
companion-<release>.zip	Contains numerous files pertaining to this version of the StarOS including SNMP MIBs, RADIUS dictionaries, ORBEM clients. These files pertain to both trusted and non-trusted build variants.
<b>VPC-DI</b>	
qvpc-di-<release>.bin.zip	Contains the VPC-DI binary software image that is used to replace a previously deployed image on the flash disk in existing installations.
qvpc-di_T-<release>.bin.zip	Contains the trusted VPC-DI binary software image that is used to replace a previously deployed image on the flash disk in existing installations.

qvmc-di-<release>.iso.zip	Contains the VPC-DI ISO used for new deployments, a new virtual machine is manually created and configured to boot from a CD image.
qvmc-di_T-<release>.iso.zip	Contains the trusted VPC-DI ISO used for new deployments, a new virtual machine is manually created and configured to boot from a CD image.
qvmc-di-template-vmware-<release>.zip	Contains the VPC-DI binary software image that is used to on-board the software directly into VMware.
qvmc-di-template-vmware_T-<release>.zip	Contains the trusted VPC-DI binary software image that is used to on-board the software directly into VMware.
qvmc-di-template-libvirt-kvm-<release>.zip	Contains the same VPC-DI ISO identified above and additional installation files for using it on KVM.
qvmc-di-template-libvirt-kvm_T-<release>.zip	Contains the same trusted VPC-DI ISO identified above and additional installation files for using it on KVM.
qvmc-di-<release>.qcow2.zip	Contains the VPC-DI binary software image in a format that can be loaded directly with KVM using an XML definition file, or with OpenStack.
qvmc-di_T-<release>.qcow2.zip	Contains the trusted VPC-DI binary software image in a format that can be loaded directly with KVM using an XML definition file, or with OpenStack.
<b>VPC-SI</b>	
qvmc-si-<release>.bin.zip	Contains the VPC-SI binary software image that is used to replace a previously deployed image on the flash disk in existing installations.
qvmc-si_T-<release>.bin.zip	Contains the trusted VPC-SI binary software image that is used to replace a previously deployed image on the flash disk in existing installations.
qvmc-si-<release>.iso.zip	Contains the VPC-SI ISO used for new deployments, a new virtual machine is manually created and configured to boot from a CD image.
qvmc-si_T-<release>.iso.zip	Contains the trusted VPC-SI ISO used for new deployments a new virtual machine is manually created and configured to boot from a CD image.
qvmc-si-template-vmware-<release>.zip	Contains the VPC-SI binary software image that is used to on-board the software directly into VMware.
qvmc-si-template-vmware_T-<release>.zip	Contains the trusted VPC-SI binary software image that is used to on-board the software directly into VMware.
qvmc-si-template-libvirt-kvm-<release>.zip	Contains the same VPC-SI ISO identified above and additional installation files for using it on KVM.
qvmc-si-template-libvirt-kvm_T-<release>.zip	Contains the same trusted VPC-SI ISO identified above and additional installation files for using it on KVM.
qvmc-si-<release>.qcow2.zip	Contains the VPC-SI binary software image in a format that can be loaded directly with KVM using an XML definition file, or with OpenStack.
qvmc-si_T-<release>.qcow2.zip	Contains the trusted VPC-SI binary software image in a format that can be loaded directly with KVM using an XML definition file, or with OpenStack.



VPC Companion Package	
companion-vpc-<release>.zip	Contains numerous files pertaining to this version of the VPC including SNMP MIBs, RADIUS dictionaries, ORBEM clients. These files pertain to both VPC-DI and VPC-SI, and for trusted and non-trusted build variants.
Ultra Services Platform	
usp-<version>.iso	The USP software package containing component RPMs (bundles). Refer to the Table 5 for descriptions of the specific bundles.
usp_T-<version>.iso	The USP software package containing component RPMs (bundles). This bundle contains trusted images. Refer to the Table 5 for descriptions of the specific bundles.
usp_rpm_verify_utils-<version>.tar	Contains information and utilities for verifying USP RPM integrity.

**Table 5 - USP ISO Bundles**

USP Bundle Name	Description
usp-em-bundle-<version>-1.x86_64.rpm*	The Element Manager (EM) Bundle RPM containing images and metadata for the Ultra Element Manager (UEM) module.
usp-ugp-bundle-<version>-1.x86_64.rpm*	The Ultra Gateway Platform (UGP) Bundle RPM containing images for Ultra Packet core (VPC-DI). There are trusted and non-trusted image variants of this bundle.
usp-yang-bundle-<version>-1.x86_64.rpm	The Yang Bundle RPM containing YANG data models including the VNFD and VNFR.
usp-uas-bundle-<version>-1.x86_64.rpm	The Ultra Automation Services Bundle RPM containing AutoVNF, Ultra Web Services (UWS), and other automation packages.
usp-auto-it-bundle-<version>-1.x86_64.rpm	The bundle containing the AutoIT packages required to deploy the UAS.
usp-vnfm-bundle-<version>-1.x86_64.rpm	The VNFM Bundle RPM containing an image and a boot-up script for ESC (Elastic Service Controller).
ultram-manager-<version>-1.x86_64.rpm*	This package contains the script and relevant files needed to deploy the Ultra M Manager Service.
* These bundles are also distributed separately from the ISO.	

## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, refer to <https://www.cisco.com/c/en/us/support/index.html>.

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