Release Notes for StarOS™ Software Version 21.17.8

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Introduction

This Release Note identifies changes and issues related to this software release. This emergency release is based on release 21.17.7. These release notes are applicable to the ASR5500, VPC-SI and VPC-DI platforms.

Release Package Version Information

Table 1 - Release Package Version Information

Software Packages	Version
StarOS packages	21.17.8, build 76403

Descriptions for the various packages provided with this release are located in Release Package Descriptions.

Feature and Behavior Changes

The following features and/or behavior changes have been introduced in this emergency release.

Refer to the *Release Change Reference* for a complete list of feature and behavior changes associated with this software release.

Related Documentation

For a complete list of documentation available for this release, go to http://www.cisco.com/c/en/us/support/wireless/asr-5000-series/products-installation-and-configuration-guides-list.html.

Installation and Upgrade Notes

This Release Note does not contain installation and upgrade instructions. Refer to the existing installation documentation for specific installation and upgrade considerations.

Firmware Updates

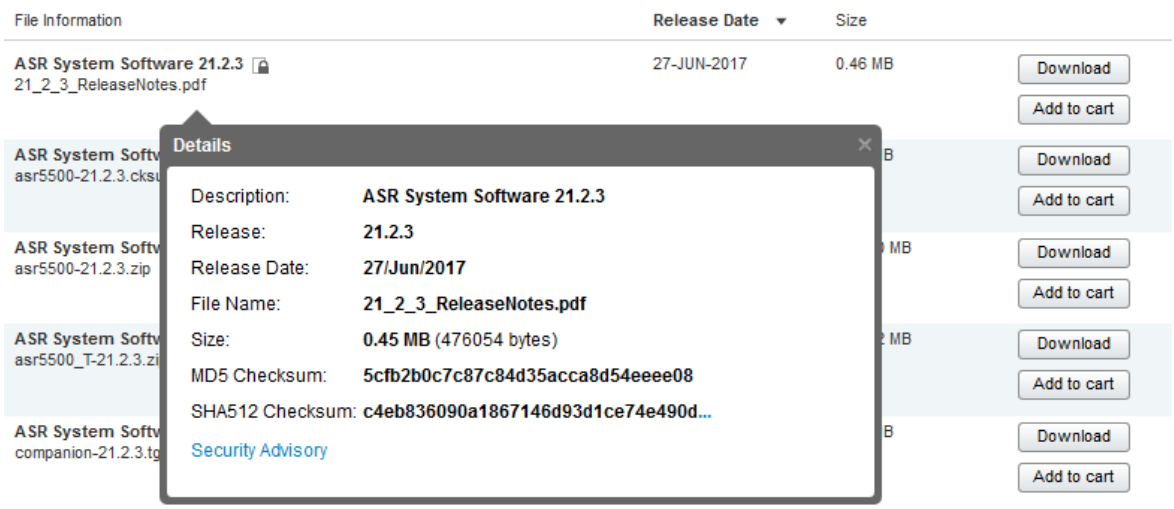
There are no firmware upgrades required for this release.

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 the following mechanisms:

- **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.

- **.cksums file:** A file containing software image checksum information is distributed with the image files. The naming convention for this file is:

  <product>-<version>.cksums

  Example: asr5500-21.4.0.cksums

To validate the information, calculate a SHA512 checksum using the information in Table 2 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 2 - 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>*

Operating System	SHA512 checksum calculation command examples

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 (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

In 21.12.0 and later releases, software images for StarOS, VPC-DI, and VPC-SI, and the companion software packages for StarOS and VPC are signed via x509 certificates. In pre-21.12.0 releases, image signing is not supported for VPC-DI and VPC-SI images, and for StarOS and VPC companion software packages.

USP ISO images are signed with a GPG key.

For more information and instructions on how to validate the certificates, refer to the README file available with the respective software packages.

Open Bugs in 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.

Table 3 - Open Bugs in this Release

Bug ID	Headline	Product Found*
CSCvs72199	CUPS CP :PGW-CP node spits continuous log events acsmgr 91699 error CUPS: Charging Snapshot with key	cups-cp
CSCvs87413	[BP-CUPS]: Stale sessions seen at UP when there are recovery on CP	cups-up
CSCvt82639	VPP cannot handle MTU size > 2K	cups-up
CSCvt15349	Recovery failed on 10:2 testbed after RCM VM reload	cups-up
CSCvu00150	[PLT-CUPS]: The p2p app-identifier tls-sni related CLIs failing at UP	cups-up
CSCvs29569	[TMO SOL] Gtpumgr is in over state due to over memory usage on SAEGW-UP	cups-up
CSCvu18163	Recovery mechanism is not working as expected for CIOT calls after session manager restart	mme

Bug ID	Headline	Product Found*
CSCvu24212	Unable to delete TAI Group related configuration from MME	mme
CSCvr08929	sessmgr restart seen on mme_app_fill_delete_sess_req	mme
CSCvr34106	Assertion Failure for aaamgr_sred occurring frequently	mme
CSCvt33632	"EPC: MME, Collision: NR add & UBReq, MME send with the ESM cause"	mme
CSCvs52946	[Smoke2] Current subscribers count not incrementing for ECSv2_SIP call	pdn-gw
CSCvs88144	[PGW] PCRF monitoring-key range must allow any 4 bytes range value	pdn-gw
CSCvu27368	Unable to remove EDR ULI Hex Encoding from rulebase with no option	pdn-gw
CSCvu53474	Gx RAA with DIAMETER_REALM_NOT_SERVED (3003) after upgrade to 21.17.6	pdn-gw
CSCvp05787	sessmgr restart seen with function egtpc_handle_del_bearer_cmd_req_evt()	sgsn
CSCvu68945	Evaluation of staros for Treck ip stack vulnerabilities	staros
* Information in the “Product Found” column identifies the product in which the bug was initially identified.		

Resolved Bugs in 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.

Table 4 - Resolved Bugs in this Release

Bug ID	Headline	Product Found*
CSCvu24007	[CUPS-CP] CP rejecting calls due to “Ipool-ip-validation-failed”	cups-cp
CSCvs72236	SM failed due to Assertion failure at sgw_pdn_fsm.c	cups-cp
CSCvs76279	Assertion failure at sess/egtp/egtpc/egtpc_interface.c:258 Function: egtpc_handle_user_sap_event()	cups-cp
CSCvt54949	Cisco CUPS SGW restart observed when CSReq is received with EBI value same as Deleting PDN conn	cups-cp
CSCvs73630	Fatal Signal 11: 11 PC: [087a4d51/X] egtpc_get_ebi_info_from_pdu()	cups-cp
CSCvs91113	Fatal Signal 6: 6 [0618736c/X] sgwdrv_egtpc_event_dispatch()	cups-cp
CSCvs03936	CUPS: Segmentation fault at vpn_deregister_user_plane	cups-cp
CSCvs41861	Call rejects at CP - failed-auth-with-charging-svc	cups-cp
CSCvs62126	[BP-CUPS]: Function restart at egtpc_handle_abort_proc_cmd_evt	cups-cp
CSCvs74187	Crash：[CUPS] vpnmgr_cups_gr_add_assign_addresses()	cups-cp
CSCvt33841	BP-CUPS- sgwdrv_egtpc_event_dispatch()	cups-cp
CSCvt33842	BP-CUPS- saegwdrv_ue_fsm_st_active_evt_snx_dropcall()	cups-cp

Bug ID	Headline	Product Found*
CSCvt46557	"[BP-CUPS]: Assertion failure at egtpc_handle_delete_sess_rsp_evt, lost 50% subs in 2 hours"	cups-cp
CSCvt48909	vpnmgr failed due to Fatal Signal at vpn_deregister_user_plane	cups-cp
CSCvu17838	[BP-CUPS] just after reload this crash is seen and rulebase is not getting pushed.	cups-cp
CSCvt29929	CUPS CP - Monitor subscriber control via option 19/26	cups-up
CSCvr07640	[BP-CUPS]: Assertion failure at uplane_acsm_compile uplane_build_pattern_matching_automaton	cups-up
CSCvr99784	audit-gtpumgr-failure recovery-invalid-crr-clp-uplane-call-info recovery-invalid-crr-clp-uplane-gtpu	cups-up
CSCvt33678	SM failed due to Assertion failure at uplane_dns_pkt_inspection	cups-up
CSCvs26823	[cups] crash observed @ vpnmgr_srp_cups_up_chunk_msg_recv	cups-up
CSCvs40189	[BP-CUPS] vpnmgr over memory limits	cups-up
CSCvs59467	vpnmgr restart at vpn_ip_cups_up_retrieve_chunk_info	cups-up
CSCvt01182	[URR] Fatal Signal 11: 11 PC: [049adf3e/X] sessmgr_uplane_cleanup_urr_list()	cups-up
CSCvu27887	suppress-nrupc didn't works after upgrade to 21.17.4	ggsn
CSCvq00006	MPLS FEC ILM mapping missing for many ip pools after vpnmgr crash	ggsn
CSCvr34106	Assertion Failure for aaamgr_sred occurring frequently	mme
CSCvu65256	MME is sending cause misc: Unspecified for e-RAB ID 7 in PathSwitch Req Ack message during X2 HO	mme
CSCvs86481	[DCNR] MME restrict NR when bit higher than 8 is set (aka 5GS)	mme
CSCvt75434	UE-CONTEXT-RELEASE with Reason Unspecified although Normal Release configured	mme
CSCvq29165	sessmgr Segmentation Fault after modifying active-charging service	pdn-gw
CSCvs60046	ASR5500 sessmgr reloads on saegwdrv_dequeue_from_buffer_queue	sae-gw
CSCvt09828	Cisco SAEGw restart observed when Modify Bearer Req is received	sae-gw
CSCvs24524	sessmgr restarts due to assertion failure at function sessmgr_collect_sgsn_call_rcvry_info()	sgsn
CSCvs24529	sessmgr restarts due to assertion failure at function pmm_ms_fsm_invalid_event_handler()	sgsn
CSCvs67994	Assertion failure with sessmgr_gprs_process_del_sub_session	sgsn
CSCvt06102	DPC2 memory correctable errors over threshold causing fabric IFMA/Bs	staros
CSCvs55348	Non-fatal dump keep happening at messenger/xpt_tcp.c:1030	staros
CSCvu38194	ICSR Standby instance come back as Active after reload in new version	staros
CSCvs19562	LI Data are sent in the clear over the DI LAN	staros
CSCvt12235	Some multihop BFD sessions stay in Down state though peer is reachable	staros

Bug ID	Headline	Product Found*
CSCvu00257	[VPC-DI] BFD sessions down following spine switch reboot.	staros
* Information in the "Product Found" column identifies the product in which the bug was initially identified.		

Operator Notes

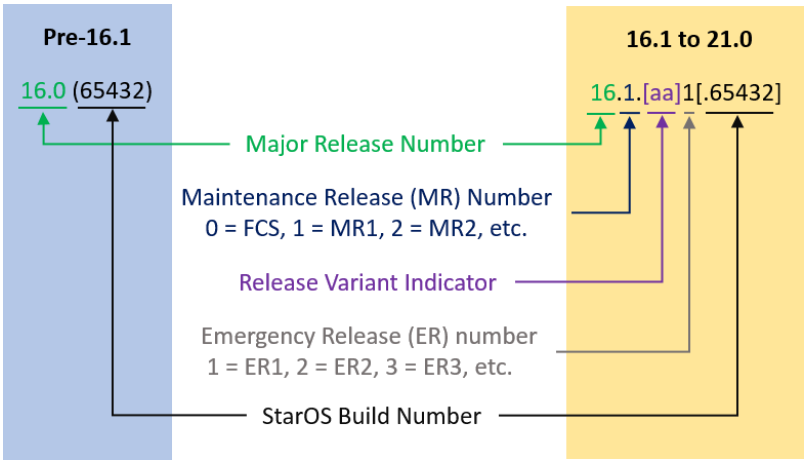
StarOS Version Numbering System

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.

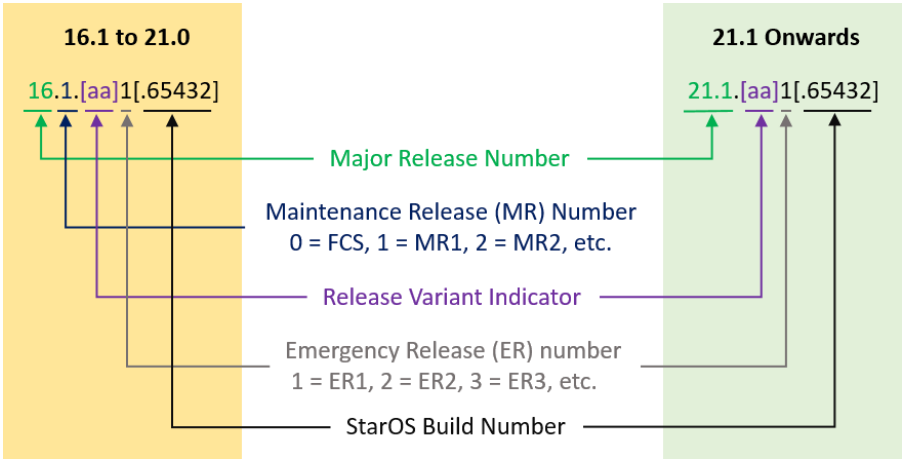
Prior to release 16.1, the *Image Version* field displayed a branch of software including the build number, for example "16.0 (55435)". Subsequent releases of software for the major release differed only in build number. Lab Quality/EFT releases versus deployment releases also differed only in build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

Table 5 provides descriptions for the packages that are available with this release.

Table 5 - Release Package Information

In 21.12.0 and later Releases	In pre-21.12.0 Releases	Description
ASR 5500		
asr5500-<release>.zip	asr5500-<release>.bin	Contains 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>.zip	asr5500_T-<release>.bin	Contains 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.
StarOS Companion Package		
companion-<release>.zip	companion-<release>.tgz	Contains 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. In 21.12.0 and later releases, the StarOS companion package also includes 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.zip	qvpc-di-<release>.bin	Contains the VPC-DI binary software image that is used to replace a previously deployed image on the flash disk in existing installations. In 21.12.0 and later releases, this package also includes 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.

In 21.12.0 and later Releases	In pre-21.12.0 Releases	Description
qvpc-di_T-<release>.bin.zip	qvpc-di_T-<release>.bin	Contains the trusted VPC-DI binary software image that is used to replace a previously deployed image on the flash disk in existing installations. In 21.12.0 and later releases, this package also includes 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.
qvpc-di-<release>.iso.zip	qvpc-di-<release>.iso	Contains the VPC-DI ISO used for new deployments, a new virtual machine is manually created and configured to boot from a CD image. In 21.12.0 and later releases, this package also includes 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.
qvpc-di_T-<release>.iso.zip	qvpc-di_T-<release>.iso	Contains the trusted VPC-DI ISO used for new deployments, a new virtual machine is manually created and configured to boot from a CD image. In 21.12.0 and later releases, this package also includes 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.
qvpc-di-template-vmware-<release>.zip	qvpc-di-template-vmware-<release>.tgz	Contains the VPC-DI binary software image that is used to on-board the software directly into VMware. In 21.12.0 and later releases, this package also includes 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.
qvpc-di-template-vmware_T-<release>.zip	qvpc-di-template-vmware_T-<release>.tgz	Contains the trusted VPC-DI binary software image that is used to on-board the software directly into VMware. In 21.12.0 and later releases, this package also includes 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.
qvpc-di-template-libvirt-kvm-<release>.zip	qvpc-di-template-libvirt-kvm-<release>.tgz	Contains the same VPC-DI ISO identified above and additional installation files for using it on KVM. In 21.12.0 and later releases, this package also includes 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.
qvpc-di-template-libvirt-kvm_T-<release>.zip	qvpc-di-template-libvirt-kvm_T-<release>.tgz	Contains the same trusted VPC-DI ISO identified above and additional installation files for using it on KVM. In 21.12.0 and later releases, this package also includes 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.
qvpc-di-<release>.qcow2.zip	qvpc-di-<release>.qcow2.tgz	Contains the VPC-DI binary software image in a format that can be loaded directly with KVM using an XML definition file, or with OpenStack. In 21.12.0 and later releases, this package also includes 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.

In 21.12.0 and later Releases	In pre-21.12.0 Releases	Description
qvpc-di_T-<release>.qcow2.zip	qvpc-di_T-<release>.qcow2.tgz	Contains 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. In 21.12.0 and later releases, this package also includes 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-SI		
qvpc-si-<release>.bin.zip	qvpc-si-<release>.bin	Contains the VPC-SI binary software image that is used to replace a previously deployed image on the flash disk in existing installations. In 21.12.0 and later releases, this package also includes 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.
qvpc-si_T-<release>.bin.zip	qvpc-si_T-<release>.bin	Contains the trusted VPC-SI binary software image that is used to replace a previously deployed image on the flash disk in existing installations. In 21.12.0 and later releases, this package also includes 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.
qvpc-si-<release>.iso.zip	qvpc-si-<release>.iso	Contains the VPC-SI ISO used for new deployments, a new virtual machine is manually created and configured to boot from a CD image. In 21.12.0 and later releases, this package also includes 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.
qvpc-si_T-<release>.iso.zip	qvpc-si_T-<release>.iso	Contains the trusted VPC-SI ISO used for new deployments a new virtual machine is manually created and configured to boot from a CD image. In 21.12.0 and later releases, this package also includes 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.
qvpc-si-template-vmware-<release>.zip	qvpc-si-template-vmware-<release>.ova	Contains the VPC-SI binary software image that is used to on-board the software directly into VMware. In 21.12.0 and later releases, this package also includes 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.
qvpc-si-template-vmware_T-<release>.zip	qvpc-si-template-vmware_T-<release>.ova	Contains the trusted VPC-SI binary software image that is used to on-board the software directly into VMware. In 21.12.0 and later releases, this package also includes 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.
qvpc-si-template-libvirt-kvm-<release>.zip	qvpc-si-template-libvirt-kvm-<release>.tgz	Contains the same VPC-SI ISO identified above and additional installation files for using it on KVM. In 21.12.0 and later releases, this package also includes 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.

In 21.12.0 and later Releases	In pre-21.12.0 Releases	Description
qvpc-si-template-libvirt-kvm_T-<release>.zip	qvpc-si-template-libvirt-kvm_T-<release>.tgz	Contains the same trusted VPC-SI ISO identified above and additional installation files for using it on KVM. In 21.12.0 and later releases, this package also includes 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.
qvpc-si-<release>.qcow2.zip	qvpc-si-<release>.qcow2.gz	Contains the VPC-SI binary software image in a format that can be loaded directly with KVM using an XML definition file, or with OpenStack. In 21.12.0 and later releases, this package also includes 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.
qvpc-si_T-<release>.qcow2.zip	qvpc-si_T-<release>.qcow2.gz	Contains 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. In 21.12.0 and later releases, this package also includes 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 Companion Package		
companion-vpc-<release>.zip	companion-vpc-<release>.tgz	Contains numerous files pertaining to this version of the VPC including SNMP MIBs, RADIUS dictionaries, ORBEM clients. These files pertain to both VPC-DI and VPC-SI, and for trusted and non-trusted build variants. In 21.12.0 and later releases, the VPC companion package also includes 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.

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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