



# Release Notes for the Ultra Cloud Core User Plane Function

## Version 2023.01.0

First Published: January 25, 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	31-Jan-2023
End of Life	EoL	31-Jan-2023
End of Software Maintenance	EoSM	31-July-2024
End of Vulnerability and Security Support	EoVSS	31-July-2024
Last Date of Support	LDoS	31-Jul-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.jm0.zip.SPA.tar.gz	21.28.jm0
qvpc-si-21.28.jm0.bin.SPA.tar.gz	21.28.jm0
qvpc-si-21.28.jm0.qcow2.zip.SPA.tar.gz	21.28.jm0
qvpc-si_T-21.28.jm0.bin.SPA.tar.gz	21.28.jm0
qvpc-si_T-21.28.jm0.qcow2.zip.SPA.tar.gz	21.28.jm0
rcm.2023.01.0.SPA.tgz	2023.01.0

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

## Verified Compatibility

Products	Version
ADC Plugin	2.71.1600
RCM	2023.01.0
Ultra Cloud Core SMI	2023.01.1.18
Ultra Cloud Core SMF	2023.01.0

**NOTE:** It is recommended to use RCM that is packaged only with the 2023.01.0 UPF software release.

## 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>

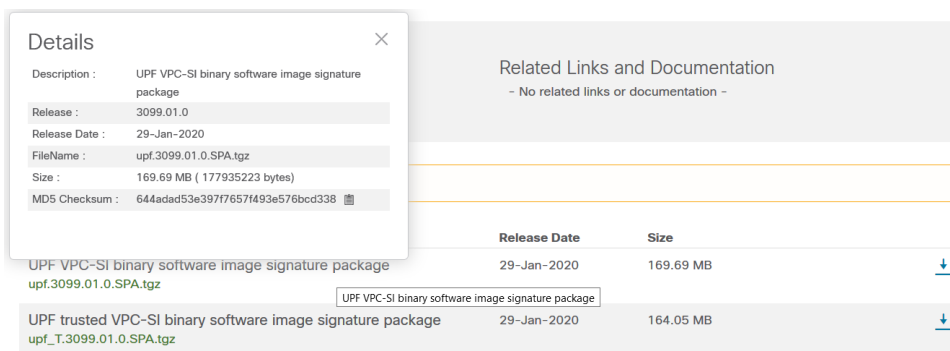
## Installation and Upgrade Notes

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  > certutil.exe -hashfile <filename>.<extension> SHA512
Apple MAC	Open a terminal window and type the following command  \$ shasum -a 512 <filename>.<extension>
Linux	Open a terminal window and type the following command  \$ sha512sum <filename>.<extension>  Or  \$ shasum -a 512 <filename>.<extension>
<b>NOTES:</b>  <filename> is the name of the file.  <extension> 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.jm0.zip.SPA.tar.gz	ff51b26b2c641ba3a4fd4cbeb1a60395
qvpc-si-21.28.jm0.bin.SPA.tar.gz	e842b1ae80b6b35e7afa1fb55536e866
qvpc-si-21.28.jm0.qcow2.zip.SPA.tar.gz	9ff240da3d8ba9322b2c2a6d646e4554
qvpc-si_T-21.28.jm0.bin.SPA.tar.gz	4deb5bff07cfd871fba7a397a115ea7
qvpc-si_T-21.28.jm0.qcow2.zip.SPA.tar.gz	b09ca1b67416d8308ddcd13da190e8ea
rcm.2023.01.0.SPA.tgz	b0a7c52d7db8a04d480b393e45e3188d

## 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 known bugs that were found in this software release, and which remain open.

**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
<a href="#">CSCwd74056</a>	[UPF] IPv4v6 PDN Data Statistics not updated correctly for packet drops due to flow discard

## Resolved Bugs for this Release

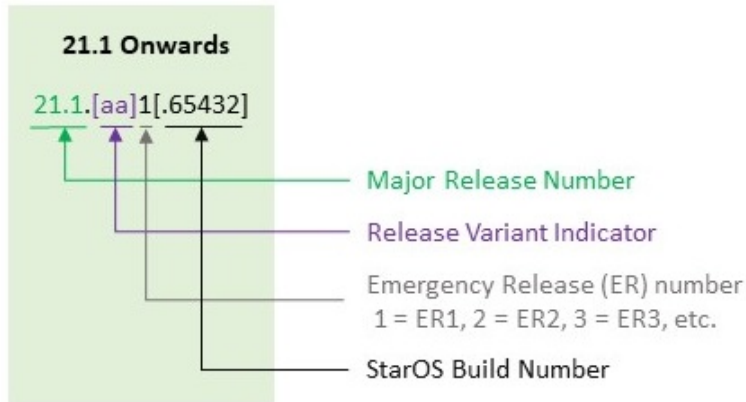
There are no resolved bugs in this software release.

## 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

Operator Notes

## 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.
qvpc-si_T-<staros_version>.bin.SPA.tar.gz	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.  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>.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>.

## Obtaining Documentation and Submitting a Service Request

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