



# Release Notes for the Ultra Cloud Core User Plane Function

## Version 2022.04.0

**First Published:** October 14, 2022

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### 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-Oct-2022
End of Life	EoL	31-Oct-2022
End of Software Maintenance	EoSM	30-Mar-2024
End of Vulnerability and Security Support	EoVSS	30-Mar-2024
Last Date of Support	LDoS	30-Mar-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.c1.zip.SPA.tar.gz	21.28.c1
qvpc-si-21.28.c1.bin.SPA.tar.tgz	21.28.c1
qvpc-si-21.28.c1.qcow2.zip.SPA.tar.tgz	21.28.c1
rcm.2022.04.0.SPA.tgz	2022.04.0

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

## Verified Compatibility

Products	Version
ADC Plugin	2.70.1558
RCM	2022.04.0
Ultra Cloud Core SMI	2022.03.1.09
Ultra Cloud Core SMF	2022.04.0

## 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.

The screenshot shows a 'Details' popup window on the left and a table of software images on the right. The popup window contains the following information:

- Description : UPF VPC-SI binary software image signature package
- Release : 3099.01.0
- Release Date : 29-Jan-2020
- FileName : upf.3099.01.0.SPA.tgz
- Size : 169.69 MB ( 177935223 bytes)
- MD5 Checksum : 644adad53e39717657f493e576bcd338

The table on the right is titled 'Related Links and Documentation' and contains the following data:

	Release Date	Size	
UPF VPC-SI binary software image signature package upf.3099.01.0.SPA.tgz	29-Jan-2020	169.69 MB	↓
UPF trusted VPC-SI binary software image signature package upf_T.3099.01.0.SPA.tgz	29-Jan-2020	164.05 MB	↓

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.c1.zip.SPA.tar.tgz	0cd7560bceb151a083a9f523880ccd20
qvpc-si-21.28.c1.bin.SPA.tar.gz	026ecf783acc9d87d0027799c1f9e864
qvpc-si-21.28.c1.qcow2.zip.SPA.tar.gz	15e2a7e4d928a19e64b0763dfe77e73a
rcm.2022.04.0.SPA.tgz	5c4e6b4247bb9b483568b607d16b4d0c

## 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="#">CSCwd03136</a>	[NRF]: UPF gives error with configuration of another nrf-service

## Resolved Bugs for this Release

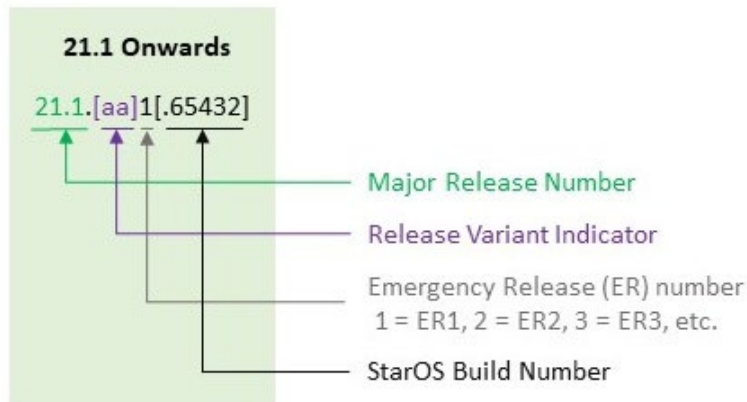
None for this release.

## 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

### 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
qvpc-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>
qvpc-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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