Oracle® Communications Subscriber Data Management

Release Notes

Release 9.2

910-6890-001 Revision Q

December 2015

ORACLE®

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Introduction

These release notes list the resolved and known PRs for SDM Release 9.2.

The Subscriber Data Management 9.2 Release Notes include:

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Release Notes are distributed to customers with a new software release at the time of General Availability (GA) or Limited Availability (LA). They are updated for each Maintenance Release.

The Release Notes are available only on the Oracle Help Center Site. For each new publication to the Oracle Help Center Site, the revision level of the part number is incremented. The Release Notes can be located under the Recent Release Notes tab by its title or part number; or by its product and release; see also Locate Product Documentation on the Oracle Help Center Site.

PR Severity Definitions

The PR sections in this document refer to PR severity levels. Definitions of these levels can be found in the following publication:

- *TL 9000 Quality Management System Measurement Handbook.*

Patch Installation

All SDM patches are cumulative. Each patch is built on the previous one. In order to install patch N, patch N-1 must be installed first which also requires patch N-2 and so on. All SDM patches are applicable to all customers using the associated release unless explicitly indicated in the specific installation procedure provided with each patch.

Locate Product Documentation on the Oracle Help Center Site

Oracle Communications customer documentation is available on the web at the Oracle Help Center (OHC) site, http://docs.oracle.com.You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at http://www.adobe.com.

1. Access the Oracle Help Center site at http://docs.oracle.com.
2. Click Industries.

3. Under the Oracle Communications subheading, click the Oracle Communications documentation link.
   The Communications Documentation page appears. Most products covered by these documentation sets will appear under the headings “Network Session Delivery and Control Infrastructure” or “Platforms.”
4. Click on your Product and then the Release Number.
   A list of the entire documentation set for the selected product and release appears.
5. To download a file to your location, right-click the PDF link, select Save target as (or similar command based on your browser), and save to a local folder.

Resolved PRs in SDM Release 9.2

SDM Release 9.2 is a new manufacturing baseline release.

Note: Resolved PRs are sorted in ascending order by severity and then by PR/bug number.
For a description of the new features please see the Feature Notice, document 910-6838-001, in the main 9.2 documentation set.

Resolved PRs in the form of patches in Maintenance Release 9.2.6 build 4.19.0

Patch	Bug	Severity	Title	Customer Impact
1	20062712	2	PdnContextId should be INT(10) instead of TINYINT(3)	There was a provisioning limitation in the PdnContextId. It was only possible to provision up to a maximum value of 255.
2	20190434	2	DAS generated coredump, HLR delete	When a pdpcontext is deleted from a subscriber profile sometimes the DAS goes out of service. This usually only happens when there are large numbers of pdpcontexts defined in subscriber profiles. The impact is that provisioning slows down or stops for several minutes.
3	20411716	3	Lte-HSS subscription removal issue	When the last PDN context was removed from the subscriber profile, no cancel location message was sent to the MME or the SGSN. The subscriber was still able to use data services. This resulted in a revenue leak for the network operator. There are a number of limitations associated with this patch. For more information please see Note regarding Patch 3.
4	20539456	4	the license log (active subs number) doesn't work since 9.x	When the Licenses Enforced is set to No, the number of active subscribers is not displayed in the WebCI License Log table (OAMP/License Manager).
5	21486658	3	DIAMETER_UNABLE_TO_COMPLY 5012: APN name matching is case sensitive.	When an APN was specified in a notification request the LTE-HSS tried to match it with an APN stored in the database. If the APN string was not an exact match, including upper and lower case letters, then the request was rejected.
6	21460176	3	Disabling Sub didn't see CLR sent in LTEHSS	When a subscriber state was changed to disabled, and the subscriber was registered in an MME, no CLR was sent to the MME from the LTE-HSS.

Patch	Bug	Severity	Title	Customer Impact
				If a subscriber was disabled it was possible to register via ULR. Subscriber provisioning in the database was affected.
7	21539553	3	Adding LteHSS PLMN (MCC+MNC=204+08) was rejected	It was not possible to provision PLMN IDs, in the range 0-9, in the LteHssRoamingTemplatesPlmn table. Valid PLMN IDs are in the range 0-999 which is in line with 3GPP standards.
8	21569434	3	GPRS PDP change should not be sent in IDR to MME node	When a new GPRS PDP context was added to a subscriber profile the LTE-HSS sent this information in an IDR to the MME. This happened because the LTE-HSS did not check the GPRS subscription data indicator in the subscriber volatile data. When the MME received the IDR it sent an error message to the LTE-HSS.
9	21569769	3	Invalid ODB data in IDR message to MME node	When provisioning HLR and HSS profiles which included adding an HLR ODB barring of "Block premium and entertainment", the HSS incorrectly sent an IDR, containing the ODB information, to the MME
10	21946348	3	DIAMETER_UNABLE_TO_COMPLY (5012) when receiving NOR	When the LTE-HSS received a notify request to update a subscriber profile it responded with an error. This was because multiple PDN templates contained the same APN name.
	21621494	3	LTE-HSS shall deny all subsequent Diameter Requests when SubscriberState=disable	The LTE-HSS rejected ULRs and accepted AIR, PUR and NORs when the subscriber state was disabled. All of the requests should have been rejected.

Table 1: Resolved PRs in the form of patches in build 4.19.0 SDM Maintenance Release 9.2.6

Known Limitation: In the WebCI, the maximum number of entries that can be displayed for the PDNTemplateID is 1000. This does not affect system behavior. We are tracking this issue with bug 20131852.

Note regarding Patch 3

The following behaviors are inherent to this fix in release 9.2.6:

1. Setting the DefaultPDN to “0”
   This has the same effect as setting the DefaultPDN to “null”. A CLR (cancel location request) is sent OK.
   However, due to the fact that some LTE data will persist for an undetermined period, Oracle strongly recommends the use of “DefaultPDN to *null* ” to remove subsequent ULR false acknowledgments.

2. Changing the DefaultPDN to “null” and deleting the remaining data in a single transaction (i.e. using the WebCI)

A CLR is sent OK but extra DSR(s) are also sent for each provisioned PDN. This is not an issue as the CLR would have been acknowledged and the DSR just rejected.

Resolved PRs in Maintenance Release 9.2.6 build 4.19.0

Bug	PR	Severity	Title	Customer Impact
19898380	None	2	Shellshock vulnerability - bash update	Security update in third party package.
19510751	None	3	SAI Segmentation Memory Leak	With the SAI segmentation feature switched on, a memory leak was generated which resulted in a system core dump.
19913832	None	4	SDM disk configuration script missing setup for DL380 G8 server with 4+4 disks	Need to add information to the setup in the script.

Table 2: Resolved PRs in build 4.19.0 SDM Maintenance Release 9.2.6

Resolved PRs in Maintenance Release 9.2.6 build 4.16.0

Bug	PR	Severity	Title	Customer Impact
19491265	-	3	Coredump in DAS	In the LTE provisioning manager there was an issue that caused the DAS to run out of memory.

Table 3: Resolved PRs in build 4.16.0 SDM Maintenance Release 9.2.6

Resolved PRs in Maintenance Release 9.2.6 build 4.15.0

Bug	PR	Severity	Title	Customer Impact
19117090	239392	1	New MySQL backup version causes many problems when database backup is created	
19297683	-	2	MySQL backup should be removed to prevent many problems	Hard disk usage high and traffic is sightly affected when a MYSQL back is run.
19502367	237817	2	Issue related to TADS handling	Patch 1 in 9.2.5
19500680	-	3	Misleading between Scheduled backup and Manual Backup	In the Database operations section of the MMT guide ‘bluedb’ is now ‘subscription’. Documentation changes will be in next major release with doc bug 19501267.

Table 4: Resolved PRs in build 4.15.0 SDM Maintenance Release 9.2.6

Resolved PRs in Maintenance Release 9.2.6 build 4.14.4

Bug	PR	Severity	Title	Customer Impact
19475382	-	2	NON_GEO SWU 9.1.3_9.2.6: SDM Configuration is not restored on Upgraded Blade	Issue with MYSQL scripts.
19451613	-	3	Deleted backup files with automatic (scheduled) backup operation	Clone of bug 19118828 from 9.3

Table 5: Resolved PRs in build 4.14.4 SDM Maintenance Release 9.2.6

Resolved PRs in Maintenance Release 9.2.6 build 4.14.3

Bug	PR	Severity	Title	Customer Impact
19278458	-	2	Hlr processes crash, when database backup is created	Hlr experienced overload during backup.
19475452	241785	2	DRM tool causes loss of HLR traffic	Issue with DRM tool causing loss of SPR traffic. Clone of 19119670

Table 6: Resolved PRs in build 4.14.3 SDM Maintenance Release 9.2.6

Resolved PRs in Maintenance Release 9.2.6 build 4.14.2

Bug	PR	Severity	Title	Customer Impact
19385416	-	3	LTE HSS wrong bit check in ULR/ULA code	The ULR/ULA code was checking the incorrect flag. This resulted in incorrect registrations and eventually the generation of a ULA error code.

Table 7: Resolved PRs in build 4.14.2 SDM Maintenance Release 9.2.6

Resolved PRs in Maintenance Release 9.2.6 build 4.12.0

Bug	PR	Severity	Title	Customer Impact
19117595	240110	2	M3UA layer master SWO problem and M3UA layer activation problem	In high availability scenarios the Hlr could not handle traffic and had to be manually restarted.
19129636	-	2	HLR 9.2.6_4.9.0 sometimes did not start	There was no customer impact

Table 8: Resolved PRs in build 4.12.0 SDM Maintenance Release 9.2.6

Resolved PRs in Maintenance Release 9.2.6 build 4.11.0

Bug	PR	Severity	Title	Customer Impact
19115132	238207	2	REMEDIATION - MySQL Enterprise	We are now using the official MySQL Enterprise v5.6. There was no customer impact.

Table 9: Resolved PRs in build 4.11.0 SDM Maintenance Release 9.2.6

Resolved PRs in Maintenance Release 9.2.6 build 3.9.0

Bug	PR	Severity	Title	Customer Impact
19116667	239377	2	Humongous Hlr SERVICE SCREENING TEMPLATES trace when Hlr restart	At Hlr service startup there was high disk access which increased system input and output latency.
19117521	240050	2	Dead lock in the M3UA stack on slave M3UA after TUCL go in and out of congestion control	Patch 3 in 9.2.5
19117639	239379	2	Hlr log: some error Log should be filtered	Patch 3 in 9.2.5
19117821	238399	2	HLR: extraneous logs generated by MAPPolicing feature may lead to HLR Service Core	Patch 3 in 9.2.5
19117822	235975	2	HLR can send a malformed cancel location causing SGSN to return AC not supported	Patch 3 in 9.2.5
19118084	240491	3	Provisioning System get delay in responses	The provisioning queue increased due to high latency in provisioning.
19118238	239710	3	HLR Core dump in observer	Patch 4 in 9.2.5

Table 10: Resolved PRs in build 3.9.0 SDM Maintenance Release 9.2.6

Resolved PRs in Maintenance Release 9.2.6 build 3.8.0

Bug	PR	Severity	Title	Customer Impact
19109909	234075	2	Provisioning command to “Delete an MSISDN entry” is executed in Local site “ReferenceProtected”, but not remote Replica	There were database geo inconsistencies at a rate of 1 or 2 per day.

Bug	PR	Severity	Title	Customer Impact
19119289	241504	2	Migration: 6.3.3 to 9.2.6	None
19109287	233613	3	Too many SIP error logs when the Hlr is in overload	At Hlr service startup there was high disk access which increased system input and output latency.
19116776	239464	4	Limit the virtual memory size occupied by LteHSS to about 3G	This was a preventative measure to ensure there was a limitation placed on the virtual memory in the LTE-HSS. There was no customer impact.

Table 11: Resolved PRs in build 3.8.0 SDM Maintenance Release 9.2.6

Resolved PRs in Maintenance Release 9.2.6 build 3.7.0

Bug	PR	Severity	Title	Customer Impact
19116939	239585	2	SIP TLS should be disabled in release 9.2.6	There is no longer support for SSL TLS (transport layer security) protocol for SIP. This must be disabled once the upgrade takes place. There was no customer impact.

Table 12: Resolved PRs in build 3.7.0 SDM Maintenance Release 9.2.6

Resolved PRs in Maintenance Release 9.2.6 build 3.4.0

Bug	PR	Severity	Title	Customer Impact
19116682	236897	2	Lte-HSS process taking CPU 95% for 5 minutes and then restarted, generate a core	Patch 2 in 9.2.5

Table 13: Resolved PRs in build 3.4.0 SDM Maintenance Release 9.2.6

Resolved PRs in the form of patches in Maintenance Release 9.2.5

Patch	PR	CSR	Severity	Title	Customer Impact
1	237817 237407	1031414 -	2-Major 2-Major	TADS 32 bit handling problem LTEHSS sometimes cores after a DB SWO (with traffic)	In certain cases. the LTE-HSS is not able to query T-ADS information. Sometimes, after a database switchover, the LTE-HSS fails to restart.

Patch	PR	CSR	Severity	Title	Customer Impact
2	239019 236897	1035484 1029274/ 1030452	2-Major 2-Major	Issue related to TADS handling Lte-HSS process taking CPU 95% for 5 minutes and then restarted, generate a core	The IDA does not save the value of the IMSSuppVoice in the database. A large number of entries in the SMModuleOption table caused the LTE-HSS process to slow down and restart. During restart the LTE-HSS service on the impacted blade was interrupted.
3	235975	1027268	2-Major	HLR can send a malformed cancel location causing SGSN to return AC not supported	In rare cases the HLR sent malformed Cancel Location messages to the SGSN and the SGSN replied with a non standard error message. That caused the HLR to negotiate down the MAP version for the corresponding SGSN.
	238399	None	2-Major	HLR: extraneous logs generated by MAPPolicing feature may lead to HLR Service Core	In the HLR the MAPPolicing feature generated extra logs that were filtered. This increased the traffic load on the system. For a system that was under capacity this had no impact. For a system close to its capacity this could result in traffic being slowed down.
	239379	None	2-Major	Hlr log: some error Log should filtered	
	240050	1035774	2-Major	Deadlock in the M3UA stack on slave M3UA after TUCL go in and out of congestion control	After the TUCL went in and out of congestion the HLR entered an infinite loop. Over 95% of the CPU was consumed. The TUCL remained in this state for 5 minutes at which point the HLR system restarted. During the congestion period no traffic was processed by the TUCL.
4	239710	1035906	3-Minor	HLR Coredump in observer	There was memory corruption due to invalid GPRS context provisioning. This caused an HLR core dump.

Table 14: Resolved PRs in the form of patches in SDM Release 9.2.5

Resolved PRs in Maintenance Release 9.2.5 build 2.11.0

PR	CSR	Severity	Title	Customer Impact
231592	-	2-Major	No Stdalone ISD sent for Modification of Camel GPRS-CSI if NAM=GPRS_only	If a Camel/GPRS_csi modification is made to a subscriber with NAM of GPRS_only, modifications to GPRS data are acknowledged in provisioning but no ISD is sent to the SGSN.
222414	-	5-Enhancement	HLR Dialogue Re-Initiation upon Failure	Enhancement. See addendum for more information.
230260	-	5-Enhancement	Transaction cleanup improvement	Enhancement to improve cleanup and prevent leaks.

PR	CSR	Severity	Title	Customer Impact
230337	-	5-Enhancement	HLR threading reentry improvement	Provisioning requests from DP and Observer were executed in the same callback thread from the platform. This caused random corruption and core dumps.

Table 15: Resolved PRs in build 2.11.0 in SDM Release 9.2.5

Resolved PRs in Maintenance Release 9.2.5 build 2.9.0

PR	CSR	Severity	Title	Customer Impact
232345	-	2-Major	outgoing messages take time to be sent with a lot of entries in smmoduleoption	When there are a lot of entries in the smmoduleoption and the LTE-HSS has to send messages out there is a short time delay retrieving the remote server entry from the table.
232954	1017678	2-Major	3G/4G Re-sync issue due to non-serialized SQN and VLR/SGSN SAI failure due to SAIs sent in racing conditions	Authentication failed in a 3G-4G-3G roaming senario and often failed when VLR and SGSN sent an SAI at same time.
233468	-	2-Major	HLR core when PSp activasted (only for PspType=IPSP)	Issue showed during sanity checks.
234479	-	2-Major	rel9.2.5: Wrong DP Overloading threshold parameters in WebCi	Fixed by HLR Overload Control enhancement.
235232	-	2-Major	Hlr core dump after CCPU Bucket 4 overload	After continuous overload of Bucket 4, the HLR was restarted and there was a core dump.
236455	-	2-Major	No IDR is sent to the MME during MSISDN change	In a 2 blade-system with 2 LTE-HSS when the MME connected with blade1 2 IDRs are sent instead of one.
236550	-	2-Major	Unexpected exception cause LteHss core dump when handling AIR	The createAuthenticationInformationAnswer throws an exception other than the one defined in the exception-specification. This causes a core dump in the LTE-HSS.
236618	-	2-Major	removing of the Lte-hss vip causing core dump of the diameter stack	There was a core dump in the diameter stack cored when the LTE-HSS vip was removed.
232389	-	3-Minor	SCTP_CANT_STR_ASSOC alarm is not cleared	Alarm not cleared.

PR	CSR	Severity	Title	Customer Impact
233654	-	3-Minor	The obsolete Hlr operations (TransCount) must be removed	The following obsolete operations have been removed : • TransCount() • ResetTransCount() • TransList() • ClearTransList()
234450	-	3-Minor	Feat230560: transRecordLeakHistory displays wrong time	The commandTool "all transRecordLeakHistory" displays either null time when no leaks were reported since the last HLR restart or displays an incorrect time.
235762	1027532	3-Minor	NAM is not properly updated in Volatile Data	When the NAM in the subscriber profile is changed the HLR is not updating the NetworkAccessMode in Volatile Data correctly.
228853	-	5-Enhancement	HLR performance: 30 select	An enhancement optimizing incoming message handling in the HLR.
234710	-	5-Enhancement	Change visible copyright notices from Tekelec to Oracle for rebranding	Oracle rebranding. Change visible copyright notices from Tekelec to Oracle.
234712	-	5-Enhancement	Change logo on GUI screens from Tekelec to Oracle	Oracle rebranding. Change logo on GUI screens from Tekelec to Oracle.
235409	-	5-Enhancement	HLR MySQL Compression	See PR228853.

Table 16: Resolved PRs in build 2.9.0 in SDM Release 9.2.5

Resolved PRs in Maintenance Release 9.2.5 build 2.6.0

PR	CSR	Severity	Title	Customer Impact
177888	-	2-Major	rel5.2: SIP overload conditions caused HlrServer processes crashed on both blades	HlrServer processes crashed one by one on blade 5 and blade 10 a few seconds after SIP INVITE messages were initiated with overloaded rate in 800TPS. Fixed with enhancement PR228854.
229025	1009844	2-Major	SAI indication counter doesn't reflect SAI transaction and doens't match SAI response	SAI counter does not show the number of SAI transactions and does not match the SAI reponse. See addendum for more information.
225636	999822	3-Minor	[7.7, lab] ISD or DSD not sent when changing ActionOnUnsCamelPh from and to "Standard" / "ODB-BAOC"	No known customer field impact. No known customer complaint.

PR	CSR	Severity	Title	Customer Impact
231332	-	3-Minor	4G-sgsn number is deleted from voldata when user moves from 3G to 4G if SendCancelLocation3G4G is Deactivated	The 4G sgsn number is deleted from volatile data when the user moves from 3G to 4G-SGSN if the SendCancelLocation3G4G is Deactivated.
231995	-	3-Minor	some 4G messages may fail to be sent if 2G registration has been released	When a user is registered on 2G and 4G, and after the 2G registration has been released because of a 2G cancel location or a profile modification (NAM set to GPRSOnly for example), some 4G outgoing messages and handling may fail. For instance the IDR is no longer sent because volatile data cannot be retrieved for the user:
232188	-	3-Minor	IDR is sent with bad value of Access-Restriction-Data if DBnotif is received by stby blade	In a 2 blade system with 2 LTE-HSS some database notifications on the standby blade are not being updated correctly from the master blade.
232334	-	3-Minor	DSR is not sent when deleting all regional sub zones when DB notif is received by stby blade	In a 2 blade system with 2 LTE-HSS, when deleting all regional subscription zones in a user profile a DSR should be sent. The DSR is only sent when the database notification is received by the active blade. If a database notification is received by the standby blade a DSR is not sent.
232785	-	3-Minor	Feat222414: DlgReinitiation Overload Alarms thresholds are misleading	There was no customer impact.
232102	-	2-Major	CAMEL: GPRS_CSI shall not require subscriber Camel VLR registration.	Fixed with PR231592.

Table 17: Resolved PRs in build 2.6.0 in SDM Release 9.2.5

Resolved PRs in Maintenance Release 9.2.5 build 2.5.0

PR	CSR	Severity	Title	Customer Impact
232784	-	1-Critical	Feat222414:HLR CoreDump for using 95% of CPU for 5 mins	When the system is carrying out bulk provisioning at 50 TPS and the system is not able to process the Subscriber Data Modification messages (ISD,DSD) because the peer not responding, the HLR service is terminated by the system and alarms 318, 6140 and 6145 are generated.:

PR	CSR	Severity	Title	Customer Impact
232839	-	2-Major	Feat222414:cmd GetHashSize() displays count for Active HLR only	The command “GetHashSize()” only displays a count for the active HLR.
233120	-	2-Major	Feat222414:MAP memory allocation failure while running Provisioning traffic	When provisioning traffic in the HLR alarm 9009 is raised.
230120	-	3-Minor	LTEHss core dumps on service stop	HP diameter stack issue.
232299	-	3-Minor	if remote servers are disconnected when ltehss is in congestion, ltehss is terminated after 5 min	When the LTE-HSS is in a congestion mode and the remote servers, that are exchanging messages with the LTE-HSS are disconnected, the LTE-HSS process runs at more than 95 percent of CPU for 5 minutes. The LTE-HSS is finally terminated and a core occurs.
232842	-	3-Minor	Feat222414:cmd GetWaitingDlgs() displays Dialogs for Active HLR only	None as command removed.
228854	-	5-Enhancement	HLR performance - overload management	Enhancement to the HLR Overload Control. For more information see the Addendum.

Table 18: Resolved PRs in build 2.5.0 in SDM Release 9.2.5

Resolved PRs in Maintenance Release 9.2.5 build 2.3.0

PR	CSR	Severity	Title	Customer Impact
232754	1016930	2-Major	Sctp default values not good for ltehss multi-homing	The switchover from primary to secondary link on the LTE-HSS multihoming system is not working as expected. See addendum for more information.
231012	1008226	5-Enhancement	SRI-SM Routing to SMS Relay	Enhancement to the SDM.

Table 19: Resolved PRs in build 2.3.0 in SDM Release 9.2.5

Resolved PRs in Maintenance Release 9.2.5 build 2.0.0

PR	CSR	Severity	Title	Customer Impact
232038	-	2-Major	HSS does not handle diameter congestion on SCTP	There was congestion on the diameter stack. This resulted in the loss of a number of messages on the SCTP connection only.
228855	-	5-Enhancement	HLR performance - Trillium upgrade	Trillium upgrade.

Table 20: Resolved PRs in build 2.0.0 in SDM Release 9.2.5

Resolved PRs in the form of patches in SDM 9.2

Patch	PR	CSR	Severity	Title	Customer Impact
1	231737	1016528	2-Major	MMEs stored in table smserviceoption causing Lte-HSS failed to restart	On restart, the LTE-HSS may crash when the module option table which contains MME information, is not empty.
2	232394	1018208	1-Critical	setvip doesn't send broadcase arp for the subnet GW 0.0.0.0 case	There was a bug In the SDM VIP failover code. This bug was only visible in specific customer configurations. There was no customer impact unless certain configurations existed at a customer site.
3	233791	1022390	2-Major	NOR message with no NOR-FLAGS AVP causing Lte-HSS core and restart	From time to time the LTE-HSS received a NOR message that had missing NOR flags. This caused the LTE-HSS to restart. When a restart was in progress incoming messages to the LTE-HSS were lost.
4	236138	1028374	2-Major	HLR failed to handle any OCPLMN template whose ID is greater than 255	When subscribers used OCPLMN template IDs with values greater than 255 they were blocked from location updates.
5	236031	1026060	1-Critical	Wrong VLR number in volatile data	The HLR volatile date was not being updated correctly although it appeared that update locations were processed correctly. This resulted in calls being rejected by the VLR.
	236176	1028698	2-Major	BAIC not applied for SMS when gprsSupportedIndicator set in SRISM	BAIC (barring of incoming calls) is not being applied for SMs when the gprsSupportedIndicator is set in the SRI-SM. This did not have any customer impact.
	236141	-	2-Major	HLR:receiving SRI_SM nack=absentsubscriber writes VolData and can	This is a duplicate of PR236031.

Patch	PR	CSR	Severity	Title	Customer Impact
				cause Racing condition issues	
6	236520	-	1-Critical	HLR responds affected = 1 but subscriber prof. is not updated	This issue caused both back ends of the SDM to crash and the whole system is down. The replication software misbehaved under high network latency conditions.

Table 21: Resolved PRs in the form of patches in SDM Release 9.2

Resolved PRs in SDM 9.2

PR	CSR	Severity	Component	Title
228385	1008114	1-Critical	HLR	Prov of the Call Baring BSG in the HLR causing leak and missing Standalone ISD.
228422	-	1-Critical	HLR	HLR sent camel information in Restore Data response that should not be sent
228421	-	1-Critical	HLR	PRN in 6.3 sending/forwarding camel parameters causing rejection from VLR
229822	1011872	1-Critical	HSS	Lte-HSS subscriber authentication problem
230856	1014202	1-Critical	HSS	Lte-HSS MAC failure due to wrongly generated authentication vector
231399	-	1-Critical	HLR	PR222414: VlrNotification do not show VLR number for UL and CL
231536	-	1-Critical	HLR	Feat222414: no Retry attempts for PDP context modification
207487	924634	2-Major	HLR	It is unable to change Pdpaddress with a defined value to a blank
221625	989820	2-Major	HLR	Impossible to delete subscribtionID once it had SSR traffic
226379	-	2-Major	AAA	SDM Remediation - Remove FreeRadius Code
228057	1007244	2-Major	HLR	Need to generate an alarm when no more memory available in the SS7 Stack
228182	1010756	2-Major	HLR	M3UA not handling traffic M3UA LCM_CATEGORY_INTERFACE/LIT_EVENT_MSG_FAIL/LCM_CAUSE_UNKNOWN
228920	-	2-Major	HSS	Move the global config tables from bluelte_1 to bluedbg
229543	-	2-Major	Platform	RAID disk-array not use after reinstalling blue and or special upgrade path
229651	1011462	2-Major	HLR	Fail to add a PLMN into an OCPLMN template
230119	-	2-Major	HLR	WebCi cannot display >1000 OCPLMN linked (PLMN / SS) entries
230173	-	2-Major	HSS	VoLTE: a previous ShSessionId can be used when receiving IDA
230185	1012654	2-Major	HLR	HA event leads to HLR core dump in TCAP, that leads to SDM respond improperly
230901	-	2-Major	HSS	VoLTE: new parameters in LTEHSS config tabs are not loaded in remote geo system LTEHSS
230927	-	2-Major	HSS	VoLTE: CPU load alarms and congestion during traffic with Sh-UDR messages
231299	-	2-Major	HLR	Feat222414: RetryLeakMonitorTick timer interferes with MaxRetryNumber
231356	-	2-Major	HLR	Feat222414: Retry inconsistencies if TCAP dialogue_abort=[abort_source=user]]
231438	-	2-Major	HLR	Feat222414: DlgReinitiation is not cleared when Transactions are acknowledged
231521	-	2-Major	HLR	Feat222414: attribute MaxWaitingDlgReinit shall not grant value "0" or higher than 10000

PR	CSR	Severity	Component	Title
231535	-	2-Major	HSS	LRT AccessRestriction :: the RestrictAccess value does not updated dynamically from Webci
231561	-	2-Major	HLR	PR222414: VlrMessageNotification do not properly identify Results nor ErrorCodes
231677	-	2-Major	HSS	VoLTE: UDR T-ADS should trigger IDR to MME when the user is dual registered
231682	-	2-Major	HSS	LRT :: Feature deactivation is not dynamic
212107	1004230	3-Minor	HLR	Transaction Leak after unstructuredSS_Notify
222612	991860	3-Minor	AAA	Accounting start/stop does not work if AAAusername not in Db
226475	1003544	3-Minor	HLR	[7.7] Pressing “Compute Template Change” outputs nodes that are not affected
226847	-	3-Minor	HSS	rel9.1.0: bluedbg.gmlcnodelist table has missing column "activesubstimestamp".
226857	1004280	3-Minor	Tools	Cannot add Allowed IMSI to a PLMN in webci (ok for bluecli)
227407	1003622	3-Minor	HLR	Roaming Control
227911	-	3-Minor	HLR	TCAP cleanup tool should cleanup TCAP transactions older than 11 minutes, not 60 seconds
228601	-	3-Minor	HLR	CFU with ODB RegistrationInternatFtn
230847	-	3-Minor	HSS	VoLTE: HomogeneousSupIMSVoiceOverPSSessions and UESRVCCCap are not saved in voldata if received in NOR
230963	-	3-Minor	HSS	VoLTE: HomogeneousIMSVoiceOverPSSessionSupport is not saved in voldata when received in IDA
231156	-	3-Minor	HSS	VoLTE: IMSVoiceOverPSSessions and UESRVCCCap should be deleted from voldata after a roaming
231298	-	3-Minor	HSS	Diameter id and FeatureList are not deleted when user moves from 4G to 3G with connected hlr and hss on different blades
231346	-	3-Minor	HSS	when ltehss logs are enabled, LTEHSS may core when handling NOR message
231400	-	3-Minor	HSS	4G to 3G roaming: entry for CLR is logged in Calea file when SendCancelLocation3G4G is Deactivated
231402	-	3-Minor	HSS	4G to 3G roaming: CLR counter is incremented when SendCancelLocation3G4G is Deactivated
231404	-	3-Minor	HLR	PR222414: VlrNotification do not show VLR number for ISD and DSD retries.
231436	-	3-Minor	HLR	Feat222414: Operation GetWaitingDlgs() is missing some Attributes
231444	-	3-Minor	HSS	Diameter id and FeatureList are not deleted when user roams from 4G to 3G if MME is disconnected
231676	-	3-Minor	HSS	HomogeneousIMSVoiceOverPSSessionSupport is deleted when user is in dual reg and there's an MME update
232084	-	3-Minor	Doc	Changes to HLR overload control description in documentation
222414	-	5-Enhancement	HLR	Dialogue Re-Initiation upon failure
222460	-	5-Enhancement	HSS	Support for HSS Roaming Templates
228025	-	5-Enhancement	HSS	3G 4G Roaming Support for LTE-HSS
226817	-	5-Enhancement	HSS	STN-SR and T-ADS Support for VoLTE on LTE-HSS

Table 22: Resolved PRs in SDM Release 9.2

Customer Known PRs in SDM Release 9.2

SDM Release 9.2.x Known PRs.

Note: Known PRs are sorted in ascending order by severity and then by PR number.

SDM Release 9.2.x Customer Known PRs

PR	CSR	Severity	Component	Title	Customer impact
232394	1018208	1-Critical	Platform	setvip doesn't send broadcase arp for the subnet GW 0.0.0.0 case	Provisioning failed due to the VIP not reachable.
177382	Blueslice Migration	2-Major	AAA	It is possible to crash the AAA by re-sending packets for the same sessionId	AAA crash - refer to 5.2 Backlog
177597	Blueslice Migration	2-Major	HLR	eMLPP: HLR do not respond to Register_SS from VLR	moved to 5.2 backlog - PR clean up
219650	985644	2-Major	HLR	HLR over load alarms MAD HLR 12/09	"We know that we had multiple customer outages in the past because of that. For customer currently discussed outage (50% outage during 1h40 min) we also see that log entry
223556	-	2-Major	Platform	DPC cores on reference site after removing active SC on replica site	
223623	-	2-Major	Platform	perfCollectorEx Core dump on midnight due to file transfer failure	
224047	-	2-Major	Platform	rel9.0.0: tungsten package was empty after installing SDM build.	Duplicate of 223556
224580	-	2-Major	HSS	MipAgentInfo related to PDN context not deleted	
226526	1003598	2-Major	Platform	DAS cores caused by high number of templates	Provisioning is affected.
226843	-	2-Major	HLR	USSD to unknown Subs returns local_err_code=systemFailure	Only the return faillure is not proper, there is no impact.
227358	1005632	2-Major	SIP	SIP register message get responded 404 after adding a new domain	Customer complains that they can make SIP register fail by adding domain.
231087	1014206 1014226	2-Major	Platform	DAS core dump	
231737	1016528	2-Major	Platform	MMEs stored in table smserviceoption causing Lte-HSS failed to restart	Lte-HSS service restarting from time to time causing partial outage.

PR	CSR	Severity	Component	Title	Customer impact
231806	-	2-Major	System	WebCi (FF) does not display LteHss info correctly and as followig the left navigation menu gone	
231985	-	2-Major	HSS	diameter IDs are missing in voldata when user moves from 4G to 3G then back to 4G immediately	
232028	1017322	2-Major	Platform	Crash in ComputingNode causing entire node down (loss of geo)	
232195	-	2-Major	HLR	Feat222414: VolatileData is cleared by StdAlone CL retries	
232345	-	2-Major	HSS	outgoing messages take time to be sent with a lot of entries in smmoduleoption	
232648	1017650	2-Major	Platform	create_SDMdiskconfig.pl need to be modified to support DL380 G8	
232954	1017678	2-Major	HLR	3G/4G Re-sync issue due to non-serialized SQN and VLR/SGSN SAI failure due to SAIs sent in racing conditions	Authentication failed in a 3G-4G-3G roaming senario and often failed when VLR and SGSN sending SAI at same time.
233791	1022390	2-Major	HSS	NOR message with no NOR-FLAGS AVP causing Lte-HSS core and restart	Lte-HSS restarted from time to time and traffic was affected.
233895	-	2-Major	Platform	Delete is blocked when geo is down but not DeleteHLRSubscriber operation	
177420	Blueslice Migration	3-Minor	AAA	EAP-TTLS: potential problem with AAA user identity	Move to Resolved Defer target Release TBD to include in general 5.2 backlog
177442	Blueslice Migration	3-Minor	AAA	unknown W-EAP users are rejected despite an unrestricted address pool	Move to Resolved Defer target Release TBD to include in general 5.2 backlog.
207780	-	3-Minor	System	Java Exception after selecting Georedundancy View on SDM WebCI	No Service impact. Rekloading of Webpage will display correctly.
216088	962762	3-Minor	HLR	Camel Issue when VLR do not notify the Camel phase supported	Presently, when sub with phase 1 provisioned roams to the VLR with camel phase 1 supported, HLR will send ODB to block it from making outgoing calls. However, if the fix is not correctly implemented, it may have negative impacts as well. for example when sub with camel phase 1 supported roams to VLR without camel support, HLR will not block it from making outgoing calls.So the fix implementation needs to work both ways.

PR	CSR	Severity	Component	Title	Customer impact
225997	-	3-Minor	HLR	A racing condition between UL and SRI_SM causes UL fo fail	
226018	-	3-Minor	Platform	[Lab, 6.3.3.1] Many processes crash when restarting fabric switch	
226019	-	3-Minor	Platform	[Lab, 6.3.3.1] Many processes crash when restarting fabric switch	
226844	-	3-Minor	Platform	rel9.1.0: BlueCli has missing Version and Build ID.	
228707	995366	3-Minor	Platform	[Dimension, 7.7.1] ModifyDisplayedMSISDN operation in same transaction as insert MsIsdnImsiProfileAssociation and Msisdn fail	
229761	-	3-Minor	Platform	Remove obsolete component	
230452	-	3-Minor	HSS	VoLTE: IMS APN name is not checked in GPRS-Context data	No impact since in the requirements on VoLTE, SGSN needs not be be supported.
231053	-	3-Minor	HSS	CLR is sent to SGSN_R8 when NOR with bit0 is received and user is MME registered	
232104	-	3-Minor	HLR	Feat222414: GetWaitingDlgs() do not displayed cause/reason	No customer impact
232389	-	3-Minor	HLR	SCTP_CANT_STR_ASSOC alarm is not cleared	
233061	-	3-Minor	HLR	[9.1, lab] Transaction Leak after unstructuredSS_Notify part 2	

Table 23: Customer Known PRs in SDMRelease 9.2.x

Addendum

The following PRs for SDM maintenance release 9.2.5 will require changes to the SDM **9.4** documentation set.

PR	CSR	Severity	Title	Document
228854	None	5-Enhancement	HLR performance - overload management	**Product Description** Changes to the description of the HLR Overload Control. **Alarm Dictionary** Add the following new alarms • 9070 • 9071 • 9072 • 9073 • 9077 **System Configuration Reference Manual** In the HLR Configuration section add information on how to configure the HLR Overload Control
229025	1009844	2-Major	SAI indication counter doesn't reflect SAI transaction and doesn't match SAI response	**Performance Measurements** Add the following HLR Application Counter • 12245
232754	1016930	2-Major	Sctp default values not good for ltehss multi-homing	**Product Description** Add text to the Stream Control Transmission Protocol (SCTP) section in SCTP Multi-homing.
228707	995366	3-Minor	ModifyDisplayedMSISDN operation in same transaction as insert MsIsdnImsiProfileAssociation and Msisdn fail	**Subscriber Provisioning User Guide** Add a note to the section Subscriber provisioning sequence in Examples of XML Templates for Subscriber Provisioning.
234025	965376	3-Minor	Please update section 5.2 of the SIP interface doc	**SIP Interface Description** Remove a section from “SIP Deregistration on Not Reachable and Message Sequence and Traces.”

PR228854: HLR performance – overload management

Manual Name	Section
Product Description	Software Description/Tekelec ngHLR Features/ Tekelec ngHLR enhanced Features • HLR Overload Control **– Change description**
Alarm Dictionary	SDM Alarms/HLR server alarms, **New alarms**: • 9070 OverloadControlAlwaysOverloaded • 9071 OverloadControlDPQueue • 9072 OverloadControlCmdQueue • 9073 OverloadControlCCPUBucket • 9077 OverloadControlMajor
System Configuration Reference Manual	Home Location Register (HLR)/ HLR Configuration **Add a new topic** after Enhanced control of SCCP routing configuration • HLR Overload Control

Product Description

1.0 HLR Overload Control

The function of the HLR Overload Control is to protect the system against resource exhaustion due to a traffic overload condition.

The HLR Overload Control will raise alarms when any resources are exhausted. **Stage 1** will stop incoming traffic until the resources are freed.

If resources are not freed within a certain period of time, the HLR Overload Control will eventually block all traffic. This is **Stage 2**. It does this by putting the local TCAP connection out of service.

Stage 3 is reached when system resources are not released. The Hlr service restarts and a cleanup begins.

The following resources are monitored by the HLR Overload Control:

- Dialog
- CPU
- Data Provider Queue
- Command Queue
- CCPU Bucket
- Virtual Memory

An overload occurs when one of these resources reaches its threshold.

Each overload control monitoring resource is activated in the HlrOverloadControl by setting the following parameters to 1 in the CLI:

- DlgOn
- CpuOn
- DpQueueOn
- CmdQueueOn
- CCPUBucketOn
- RestartSystemIfAlwaysOverloaded – **stage 3**

Note: CpuOn is deactivated by default.

Note: Virtual memory is constantly monitored by the HLR.

1.1 HLR Overload takes place in 3 stages

Stage 1: Resource Overload

When the HLR system is in overload, any request to open a new dialog is rejected by the system. A " MAPREFUSE" message, which does not contain a reason, is sent to the originator. Outgoing messages are still processed by the system.

When the system drops below the overload threshold, the overload condition is reset. The system returns to a fully operational state.

Note: To prevent toggling of the alarm when the system is in a borderline overload state, the alarm is cleared 60 seconds after it was set.

Stage 2: TCAP out of service

If the system is toggling in and out of an overload mode, the ngHLR calculates the number of seconds the service is in overload. If this period of time exceeds the threshold of 30 seconds, over a 60 second period, the "OverloadControlUOS" alarm (ID:9040) is generated. The TCAP layer is out of service for a short period of time. During this period of time all incoming messages are rejected by the SCCP and a message "SubSystem Prohibited" is sent to the originator.

When the TCAP is out of service, for a period of between 100 milliseconds and 10 seconds, the ngHLR monitors the Dialog and the CPU resources. When they are both below their pre-defined thresholds, the "OverloadControlUOS" (ID:9040) alarm is cleared and the TCAP layer immediately returns to operational service.

If, after 10 seconds the Dialog and the CPU resources have not dropped below their pre-defined thresholds, the "OverloadControlUOS" (ID:9040) alarm is cleared and the system proceeds to stage 1 (Resource Overload) monitoring.

Stage 3: Restart system if resources in constant overload

In certain scenarios some of the ngHLR resources may experience leaks.To prevent the system remaining in an overload condition there is a protection mode called "Restart System If Always Overloaded".

A configuration time of 5 minutes (300 seconds) is set by the attribute TimeForSystemRestart. If an overload condition is raised and not cleared within the configured time then the Hlr Service raises alarm "OverloadControlAlwaysOverloaded" (ID: 9070). The Hlr Service is restarted and a cleanup begins.

1.2 Overload Resources Monitored

The following sections describe the six different types of overload control implemented in the Tekelec ngHLR in more detail:

1. **Dialog Overload**

The Dialog overload monitors the number of open transactions in the HLR process. If the number of dialogs exceeds the configured threshold, alarm 9039 "OverloadControlDlg" is generated and the system enters overload mode.

When the number of dialogs drops below the configured threshold the system is no longer in Dialog overload. Alarm 9039 is cleared automatically after 60 seconds.

Note: The configured threshold is the maximum number of HLR transactions (MaxHlr) minus 500. For example, if there are 8 HLR services, then there will be a maximum of 2^16/8 = 8,192 transactions per Hlr service. The Hlr service will go into overload mode when there are over 8192-500 = 7692 transactions used.

The system is no longer in overload mode when the number of open transactions is 550 below the configured threshold (MaxHlr).

The maximum number of dialogs per HLR is set during initial installation of the system to 2^16/HlrNumberOfInstances. Select the Service Management folder in the System application to view the HlrNumberOfInstances.

2. **CPU Overload**

The CPU Overload monitors the CPU usage of the HLR process. If the CPU exceeds the configured threshold (currently set to 240%), alarm 9038 "OverloadControlCpu" is raised and the system goes into overload mode. The alarm remains raised for 60 seconds after the condition has been cleared.

Note: By default the CPU overload control is deactivated.

3. **Data Provider Queue Overload**

The Data Provider Queue Overload monitors the data provider queue size. The Data Provider Queue consists of a normal queue and a priority queue. Each queue contains 4096 elements.

If the data provider queue size exceeds the configured threshold , then alarm 9071 "OverloadControlDPQueue" is generated and the system goes into overload mode.

When the data provider queue size drops below the configured threshold the system is no longer in Data Provider Queue overload. Alarm 9071 is cleared automatically after 60 seconds.

Note: The default maximum queue size is 4096 elements. The system goes into overload mode when the data provider queue is 500 less than the configured threshold i.e. 4096-500=3596.

When the data provider queue size drops 1000 below the configured threshold the system is no longer in Data Provider Queue overload i.e. 4096-1000=3096.

4. Command Queue Overload

The Command Queue Overload monitors the command queue size. The command queue consists of a normal queue and a priority queue. Each queue contains 2048 elements.

If the command queue size exceeds the configured threshold , then alarm 9072 "OverloadControlCmdQueue " is generated and the system goes into overload mode.

When the command queue size drops below the configured threshold the system is no longer in command queue overload. Alarm 9072 is cleared automatically after 60 seconds.

The default maximum command queue size is 2048 elements.

The system goes into overload mode when the command queue is 500 less than the configured threshold i.e. 2048-500=1548.

When the command queue size drops 1000 below the configured threshold the system is no longer in Data Provider Queue overload i.e. 2048-1000=1048.

5. CCPU Bucket Overload

The CCPU Bucket Overload monitors all 15 allocated buckets in the SS7 stack.

If one of the allocated buckets exceeds the configured threshold , then alarm 9073 "OverloadControlCCPUBucket is generated and the system goes into overload mode.

When the combined Bucket size drops below the configured threshold the system is no longer in command queue overload. Alarm 9073 is cleared automatically after 60 seconds.

CCPU bucket size varies by bucket ID. Please refer to the SDM Alarm Dictionary to view specific CCPU bucket size values.

The system goes into overload mode when the bucket size is 90% of the configured threshold. When the bucket size drops to 85% of the configured threshold the system is no longer in CCPU bucket overload.

Example:

Bucket 2 has a configured size of 1000. The system will be in overload when the size reaches 90/100 x 1000 = 900. The system will go out of overload when the value is less than 85/100x1000=850.

6. Virtual Memory Overload

The Virtual Memory Overload monitors the total virtual memory usage of the Hlr process.

If the Virtual Memory exceeds the configured threshold , then alarm 9077 " OverloadControlMajor " is generated and the system goes into overload mode.

When the Virtual Memory drops below the configured threshold the system is no longer in virtual memory overload. Alarm 9077 is cleared automatically after 60 seconds.

The default maximum Virtual Memory size is 2^32=4,294,967,296.

The system goes into overload mode when the Virtual Memory is 90% of the configured threshold i.e. 90% of 4,294,967,296 = 3865470566.4.

When the Virtual Memory size drops below 85% of the configured threshold the system is no longer in Virtual Memory Overload. 85% of 4,294,967,296=3650722201.6.

This section identifies affected provisioning components for this feature and the location of additional information.

Provisioning Information – HLR Overload Control

Affected Components	**Description**	**Reference**
Provisioning Interfaces	CLI	
Entities[],attributes	HlrOverloadControl • NormalPeriod • OverloadedPeriod • AlarmSetTimeDelay • TimeForCompleteServiceOutage • DlgOn • DlgMaxDialog • DlgDeltaDialogThreshold • DlgMaxAmountOfOverloadInTimeDelay • CpuOn • CpuThreshold • CpuSmootOutCount • CpuMaxAmountOfOverloadInTimeDelay • DpQueueOn • DpQueueDeltaDialogThresholdIn • DpQueueDeltaDialogThresholdOut • CmdQueueOn • CmdQueueDeltaDialogThresholdIn • CmdQueueDeltaDialogThresholdOut • CCPUBucketOn • CCPUBucketPercentThresholdIn • CCPUBucketPercentThresholdOut • CCPUHeapDeltaDialogThresholdIn • CCPUHeapDeltaDialogThresholdOut • RestartSystemIfAlwaysOverloaded • TimeForSystemRestart	SDM System Configuration Reference Manual • HLR Overload Control **Note:** These attributes can only be modified using the CLI.

Affected Components	Description	Reference
Alarms	• 9038 OverloadControlCpu • 9039 OverloadControlDlg • 9040 OverloadControlUOS • 9070 OverloadControlAlwaysOverloaded • 9071 OverloadControlDPQueue • 9072 OverloadControlCmdQueue • 9073 OverloadControlCCPUBucket • 9077 OverloadControlMajor	SDM Alarm Dictionary
Error Messages	None	SDM Monitoring, Maintaining, Troubleshooting Reference Manual
Counters	None	SDM Performance Measurements
Procedures	HLR Overload Control Troubleshooting • Viewing information for services running on the system	SDM System Configuration Reference Manual SDM Monitoring, Maintaining, Troubleshooting-User Guide

Alarm Dictionary

The following alarms are **already in** the alarm dictionary **Alarm Group:** HLR Server with:

Severity: Major

Action: Contact the Tekelec Customer Care Center to diagnose the problem. The most probable cause is that the maximum capacity has been reached for the system's configuration. The solution in that case would be to add more HLR services.

Clear: This alarm cannot be cleared manually by the Network Operator. The system will automatically clear it once the condition has been rectified.

Alarm	Alarm Name	Description	Effect
9038	OverloadControlCpu	Hlr Overload Control: the Cpu usage is higher than the threshold (value=%1, threshold =%2)	The Hlr will refuse all new transactions (incoming or outgoing) for the next 200ms.
9039	OverloadControlDlg	Hlr Overload Control: all available transaction already open (value=%1, max=%2).	The Hlr will refuse all new transactions (incoming or outgoing) until the transaction queue is below the overload threshold.
9040	OverloadControlUOS	The HLR CPU or queue overload is continuously in and out of overload condition.	The TCAP service will be put out of service (for all HLR instance) for the next 10 sec.

New alarms **Alarm Group:** HLR Server

Alarm	Alarm Name	Severity	Description	Effect	Action	Clear
9070	OverloadControl AlwaysOverloaded	Critical	Hlr Overload Control: the system did not went out of overload in the last 300 sec: {type}. Where type is: • Transaction	The Hlr process will restart automatically	Contact the Tekelec Customer Care Center to diagnose the problem. The most probable cause is a leak.	This alarm cannot be cleared manually by the Network Operator, the automatic system restart will clear it.

Alarm	Alarm Name	Severity	Description	Effect	Action	Clear
			• Dialog • CPU • Data Provider Queue • Command Queue • CCPU Bucket • Virtual Memory			
9071	OverloadControl DPQueue:	Major	Hlr Overload Control: the Data Provider queue is higher than the threshold (value={value}, threshold=3596)	The HLR will refuse all incoming transactions until the overload condition is cleared	None. The system will return to normal when the overload condition has been cleared	This alarm cannot be cleared manually by the Network Operator. The system will automatically clear it 60 seconds after the condition has been rectified
9072	OverloadControl CmdQueue	Major	Hlr Overload Control: the command Queue is higher than the threshold (value={value}, threshold=1548)	The HLR will refuse all incoming transactions until the overload condition is cleared	None. The system will return to normal when the overload condition has been cleared	This alarm cannot be cleared manually by the Network Operator. The system will automatically clear it 60 seconds after the condition has been rectified
9073	OverloadControl CCPUBucket	Major	Hlr Overload Control: the CCPU Bucket {bucket_number} is higher than the threshold (value={value}, threshold={threshold})	The HLR will refuse all incoming transactions until the overload condition is cleared	None. The system will return to normal when the overload condition has been cleared	This alarm cannot be cleared manually by the Network Operator. The system will automatically clear it 60 seconds after the condition has been rectified

Alarm	Alarm Name	Severity	Description	Effect	Action	Clear
			CCPU Buckets have the following values: **Number Value** 0 400000 1 10500 2 1000 3 16000 4 2000 5 1000 6 16000 7 500 8 500 9 200 10 200 11 200 12 150 13 150 14 500			
9077	OverloadControl Major	Major	Hlr Overload Control: Self Virtual Memory too high (current={current}, threshold=3865470565)	The HLR will refuse all incoming transactions until the overload condition is cleared	None. The system will return to normal when the overload condition has been cleared	This alarm cannot be cleared manually by the Network Operator. The system will automatically clear it 60 seconds after the condition has been rectified

System Configuration Reference Manual

Name

HlrOverloadControl

Description

The function of the HLR Overload Control is to protect the system against resource exhaustion due to a traffic overload condition.

CLI Navigation

Hlr[] > HlrConfig > HlrOverloadControl

CLI Inherited Attributes

HlrInstance

CLI Command Syntax

Hlr[] > HlrConfig [HlrInstance = integer] > modify:HlrOverloadControl [DlgOn = 0, 1; CpuOn= 0, 1; DpQueueOn= 0, 1; CmdQueueOn= 0, 1;CCPUBucketOn= 0, 1; RestartSystemIfAlwaysOverloaded= 0, 1]

Operation Permitted

Modify, display

Note: All users can display the HlrOverloadControl values.

A number of attributes can be activated and deactivated. The ability to modify the rest of the values in the table is for troubleshooting purposes only.

Attributes and Values

Table nn: HlrOverloadControl Optional Attributes

Attribute	Value Range	Default	Description
HlrInstance	Up to 10 digits	1	Identifies a specific HLR Instance when multiple HLR blades are used to support the traffic load.
NormalPeriod		1000	Overload monitoring normal period =1 second. This attribute cannot be configured. Read only
OverloadedPeriod		100	System in Overload monitoring period = 100 milliseconds. This attribute cannot be configured. Read only

Attribute	Value Range	Default	Description
AlarmSetTimeDelay		60	The length of time (in seconds) that the system takes before investigating if stage 2 (TCAP out of service) overload is needed. This attribute cannot be configured. Read only
TimeForComplete ServiceOutage		10	The length of time the system will remain in stage 2 (TCAP out of service) overload when resources stay overloaded. This attribute cannot be configured. Read only
DlgOn	0, 1	1	This parameter indicates the activation status of the Dialog overload feature. When this feature is activated or deactivated a system restart is required. **0 (Deactivated)**: The feature has been deactivated. **1 (Activated)**: The feature has been activated
DlgMaxDialog		500	This value sets the threshold when the Hlr Dialog overload will be activated. **Example:** If there are 8192 transactions available by Hlr service, the dialog overload will start when the number of allocated dialogs is greater than 8192-500 = 7692 This attribute cannot be configured. Read only.
DlgDeltaDialogThreshold		50	This value is used in conjunction with the DlgMaxDialog to set the threshold when the Hlr Dialog overload will be deactivated. **Example:** If there are 8192 transaction available in the Hlr, the dialog overload will be deactivated when the number of allocated dialogs is less than 8192-550 = 7642. This attribute cannot be configured. Read only

Attribute	Value Range	Default	Description
DlgMaxAmountOf OverloadInTimeDelay		300	This value is use to identify if the stage 2 (TCAP out of service) overload should be activated. **Example**: At each 60 second (value of AlarmSetTimeDelay), the system will calculate the total amount of time it was in overload. If this value is greater than the DlgMaxAmountOfOverloadInTimeDelay = 300 seconds, then stage 2 of the overload control will be activated. This attribute cannot be configured. Read only
CpuOn	0 , 1	0	This parameter indicates the activation status of the CPU overload feature. When this feature is activated or deactivated a service restart is required. **0 (Deactivated)**: The feature has been deactivated. **1 (Activated)**: The feature has been activated **Note:** By default the CpuOn attribute is deactivated.
CpuThreshold		240	The threshold value of CPU usage that must be reached in order activate CPU overload. This attribute cannot be configured. Read only
CpuSmootOutCount		0	This value is a wait time for the CPU overload control to finish. It is multiples of 100 milliseconds. This count is used to prevent rapid toggling of the CPU overload control. This attribute cannot be configured. Read only
CpuMaxAmountOf OverloadInTimeDelay		300	This value identifies whether or not Stage 2 (TCAP out of service) overload should be activated. This attribute cannot be configured. Read only

Attribute	Value Range	Default	Description
DpQueueOn	0, 1	1	This parameter indicates the activation status of the Data Provider queue overload feature. When this feature is activated or deactivated a service restart is required. **0 (Deactivated)**: The feature has been deactivated. **1 (Activated)**: The feature has been activated
DpQueueDeltaDialog ThresholdIn		500	This value is used to set the threshold when the Hlr DpQueue overload will be activated. **Example:** The default maximum queue size is 4096 elements. The system goes into overload mode when the data provider (normal or priority) queue is greater than 4096-500=3596. This attribute cannot be configured. Read only
DpQueueDeltaDialog ThresholdOut		1000	This value is use to set the threshold when the Hlr DpQueue overload will be deactivated. **Example:** The default maximum queue size is 4096 elements. The system goes out of overload mode when the data provider (normal of priority) queue is less than 4096-1000=3096. This attribute cannot be configured. Read only
CmdQueueOn	0, 1	1	This parameter indicates the activation status of the Command Queue overload feature. When this feature is activated or deactivated a service restart is required. **0 (Deactivated)**: The feature has been deactivated. **1 (Activated)**: The feature has been activated

Attribute	Value Range	Default	Description
CmdQueueDeltaDialog ThresholdIn		500	This value sets the threshold when the Hlr CmdQueue overload will be activated. **Example:** The default maximum queue size is 8192 elements. The system goes into overload mode when the command (normal of priority) queue is over 8192-500=7692. This attribute cannot be configured. Read only
CmdQueueDeltaDialog ThresholdOut		1000	This value sets the threshold when the Hlr CmdQueue overload will be deactivated. **Example:** The default maximum queue size is 8192 elements. The system goes out of overload mode when the command (normal of priority) queue is less than 8192 - 1000=7192. This attribute cannot be configured. Read only
CCPUBucketOn	0, 1	1	This parameter indicates the activation status of the CCPU bucket overload feature. In the SS7 stack 15 buckets are allocated. When this feature is activated or deactivated a service restart is required. **0 (Deactivated)**: The feature has been deactivated. **1 (Activated)**: The feature has been activated
CCPUBucketPercent ThresholdIn	0 - 100 (%)	90	The threshold of the CCPU Bucket in percentage terms. When the threshold is exceeded the overload condition is activated. This attribute cannot be configured. Read only
CCPUBucketPercent ThresholdOut	0 - 100 (%)	85	The threshold of the CCPU Bucket in percentage terms. When the threshold is exceeded the overload condition is deactivated. This attribute cannot be configured. Read only

Attribute	Value Range	Default	Description
CCPUHeapDeltaDialog ThresholdIn		500	This attribute is reserved for future use. This attribute cannot be configured. Read only
CCPUHeapDeltaDialog ThresholdOut		1000	This attribute is reserved for future use. This attribute cannot be configured. Read only
RestartSystemIfAlways Overloaded	0, 1	1	This parameter indicates the activation status of the Stage 3 (Restart System If Always Overloaded) feature. When this feature is activated or deactivated a service restart is required. **0 (Deactivated)**: The feature has been deactivated. **1 (Activated)**: The feature has been activated
TimeForSystemRestart		300	This attribute is the configuration time, in seconds, of the RestartSystemIfAlwaysOverloaded feature. When an overload condition is raised and never cleared within the configured time then the Hlr service will be automatically restarted. This is because the overloaded resource probably has a leak. The Hlr service will never be reset. This attribute cannot be configured. Read only