# UCC 5G UPF Release Notes, Release 2024.04.1

**First Published:** 2024-11-22

# Ultra Cloud Core User Plane Function

# 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 | 30-Oct-2024 |
| End of Life | EoL | 30-Oct-2024 |
| End of Software Maintenance | EoSM | 30-Apr-2026 |
| End of Vulnerability and Security Support | EoVSS | 30-Apr-2026 |
| Last Date of Support | LDoS | 30-Apr-2027 |

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-2024.04.1.zip.SPA.tar.gz | 2024.04.1 (21.28.m31.95851) |
| qvpc-si-2024.04.1.bin.SPA.tar.gz | 2024.04.1 (21.28.m31.95851) |
| qvpc-si-2024.04.1.qcow2.zip.SPA.tar.gz | 2024.04.1 (21.28.m31.95851) |
| NED package | ncs-6.1.14-cisco-staros-5.54 |
| NSO | 6.1.14 |

Use this link to download the NED package associated with the software.

Descriptions for the various packages provided with this release are available in the Release Package Descriptions, on page 7 section.

## Verified Compatibility

| Products | Version |
|---|---|
| ADC Plugin | 2.74.3.2488 |
| RCM | 2024.04.0 |
| Ultra Cloud Core SMI | 2024.04.1.14 |
| Ultra Cloud Core SMF | 2024.04.1 |

# What's New in this Release

### Features and Enhancements

This section covers a brief description of the features and enhancements introduced in this release. It also includes links to detailed documentation, where available.

| Feature | Description |
|---|---|
| Load and Overload Control over N4/Sx Interface | This feature allows UPF to enable load and overload control mechanisms to handle the messages during overloaded or self-protection state.<br>Commands Introduced:<br>• **upf-load-control-profile** *profile_name*<br>• **upf-overload-control-profile** *profile_name*<br>• **associate { upf-load-control-profile** *profile_name* **\| upf-overload-control-profile** *profile_name* **}**<br>**Default Setting:** Disabled—Configuration required to Enable |
| Handling PFCP Messages Using Message Prioritization during an Overload Scenario | This feature allows the UPF to use message prioritization to ensure uninterrupted receival of incoming PFCP messages during an overload scenario or self-protection mode.<br>Message Prioritization allows the network operator to define the message priority using the configuration to throttle the PFCP messages in overload scenarios for a WPS session.<br>**Command Enhanced**: **session-priority-profile** *spp_name* **priority** *priority_value* **type { wps \| emergency \| ims } { throttle \| precedence** *precedence_value* **}**<br>**Default Setting:** Disabled—Configuration required to Enable |

### Behavior Changes

There are no behavior changes introduced in this release.

# 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.

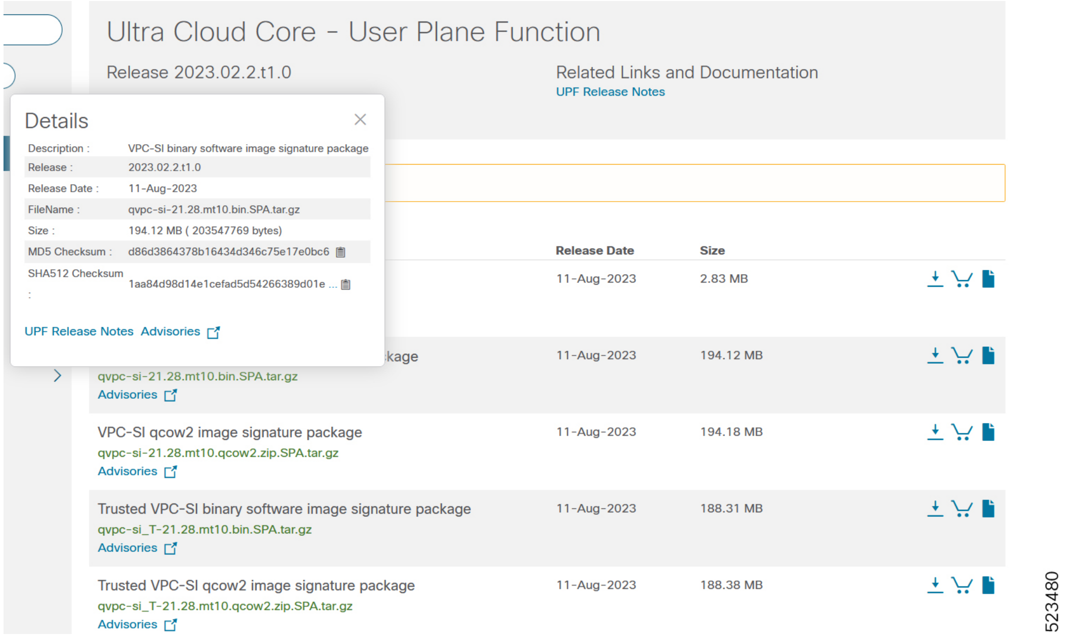
## Software Integrity Verification

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 following screenshot is an example of a UPF release posted in the Software Download page.

***Figure 1:***



Ultra Cloud Core - User Plane Function

Release 2023.02.2.t1.0

Related Links and Documentation
UPF Release Notes

Details

| | |
|---|---|
| Description : | VPC-SI binary software image signature package |
| Release : | 2023.02.2.t1.0 |
| Release Date : | 11-Aug-2023 |
| FileName : | qvpc-si-21.28.mt10.bin.SPA.tar.gz |
| Size : | 194.12 MB ( 203547769 bytes) |
| MD5 Checksum : | d86d3864378b16434d346c75e17e0bc6 |
| SHA512 Checksum : | 1aa84d98d14e1cefad5d54266389d01e ... |

UPF Release Notes Advisories

| | Release Date | Size |
|---|---|---|
| | 11-Aug-2023 | 2.83 MB |
| …kage<br>qvpc-si-21.28.mt10.bin.SPA.tar.gz<br>Advisories | 11-Aug-2023 | 194.12 MB |
| VPC-SI qcow2 image signature package<br>qvpc-si-21.28.mt10.qcow2.zip.SPA.tar.gz<br>Advisories | 11-Aug-2023 | 194.18 MB |
| Trusted VPC-SI binary software image signature package<br>qvpc-si_T-21.28.mt10.bin.SPA.tar.gz<br>Advisories | 11-Aug-2023 | 188.31 MB |
| Trusted VPC-SI qcow2 image signature package<br>qvpc-si_T-21.28.mt10.qcow2.zip.SPA.tar.gz<br>Advisories | 11-Aug-2023 | 188.38 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, refer to the following table.

***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:<br>`> certutil.exe -hashfile filename.extension SHA512` |

| **Operating System** | **SHA512 checksum calculation command examples** |
|---|---|
| Apple MAC | Open a terminal window and type the following command:<br>`$ shasum -a 512 filename.extension` |
| Linux | Open a terminal window and type the following command:<br>`$ sha512sum filename.extension`<br>OR<br>`$ shasum -a 512 filename.extension` |
| **NOTES:**<br>*filename* is the name of the file.<br>*extension* is the file extension (for example, .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.

## 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 resolved bugs for this release are available in the Cisco Bug Search Tool.

| **Bug ID** | **Headline** |
|---|---|
| CSCwm90793 | Downlink packets from UPF are sent from the secondary ep - N3IWF-PH3 |
| CSCwm90858 | Stats issue for DHCPv6 Renew/Rebind & Solicit |
| CSCwm92737 | UPF processes DHCPv6 Solicit without IA_PD option and sends DIPR Session Request to SMF |
| CSCwm98255 | UPF processes DHCPv6 Release with IA_PD Prefix option with unknown prefix and initiates PD procedure |
| CSCwn02384 | Multiple sessmgr restarts on upf leading to N4 Association loss thereby leading to call loss |

| Bug ID | Headline |
|---|---|
| CSCwn03317 | Issue in N4 throttling sessions from SMF when UPF peer in overload state |
| CSCwn18143 | show user-plane-service statistics Data Stats issues against Overload Mode/Self Protection Mode |
| CSCwn24054 | After config modification and UPF is in Overload State, stream state not set to Drop state |

# Resolved Bugs for this Release

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

**Note** This software release may contain resolved bugs first identified in other releases. Additional information for all resolved bugs for this release are available in the Cisco Bug Search Tool.

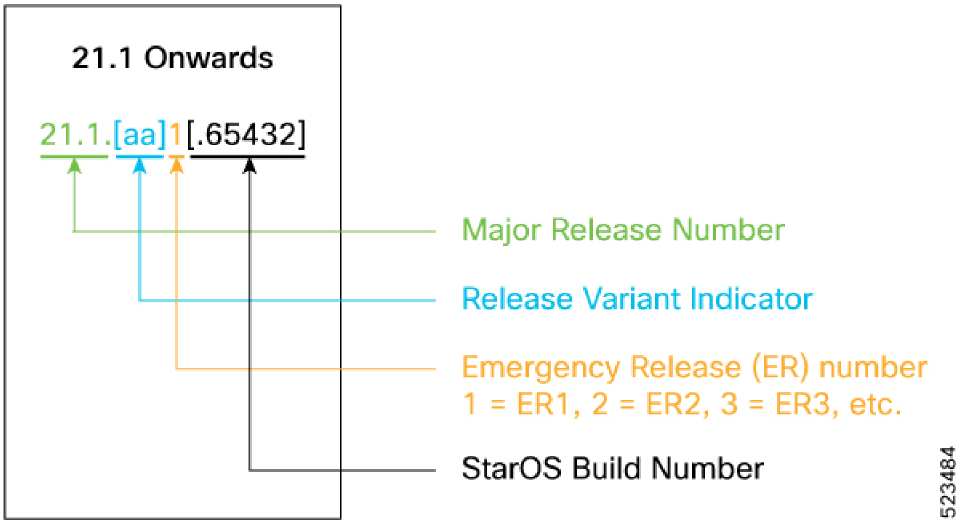
| Bug ID | Headline | Behavior Change |
|---|---|---|
| CSCwm29667 | Monitor Subscriber pcap are not getting generated with monitor subscriber trace started on UPF | No |
| CSCwn22662 | UPF Sx Session Report is rejected with PFCP_CAUSE_MANDATORY_IE_INCORRECT volume is 2000 | No |

# 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".

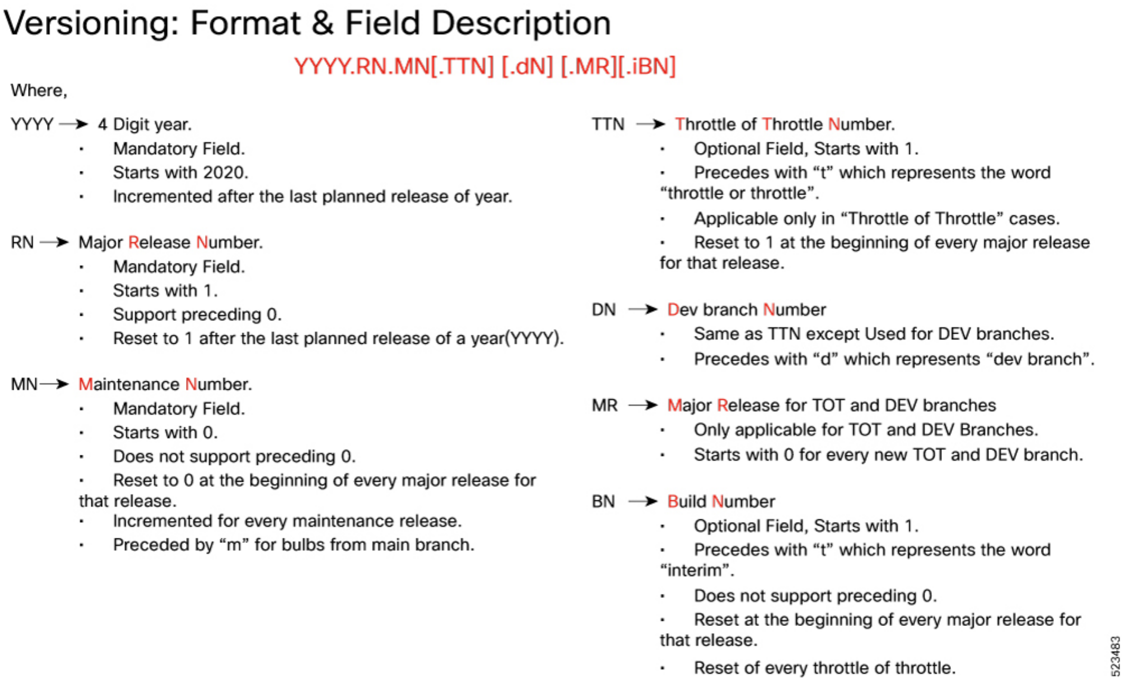

21.1 Onwards
21.1.[aa]1[.65432]
Major Release Number
Release Variant Indicator
Emergency Release (ER) number
1 = ER1, 2 = ER2, 3 = ER3, etc.
StarOS Build Number
523484

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, on page 6.

## Cloud Native Product Version Numbering System

The show helm list command displays detailed information about the version of the cloud native product currently deployed.



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 bulbs from main branch.

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

523483

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.

# Release Package Descriptions

The following table provides descriptions for the packages that are available with this release.

| 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.<br>Files within this package are nested under a top-level folder pertaining to the corresponding StarOS build. |

| Software Packages | Description |
|---|---|
| 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.<br>Files within this package are nested under a top-level folder pertaining to the corresponding StarOS build. |
| ncs-<nso_version>-cisco-staros-<version>.signed.bin | The NETCONF NED package. This package includes all the files that are used for NF configuration.<br>Note that NSO is used for NED file creation. |

# 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.