

Oracle® Communications Convergent Charging Controller Release Notes



Release 12.0.4

July 2021

The Oracle logo, consisting of the word "ORACLE" in white, uppercase, sans-serif font, centered within a solid red square.

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About the Release Notes

This document provides the release notes for the new and enhanced features introduced between Oracle Communications Convergent Charging Controller (CCC) release 12.0.3 and Oracle Communications Convergent Charging Controller (CCC) release 12.0.4.

New Features

Convergent Charging Controller 12.0.4 includes enhancements to the following components:

- Advanced Control Services
 - New Error Exit for Number Normalization Feature Node
 - Support for locationInformationEPS Parameter Access in Control Plan
 - Support for FCIBillingChargingCharacteristics/freeFormatData
 - Enhanced SLEE Event Size for Connect Messages
 - Support for CAPv1 Roaming
- User Interface Enhancements
 - LDAP Authentication for SMS GUI Users
 - Password Management for PI Users
- Operational Enhancements
 - Kafka Support on CCC
 - Monitoring CCC using Prometheus and Grafana
 - Logging using Elasticsearch, Fluentd, and Kibana
- 64 bit Extended Support
- Oracle Database 19c Certification

New Error Exit for Number Normalization Feature Node

In the earlier versions, the Number Normalization feature node was having only one exit (Success). The error cases were reported as ACS Engine failure.

With this release, a new **Error** exit is added for the Number Normalization feature node. Whenever the profile field value is NULL, empty, or long, then **Error** exit is followed.

For more information, see *Feature Nodes Reference Guide*.

Support for locationInformationEPS Parameter Access in Control Plan

CCC now supports sending **locationInformationEPS** element in the InitialDP to ACS. This data is available during the control plan execution. It can be used for various purposes such as writing it to EDRs, or sending it to an external system via DAP.

For more information, see *ACS Protocol Implementation Conformance Statement*.

In testing utilities, the following split tags are added in InitialDP.

```
[ Eutrancgimcc <digits> Eutrancgiimnc <digits> Eutrancgi <integer> ]  
[Taidmcc <digits> Taidmnc <digits> Taid <integer> ]
```

Support for FCIBillingChargingCharacteristics/freeFormatData

CCC supports sending FurnishChargingInformation (FCI) to MSC in TCAP message. When the system is connected to an external OCS using DiameterChargingDriver module on CCC, the value that is set within FCI is provided by OCS in CreditControlAnswer message. Earlier, FCI was sent as it is received in the AVP PS-Free-Format-Data. Now, FCI is added in a proper format (as freeFormData in the FCIBillingChargingCharacteristics) and is sent in a standard response for InitialDP.

Enhanced SLEE Event Size for Connect Messages

CCC now supports extending the size of SLEE event if the message length is beyond the size configured in **minimumSizeOfConnectSleeEvent** parameter. When the event size is more than minimum slee-event size, it extends till the maximum slee-event size configured.

Support for CAPv1 Roaming

In the earlier versions, CCC was supporting CAPv3 for roaming and non-roaming scenarios where we send ApplyCharging to network and receive ApplyChargingReport from network.

With this release, a new SMinap Control Agent (SminapCA) interface is added to support CAPv1 for roaming calls.

For more information, see *SMINAP Control Agent Technical Guide*.

The following operations are added in testing utilities:

- **activityTest**: This operation is available for use with CAMEL Phase 1. It is used to check continued existence of a relationship between SCF and SSF. This operation has no parameters.
- **activityTestResult**: This operation is available for use with CAMEL Phase 1. It is the returned result for activityTest. This operation has no parameters.

LDAP Authentication for SMS GUI Users

In the earlier versions, CCC managed GUI users within CCC itself. Users and passwords were managed in the SMF database. All the password policies were managed and defined through CCC.

With this release, CCC also supports performing user access authentication through an external LDAP system. For example, you can now use the user-id and password created by your organization (in the organization's centralized LDAP server) to log in to the SMS GUI.

For more information, see the following guides:

- *Service Management System User's Guide*
- *Service Management System Technical Guide*

Password Management for PI Users

With this release, you can unlock the locked PI users from the SMS UI. Clearing the **Lock Reason** field in the PI Users window unlocks the locked PI user.

A new tab **Password Expiry** is added to the PI Administrator window where you can configure number of days after which the password should expire for a PI user. You can also disable the password expiration for the PI user in the SMS UI.

Warnings and error messages for crossing the grace period or after password expiry are now applicable to persistent connections as well.

For more information, see *Provisioning Interface User's and Technical Guide*.

Kafka Support on CCC

In the earlier versions, NGW in CCC only supported WebLogic Server JMS to integrate with BRM ECE. With this version, you can integrate NGW with Kafka for the message exchange between NGW and BRM ECE.

For more information, see *Notification Gateway Technical Guide*.

Monitoring CCC using Prometheus and Grafana

With this release, you can now use open-source technologies such as Prometheus and Grafana for monitoring CCC services. It gives you a real-time operational view of CCC and also collect metrics related to the system. Prometheus is used as collection/storage system for metrics, and Grafana is used for visualization.

For more information, see *System Administrator's Guide*.

Logging using Elasticsearch, Fluentd, and Kibana

With this release, you can now use open-source technologies such as Elasticsearch, Fluentd, and Kibana for logging services in CCC. Elasticsearch allows you to store, search, and analyse huge volumes of data quickly and in near real-time. Fluentd is used to collect, transform, and ship log data to the Elasticsearch backend. Kibana is a powerful data visualization frontend, and dashboard for Elasticsearch.

For more information, see *System Administrator's Guide*.

64 bit Extended Support

With this release, the following elements are also now 64-bit compliant:

- USSD Balance Query
- Balance Buckets
- Grants (Reservation Units)
- Used Service Units

Oracle Database 19c Certification

CCC is now certified to run on Oracle Database 19c.

Note: While Installing 19c DB Server, it is recommended to select **Set Up Software Only** under **Configuration Option** screen. This is required so that SMF, SCP, or E2BE DB/schema is created as part of CCC product installation only.

Known Problems

List of Known Problems

- If you see the following error in the updateLoader log of SLC and VWS nodes after installation:
updateLoader() WARNING: Oracle unavailable after 5 seconds with error: ORA-12578:
TNS:wallet open failed
updateLoader() WARNING: Oracle unavailable after 65 seconds with error: ORA-12578:
TNS:wallet open failed

Perform the following task in the SMS, SLC, and VWS nodes:

1. Navigate to /IN folder in the SMS, SLC, and VWS nodes.

2. Change the group details using the command:

```
chown -R <InstallUser:esg> wallet
```

3. Restart the updateLoader in the SLC and VWS nodes.

- If you get the following error in **/IN/service_packages/PI/tmp/PImanager.log** while running voucher query:

```
UNKNOWN COMMAND CCSVR1=QRY
```

1. Log in as smf_oper (application user) in the SMS node and run the following:

```
export LOGFILE=< file name>
export SMFPASSWORD=<Database password for smf user>
```

2. Run the script from **/IN/service_packages/PI/db/install/create/SMF/scripts** path.
`./install_PlcCommands_OC3C.sh.`

- If CCC is installed with 19c database, perform the following steps after the installation:

On SMS, SLC, and VWS nodes, do the following:

1. Log in to the node as oracle database user and connect to the respective database as sysdba.
2. Change password for the system user by running the following command:

```
ALTER USER system IDENTIFIED BY manager;
```

3. Log out as sysdba.
4. Log in to the node as smf_oper user.
5. Connect to the Oracle database as system user:

```
sqlplus system/manager@<SID>
```

Where *S/D* is SMF for SMS, SCP for SLC, and E2BE for VWS.

6. Run the following commands:

```
SQL> @<ORACLE_HOME>/rdbms/admin/catdbsyn.sql
SQL> @<ORACLE_HOME>/sqlplus/admin/pupbld.sql
```

7. Quit the sqlplus session.

On SMS node, do the following:

1. Log in to SMF database as smf user.
2. Run the following commands in sequence:

```
SQL> ALTER TABLE "SMF"."CCS_VOUCHER_REFERENCE" ADD CONSTRAINT
"CCS_VOUCHER_REFERENCE_PK" PRIMARY KEY ("ID") USING INDEX
"SMF"."CCS_VOUCHER_REFERENCE_PK" ENABLE;
```

```
SQL> ALTER TABLE "SMF"."CCS_VOUCHER_REFERENCE" ADD CONSTRAINT
"CCS_VOUCHER_REFERENCE_UQ" UNIQUE ("VOUCHER_NUMBER", "ACS_CUST_ID") USING
INDEX "SMF"."CCS_VOUCHER_REFERENCE_UQ" ENABLE;
```

```
SQL> ALTER TABLE CCS_AVD_PENDING ADD CONSTRAINT CCS_AVD_PENDING_VOUCHER_FK
FOREIGN KEY (VOUCHER_ID) REFERENCES CCS_VOUCHER_REFERENCE (ID);
```

```
SQL> ALTER TABLE CCS_VOUCHER_CHANNEL ADD CONSTRAINT CCS_VC_VR_FK FOREIGN
KEY (VOUCHER_ID) REFERENCES CCS_VOUCHER_REFERENCE (ID) ON DELETE CASCADE;
```


Fixes in This Release

List of Fixes

The following table lists service request issues reported by external sources that have been fixed in this release. The issues are listed component-wise.

Service Request (SR) Number	Bug DB Number	Component	Title
3-26249030291 SR	33033533	ACS	slee_acs proces is crashing when executing PDC FN
3-26201561671 SR	33003275	ACS	OSD interface process memory growing
3-26167427361 SR	32991596	ACS	slee_acs process core dump when initializing control plan
3-26047142881 SR	32944326	CCS	Updated AlternateWalletDetails SDK function doesn't select VWS pair correctly
3-26019324701 SR	32926786	SMS	Edited SMS Reports Populate Part ID with Report ID
3-25869729421 SR	32859632	CCS	ps_list.sh does not show all processes
3-25840162621 SR 3-26349135331	32854099	ACS	m3a_if overload Errors and slee_acs crash in one of the SLCs
3-25806913871 SR	32832705	ACS	acsCompilerDaemon crashed when Control plan contains special characters
3-25779910541 SR	32825484	OPT	ccsExpiryMessageGenerator is not working on a remote DB
3-25751537388 SR	32807475	BE	beVWARS memory leak requiring SLEE restart
3-25731598311 SR 3-25858550501	32806862	CCS	Reserved funds not removed from available funds for reservation
3-25740675041 SR	32805357	DAP	dapIF High CPU if ASP Unreachable
3-25645695121 SR	32754477	VPN	High Number of VPN Groups Causes Poor VPN Screens Performance
3-25506501461 SR	32668659	SLEE	MSRN More than 14 digits are not handled Call Failing for 15 Digits
3-25400132361	32624235	ACS	primary vws core dumped beVWARs and beServer
3-25417422971 SR	32618223	CCS	calls are partially rejected - SLC - Overload detected
3-25302487611 SR	32575836	SMS	SCREEN user cannot change his password
3-25311432881 SR	32561824	CCS	Voucher Batches over 100 Never Complete
3-25254639231 SR	32530771	PI	Retrieving a list of attributes/tag for a station/user does not work
3-25222233911 SR	32509243	NP_SERVICE	Bad performance when using NP Destination Selection (NDST) feature node
3-26077165078 3-25149419791 SR	32479881	ACS	Hardcoded ZTE SRF PA and CTR Components
3-25057051201 SR	32446668	PI	Corrupted answer for VPNNW1_QRY command (SOAP interface)

Service Request (SR) Number	Bug DB Number	Component	Title
3-25002402941 SR	32432486	CCS	RTWN SOAP field "PC_RENEWAL_DATE" not aligned with changes from bug 31635358
3-25028171798 SR	32421831	SLEE	Repeat Bug 32398770 for Linux
3-25006651331 SR	32407696	CCS	ccsCDRLoader errors for PI voucher recharges on 12.0.2
3-25417422971 3-25000343131 SR 3-25507512591	32398770	CCS	SLC error - Overload - application is unable to take any more event
3-24998196591 SR	32392761	DAP	DAP2 feature node problem when template contains editable request parameters
3-25004720676 SR	32376874	MOB_ROAM	duration between the start of the call
3-24892355731 SR	32372859	SLEE	SLEE is getting restarted for both SLCs
3-25191176461 3-24903217681 SR	32362034	ACS	Imported Sub-CPs Don't Trigger Parent CP Recompilation
3-25191176461 3-24903784967 SR	32361214	CCS	CLixDN Screen Hangs When Editing the Same Entry Multiple Times
3-24777321011 SR	32310068	PI	VPNW1_ADD fails when TAG and VALUE params are used
3-24754759281 SR 3-24977999271	32308856	ACS	skipEmptyChild from bug 31141242 skips a little bit too much
3-24742054871 SR	32288705	PI	Wrong byte order in profile tag set by VPN PI commands
3-25191176461 3-24696335461 SR	32248762	CCS	Minutes and Seconds Not Taking Effect When Updating Bucket Expiry Time
3-24404201741 SR	32246987	MOB_ROAM	core dump after the patch 32179602
3-24461171361 SR	32233859	ACS	Param with Either treatment is causing java.lang.NullPointerException in DapRequ
3-24623169000 SR	32208235	ACS	CC Call Reference Number not cleared between calls
3-24493443401 SR	32192690	CCS	SUPPORT/bin/smsCdrArchiver broken on 12.0.2
3-24447485921 3-24557276071 SR 3-24977999271	32192668	ACS	RTWN not triggering a notification when threshold reached NCC 12.0.2
3-24556848311 SR	32169792	PI	"NACK:69-Unhandled type for profile tag" on CCSCD9_QRY of integer profile tag
3-24526228661 SR 3-24998196591	32156913	ACS	DAP notifications sent with empty parameters
3-24525004441 SR	32156740	ACS	storeProfileField: Invalid Field error message for Iterator Node
3-24474050001 SR	32123505	CCS	RAP sending wrong value of eventTypeBCSM to CCS
3-24447485921 3-24492814271 3-24977999271	32117816	ACS	beVWARSExpiry.so plugin does not expire buckets when total balance value exceeds

Service Request (SR) Number	Bug DB Number	Component	Title
3-24389957437 SR	32106933	XMS	slee_acs crashes when executing FMAT feature node
3-24404201741 SR	32091112	MOB_ROAM	CAP V1 capability for Roaming Voice Calls
3-24243380611 SR	31996914	ACS	Port Bug 30678148 to 12.0.3.0.0
3-24243450431 SR	31996022	CCS	ITRT failed to parse profile tag array when sub-tag is empty
3-22785450011 SR	31981870	ACS	Issues found on bug 31136555
3-23788075121 SR	31958639	CCS	Invalid content Error while Importing an Exported rate table on NCC 12.0.2
3-24101518471 SR	31956531	ACS	Re-Release Patch 27120088
3-24095757641 SR	31923554	ACS	Named event node drops call if reservation ID is invalid
3-24050360531 SR	31903989	DCA	DCA mapping configuration unable to remove AVPs
3-23943101621 SR	31855494	CCS	beSync core dumped during SLEE shutdown
3-23860491761 SR	31799158	ACS	Introduce Support for locationInformationEPS
3-23863683511 SR	31791286	DCA	SCTP protocol errors in diameterControlAgent
3-23805522451 SR 3-23943101621	31761187	BE	Primary VWS crashes on start-up and unable to process sync files
3-23667006391 SR	31744765	CCS	PC transition from a short month to a long month doesn't apply to the VTR
3-23669226921 SR	31708207	CCS	vws01-Overflow for current value
3-23628276181 SR	31668067	SLEE	Feature Node UserInput causing slee_acs crash / Llanguage problem
3-22785210731 SR 3-25002402941	31635358	CCS	Periodic charge support for timezones/daylight savings appears non-functional
3-23562106531 SR	31625159	CCS	propagation of bug 28764306 to 12.0.2
3-23407134131 SR	31551343	ACS	ACS chassis parameter overwriteFci doesn't work as Expected
3-23163500621 SR	31529393	CCS	Import public geoset via acsAddGeography not working
3-23352692591 SR	31522508	CCS	NCC Voucher AVD: keep vouchers for more than 26 weeks
3-23258592011 SR	31508698	USSD_GW	USSD message is not displayed when PA and PACUI is sent
3-23295972801 SR	31483785	USSD_GW	ussd wrong byte order in USC2 coding
3-23278639351 SR	31472172	BE	beSync core dumps during VWS fail back to the primary VWS
3-23278273841 SR	31471699	ACS	m3ua_if Core dumped with segmentation fault
3-23287201261 SR	31465806	ACS	Extract from the log: Jun 9 00:29:42 adtslc03 watchdog: watchdog(31472) WARNIN
3-23180550621 SR	31412409	BE	beGroveler ERROR: Unable to check on child process: No child processes
3-22768555881 SR	31367437	VPN	VPN Station Profile Tag IDs Inconsistent

Service Request (SR) Number	Bug DB Number	Component	Title
3-25631339341 3-23041531591 SR	31319825	CCS	Unable to customise TNSNAMES alias for remote DB installation
3-22968533851 SR	31309991	ACS	Check binary core dumps many times while stopping the SLEE on SLCs
3-22859950971 SR	31222419	ACS	DUCR Answertime calculation causing rating failures & incorrect VWS EDR for data
3-22923861001 SR	31212876	ACS	ccsMFileCompiler core dumped while compiling MFile
3-22784816561 SR	31211448	ACS	VWS adding one month to expiry date on unsubscribe from pre-charge
3-22785694059 SR	31203482	CCS	DUCR charges do not round to the next billing period
3-22785221181 SR 3-24676289381	31189745	ACS	acsStatsMaster / acsStatisticsDBInserter frequently restarting
3-22850529831 SR	31175998	CCS	PC Plugin Does Not Append EDR Fields
3-22785694133 SR	31153911	CCS	DUCR doesn't allow short sessions
3-22785694133 3-22785694031 SR 3-22785435087 3-22784816561	31152187	ACS	DUCR node core dumps the VWS with an overflow and node does not recover
3-22785435087 SR 3-24754759281 3-24977999271	31141242	ACS	Iterator Node fails if a sub-field is empty
3-22785450011 SR	31136555	ACS	CONNECT messages limited to minimumSizeOfConnectSLeeEvent - New Enhancement
3-22768555881 SR 3-22706847841	31133602	VPN	VPN Macro Nodes Overwrites Station Profile with Network Profile
3-22686022641 SR	31101136	PI	Error Opening FIFO: No such file or directory when running Multiple PI commands
3-22706847841 SR	31095601	VPNPI	VPN PI commands fail for various reasons
3-22585327581 SR	31051926	OSD	Voucher Reserve SOAP/XML response fails validation against OSD WSDL
3-22481066051 SR	31018681	SMS	ESCHER Messaging running in compatible 32 bit mode after fresh install of NCC 12.0.3
3-22723213621 3-22545350111 SR	31008836	ACS	SEDR FN does not send Custom TAG to VRSV/VRCR FN
3-20271073591 SR 3-20271151181 3-26028952151	30999041	BCD	BCD core dumped with Error Segmentation fault
3-20852805111 SR	30923256	NP_SERVICE	Backport Changes from Bug 30858060 to 5.0.2
3-22125902411 SR	30888683	ACS	AWOL Cleaning Up the Sessions
3-14870291121 SR	30876373	BE	Balance going into negative value after data session

Service Request (SR) Number	Bug DB Number	Component	Title
3-22194146461 SR	30869050	BE	ccsBeAvd startup script is missing on SPARC deployments
3-20852805111 SR	30858060	NP_SERVICE	NP Screens Query Slow
3-21908735441 SR	30813529	ACS	LCP-0188: SRI plugin: TCAP ABORT received (MSISDN: 48xxxxxxxx)
3-22034956371 SR	30813001	ACS	PC RTWN trigger intermittently missing ON_PARAMETERS
3-21171521641 SR	30702737	OUI	Silent VWS Install Fails to Validate NCC_DBUSER Parameter
3-21724569621 SR	30697039	CCS	Pre-charge PC notifications are always midnight aligned
3-24243380611 3-21847924051 SR	30678148	ACS	Notification name via Profile Tag is unreliable
3-21803339791 SR	30659880	XMS	MMX does not apply SMPP data coding map to inbound messages
3-21733763231 SR 3-23389978517	30619418	CCS	Bucket ID Wrapped at MAXINT Causing Bucket Flushes to Fail to Commit
3-21657157077 SR	30587396	SMS	RTWN threshold display issue for time balances
3-21521385741 SR	30565622	OSD	osdInterface no longer encodes negative integers
3-21541299161 SR	30542824	CCS	Balances due to expire in next 12 days (approx) are not available for rating IR
	30500223	BE	NCC12.0.2 can't charge for POSTPAID wallet
3-21422286701 SR	30491540	DCA	DCA unable to decode Address AVP with address family E.164
3-21423186191 SR	30482634	SMS	Charge period precision in GUI vs database for data units
	30472912	BE	beVWARS process is crashing when executing Periodic Charge
3-21254947536 SR	30398293	CCS	Recharging RTWNs No Longer Work
3-21105685351 SR	30347847	SMS	Nothing new can be added to the Subscriber Profile Manager screen
3-21105759921 SR	30347655	SMS	Unable to Edit Max Concurrent Accesses via Subscriber Management Screens
3-18726521491 SR	30318460	CCS	Negative values between -1 and 0 treated as positive by notification node
3-24447485921 3-20937332651 SR 3-24977999271	30289310	CCS	[ASHLESHA_PROGRAM] :- Alternate Wallet Lookup
3-20920361701 SR	30288691	ACS	Screens Connection Interruptions Loads Wrong Customer Information on Reconnect
3-20920773081 SR	30286029	SDK	acsMacroNodeInstaller fails to parse macro node definition files
3-20888259528 SR 3-21975738733	30265755	SMS	Is there a rollup patchset for NCC 12.0.2

Service Request (SR) Number	Bug DB Number	Component	Title
3-20852805111 SR 3-25222233911	30246496	NP_SERVICE	Bad SQL in NDST Node for Non-Existent Number Lookups
3-22923861001 3-20749104721 SR	30191732	CCS	ccsMFileCompiler core dumped with Segmentation fault while compiling MFile
3-20609212801 3-19424116241 SR	29644060	SMS	Wrong Error when changing password in GUI
3-19664428941 SR	29541654	SIP	Bad SIP Diversion header information
3-19672209311 SR	29541576	SIP	SCA - Problem with parsing of display name in PAI
3-20079901961 3-19102410471 3-19734121141 3-20271073591 3-19572583921 SR 3-19633661401	29457413	BCD	BCD Crashes with Bus Error
3-19476126981 SR	29450059	ACS	Text Message Branching node crashes for
3-19437428361 SR	29366814	ACS	slee_acs coredump due to bad memory allocation
3-19396147121 SR	29345244	SLEE	ps_list.sh Does Not Print Processes if there are Over 10 Instances on Solaris
3-18582514021 SR	29319459	CCS	Prepaid balance type can go negative with \$0/min charging
3-18937880771 SR	29041852	CCS	New Error Exit for NumN FN
3-17772058921 SR	28264066	DAP	DAP2 Overwrites Valid Profile Tags with Optional Unreturned Fields
3-14025561821 SR	25467077	DCA	Diameter PermittedInstances does not appear to be honoured

About Convergent Charging Controller Documentation

Where to Start

Convergent Charging Controller product documentation is available on Oracle Help Center:
https://docs.oracle.com/communications/F44631_01/index.htm

The first guides to look at should be those that help with the installation and configuration of the Convergent Charging Controller software.

The next set of guides should be those pertaining to your usage of the Convergent Charging Controller software.

The guides have been generally classified according to their use.

Third-Party Products and Licensing

For all the Oracle Communications Convergent Charging Controller licensing information and all related third-party product acknowledgments, see *Oracle Communications Convergent Charging Controller Licensing Information User Manual*.