Release Notes for StarOS™ Software Version 21.18.16

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Introduction

This Release Note identifies changes and issues related to this software release. This emergency release is based on release 21.18.15. 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	21.18.16, build 79248

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

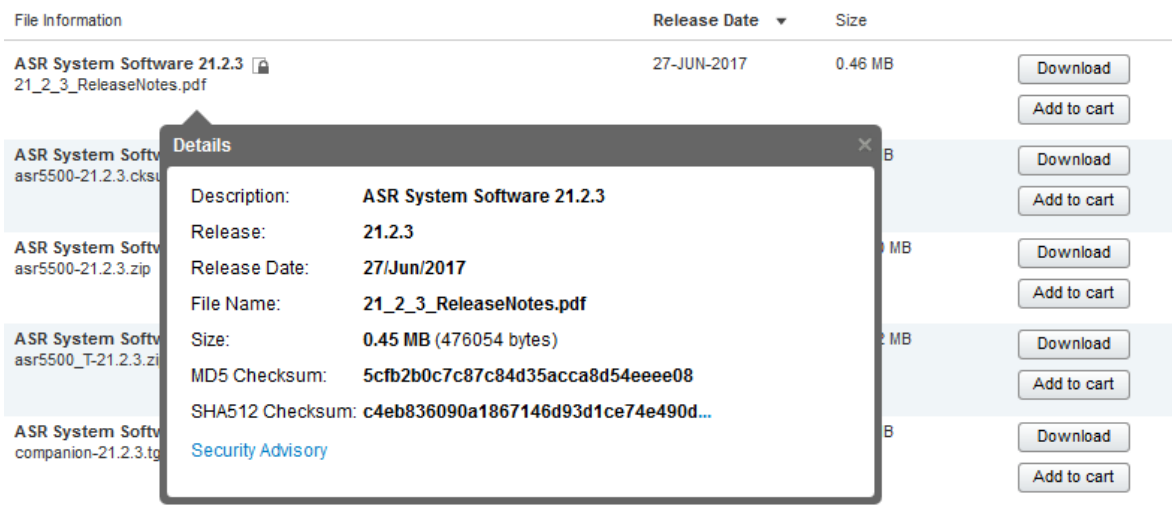
There are no firmware upgrades required for this release.

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*
CSCvt18818	CUPS - limit packet size gives full packet after changing size	cups-cp
CSCvt56799	IPSEC: SX is in Non-Configured state when more than 14 apns are configured	cups-cp
CSCvt66503	LI configuration not pushed completely through Sx	cups-cp
CSCvu48207	[sol test] SM task restart with Faulty address: (nil)	cups-cp
CSCvu14812	[CUPS-CP] UPF without chunks triggered even if other UPF with chunks are available	cups-cp
CSCvu81900	[PLT-CUPS]: huge CRR recovery failures on back-to-back SRP-Switchover leading to call-drop	cups-cp
CSCvu89327	[sol test] Multiple SM Err messages seen on SAEGW-CP with IMS PDN and Active sessions	cups-cp

Bug ID	Headline	Product Found*
CSCvt26865	sessmgr task restart with fn: sessmgr_ggsn_cups_remove_sx_trans_node()	cups-cp
CSCvu04887	CP: sessmgr restart at sx_deallocate_instance_peer_rec when ports were shutdown	cups-cp
CSCvu48212	[sol test] SM task resart with function: snx_saegwdrv_request_control_dispatch()	cups-cp
CSCvr46679	[BP-CUPS] sx_send_cfm_evt() (pureP)	cups-cp
CSCvx27795	[BP-CUPS]LTE-Wifi Handoff failing due to EBI Collision logic result Context replacement.	cups-cp
CSCvv55109	[BP-CUPS]: Assertion failure at ggsnapp_fill_pdp_info_from_egtpu while clearing the calls	cups-cp
CSCvw04579	"[BP-CUPS]Assert at sn_slist_remove_by_key(),sessmgr_up_cleanup_lc_record_list()"	cups-up
CSCvt15349	Recovery failed on 10:2 testbed after RCM VM reload	cups-up
CSCvt21096	[PLT-CUPS-VPP] vpp crashes at vlib_worker_thread_barrier_sync_int	cups-up
CSCvs23558	[BP-CUPS] PC: [048dd1d7/X] smgr_uplane_handle_config_chrg_action()	cups-up
CSCvu21615	Fatal signal at uplane_handle_itc_processing() after push config from CP	cups-up
CSCvv27398	Sessmgr not offloading SSL traffic for particular kind of SSL error	cups-up
CSCvt49488	In Monsub fastpath packets are captured twice in vpp pcap	cups-up
CSCvw25708	[BP_CUPS] after ICSR switchover error logs are observed (mentioned in description part)	cups-up
CSCvw04399	[BP-CUPS]SM restart after UP at ISCR sessmgr_Uplane_Uchkpt_clp_pdr_info.part	cups-up
CSCvv64417	[BP-CUPS][fapi 223801 error] api_transport.c:3448] fastpath_stream_change_state()	cups-up
CSCvw25328	[BP-CUPS] Predef rule match is not happening and the corresponding pkts/bytes are getting dropped	cups-up
CSCvu18163	Recovery mechanism is not working as expected for CIOT calls after session manager restart	mme
CSCvv34694	Sessmgr restarts seen at mme_hss_checkpoint_internal	mme
CSCvu94518	mme-manager related CLIs are present on vPC-DI PGW after upgrade to 21.18.4.76010	mme
CSCvt53996	MME returns DIAMETER_ERROR_USER_UNKNOWN for Mon even Number of UE's case	mme
CSCvu81405	Revert back CSCvr34106	mme
CSCvt54407	sessmgr Segmentation fault at mme_app_remove_pdn_from_pgwlist()	mme
CSCvu65266	Assertion failure while configuring "Diameter destination realm under mme-service" with context MME	mme
CSCvt50450	PGW flow counts are incorrect in bulkstats showing double counts.	pdn-gw
CSCvs62416	[SGSN]- sessmgr restarts at egtpc_handle_user_sap_event s4_smn_egtp_send_modify_bearer_command	sgsn
CSCvu88712	EGTP_CREATE_INDIRECT_DATA_FORWARDING_TUNNEL_RSP sent from SGW doesn’t set 1 to either v4 or V6	sgw
CSCvu38194	ICSR Standby instance come back as Active after reload in new version	staros

Bug ID	Headline	Product Found*
CSCvt89771	[CUPS] [Sx over IPSEC] iftask crash dpdk_app_ucad_op/crypto_handle_req during IKEv2 Tunnel establish	staros
CSCvv61902	[SVI-UPF] VPP crash observed followed by continuous smgr resets.	upf
* 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*
CSCvu17993	[BP-CUPS] Router solicitation message not received in CP	cups-cp
CSCvx13647	CP rejects DLDR session report by PDR is not present	cups-cp
CSCvw65523	[CUPS CP] - CP fails to allocate a Peer-ID to UP following the UP Reload	cups-cp
CSCvx13009	"In CUPS nodes IMS subs facing one way audio , intermittently"	cups-up
CSCvu72004	[BP-ICUPS]: sessmgr crashes noted on standby when reloading new PXGW config	pdn-gw
CSCvu96185	Session Manager task restart due to Gx stale sessions	pdn-gw
CSCvw58221	[BP_PCT PGW] Diameter data fragmentation not working as expected	pdn-gw
CSCvw95793	[Smoke2-ICUPS] In Monsub fastpath pcap files are not generated as expected.	pdn-gw
CSCvu55467	[BP-ICUPS] Session Controller restart observed during data_backup_read_abort	pdn-gw
CSCvs09553	[BP-ICUPS]: Monsub pcap file's call id not changed after context replacement	pdn-gw
CSCvw73329	[VPC-DI] CDR/EDR file push hangs when oversize TCP packets transmitted.	pdn-gw
CSCvs22749	[VPC-DI] Slowness in EDR transfer causing cdrmod file write/delete errors.	pdn-gw
CSCvv97880	[VPC-DI] Slowness in EDR transfer causing high CPU load on CF.	pdn-gw
CSCvw01997	[VPC-DI] Slowness in EDR transfer causing msgd intiated hdctrl and vpnmgr task snaps.	pdn-gw
CSCvw63884	[VPC-DI] CDR/EDR file push falls behind generation rate when SFTP/SSH connection time is too long.	pdn-gw
CSCvw51050	21.14: Port speed OID changes after port up/down	staros
CSCvw94672	VPP restart leading to reload of node and ICSR switchover	upf
CSCvw15307	Sessmgr restart sessmgr_uplane_match_rule_after_cf	upf
* Information in the "Product Found" column identifies the product in which the bug was initially identified.		

Operator Notes

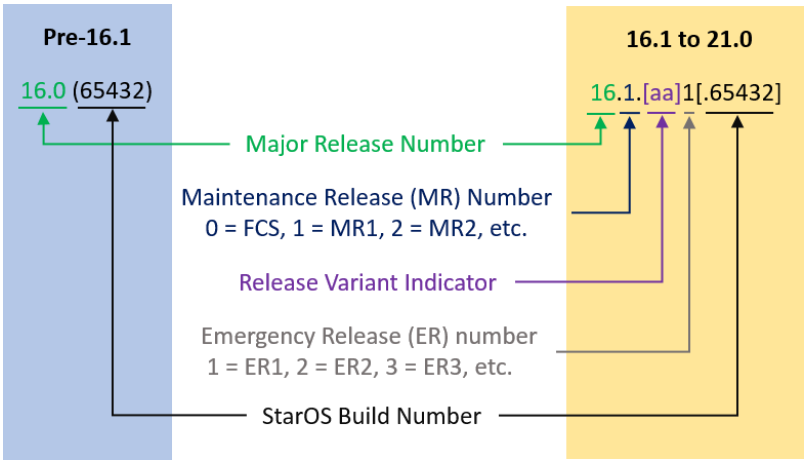
StarOS Version Numbering System

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.

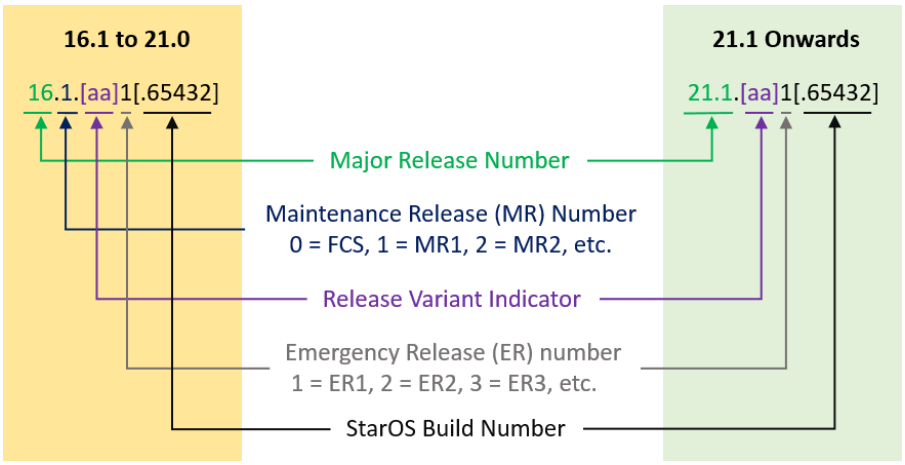
Prior to release 16.1, the *Image Version* field displayed a branch of software including the build number, for example “16.0 (55435)”. Subsequent releases of software for the major release differed only in build number. Lab Quality/EFT releases versus deployment releases also differed only in build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

In 21.12.0 and later Releases	In pre-21.12.0 Releases	Description
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.
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.

In 21.12.0 and later Releases	In pre-21.12.0 Releases	Description
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.
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.

In 21.12.0 and later Releases	In pre-21.12.0 Releases	Description
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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