



Release Notes for StarOS™ Software Version 21.9.8 and Ultra Service Platform Version N6.3.3

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Introduction

This Release Note identifies changes and issues related to this software release. This emergency release is based on release 21.9.2 and N6.3.2.

Release Package Version Information

Software Packages	Version
StarOS packages	21.9.8, build 71445
Ultra Service Platform ISO	6_3_3, Epoch 8344
usp-em-bundle*	6.3.0, Epoch 5558
usp-ugp-bundle*	21.9.8, build 71445, Epoch 6243
usp-yang-bundle	1.0.0, Epoch 5524
usp-uas-bundle	6.3.0, Epoch 6304
usp-auto-it-bundle	5.8.0, Epoch 3794
usp-vnfm-bundle	4.2.0.74, Epoch 5525
USP RPM Verification Utilities	6.3.3
* These bundles are also distributed separately from the ISO.	

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

Feature and Behavior Changes

Refer to the [Release Change Reference](#) for a complete list of feature and behavior changes associated with the software release on which this emergency release is based.

Related Documentation

For a complete list of documentation available for this release, go to:

- StarOS: <https://www.cisco.com/c/en/us/support/wireless/asr-5000-series/products-installation-and-configuration-guides-list.html>
- Ultra Gateway Platform (including the Ultra M Solution): <https://www.cisco.com/c/en/us/support/wireless/ultra-gateway-platform/products-installation-and-configuration-guides-list.html>
- Ultra Automation Services: <https://www.cisco.com/c/en/us/support/wireless/ultra-automation-services/products-installation-and-configuration-guides-list.html>
- Virtual Packet Core (including VPC-SI and VPC-DI): <https://www.cisco.com/c/en/us/support/wireless/virtual-packet-core/products-installation-and-configuration-guides-list.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.

Ultra M Hyper-Converged Model Component Versions

HW	SW	6.3.0	6.3.1	6.3.2	6.3.3
	StarOS	21.9.0, Build 69977	21.9.0, Build 69977	21.9.2, Build 70356	21.9.8, Build 71445
	ESC	4.2.0.74	4.2.0.74	4.2.0.74	4.2.0.74
	RH Kernel	7.5	7.5	7.5	7.5
	OSP	10	10	10	10
UCS C240 M4S SFF (NFVI)	BIOS	3.0(4a)	3.0(4a)	3.0(4a)	3.0(4a)
	CIMC (BMC)	3.0(4d)	3.0(4d)	3.0(4d)	3.0(4d)
	MLOM	4.1(3f)	4.1(3f)	4.1(3f)	4.1(3f)
C2960XR-48TD-I (Management)	Boot Loader	15.2(3r)E1	15.2(3r)E1	15.2(3r)E1	15.2(3r)E1
	IOS	15.2.(2) E5	15.2.(2) E5	15.2.(2) E5	15.2.(2) E5
C3850-48T-S (Management)	Boot Loader	3.58	3.58	3.58	3.58
	IOS	03.06.06E	03.06.06E	03.06.06E	03.06.06E
Nexus 93180-YC-EX (Leafs)	BIOS	7.59	7.59	7.59	7.59
	NX-OS	7.0(3)I7(3)	7.0(3)I7(3)	7.0(3)I7(3)	7.0(3)I7(3)
Nexus 9236C (Spines)	BIOS	7.59	7.59	7.59	7.59
	NX-OS	7.0(3)I7(3)	7.0(3)I7(3)	7.0(3)I7(3)	7.0(3)I7(3)

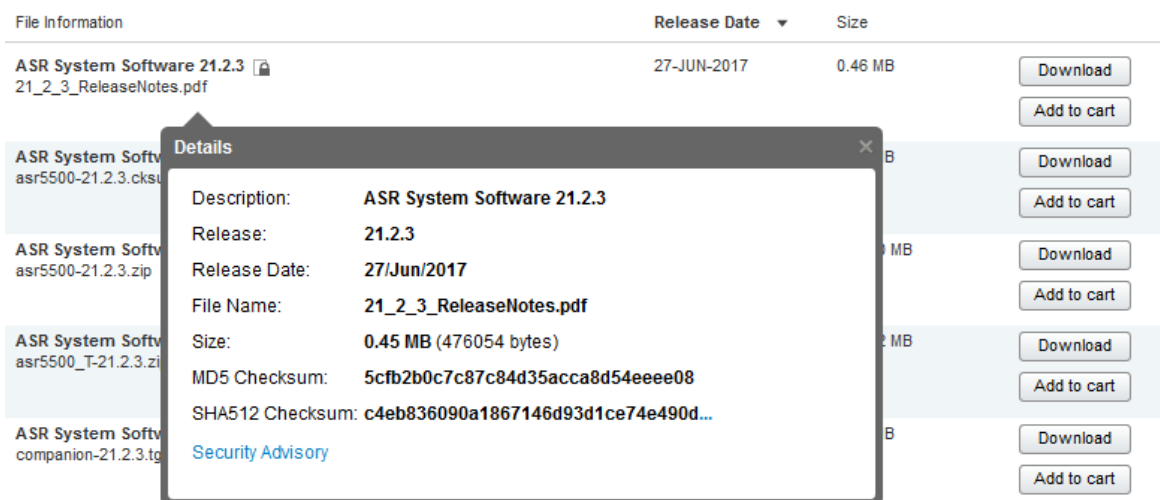
Firmware Updates

There are no firmware upgrades required for this release.

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>

Open Bugs for this Release

NOTES:

<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.

Certificate Validation

StarOS software images are signed via x509 certificates. USP ISO images are signed with a GPG key. Please view the .README file packaged with the software for information and instructions on how to validate the certificates.

NOTE: Image signing is not currently supported for VPC-SI and/or VPC-DI software packages.

Open Bugs for this Release

The following table lists the known bugs that were found in, and/or that remain open in this 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	Product Found*
CSCvk13379	[BP-CUPS]Sessmgr reload is observed on PGW Control Plane while sending Sx Session Reporting Request	cups-cp
CSCvk13391	[BP-CUPS] Sessmgr in over state with dedicated bearer	cups-cp
CSCvk48006	[BP-CUPS]: Behaviour on Sx PFD messages timeout - UP stuck in Not configured state	cups-cp
CSCvk17716	[BP-CUPS] On UBRes failure for Dynamic rule modification URRs getting removed for default Bearer	cups-cp
CSCvk42558	[BP-CUPS-VPP] Facility sessctrl restart: sn_msg_call_internal()	cups-cp
CSCvk54440	StarOS 21.9 release does not contain the unittest for the traps with ifIndexes from 1357 to 1360	cups-cp
CSCvi53376	[BP-CUPS]: Session Manager reload at smgr_uplane_config_rule_options on Cisco PGW	cups-up
CSCvk21427	[BP-CUPS-VPP] Seg Fault at sessmgr_up_fapi_handle_stats_update()	cups-up
CSCvk27851	[BP-CUPS-VPP]: sxdemux process restarts every 6 mins	cups-up
CSCvk29167	[PLT-CUPS-VPP]: vpp stops on UP with 24 sessmgr	cups-up
CSCvk39591	[BP-CUPS-VPP] Segmentation fault at uplane_reset_saved_pdr_match_info on VPP Testbed	cups-up
CSCvk47500	[BP-CUPS-VPP] RS packet handling is incorrect in VPP fastpath.	cups-up

Open Bugs for this Release

Bug ID	Headline	Product Found*
CSCvj76251	[PLT-CUPS-VPP]: vpp_main in 'over' state with single subscriber 8Mbps data	cups-up
CSCvj81306	[BP-CUPS]: [sessmgr 12341 error] [SXAB] Update PDR not found with PDR ID 0x7	cups-up
CSCvj90571	[BP-CUPS] USAGE REPORT not sent in SxModResp even if QUERY URR is received in SxModReq	cups-up
CSCvk05490	"[PLT-CUPS-VPP]: [sessmgr 0 error] Timeout Processing: Time out, MSG ID: 8790, wheel Slot Id: 68"	cups-up
CSCvk37888	"[BP-CUPS-VPP] Post rule modification all packets come to smu, stream is passive."	cups-up
CSCvk39031	[BP-CUPS-VPP] TOS not getting applied on d/l inner packet from qci qos mapping table.	cups-up
CSCvk40097	[BP-CUPS]: Sessmgr restarted with sn_slist_remove_by_key	cups-up
CSCvk42806	[BP-CUPS-VPP] Drop stream is not getting unloaded on installing high priority rule.	cups-up
CSCvk46857	[PLT-CUPS-VPP]: vpnmgr restart while removing crp config	cups-up
CSCvj93176	BP-CUPS: packetCount is not incremented for R10 ULI change or Qos change	cups-up
CSCvk53594	mmemgr Restart at free_acct	mme
CSCvm21245	Ghost enodeB associations after CSCvf74768	mme
CSCvo39413	MME: M bit set in AIR-Flags in AIR message by MME	mme
CSCvo15422	mmemgr task restart due to a segmentation in S1ap	mme
CSCvm83704	egtpinmgr restart when MIO switchover happened	pdn-gw
CSCvk13327	"SRP service not working when traffic is routed via two default route, 2nd default not reachable"	pdn-gw
CSCvm19671	US38613 [PGW-NSA] PRA-Info received in MBReq is not sent in CCRU in inter RAT case	pdn-gw
CSCvm54632	Session manager on standby chassis is in memory over state.	pdn-gw
CSCvn13890	Total EDRs generated statistics does not consider Interim EDRs count	pdn-gw
CSCvk21500	sessctrl restarted on standby chassis during plain longevity test	pdn-gw
CSCvk36855	Sessmgr Restart at access_get_nw_to_ms_gmm_stats_type	sgsn
CSCvk05521	21.9_69629_5GNSA: Activate DCNR counters incrementing for Non-5GNSA PDP contexts	sgsn
CSCvk07083	21.9.69633 Assertion Failure in Function: s4_sessmgr_gprs_fsm_pdp_cleanup_with_egtp_abort	sgsn
CSCvn33852	SGSN does not process Re-transmitted Attach Request while waiting for IMEI-Response	sgsn
CSCvk54113	Assertion failure at sess/sgsn/sgsn-app/gtp_c/gtapp_enc_ie	sgsn
CSCvk43563	Indirect Data tunnelling stats not updating after call is cleared on SGW.	sgw
CSCvj81432	Periodic card shutdown observed on Standby CF card.	staros
CSCvm93753	MIB Syntax Errors in 21.8.1 (69429) and 21.9.1 (70183)	staros
CSCvj77813	show active-charging edr-udr-file statistics causing cli task restart	staros
CSCvk60364	Deactivation failure due to timeout at AutoVNF	usp-uas

Resolved Bugs for this Release

Bug ID	Headline	Product Found*
CSCvm91778	AutoVNF NETCONF trace has passwords in the clear	usp-uas
CSCvk56974	CUPS: Simultaneous undeployment for multiple vnfds leaves vnf in Stopping state.	usp-usf
CSCvm03898	VnfDiags not working correctly	usp-usf
* Information in the "Product Found" column identifies the product in which the bug was initially identified.		

Resolved Bugs for this Release

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

NOTE: This software release may contain bug fixes first introduced in other releases. Additional information for all resolved bugs for this release are available in the [Cisco Bug Search Tool](#).

Bug ID	Headline	Product Found*
CSCve75890	CCR-I message not failing over with session-failover configured	pdn-gw
CSCvn95054	[BP-Legacy]:Peer switch failed in case of 'servers-unreachable initial-request terminate'	sae-gw
* Information in the "Product Found" column identifies the product in which the bug was initially identified.		

Operator Notes

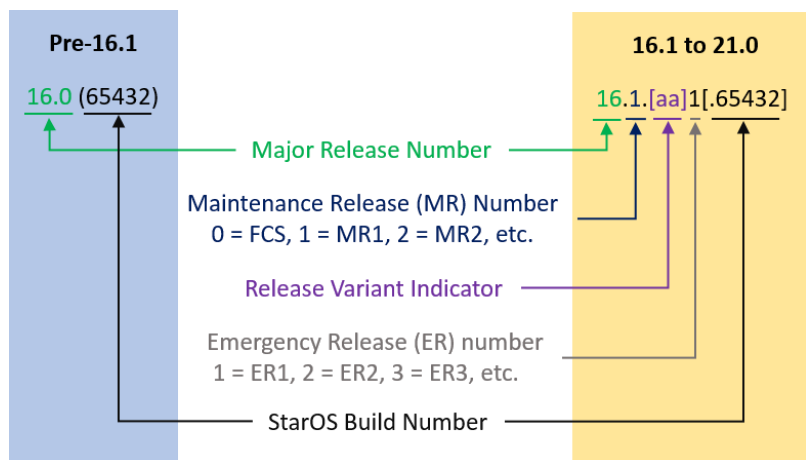
StarOS Version Numbering System

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.

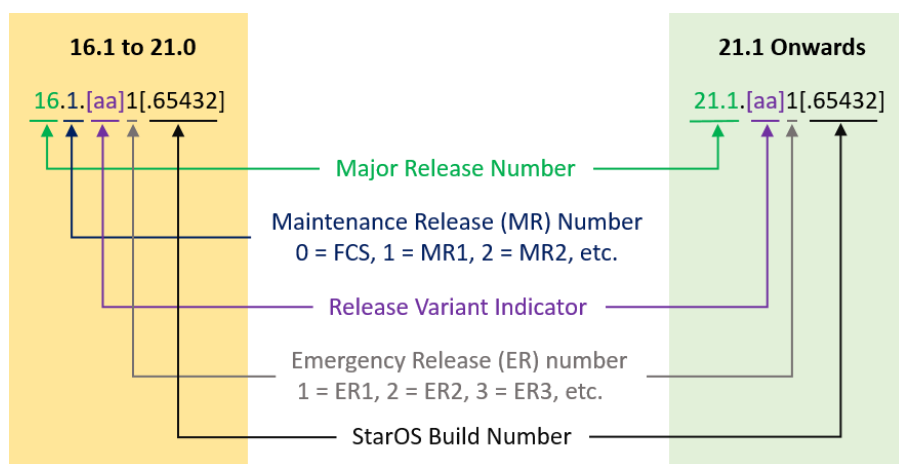
Prior to release 16.1, the *Image Version* field displayed a branch of software including the build number, for example "16.0 (55435)". Subsequent releases of software for the major release differed only in build number. Lab Quality/EFT releases versus deployment releases also differed only in build number.

From release 16.1 onwards, the output of the **show version** command, as well as the terminology used to describe the Build Version Number fields, has changed. Additionally, **show version** will display slightly different information depending on whether or not a build is suitable for deployment.

The Version Build Number for releases between 16.1 and 21.0 include a major, maintenance, and emergency release number, for example "16.1.2".



The Version Build Number for releases 21.1 and later include a major and emergency release number, for example, “21.1.1”.



In either scenario, 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 will facilitate 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.

Table 2 - Release Package Information

Package	Description
ASR 5500	
asr5500-<release>.bin	A zip file containing the signed ASR 5500 software image, the signature file, a verification script, the x509 certificate, and a README file containing information on how to use the script to validate the certificate.
asr5500_T-<release>.bin	A zip file containing the signed, trusted ASR 5500 software image, the signature file, a verification script, the x509 certificate, and a README file containing information on how to use the script to validate the certificate.
VPC-DI	
qvpc-di-<release>.bin	The VPC-DI binary software image which is used to replace a previously deployed image on the flash disk in existing installations.

Package	Description
qvpdc-di_T-<release>.bin	The trusted VPC-DI binary software image which is used to replace a previously deployed image on the flash disk in existing installations.
qvpdc-di-<release>.iso	The VPC-DI ISO used for new deployments a new virtual machine is manually created and configured to boot from a CD image.
qvpdc-di_T-<release>.iso	The trusted VPC-DI ISO used for new deployments a new virtual machine is manually created and configured to boot from a CD image.
qvpdc-di-template-vmware-<release>.tgz	The VPC-DI binary software image that is used to on-board the software directly into VMware.
qvpdc-di-template-vmware_T-<release>.tgz	The trusted VPC-DI binary software image that is used to on-board the software directly into VMware.
qvpdc-di-template-libvirt-kvm-<release>.tgz	This is an archive that includes the same VPC-DI ISO identified above, but additional installation files for using it on KVM.
qvpdc-di-template-libvirt-kvm_T-<release>.tgz	This is an archive that includes the same trusted VPC-DI ISO identified above, but additional installation files for using it on KVM.
qvpdc-di-<release>.qcow2.tgz	The VPC-DI binary software image in a format that can be loaded directly with KVM using an XML definition file, or with OpenStack.
qvpdc-di_T-<release>.qcow2.tgz	The trusted VPC-DI binary software image in a format that can be loaded directly with KVM using an XML definition file, or with OpenStack.
VPC-SI	
qvpdc-si-<release>.bin	The VPC-SI binary software image which is used to replace a previously deployed image on the flash disk in existing installations.
qvpdc-si_T-<release>.bin	The trusted VPC-SI binary software image which is used to replace a previously deployed image on the flash disk in existing installations.
qvpdc-si-<release>.iso	The VPC-SI ISO used for new deployments a new virtual machine is manually created and configured to boot from a CD image.
qvpdc-si_T-<release>.iso	The trusted VPC-SI ISO used for new deployments a new virtual machine is manually created and configured to boot from a CD image.
qvpdc-si-template-vmware-<release>.ova	The VPC-SI binary software image that is used to on-board the software directly into VMware.
qvpdc-si-template-vmware_T-<release>.ova	The trusted VPC-SI binary software image that is used to on-board the software directly into VMware.
qvpdc-si-template-libvirt-kvm-<release>.tgz	This is an archive that includes the same VPC-SI ISO identified above, but additional installation files for using it on KVM.
qvpdc-si-template-libvirt-kvm_T-<release>.tgz	This is an archive that includes the same trusted VPC-SI ISO identified above, but additional installation files for using it on KVM.
qvpdc-si-<release>.qcow2.gz	The VPC-SI binary software image in a format that can be loaded directly with KVM using an XML definition file, or with OpenStack.
qvpdc-si_T-<release>.qcow2.gz	The trusted VPC-SI binary software image in a format that can be loaded directly with KVM using an XML definition file, or with OpenStack.

Package	Description
StarOS Companion Package	
companion-<release>.tgz	An archive containing numerous files pertaining to this version of the StarOS including SNMP MIBs, RADIUS dictionaries, ORBEM clients. These files pertain to both trusted and non-trusted build variants.
Ultra Service Platform	
usp-<version>.iso	The USP software package containing component RPMs (bundles). Refer to Table 3 for descriptions of the specific bundles.
usp_T-<version>.iso	The USP software package containing component RPMs (bundles). This bundle contains trusted images. Refer to Table 3 for descriptions of the specific bundles.
usp_rpm_verify_utils-<version>.tar	This package contains information and utilities for verifying USP RPM integrity.

Table 3 - USP ISO Bundles

USP Bundle Name	Description
usp-em-bundle-<version>-1.x86_64.rpm*	The Element Manager (EM) Bundle RPM containing images and metadata for the Ultra Element Manager (UEM) module.
usp-ugp-bundle-<version>-1.x86_64.rpm*	The Ultra Gateway Platform (UGP) Bundle RPM containing images for Ultra Packet core (VPC-DI). There are trusted and non-trusted image variants of this bundle.
usp-yang-bundle-<version>-1.x86_64.rpm	The Yang Bundle RPM containing YANG data models including the VNFD and VNFR.
usp-uas-bundle-<version>-1.x86_64.rpm	The Ultra Automation Services Bundle RPM containing AutoVNF, Ultra Web Services (UWS), and other automation packages.
usp-auto-it-bundle-<version>-1.x86_64.rpm	The bundle containing the AutoIT packages required to deploy the UAS.
usp-vnfm-bundle-<version>-1.x86_64.rpm	The VNFM Bundle RPM containing an image and a boot-up script for ESC (Elastic Service Controller).
ultram-manager-<version>-1.x86_64.rpm	This package contains the script and relevant files needed to deploy the Ultra M Manager Service.
* These bundles are also distributed separately from the ISO.	

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, see *What's New in Cisco Product Documentation*, at:

<http://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html>.

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