



Release Notes for the Ultra Cloud Core User Plane Function Version 2023.02.0

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Introduction

This Release Notes identifies changes and issues related to the lab release of this software.

Release Lifecycle Milestones

Release Lifecycle Milestone	Milestone	Date
First Customer Ship	FCS	28-Apr-2023
End of Life	EoL	28-Apr-2023
End of Software Maintenance	EoSM	31-Oct-2024
End of Vulnerability and Security Support	EoVSS	31-Oct-2024
Last Date of Support	LDoS	31-Oct-2025

These milestones and the intervals between them are defined in the [Cisco Ultra Cloud Core \(UCC\) Software Release Lifecycle Product Bulletin](#) available on cisco.com.

Release Package Version Information

Software Packages	Version
companion-vpc-21.28.m6.89777.tgz.SPA.tar.gz	21.28.m6.89777
qvpc-si-21.28.m6.89777.bin.SPA.tar.gz	21.28.m6.89777
qvpc-si-21.28.m6.89777.qcow2.tgz.SPA.tar.gz	21.28.m6.89777
qvpc-si_T-21.28.m6.89777.bin.SPA.tar.gz	21.28.m6.89777
qvpc-si_T-21.28.m6.89777.qcow2.tgz.SPA.tar.gz	21.28.m6.89777

Descriptions for the various packages provided with this release are available in the [Release Package Descriptions](#) section.

Verified Compatibility

Products	Version
ADC Plugin	2.72.0.1634
RCM	2023.02.0
Ultra Cloud Core SMI	2023.02.1.07
Ultra Cloud Core SMF	2023.02.m0

Related Documentation

For a complete list of documentation available for this release, go to: <https://www.cisco.com/c/en/us/support/wireless/ultra-cloud-core-user-plane-function/series.html>

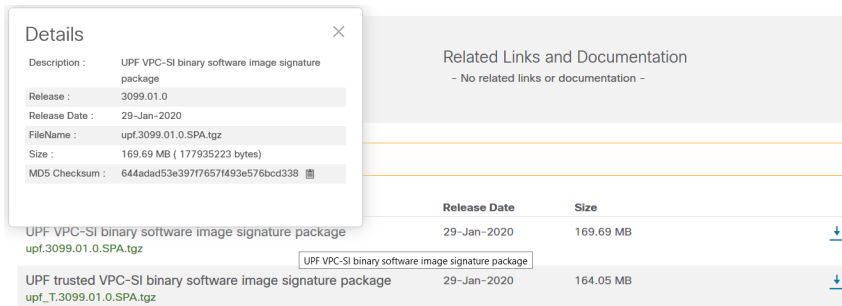
Installation and Upgrade Notes

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

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.



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 please see the table below.

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 <code>> certutil.exe -hashfile <filename>.<extension> SHA512</code>
Apple MAC	Open a terminal window and type the following command <code>\$ shasum -a 512 <filename>.<extension></code>
Linux	Open a terminal window and type the following command <code>\$ sha512sum <filename>.<extension></code> Or <code>\$ shasum -a 512 <filename>.<extension></code>
NOTES: <code><filename></code> is the name of the file. <code><extension></code> is the file extension (e.g. .zip or .tgz).	

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.

MD5 Checksum Details

Software Packages	MD5 Checksum
companion-vpc-21.28.m6.89777.tgz.SPA.tar.gz	9478004d184604038df0a85893dc37a9
qvpc-si-21.28.m6.89777.bin.SPA.tar.gz	57571110bbbf1c6750d462c4c749c08
qvpc-si-21.28.m6.89777.qcow2.tgz.SPA.tar.gz	b71e8eafac0c3900cd05c47f179ebc17
qvpc-si_T-21.28.m6.89777.bin.SPA.tar.gz	1418b65e430fe8d0d8b61466065a0587
qvpc-si_T-21.28.m6.89777.qcow2.tgz.SPA.tar.gz	1b58c17dd31d4bb16bc9475fd44199dd

Certificate Validation

UPF software images are signed via x509 certificates. Please view the .README file packaged with the software for information and instructions on how to validate the certificates.

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](#).

Bug ID	Headline
CSCwe74774	Sx status report is not sent for 4G/Wifi calls.
CSCwe77481	Incoming gtpu/GTPU error indication is not captured in slowpath pcap.
CSCwe80667	Router advertisement/solicit packet is not captured on GTPU while egressing from sessmgr
CSCwe80795	GTPU end marker is not captured in slowpath pcap.
CSCwe84558	In case monsub from smf/upf both are enabled in sequence, things are not correct.
CSCwe88964	[UPF-MONSUB]Sporadic behaviour for pcap files getting deleted.
CSCwe95648	[UPF-MONSUB]No fastpath(vpp) pcaps are generated for 4G SGWU only call.
CSCwe96265	[UPF-MONSUB]Exit code in case of converged 4G calls is not correct, monsub enabled using console/smf
CSCwf04131	[UPF-MONSUB]Extra Sx report for MONSUB report.
CSCwf08121	[UPF-MONSUB]sessmgr crash-'sess/snx/drivers/uplane/uplane_drv_fsm.c:292'

Resolved Bugs for this Release

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

Bug ID	Headline
CSCvx91239	MONSUB for combo(UPF) is having concerns.
CSCwd74056	IPv4v6 PDN Data Statistics not updated correctly for packet drops due to flow discard
CSCwe11650	bulkstats process in warn state after overnight longevity
CSCwe30498	Time quota is not reset post UPF 1:1 ICSR, in case new quota is not provisioned.
CSCwe60139	Idletimer is triggered post switchover, even if UE is not in idle state for defined duration.
CSCwe72376	timedef configuration under ACS-Rulebase is not working
CSCwe74835	CLI instance id should be same in START/STOP of Trace.
CSCwe83503	Exit code sent to SMF is not correct when maximum monsub limit is exhausted.
CSCwe88961	Fastpath pcap is not generated for Sxa leg in case of 5G to 4G handover converged call.
CSCwe94693	MONSUB Disable is not working post 5G to 4G handover.

Operator Notes

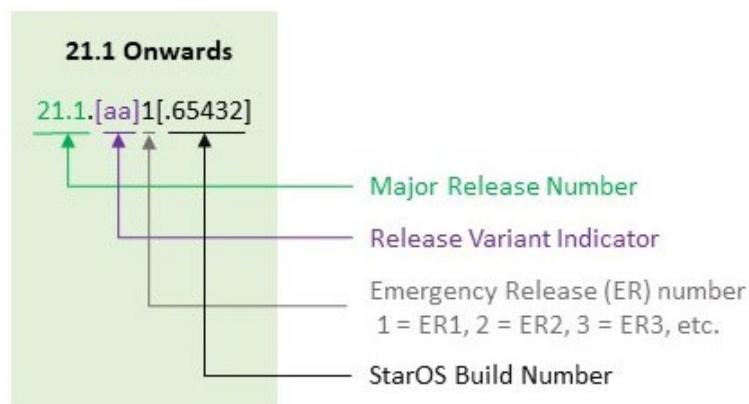
Bug ID	Headline
CSCwf03140	sessmgr crash-'sessmgr_handle_monitor_subscriber_activity_trigger()' on multiple monsub

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 5x00 or Cisco Virtualized Packet Core platform.

The Version Build Number for releases 21.1 and later include a major and emergency release number, for example, "21.1.1".



The appropriate version number field increments after a version has been released. The new version numbering format is a contiguous sequential number that represents incremental changes between releases. This format facilitates identifying the changes between releases when using Bug Search Tool to research software releases.

NOTE: The 5G UPF software is based on StarOS and implements the version numbering system described in this section. However, as a 5G network function (NF), it is posted to Cisco.com under the Cloud Native Product Numbering System as described in [Cloud Native Product Version Numbering System](#).

Cloud Native Product Version Numbering System

Versioning: Format & Field Description

YYYY.RN.MN[.TTN] [.dN] [.MR][.iBN]

Where,

YYYY → 4 Digit year.

- Mandatory Field
- Starts with 2020.
- Incremented after the last planned release of year.

RN → Major Release Number.

- Mandatory Field
- Starts with 1.
- Support preceding 0.
- Reset to 1 after the last planned release of a year(YYYY)

MN → Maintenance Number.

- Mandatory Field
- Starts with 0.
- Does not support preceding 0.
- Reset to 0 at the beginning of every major release for that release.
- Incremented for every maintenance release.
- Preceded by "m" for builds from main branch.

TTN → Throttle of Throttle Number.

- Optional Field, Starts with 1.
- Precedes with "t" which represents the word "throttle of throttle".
- Applicable only in "Throttle of Throttle" cases.
- Reset to 1 at the beginning of every major release for that release.

DN → DEV branch Number.

- Same as TTN, except Used for DEV branches
- Precedes with "d" which represents "dev branch".

MR → Major Release for TOT and DEV branches

- Only applicable for TOT and DEV Branches.
- Starts with 0 for every new TOT and DEV branch .

BN → Build Number

- Optional Field, Starts with 1.
- Precedes with "i" which represents the word "interim".
- Does not support preceding 0.
- Reset at the beginning of every major release for that release
- Reset for every throttle of throttle.

Release Package Descriptions

[Table 2](#) provides descriptions for the packages that are available with this release.

Table 2 - Release Package Information

Software Packages	Description
companion-vpc-<staros_version>.zip.SPA.tar.gz	Contains files pertaining to VPC, including SNMP MIBs, RADIUS dictionaries, ORBEM clients, etc. These files pertain to both trusted and non-trusted build variants. The VPC companion package also includes the release signature file, a verification script, the x.509 certificate, and a README file containing information on how to use the script to validate the certificate.
qvpc-si-<staros_version>.bin.SPA.tar.gz	The UPF release signature package. This package contains the VPC-SI deployment software for the UPF as well as the release signature, certificate, and verification information. Files within this package are nested under a top-level folder pertaining to the corresponding StarOS build.
qvpc-si-<staros_version>.qcow2.zip.SPA.tar.gz	The UPF release signature package. This package contains the VPC-SI deployment software for the UPF as well as the release signature, certificate, and verification information. Files within this package are nested under a top-level folder pertaining to the corresponding StarOS build.

Obtaining Documentation and Submitting a Service Request

Software Packages	Description
qnpc-si_T-<staros_version>.bin.SPA.tar.gz	<p>The trusted UPF release signature package. This package contains the VPC-SI deployment software for the UPF as well as the release, signature, certificate, and verification information.</p> <p>Files within this package are nested under a top-level folder pertaining to the corresponding StarOS build.</p>
qnpc-si_T-<staros_version>.qcow2.zip.SPA.tar.gz	<p>The trusted UPF release signature package. This package contains the VPC-SI deployment software for the UPF as well as the release, signature, certificate, and verification information.</p> <p>Files within this package are nested under a top-level folder pertaining to the corresponding StarOS build.</p>

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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