UCC 5G UPF Release Notes, Release 2025.01.0

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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	31-Jan-2025
End of Life	EoL	31-Jan-2025
End of Software Maintenance	EoSM	1-Aug-2026
End of Vulnerability and Security Support	EoVSS	1-Aug-2026
Last Date of Support	LDoS	31-Aug-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-2025.01.0.zip.SPA.tar.gz	2025.01.0 (21.28.m32.96733)
qvpc-si-2025.01.0.bin.SPA.tar.gz	2025.01.0 (21.28.m32.96733)
qvpc-si-2025.01.0.qcow2.zip.SPA.tar.gz	2025.01.0 (21.28.m32.96733)
NED package	ncs-6.1.14-cisco-staros-5.54.1
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	2.74.6.2587
RCM	2025.01.0.i213
Ultra Cloud Core SMI	2025.01.1.i14
Ultra Cloud Core SMF	2025.01.0

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
3GPP LI Support	The 3GPP LI support is enhanced to adhere to the 3GPP standards for lawful interception. UPF supports message formats for Sxa and combo calls as per 3GPP LI standard. For more information, contact your Cisco account representative.
Identify URR Associated With Matching Rule Using a Single Command	This release introduces a consolidated command for UP to provide a comprehensive overview of per subscriber details, including: • Matched rules and their associated charging actions • The associated URR-ID This enhancement eliminates the need to use multiple commands across the UP or UP and CP to extract and correlate this information per subscriber. **Command Introduced**: **show subscribers user-plane-only callid** *callid* **rule-match-info { [full] all	rulename** *rulename* **}** . **Default Setting**: Enabled – Always-on
IoT Application Traffic Prioritization with ToS Values	This feature allows IoT application traffic to be prioritized using ToS values received from cnPGW through dynamic rules. The UPF applies these values to manage data packet traffic efficiently. These changes are visible in the **show subscribers user-plane-only full all** command. **Default Setting**: Enabled – Always-on

Feature	Description
Scaling UPF Capacity for IoT Use Cases	This release includes hardware optimization within the UPF deployment to support a mixed call model that accommodates a combination of telematics, infotainment, and IoT use cases. The session distribution is set at 75% for telematics, 20% for IoT, and 5% for infotainment. **Note** This configuration has been fully validated on UPF running on the UCS M6 server.

Behavior Changes

This section covers a brief description of behavior changes introduced in this release.

Behavior Change	Description
Correction of Metric for the VPP CPU Usage	**Previous Behavior:** It was considered that the VPP CPU usage remains typically high, ranging from 90-100%. Hence, the reported metric was scaled on a range of 1-100%. However, this VPP CPU usage, was of main thread and not the worker threads. **New Behavior:** The aggregate VPP CPU usage of worker threads is usually low, ranging between 10% and 30%. Hence, the reported metric is used as-is, without scaling.
Enhancement in the Session Priority Profile Configuration	**Previous Behavior:** The **'throttle** keyword in the Session Priority Profile had a default value of 'Disabled', if the priority is not configured. Also, the existing statistics were not reflecting the complete data and session level statistics when system is in overload or self-protection state. **New Behavior:** The **throttle** keyword in the Session Priority Profile, has the default value as 'Enabled', if the priority is not configured. New session and data level statistics are added when system is in overload or self-protection state. These statistics are displayed as part of the show command **show user-plane-service statistics name** and **show user-plane-service statistics all**.

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:
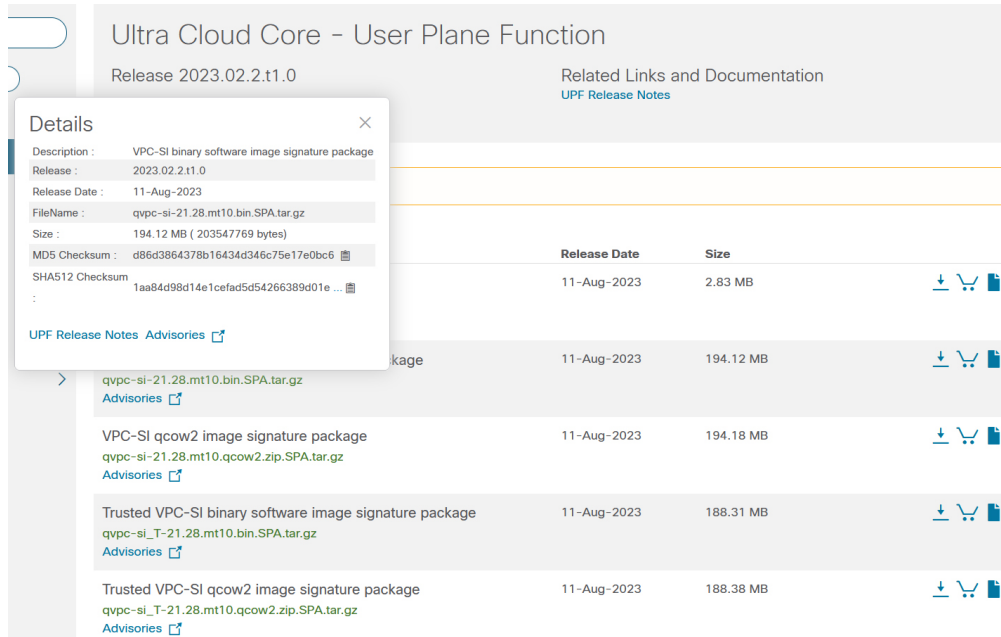
At the bottom you find the SHA512 checksum, if you do not see the whole checksum you can expand it by pressing the "..." at the end.

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: `> 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*
NOTES: *filename* is the name of the file. *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
CSCwn39548	Sessmgr restart at snx_uplane_driver_request_control_dispatch()
CSCwn47970	Sessmgr restarted at sessmgr_uplane_update_stats()
CSCwn61589	CRR recovery failure recovery-invalid-crr-clp-uplane-record-info observed with ICSR UPF swo
CSCwn64953	Continuous fapi /sessmgr error logs seen " FAPI stream operation failure for operation type"
CSCwn66247	uplane recieved duplicate URR error logs observed after sessmgr recovery on RCM active UPF
CSCwn69810	Error logs seen with sessctrl task kill
CSCwm84200	From hermes p2p build to non-hermes p2p build upgrade getting failed with hermes UPF build
CSCwm84724	Seen call-recovery-uplane-flow-filter-failure on N:M UPF during back to back SWO for upgrade test

Resolved Bugs for This Release

The following table lists the resolved 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	Behavior Change
CSCwn02384	Multiple sessmgr ,aaamgr, vpnmgr, hatsystem restarts with evlogd at 100% cpu leading to call loss	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".
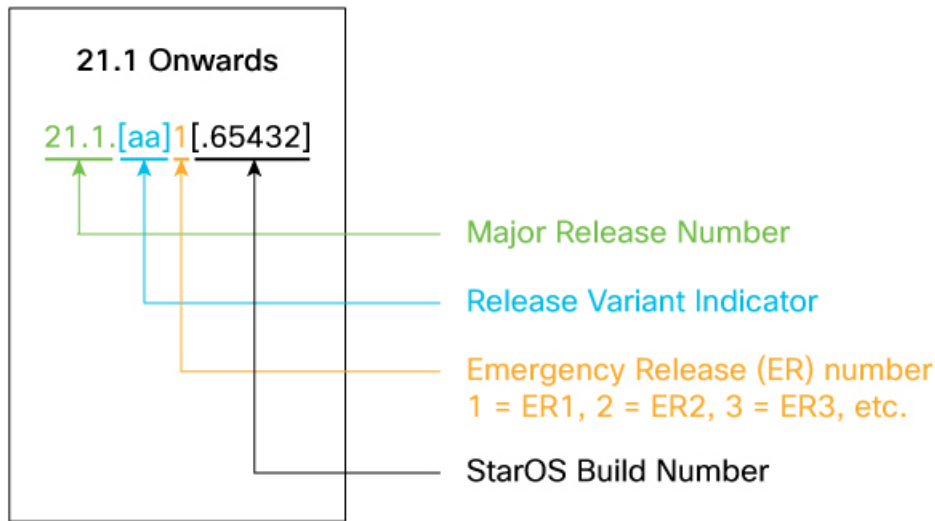
The appropriate version number field increments after a version has been released. The new version numbering format is a contiguous sequential number that represents incremental changes between releases. This format facilitates identifying the changes between releases when using Bug Search Tool to research 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 7.

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.

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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. 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. 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. 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.