



Release Notes for the Ultra Cloud Core User Plane Function Version 2023.02.1

First Published: May 05,2023

Introduction

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

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.m7.zip.SPA.tar.gz	21.28.m7
qvpc-si-21.28.m7.bin.SPA.tar.gz	21.28.m7
qvpc-si-21.28.m7.qcow2.zip.SPA.tar.gz	21.28.m7
qvpc-si_T-21.28.m7.bin.SPA.tar.gz	21.28.m7
qvpc-si_T-21.28.m7.qcow2.zip.SPA.tar.gz	21.28.m7

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>

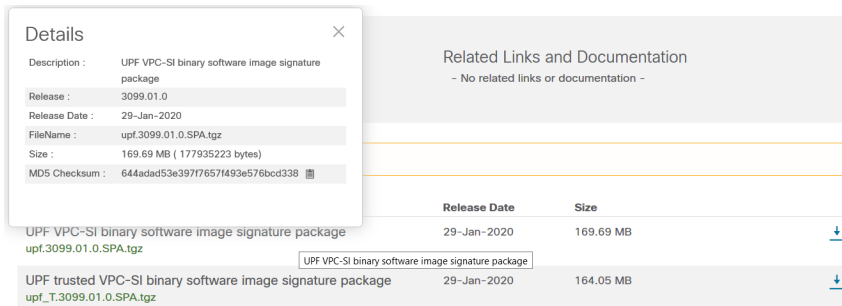
Installation and Upgrade Notes

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.m7.zip.SPA.tar.gz	8674ac0ae0c0072fdaeac4e1f6f89b26
qvpc-si-21.28.m7.bin.SPA.tar.gz	7eb83d864169a18876bcd7f50811fd0b
qvpc-si-21.28.m7.qcow2.zip.SPA.tar.gz	decde38c73b05a98167f495474e2d1f9
qvpc-si_T-21.28.m7.bin.SPA.tar.gz	37e0558e6e8b142056155150ff237d6f
qvpc-si_T-21.28.m7.qcow2.zip.SPA.tar.gz	804ae0fd24cc3ba3214354f7bd307bfe

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.

Resolved Bugs for this Release

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

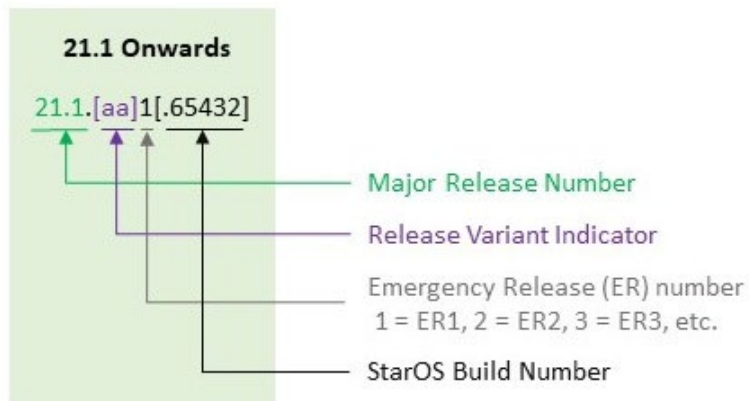
Bug ID	Headline
CSCwf08121	sessmgr crash-'sess/snx/drivers/uplane/uplane_drv_fsm.c:292'
CSCwf16935	sessmgr restart at fun: sessmgr_update_uplane_pdr_info_during_internal_audit()

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>.

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANYKIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright ©1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED "AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

All printed copies and duplicate soft copies of this document are considered uncontrolled. See the current online version for the latest version.

Cisco has more than 200 offices worldwide. Addresses and phone numbers are listed on the Cisco website at www.cisco.com/go/offices.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <http://www.cisco.com/go/trademarks>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1721R)

© 2023 Cisco Systems, Inc. All rights reserved.