Release Notes for StarOS™ Software Version 21.20.k8

First Published: February 22, 2021
Last Updated: February 22, 2021

Introduction

This Release Note identifies changes and issues related to this software release. This emergency release is based on release 21.20.k7. 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	21.20.k8, build 79309

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

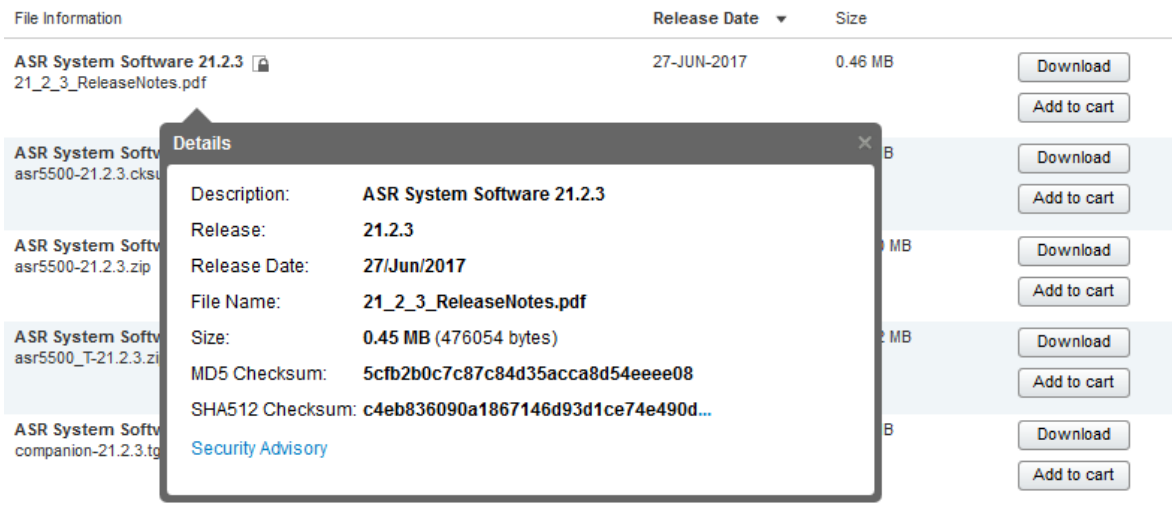
There are no firmware upgrades required for this release.

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*
CSCvu86949	[BP-CUPS]: sessmgr restart at acsmgr_allocate_far_id()	cups-cp
CSCvv03378	"[BP-CUPS]: 12241: sessmgr_ggsn_fill_sub_sess_recovery_info: sgsn gtpu addr NULL callid 99c0d4,"	cups-cp
CSCvu96189	"[BP-CUPS] After CP ICSR, USU is not encoded if there was no GSU for the MSCC"	cups-cp
CSCvu45618	[BP-CUPS] huge number of session disconnects with reason sxfail-opr-get-usagereport	cups-cp
CSCvu81900	[PLT-CUPS]: huge CRR recovery failures on back-to-back SRP-Switchover leading to call-drop	cups-cp
CSCvv46494	Session manager crashes at CP triggering spike in Sx Modification denied	cups-cp

Bug ID	Headline	Product Found*
CSCvw22854	[CUPS] DSCP marking with PFCP has unknown value.	cups-cp
CSCvs87275	[CUPS] CCA-Final does not count in show active-charging credit-control stats.	cups-cp
CSCvw27942	[Smoke2-Legacy] show acs session charging update RG state “Final Unit”	cups-cp
CSCvw53667	[KT][CUPS] CP not properly handling UP URR message re-transmissions	cups-cp
CSCvw17435	[BP-CUPS] Tot Currently act intercept call count not proper in “show li stats”	cups-cp
CSCvw28706	sx-reassociation changed to enable after adding another peer node in user-plane-group	cups-cp
CSCvw27077	TaskRestart snmp trap was not generated for facility cli instance 7	cups-cp
CSCvw27608	[BP-CUPS] Call loss is seen with failure reason user-plane-info-not-available during call model run	cups-cp
CSCvw12778	Cannot capture pcap if mon sub invoked on cp followed by up	cups-up
CSCvq77798	[CUPS] Statistics data for userdata are incorrect.	cups-up
CSCvu69385	[BP-CUPS] - APN ACL has missing entry on Standby UP after PFD Push from CP	cups-up
CSCvu97116	[BP-CUPS]sessmgr crash-sessmgr_match_static_predef_group() on data pkt.	cups-up
CSCvv69998	[BP-CUPS]: Fatal Signal 11 at smgr_uplane_rule_compare_pp_cca_line leading to 100% call-drop	cups-up
CSCvw29995	sessmgr restart on uplane_policing_charging	cups-up
CSCvv90937	CUPS-UP: sessmgr restart at sess_udp_mtree_lookup	cups-up
CSCvu80679	MME doesn't handle the Exp Result Code 5511 when received from IWK-SCEF in CIA message	mme
CSCvu82139	[CP-MME]- Post unplanned card failure diamproxy/diactrl instances went to over state	mme
CSCvw62681	MME does not respond to n/w initiated dedicated Bearer creation request after ERAB Modification Ind.	mme
CSCvu65266	Assertion failure while configuring “Diameter destination realm under mme-service” with context MME	mme
CSCvu81466	[MONTE Roaming] On VPC-DI while doing mmemgr restart seen 18K subs drop from total 1.4M	mme
CSCvu37233	On VPC-DI Multiple Sessmgr restarts seen while doing SF card migration from active to standby	mme
CSCvu81405	Revert back CSCvr34106	mme
CSCvu94647	[N26] - MME not responding for Fwd-Reloc-Req and Reloc-Cancel-Req from LPS AMF	mme
CSCvv44576	AVP missing or wrong for MONTE provisioning and deletion in IDA MME->HSS	mme
CSCvw43387	sessmgr task restart at mme_pdn_fsm_connect_pending_disconnect	mme
CSCvv55758	[CP-MME]- Multiple Sessmgr task went in to warn state on Longevity more than 72hr	mme
CSCvv24823	sessmgr restarted at the function egtpc_send_req_msg()	mme
CSCvv64823	[MONTE] ue-reachable RIR missing with PSM	mme
CSCvw28806	[MONTE]: Availability after DDN Failure without Max Number of Reports returns only 1 Report	mme

Bug ID	Headline	Product Found*
CSCvw30560	Collocated SPGW selection is not working properly in latest branch	mme
CSCvv44619	MONTE: T6a RIR and S6a IDA: Incorrect format of eNodeBId and incomplete AVP MME-Location-Info	mme
CSCvv56180	[MONTE] RIR - Too short Maximum-UE-Availability-Time	mme
CSCvv72498	MONTE: Maximum-UE-Availability-Time incorrect in mon proto	mme
CSCvw30578	"[PLT-ICUPS] Partial failures observed for Fragmented ICMPv6 (EOP,MOP,SOP) request."	pdn-gw
CSCvv00023	SCTP Bundle Status disabled is not supported at diamproxy	pdn-gw
CSCvw13955	[BP-ICUPS] Fastpath stream stuck at preAct for UDP packets	pdn-gw
CSCvw67714	sessmgr restart when trying to fill in EDR with ULI encoded in hex format	pdn-gw
CSCvv46037	[Legacy-GW] :Sessmgr restarted at sessmgr_ipv4_process_user_pkt_pgw_ggsn.isra.288()	pdn-gw
CSCvv96489	PLT-ICUPS : support of VPP reassembly counters	pdn-gw
CSCvu27368	Unable to remove EDR ULI Hex Encoding from rulebase with no option	pdn-gw
CSCvw04413	StarOS didn't send non-interactive CLI in TACACS accouting messages	pdn-gw
CSCvv45493	[BP-ICUPS]: Interception of UL/Dl packets is not happening for Rule Based “Gx-LI” Dynamic Rule	sae-gw
CSCvg20133	Segmentation fault at PC: [0d8e2647/X] EZprmSER_CheckError()	staros
CSCvv17407	vpnmgr restart sn_msg_call_internal_vector	staros
CSCvw29638	[PLATFORM-CONFIG] Wrong default for bulkstats config `remotefile` for CDB	staros
CSCvj96895	msgAuthoritativeEngineBoots not updated in snmpv3	staros
CSCvw66442	[UPF] SRP switchover leads to audit-npumgr-failure and audit-vpnmgr-failure CRR failures	upf
CSCvw56143	UPF cpu utilization at 100% with 230K calls and close to 8Gbps throughput	upf
CSCvw48604	[UPF-SVI] Active UPF is losing IP Chunks allocated by SMF after ICSR Switchover but recovering later	upf
CSCvw65922	[UPF-SVI] Negative case - Removing “ip vrf <vrf-name>“ cli --> huge no of continuous VPNMGR restarts	upf
CSCvw72152	Task Resources - Session Manager and bulkstats in Warn Status on UPF.	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*
CSCvw70626	UE is not on CP but on UP causing DLDR session report rejection from CP	cups-cp
CSCvw79710	ECS framework Syslog message is seen VPCSW GWs	cups-cp
CSCvw85796	BEARER in pending state : (EGTPC_BEARER_STATE_REL_ACCESS_BEARERS_PENDING)	cups-cp
CSCvv87427	4G CUPS Bad behavior for ACL in SGi context	cups-up
* Information in the "Product Found" column identifies the product in which the bug was initially identified.		

Operator Notes

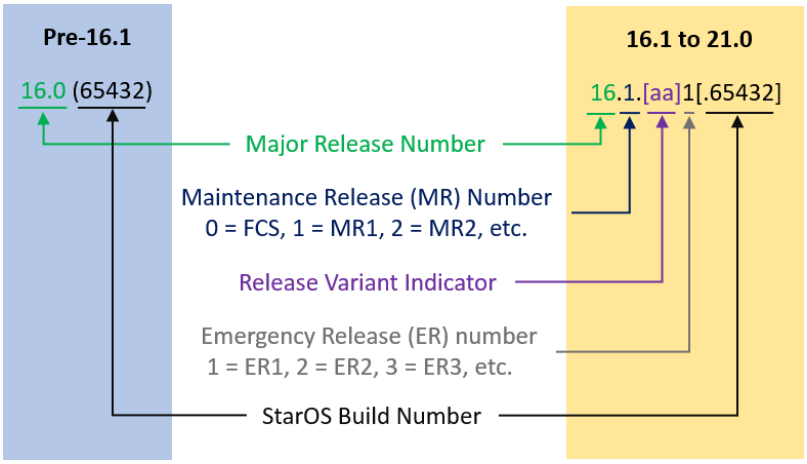
StarOS Version Numbering System

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.

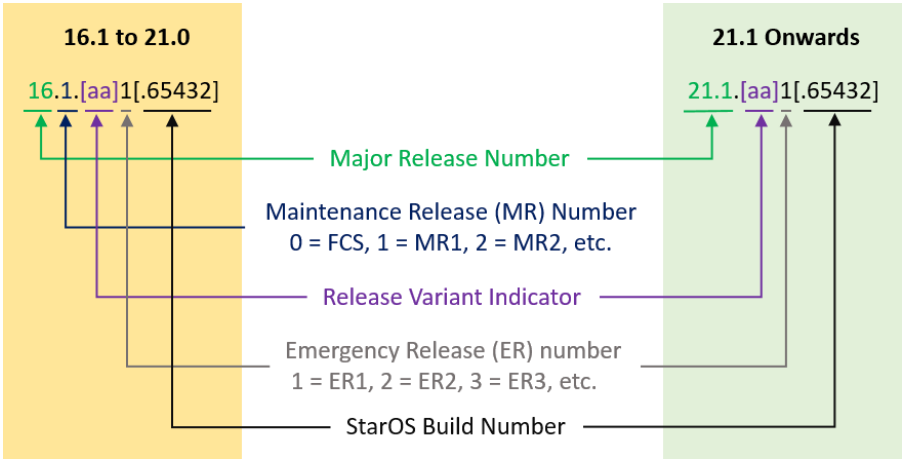
Prior to release 16.1, the *Image Version* field displayed a branch of software including the build number, for example "16.0 (55435)". Subsequent releases of software for the major release differed only in build number. Lab Quality/EFT releases versus deployment releases also differed only in build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