Oracle® Communications Network Charging and Control

Release Notes

Release 15.2

January 2026

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Contents

About the Release Notes

This document provides the release notes for the new and enhanced features introduced between Oracle Communications NCC release 15.1 and Oracle Communications NCC release 15.2.

New Features

NCC 15.2 includes the following enhancements:

- Support for Real-Time SIGTRAN Traffic Monitoring and Visualization
- Timeout Branch in DAP2 Feature Node
- Segmentation of Large Notification Messages
- Support for On-Demand Voucher Transaction ID
- Additional Voucher Attributes in Channel Fields
- Support for Oracle Database 26ai

Support for Real-Time SIGTRAN Traffic Monitoring and Visualization

NCC now supports real-time monitoring and visualization of SIGTRAN network traffic and latency.

The system collects key metrics such as CAPs, TPS, and transaction latency using Prometheus-cpp library which can be used to model and display using tools like Prometheus & Grafana.

This enhancement helps in detecting discrepancies as they occur and provides immediate reconciliation into the system inventory, helping operators maintain high visibility and rapid response to network events.

NCC will receive direct metric outputs for measuring latency and traffic coming in via the SIGTRAN module, providing a live view of traffic flow.

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

Timeout Branch in DAP2 Feature Node

NCC now supports a dedicated Timeout branch on the DAP2 Feature node. When a request to an external ASP does not receive a response within the configured interval, the system routes processing to the Timeout branch, clearly distinguishing timeouts from other error conditions. This enhancement helps operators quickly identify and remediate response delays while maintaining accurate control flow within service logic.

Note: All control plans with an upgraded feature node should be recompiled.

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

Segmentation of Large Notification Messages

Some customers have network restrictions that prevent large notifications from being delivered over the SMPP protocol, even though SMPP supports longer messages via TLV fields. To address this, NCC now uses a configuration-driven mechanism to split product-generated notifications that exceed SMS character limits. The system segments oversized messages and routes them to an internal process, which then resubmits the segments to the SMS handling workflow. This ensures complete delivery over protocols like SMPP and reliable communication even when network components impose size limits.

Support for On-Demand Voucher Transaction ID

NCC now supports a unique transaction ID parameter for on-demand voucher creation requests and responses. The feature accepts a transaction ID from client systems and returns the same ID for each transaction, helping customers trace and reconcile voucher operations, simplify debugging, and help prevent duplicate or fraudulent claims by third-party vendors.

For more information, see *CCS Provisioning Interface Commands* guide.

Additional Voucher Attributes in Channel Fields

NCC now supports including additional attribute–value pairs, such as Agent ID and related metadata, in on-demand voucher creation requests through the VOUCHER_CHANNEL_FIELDS parameter. These attributes are recorded in the voucher channel table, making it easier to report on and reconcile voucher origin details per transaction.

For more information, see the following documents:

- *CCS Provisioning Interface Commands*
- *Voucher Manager Technical Guides*

Support for Oracle Database 26ai

NCC now supports Oracle Database 26ai and adopts the multi-tenant architecture. During installation, you can select Oracle Database 19c or 26ai to align with your environment. The release provisions SMF, SCP, and E2BE as pluggable databases within a container database to provide isolation and centralized management.

For more information, see *Installation Guide*.

Known Problems

List of Known Problems

- From Oracle Database 19.23 onward, the default cryptographic algorithm used when creating an Oracle wallet has changed. If you are using a 12c Oracle Database client and have upgraded to the latest NCC, you may encounter compatibility issues with wallets created using the new default algorithm. In that case, you might need to recreate the Oracle wallet.

  To create the wallet:

  1. Back up the existing Oracle wallet directory.
  2. Create the wallet directory.

     ```
     mkdir /path_to/wallet_directory/wallet
     ```

  3. Initialize the wallet.

     ```
     cd /path_to/wallet_directory/wallet

     orapki wallet create -wallet . -auto_login
     ```

  4. Create and store the database credentials (SID, user, and password).

     ```
     mkstore -wrl /path_to/wallet_directory/wallet -createCredential
     <DB_SID> <db_user> <db_password>
     ```

  5. Set directory permissions.

     ```
     sudo chmod -R 755 /path_to/wallet_directory/wallet
     ```

  6. Restart the listener.

```
lsnrctl stop
lsnrctl start
```

- Update smsGui.bat and smsGui.sh for launching the SMS GUI on an NCC node **upgraded** to version 15.2.0.
  - For smsGui.bat file

    Replace **IF "%NCC_SERVICE_DBHOST%"=="localhost" (** with **IF "localhost"=="localhost" (** in smsGui.bat and other *.bat files, along with other details like Port, SID, and Host etc., for launching the GUI in NCC system upgraded with 15.2.0 Patch having database 19c (or) below.

  - For smsGui.sh file

    Replace **if ["NCC_SERVICE_DBHOST" = "localhost"]; then** with **if ["localhost" = "localhost"]; then** in smsGui.sh and other *.sh files, along with other details like Port, SID, and Host etc., for launching the GUI in NCC system upgraded with 15.2.0 Patch having database 19c (or) below.

- Update smsGui.bat file for launching the SMS GUI on an NCC node **installed** with the 15.2.0 package.
  - Replace **IF "%localhost%"=="localhost" (** with **IF "localhost"=="localhost" (** in smsGui.bat and all other *.bat files, along with other details like Port, SID, and Host etc., for launching the GUI in NCC system installed with 15.2.0 package, having 19c database.

- To enable Voucher table partitioning, download the **CCSVCHRPART_maintenance.sh** script from patch 38883486. As the oracle user, place it in the **/IN/service_packages/CCSVCHRPART/bin** directory under the SMS folder.

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.

BUG Number	SR Number	Description
38602231	3-42665327091 4-0001400830	**Issue Found:** WARNING: Processing Exception on VWARS while processing be:Protocol Message: be VWARS RuntimeError: Handler error: ActionSequenceError: There is no such reservation **Solution Description:** The iClientMsgId exceeded the 32-bit limit, resulting in the wrapping of overflown values. Updated the data type in getter & setter

BUG Number	SR Number	Description
38520773	3-42401948081	**Issue Found:** Customer observed a continuously growing event queue in the `replicationIF` process while running batch BPL operations. Queue monitoring (`check -q`) on both SLC nodes showed a high and increasing number of pending events for the `Replication` interface, indicating degraded replicationIF throughput. The behaviour was like a previously reported issue (Bug 36105613). Analysis showed that the fixes delivered earlier were not merged into NCC 15.0.1. In addition, a prior change introduced for another bug resulted in an additional database query being triggered during replicationIF processing. **Solution Description:** The replicationIF performance fixes from Bug 36105613 were ported and merged into the NCC 15.0.1 branch. As part of the fix, code changes introduced earlier for Bug 26720364 were removed since they were not required for internal replicationIF processing. Removing this logic eliminated the additional database query, improving replicationIF event processing speed and preventing queue build up during batch BPL operations.
38515431	3-42363978421 4-0001364001	**Issue Found:** On environment upgraded from NCC 6.0.1 to NCC 15.0.1 version, slee_acs (one out of 10 instances) recurrently crashing with SIGSEGV (Segmentation fault) signal and creating core file. This was happening for calls where a control plan with LCP node is triggered & locationType was CURRENT_MAP_GEOGRAPHIC_INFO **Solution Description:** There was uninitialized currentLocationSize field in the LocQuery struct when locationType is CURRENT_MAP_GEOGRAPHIC_INFO Uninitialized size variable led to a garbage size during memcpy causing the crash. Required variables are now initialized properly.
38512440	3-42380068911	**Issue Found:** UATB node handles the 'Max Call Duration' and 'Grace Period' profile tag in the wrong endian format. **Solution Description:** UATB will now convert the 'Max Call Duration' and 'Grace Period' data to host byte order by using the function 'ntohl'.

BUG Number	SR Number	Description
38503461	3-42302361101	**Issue Found:** - NCC 15.1 DUCR/ATC path writes incorrect EDR tag DURATION_CHARGED. - When minimum duration and/or billing resolution apply (e.g., 60s), the engine correctly bills using the rounded duration, but DURATION_CHARGED is set equal to the raw DURATION. **Solution Description:** - Use the billed/rounded duration returned by rating engine's out-parameter of engine.charge to populate DURATION_CHARGED. - In processATC (DUCR/ATC handler), copy the out-parameter (roundedTime_pass) back into the SignedIntegerPeriod variable (roundedTime) that is used later to build actualRoundedTime and EDR fields.
38464937	3-42182226131	**Issue Found:** The NEVT FN treats the Number of Events profile tag integer as an unsigned integer. As a result, if a customer tries to bill for a negative number of events (presumably to treat it as a recharge) it instead ends up trying to bill for an enormous number of events. **Solution Description:** Added support for negative number of events NEVT FN.
38446317	3-42146790651	**Issue Found:** Customer is not able to create a new On Demand Voucher batch when they set the DEFAULT_BATCH_SIZE as "2" in eserv.config and existing batch is exhausted. **Solution Description:** We have taken CCS_VOUCHER_BATCH.ORIGINAL_COUNT into consideration to decide if the batch is exhausted or not and then decide to create a new batch.
38423912	3-42116276591	**Issue Found:** On demand voucher creation takes around 3.8 seconds to create a single voucher. **Solution Description:** We have changed the query to read from CCS_VOUCHER_BATCH table to get the number of vouchers created in a particular range for a customer id instead of CCS_VOUCHER_REFERENCE.
38372012	3-41987701591	**Issue Found:** SDTN(Set) node writes a debug on standard output. **Solution Description:** We have converted it to debug flag 'acsMacroNodes' now.

BUG Number	SR Number	Description
38360104	3-41799219451	**Issue Found:** The CCSVR1 PI command allowed setting a voucher expiry date before its creation date, which should not be permitted. **Solution Description:** An additional code check was added to compare expiry and creation dates; if the expiry date is before or on the creation date, an error is written, and the expiry date update is ignored.
38354274	3-41901303201	**Issue Found:** Negative 4-byte Integer profile tag is converted to string as "unsigned" by FMAT node. **Solution Description:** Convert it into 32-bit signed integer first then store it into 64-bit signed integer.
38323419	3-41826192781	**Issue Found:** Conversion of Integer profile tag's value to String fails in DAP node. **Solution Description:** We have changed the NEVT code to int32 as datatype for 'callCost' variable to store the cost into profile tag.

BUG Number	SR Number	Description

38320606	3-41774062041	**Issue Found:**
		On a fresh install of 3C, the service keys in the tdp.conf files are mixed up when compared to the SLEE.cfg service keys for the service it is meant to be.
		tdp.conf and tdp.conf.ccs has following SK configurations.
		1 120 3 R all all # Trigger all Submit messages to the SMS_Submit service
		-1 121 3 R all all # Trigger all Deliver/Notify/RouteInfo messages to the SMS_Deliver service
		1 122 3 R all all # Trigger all Submit messages to the CCS_SM_MO service
		-1 123 3 R all all # Trigger all Deliver/Notify/RouteInfo messages to the CCS_SM_MT service
		These correspond to these service keys in SLEE.cfg:
		SERVICEKEY=INTEGER 122 SMS_Submit
		# xmsScp
		SERVICE=SMS_Submit 1 slee_acs SMS_Submit
		# xmsScp
		SERVICEKEY=INTEGER 120 CCS_SM_MO
		# xmsScp
		SERVICE=CCS_SM_MO 1 slee_acs CCS_SM_MO
		# xmsScp
		Here we can see that SK of SMS_Submit and CCS_SM_MO are mixed-up.
		SK changes in SLEE.cfg is made as part of following bug and looks like changes was made my mistake, Bug 26492369 - cps test failed due to wrong configuration in the SLC.
		
		Solution Description:
		Updated the SK configurations of SMS_Submit, SMS_Deliver, CCS_SM_MO and CCS_SM_MT in SLEE.cfg.slc file in OUI module

38312980	3-41799219451	**Issue Found:** While creating an on-demand voucher with a custom PAM, a failure is reported despite the voucher being created. **Solution Description:** We have included custom PAMs SDK_PAM_1, SDK_PAM_2 and SDK_PAM_3 in the if condition that decides the actual writing format.

BUG Number	SR Number	Description
38304759	3-40447231911 4-0001337945	**Issue Found:** Few times per day BeClient start using 100% CPU for 1 or 2 minutes and stops handling traffic during that time frame. After said time, it drops connection to BE, re-establishes & then starts processing traffic again. **Solution Description:** Added new configuration Parameter maxPollTime for BeClient to control forever poll spinning of BeClient in error scenarios. Details are as following: Parameter name: maxPollTime Type: Number Description: Maximum poll time in micro-seconds for BeClient Default: 10000
38301580	3-41658875471	**Issue Found:** In the voucher recharge query, the REDEEMED_DATE was being converted to the local time zone, whereas other timestamps were displayed without any conversion. **Solution Description:** Added a new function to convert a timestamp to the time zone specified in localTZ(eserv.config)
38291538	3-41743286521	**Issue Found:** In Variable Amount Recharge FN node, the incoming values of tags are ignored, and random values are overwriting the original values. **Solution Description:** When the profile value is read, it needs to be converted to from network byte order to host byte order. so ntohl is applied to all the variable: Balance_Expiry_Extension_Period(EXTENSION_PERIOD_TAG) Balance_Expiry_Extension_Policy(EXTENSION_POLICY_TAG) Balance_Expiry_Extension_Type(BALANCE_EXPIRY_TYPE_TAG) Bucket_Creation_Policy(BUCKET_CREATION_TAG) Wallet_Expiry_Extension_Period(Wallet Expiry Extension Period) Wallet_Expiry_Extension_Policy(Wallet Expiry Extension Policy) Wallet_Expiry_Extension_Type In Extension type there are only 2 options days and months. If month is specified month is taken, else days are taken.

BUG Number	SR Number	Description
38287725	3-41627894181	**Issue Found:** CCSVR1 command considers only REDEEMING_ACCT_REF_ID column from CCS_VOUCHER_REFERENCE table to populate the MSISDN field in the response. In NCC, we have only REDEEMING_SUBSCRIBER_ID populated in table since we do not host the subscribers. Because of above reason, customer is getting 'EMPTY' value in 'MSISDN' field of response. **Solution Description:** We have modified the query to fetch REDEEMING_SUBSCRIBER_ID also from the table CCS_VOUCHER_REFERENCE and put it in MSISDN field of response.
38229858	3-41595156231	**Issue Found:** DCA Program terminated with signal SIGSEGV, Segmentation fault. There was a change implemented by customer on the standby PGW at 09:32. Shortly afterward, around 09:36, a core file was generated on all SLCs due to DCA process overload. Root cause of the issue: Diameter Control Agent (DCA) core dumped when processing the Credit Control Request (CCR) . This is observed when DCA process the first CCR-U received from network in which Multiple-Services-Indicator set but missing MSCC AVP in the request. **Solution Description:** DCA crashed because message of type CCR-U in which Multiple-Services-Indicator set but missing MSCC AVP in the request was not handled in code. The code has now been updated to address this issue. If an update request is received without the MSCC AVP, the system will respond with diameter error code 5005 (DIAMETER_MISSING_AVP). This issue is Similar to the issue reported in release 12.0.6 Bug 36152698 - DCA SIGSEVs when CCR-U is Received with MSCC Indicator Set and no MSCC AVP, so backported the changes to 12.0.4 branch.
38201031	3-41421689781	**Issue Found:** DAP2 macro node crashes while trying to convert 64-bit epoch value to timestamp. **Solution Description:** We have updated the code to convert the timestamp to host byte order.
38155545	3-41384997101	**Issue Found:** Profile Date Store (PDS) node crashed while trying to store 64-bit value of date. **Solution Description:** Data stored in time_t variable was in network byte order, and it caused 'strftime' function to crash with SIGSEGV.

BUG Number	SR Number	Description
38149026	3-41371243361	**Issue Found:** Collect Date To Tag (CDTT) node crashed while storing date from another profile tag. **Solution Description:** time_t is 64-bit field on present architecture, and we cannot use reinterpret_cast on it to retrieve the value. We need to copy the data byte by byte and then convert to host byte order.
38137060	3-41348198231	**Issue Found:** 'SEDR' feature node which is used to write custom tags to CDR crashed while execution. **Solution Description:** We have replaced 'strncpy' with 'memcpy' and handled the string lengths and terminate the strings properly.
38095898	3-41215491631	**Issue Found:** PI commands responded slower than the expected. **Solution Description:** We suggested to increase dml_locks by the DBA team.
37943610	3-40743255861	**Issue Found:** CORBA error while accessing vouchers from SMS UI. **Solution Description:** Suggested to use the hostname in sms.jnlp file instead of IP Address.
37880817	3-40511343631	**Issue Found:** Customer is not able to change the voucher status from Frozen to Active or Created. **Solution Description:** Frozen to Active state change of range of vouchers are not supported by the product for security reasons.
37876577	3-39863502531	**Issue Found:** Service handover is not working after upgrade to NCC 15.0.1 because 'PIN' field is populated by called party number which is incorrect. **Solution Description:** It was due to another bug's changes, and it needed to correct the value for a macro 'MAX_ENGINE_CONTEXT_NUMBERS'
37858130	3-39863502531	**Issue Found:** smsMaster is throwing error " OPARSE=936 ORA-00936: missing expression" **Solution Description:** Size of the snprintf api is adjusted accordingly to avoid truncation.

BUG Number	SR Number	Description
37780269	3-39863502531	**Issue Found:** NEVT Node's 'Allow Negative Balance' check box get incorrectly saved in call plan and causes unexpected behaviour. **Solution Description:** We have added the statement to clear the text field associated with 'Node Dialog' when 'profile' option is used for event count.
37714275	3-39863502531	**Issue Found:** "WARNING: Unable to write." in PImanager and dapIf logs. **Solution Description:** File descriptor status is checked. If it is closed, then write function is not called.
37709081	3-39863502531	**Issue Found:** After upgrading NCC from 12.0.6 to 15.0.1, all nevt FNs having negative value in 'Number of Events' field showed error. **Solution Description:** Introduced a new type INTEGER64 for handling 64-bit GUI integer fields.

BUG Number	SR Number	Description
37703274	3-38920764731	**Issue Found:** During charging, while retrieving buckets from a balance type, the bucket ID was stored in a temporary 32-bit integer variable. This caused larger bucket IDs (greater than the 32-bit range) to wrap around, resulting in incorrect negative bucket IDs being stored in the temporary variable. Consequently, the data session was incorrectly charged from negative buckets. However, even after changing the bucketId to a 64-bit variable, a new issue was observed: If a bucket with a negative value had an earlier expiry than a bucket with a positive value, the data session was correctly charged from the positive bucket, but the BUCKET_LEVEL_COST in the CDR was still showing the negative bucket due to expiry order during bucket-level cost logging. **Solution Description:** 1) In Application.cc::updateBalance(), updated the temporary variable buckId to a 64-bit integer to correctly handle large bucket IDs. It is part of fix from Bug 34562651 - Expired Negative Buckets Continue to be Used 2) In ccsVWARSUtils.cc::getBucketLevelCost(), added a condition to skip buckets that have a negative value and belong to the Debit limit type. This ensures that such buckets are not considered during bucket-level cost calculation, thereby preventing incorrect values from appearing in the CDR when a positive bucket is used for charging. As a result, the BUCKET_LEVEL_COST field in the CDR will now accurately reflect the bucket that was charged, avoiding confusion caused by bucket expiry order.
37429061	3-39013042821	**Issue Found:** The ccsChangeDaemon process intermittently crashes when subscribers are being created. **Solution Description:** ccsChangeDaemon was trying to delete session responses from empty responses queue while handling the responses which lead to process crash. Added the logic to handle the response queue pop operations for queue empty scenario. There was not much information in this bug based on static analysis it looked like its similar to the issue "Bug 36375271 - ccsChangeDaemon Crashes when Provisioning Subscribers " so ported the same changes to 12.0.4 and delivered BD to customer and customer confirmed that BD addressed the issue which was reported in this bug.

BUG Number	SR Number	Description
37403956	3-39086756481	**Issue Found:** The Slee stop is causing reservations to hang on VWS and TMNY errors after re-establishing the session. **Solution Description:** We have added a configurable wait between killing of SLEE interfaces and applications. Customer can configure this interval according to their network traffic.

About NCC Documentation

Where to Start

NCC product documentation is available on Oracle Help Center:
https://docs.oracle.com/communications/G35117_01/index.html

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

The next set of guides should be those pertaining to your usage of the NCC software.

The guides have been generally classified according to their use.

Third-Party Products and Licensing

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