



Release Notes for StarOS™ Software Version 21.13.2

First Published: April 30, 2019

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Introduction

This Release Note identifies changes and issues related to this software release. This emergency release is based on release 21.13.1. 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	21.13.2, build 71801

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 the software release on which this emergency release is based.

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

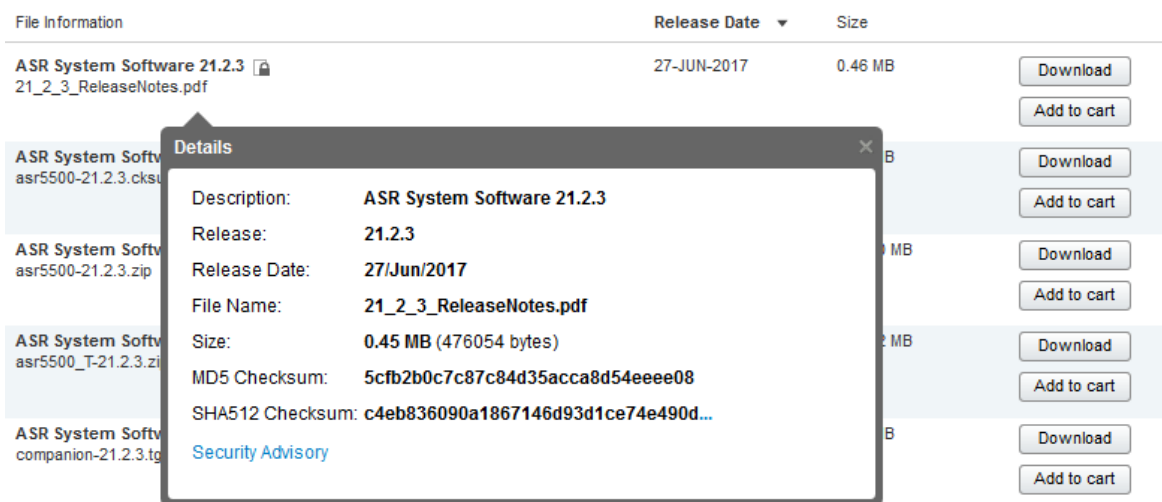
There are no firmware upgrades required for this release.

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 <pre>> certutil.exe -hashfile <filename>.<extension> SHA512</pre>

Open Bugs in this Release

Operating System	SHA512 checksum calculation command examples
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 (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*
CSCvo43143	TCP Default RTO changes to 1 sec	pdn-gw
CSCvo55939	[BP-CUPS] sessmgr restart at egtp_header_encoder() with sgw ded bearer	cups-cp
CSCvo63335	[BP-CUPS]IP Pool allocation failure observed after back to back SRP switchover	cups-cp

Open Bugs in this Release

Bug ID	Headline	Product Found*
CSCvp46885	[CUPS]Session count in show sx peers is incorrect	cups-cp
CSCvo13827	[BP-CUPS]: Sessmgr restart when executing "show active-charging sessions full all";	cups-cp
CSCvo31258	[BP-CUPS] sessmgr restart at sx_make_message_v2()	cups-up
CSCvo33454	[BP-CUPS] [acsmgr 91702 error] URR node not found at CP for URR-id: 0x80000047 received	cups-cp
CSCvo45414	[BP-CUPS] sx-invalid-response seen when dynamic rule installed after predefined rule and sesMgr kill	cups-cp
CSCvo48650	[BP-CUPS]- ip source violated dropped pkts not charged in SX-DELETION_RESPONSE	cups-cp
CSCvo50320	"[BP-CUPS] Gy Charging is not done post PDN update, for traffic matching to static rule."	cups-up
CSCvo50355	[BP-CUPS-VPP] show subs output updated at random intervals for Pure-S call	cups-up
CSCvo56112	[BP-CUPS]:FINAL with 0 Usage reported twice for RC-4012 case.	cups-cp
CSCvo56147	[BP-CUPS]sessmgr crash-seg fault-acsmgr_cups_piggyback_updateUrr()	cups-cp
CSCvo57225	[AT&T CUPS BB2.0]ipool-ip-validation-failed after planned srp switchover	cups-cp
CSCvo57252	[AT&T CUPS BB2.0]current session and max session count getting incremented when UP peer id =0 on CP	cups-cp
CSCvo58042	[CP-CUPS] even after subscribers are cleared "show sx peers"; output has sessions.	cups-cp
CSCvo63683	CUPS-CP: sessmgr crash happen at Function: egtpc_validate_modify_bearer_rsp_evt()	cups-cp
CSCvo67582	[BP-CUPS] Remove & Install rule received in CCR-U/RAR fails at PGW	cups-cp
CSCvo71968	[BP-CUPS]:GSU not updated to Uplane after CCFH.	cups-cp
CSCvo84584	[BP-CUPS]: sx_tun_fsm_handle_sess_report_req_msg	cups-cp
CSCvo85653	[BP-CUPS]: sx_tun_fsm_handle_sess_report_rsp_evt	cups-cp
CSCvo85899	[BP-CUPS] Sessmgr restarts observed on CP with X2 and S1 HO scenario	cups-cp
CSCvo87689	[BP-CUPS] Quota info not sent on SX when received in Gy CCA-I	cups-cp
CSCvp03095	[BP-CUPS] sessmgr restart at Assertion messenger/xpt_tcp.c:4241 Function: xtcp_conn_read()	staros
CSCvp05787	sessmgr restart seen with function egtpc_handle_del_bearer_cmd_req_evt()	mme
CSCvp05797	sessmgr restart with function sm_gen_s4_service_req_for_data_complete()	sgsn

Resolved Bugs in this Release

Bug ID	Headline	Product Found*
CSCvp06042	Sessmgr restarts observed after 8hrs of callmodel @PC: [09a469de/X] acs_http_pkt_inspection()	pdn-gw
CSCvp22604	CUSP : Sessmgr goes into warn/over state due to memory consumption during callmodel runs	pdn-gw
CSCvp28436	[BP-ICUPS]:not able to increase more than 1.7 M sessions with 4DPC2(3 Active and 1 Demux on DPC)card	sae-gw
CSCvp29342	" [PLT-ICUPS]:[sessmgr 0 error] FAPI-RESP: Command: 15, flags: 2, length: 14, is already free!!!"	pdn-gw
CSCvp33449	vpnmgr crashes followed by bfd crashes on ICSR chassis	pdn-gw
CSCvm39163	[BP-CUPS-VPP]IP flow readdressing is not working correctly when mid flow readdressing is applied.	cups-up
CSCvo27694	[BP-CUPS] : URR's created for monitoring volume for dynamic rules are not shown at CPlane	cups-cp
CSCvo29502	[BP-CUPS]:Gz & Gy URR is not getting created for a predef rule installed on default bearer with VoGx	cups-up
CSCvo35511	[BP-CUPS] mon pro PFD compression flag needs to be enabled for respective IEs	cups-cp
CSCvo45567	[BP-CUPS] START TIME is zero in Sx Deletion response for Gz bearer level URR.	cups-up
CSCvo47244	[BP-CUPS] Discrepancy in dropped packet count statistics after Gy quota exhausted	cups-up
CSCvo68451	[CUPS]Multiple sessmgr restart observed on UP while performing CRP test case	cups-up
CSCvp49907	[ICUPS]Fatal Signal 11: Segmentation fault acs_http_update_accel_info_pkt	sae-gw
* 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*
CSCvp35767	SRP connection fluctuations and continuous restart of Orbs task	pdn-gw
CSCvp31540	[BP-ICUPS]: sessmgr assert on 21.13.1 smgr_fp_handle_bearer_stream_external_event()	pdn-gw

Operator Notes

Bug ID	Headline	Product Found*
CSCvp32124	[BP-ICUPS] Seg. faults at acs_process_transactn() after 24hrs of call model run.	sae-gw
* Information in the “Product Found” column identifies the product in which the bug was initially identified.		

Operator Notes

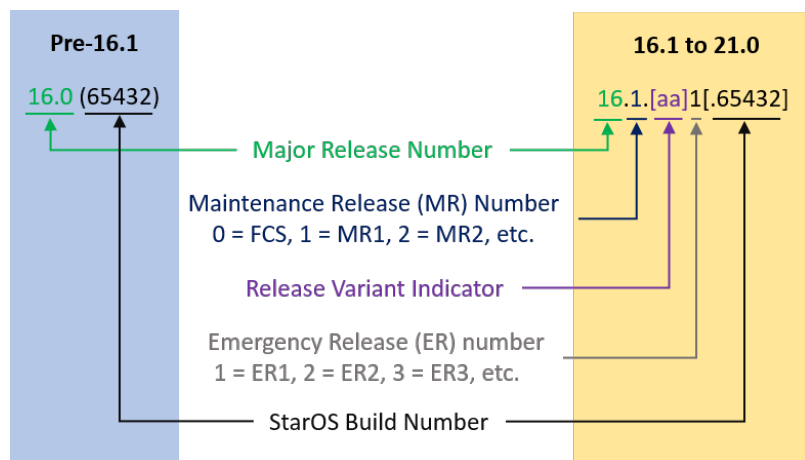
StarOS Version Numbering System

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.

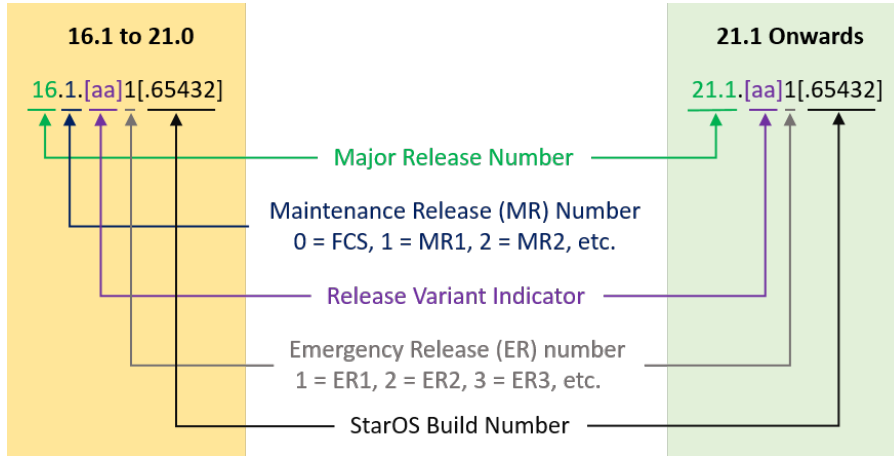
Prior to release 16.1, the *Image Version* field displayed a branch of software including the build number, for example “16.0 (55435)”. Subsequent releases of software for the major release differed only in build number. Lab Quality/EFT releases versus deployment releases also differed only in build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

[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		

In 21.12.0 and later Releases	In pre-21.12.0 Releases	Description
qvpc-di- <release>.bin.zip	qvpc-di- <release>.bin	<p>Contains the VPC-DI binary software image that is used to replace a previously deployed image on the flash disk in existing installations.</p> <p>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.</p>
qvpc-di_T- <release>.bin.zip	qvpc-di_T- <release>.bin	<p>Contains the trusted VPC-DI binary software image that is used to replace a previously deployed image on the flash disk in existing installations.</p> <p>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.</p>
qvpc-di- <release>.iso.zip	qvpc-di- <release>.iso	<p>Contains the VPC-DI ISO used for new deployments, a new virtual machine is manually created and configured to boot from a CD image.</p> <p>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.</p>
qvpc-di_T- <release>.iso.zip	qvpc-di_T- <release>.iso	<p>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.</p> <p>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.</p>
qvpc-di-template- vmware- <release>.zip	qvpc-di-template- vmware- <release>.tgz	<p>Contains the VPC-DI binary software image that is used to on-board the software directly into VMware.</p> <p>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.</p>
qvpc-di-template- vmware_T- <release>.zip	qvpc-di-template- vmware_T- <release>.tgz	<p>Contains the trusted VPC-DI binary software image that is used to on-board the software directly into VMware.</p> <p>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.</p>

Operator Notes

In 21.12.0 and later Releases	In pre-21.12.0 Releases	Description
qvmc-di-template-libvirt-kvm-<release>.zip	qvmc-di-template-libvirt-kvm-<release>.tgz	<p>Contains the same VPC-DI ISO identified above and additional installation files for using it on KVM.</p> <p>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.</p>
qvmc-di-template-libvirt-kvm_T-<release>.zip	qvmc-di-template-libvirt-kvm_T-<release>.tgz	<p>Contains the same trusted VPC-DI ISO identified above and additional installation files for using it on KVM.</p> <p>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.</p>
qvmc-di-<release>.qcow2.zip	qvmc-di-<release>.qcow2.tgz	<p>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.</p> <p>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.</p>
qvmc-di_T-<release>.qcow2.zip	qvmc-di_T-<release>.qcow2.tgz	<p>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.</p> <p>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.</p>
VPC-SI		
qvmc-si-<release>.bin.zip	qvmc-si-<release>.bin	<p>Contains the VPC-SI binary software image that is used to replace a previously deployed image on the flash disk in existing installations.</p> <p>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.</p>

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

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	<p>Contains the same trusted VPC-SI ISO identified above and additional installation files for using it on KVM.</p> <p>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.</p>
qvpc-si-<release>.qcow2.zip	qvpc-si-<release>.qcow2.gz	<p>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.</p> <p>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.</p>
qvpc-si_T-<release>.qcow2.zip	qvpc-si_T-<release>.qcow2.gz	<p>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.</p> <p>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.</p>
VPC Companion Package		
companion-vpc-<release>.zip	companion-vpc-<release>.tgz	<p>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.</p> <p>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.</p>

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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