**Oracle® Communications
Billing and Revenue Management**

Patch Set 23 Release Notes

Release 7.5

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Preface

This document includes information about Oracle Communications Billing and Revenue Management (BRM) 7.5 patch sets. Detailed information on the patch set features for BRM 7.5 Patch Set 23 is included in this documentation and for other patch sets it is included in the BRM 7.5 documentation.

Audience

This document is intended for all BRM users.

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Document Revision History

The following table lists the revision history for this guide:

Version	Date	Description
E67910-01	December 2015	Initial release. Added information about Patch Set 14 features, which are identified by "(Patch Set 14)."
E67910-02	April 2016	Added information about Patch Set 15 features, which are identified by "(Patch Set 15)."
E67910-03	August 2016	Added information about Patch Set 16 features, which are identified by "(Patch Set 16)."
E67910-04	December 2016	Added information about Patch Set 17 features, which are identified by "(Patch Set 17)."
E67910-05	April 2017	Added information about Patch Set 18 features, which are identified by "(Patch Set 18)."
E67910-06	August 2017	Added information about Patch Set 19 features, which are identified by "(Patch Set 19)."
E67910-07	December 2017	Added information about Patch Set 20 features, which are identified by "(Patch Set 20)."
E67910-08	April 2018	Added information about Patch Set 21 features, which are identified by "(Patch Set 21)."
E67910-09	November 2018	Added information about Patch Set 22 features, which are identified by "(Patch Set 22)."
E67910-10	December 2019	Added information about Patch Set 23 features, which are identified by "(Patch Set 23)."

1

Summary of Customer-Reported Fixes

This chapter provides an overview of the customer-reported bug fixes that were introduced in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

Customer-Reported Fixes

Table 1–1 lists the service request (SR) issues reported by external sources for BRM and provides a brief description of the resolution. The SRs are grouped by the respective patch sets.

Table 1–1   Customer-Reported Fixes

SR Number	Bug Number	Description
-	27152358	(Patch Set 23) In Customer Center, it was not possible to purchase a new deal because the screen would go blank. This has been fixed.
3-17434540731	27993353	(Patch Set 23) The POID_ID required an increase in the number of bits from its current value of 44 bits, because the allocated range of Portal object IDs (POID) was not sufficient. This has been increased to 51 bits.
3-17547976531	28075612	(Patch Set 23) During rerating, the impact type for PIN_IMPACT_TYPE_TAX_RERATED was not being set to PIN_IMPACT_TYPE_TAX, and this was leading to incorrect tax amounts in invoices. This has been fixed.
3-18127339011	28527055	(Patch Set 23) There was a performance issue while retrieving users who had access to the Payment Suspense screen. This occurred because all of the configured users were queried. This has been fixed. It is now possible to query only users associated with a specific role who have the required screen access.
3-17876252841	28543515	(Patch Set 23) Terminating or inactivating the discounts for a service was throwing an error. This has been fixed.
3-17885661511	28543513	(Patch Set 23) When a credit adjustment was applied to a bill with no dues, the **Event Adjustment** column was showing only the tax part of the event adjustment instead of the full adjustment amount. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-17564929691	28552542	(Patch Set 23) Web Services Manager was sending the date-time stamp information in Universal Time Coordinated (UTC) as part of the response without considering the actual timezone. This has been fixed to send the date-time stamp as per the time zone configuration in the *BRM_home*/**deploy/web_ services/Infranet.properties** file.
3-18125409791	28576658	(Patch Set 23) In the subscription module, canceling a purchased product with the cycle start date in the future and the purchase and usage start dates in the past, updated the cycle, purchase, and usage start dates. This has been fixed to update only the cycle start date.
3-17444287241	28638443	(Patch Set 23) In the subscription module, a product cancellation used an incorrect scale for a refund. This has been fixed.
3-18298738421	28640180	(Patch Set 23) The connection to BRM was lost after a timeout exception was thrown for operations wrapped under a transaction. This has been fixed.
3-17255866551	28643229	(Patch Set 23) Customer Center did not support updating the size of fields in the **Product details** panel. This has been fixed by providing customization hooks.
3-17456393961	28649189	(Patch Set 23) Plan transitions were failing due to missing grantor information. This has been fixed.
3-18582577041	28653605	(Patch Set 23) A cycle forward event was one day shorter during the DST switch for Brazil. This has been fixed.
3-18219886801	28664595	(Patch Set 23) There was an issue with amount formatting and rounding for the Singapore dollar currency. This has been fixed.
3-17803665231	28671912	(Patch Set 23) The EVENT_POID_LIST was required to store longer strings than was allowed (4,000 characters) in the database. This has been fixed.
3-18188014831	28678756	(Patch Set 23) A memory leak occurred in the flist-to-string conversion routine. This has been fixed.
3-17920861571	28700836	(Patch Set 23) Backdated adjustments were not displayed in corrective invoices. This has been fixed.
3-18306549191	28707427	(Patch Set 23) The Today date filter was not working in the payment suspense flow. This has been fixed and the payment suspense search template has been corrected.
3-17674658011	28746436	(Patch Set 23) When a write-off reversal was done at the bill unit level, it was not creating a corresponding event for tax (that is, **/event/billing/writeoff_reversal/tax**). This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-18377594101	28768195	(Patch Set 23) There was an issue while displaying the suspended payment details when the **Move and View in Payment Suspense** link was clicked in the Payment Details page. This has been fixed.
3-17722323998	28774360	(Patch Set 23) The BillPaymentDeallocation feature allows bill adjustments on zero-due bills or partially paid bills. This behavior has now been implemented for item- and event-level adjustments as well. If BillPaymentDeallocation is enabled, do the following to allow item and event-level adjustments: 1. Unallocate the payment applied on the corresponding bill item. 2. Adjust the item or event. 3. Reallocate the payment to the bill item. If the payment amount is more than the amount due after the adjustment, some unallocated amount is stored in **/item/payment**. This unallocated amount is displayed in the **Adjustment/Payments Not Applied** tab of Customer Center.
3-17519084381	28774364	(Patch Set 23) If an error is thrown in ECE, the error was always set to PIN_ERR_BAD_VALUE. Hence, it was not possible to identify the actual error details. This has been fixed.
3-18383751591	28780634	(Patch Set 23) The wrong item type was selected when dealing with in-advance billing events. An **/item/adjustment** event was created rather than an **/item/cycle_forward_arrear** event for cycle forward arrear events. This has been fixed.
3-16906450911	28786828 28714307	(Patch Set 23) The PCM_OP_BILL_MAKE_BILL_NOW opcode was resetting the error buffer set by a policy customization in the workflow. This has been fixed.
3-17857064951	28794483	(Patch Set 23) In the subscription module, if END_T was earlier than the cycle, purchase, or update end dates, the cycle start and end dates were set incorrectly. This led to a validation error. This has been fixed.
3-18455941571	28806803	(Patch Set 23) Posting multiple comments or notes was causing connection issues. This has been fixed. The connection is now released to the free pool when a note update completes.
3-18482634741	28812793	(Patch Set 23) The Conversion Manager failed to load data into the uniqueness table due to the presence of double quotes. This has been fixed to parse and omit double quotes in uniqueness-related functions.
3-18482428661	28812797	(Patch Set 23) The PCM_OP_AR_BILL_ADJUSTMENT opcode had memory leaks. This has been fixed.
3-18310735251	28824833	(Patch Set 23) The CM module had some memory leaks. This has been fixed.
3-18578426961	28825321	(Patch Set 23) For a purchased product, if the purchase, usage, or cycle end date was changed, the end date for all three were updated. This has been fixed to update only the date that changed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-18505486831	28837035	(Patch Set 23) In the subscription module, when a purchase was backdated on the billing day of month, the event's end date was set incorrectly. This caused incorrect validity periods for the resources in both BRM and Pipeline Manager. This has been fixed.
3-17857944451	28843065	(Patch Set 23) The **loadpricelist** utility was failing with a core dump when committing or retrieving a price list. This has been fixed.
3-18473654211	28848747	(Patch Set 23) When trying to open a transaction on a non-existent object, the workflow was not returning an error. This has been fixed by checking for the existence of an object before trying to lock the object and open a transaction on it.
3-18506198641	28854726	(Patch Set 23) Transfers between billable credit and debit items were treated as accounts receivable. This resulted in an incorrect breakup of charges under the **Bills** tab. This has been fixed.
3-18606199551	28866702	(Patch Set 23) There was an issue with upgrading to Patch Set 21. This has been fixed.
3-18631761901	28871777	(Patch Set 23) The file name format for general ledger (G/L) reports generated in XML were different. This has been fixed to restore the earlier naming format.
3-18368278231	28905265	(Patch Set 23) When an account was deleted by using a wrapper opcode that called the PCM_OP_CUST_DELETE_ACCT opcode, an error in the workflow would not trigger a rollback to changes in the **/uniqueness** object. This has been fixed.
3-18504936078	28905268	(Patch Set 23) When navigating to the accounts receivable action details, after selecting a refund type accounts receivable action, the Back button was not working and its label was missing. This has been fixed.
3-18608897451	28905271	(Patch Set 23) It was not possible to install Pricing Configuration Center in silent mode. This has been fixed.
3-18504936071	28912853	(Patch Set 23) The **Cancel** link was not working for notes in the Event Adjustment Details dialog box. This has been fixed.
3-18263789131	28923378	(Patch Set 23) The PCM_OP_BILL_MAKE_BILL opcode finalized a bill when the workflow was called by a process other than **pin_bill_accts**. This has been fixed to finalize bills only through the **pin_bill_accts** utility.
3-18592651071	28923380	(Patch Set 23) In Customer Center, the Event Browser text labels were not being displayed for date-pickers in customer event browser templates. This has been fixed.
3-19353513291	28944040	(Patch Set 23) For PCI compliance, it was required to mask the PIN_FLD_SECURITY_ID field in the card attributes structure for enhanced card security. See "Card Security Code Is Now Masked in Logs".

Table 1–1 (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-18447694071	28944042	(Patch Set 23) The Paymentech DM now supports Card Security Presence and sends a Fraud Format Indicator (FR) record when this field is present. See "Additional Card Security Presence Values Supported for Card Validation or Authorization".
3-18664468631	28944046	(Patch Set 23) Paymentech was returning duplicate CIT and MIT transaction IDs. This has been fixed. Transaction IDs for CIT and MIT records are now generated in a random manner.
3-18713081091	28977385	(Patch Set 23) The Oracle DM was not responding for a long time when PIN_ERR_NO_MEM was returned from the flist copying method. This has been fixed.
3-18453203791	28997119	(Patch Set 23) In the Customer Center **Product Details** page, when setting the start or end date of a product, the calendar box was dynamically changing. This caused inconveniences when the user scrolled through the months by clicking the up and down arrows. This has been fixed.
3-18399785331	28997122	(Patch Set 23) In the subscription module, when multiple discounts were purchased with different validity dates in the same deal, the discount rules were not set correctly for the individual discounts. The discount validity dates of the first discount was used for all other discounts in the deal. This has been fixed.
3-18310735251	29017374	(Patch Set 23) The CM module had some memory leaks. This has been fixed.
3-17847235401	29020323 28923382	(Patch Set 23) RE Loader was not shutting down gracefully when it was still processing files. This has been fixed. Now, RE Loader finishes processing any pending files before shutting down. You can use a new configuration entry, **batch.shutdown.interval**, in the *BRM_home***/apps/pin_rel/Infranet.properties** file to set the shutdown interval in seconds. By default, this entry is set to 2.
3-18370747541	29023517 28521328 28739771	(Patch Set 23) The scope of a header file caused the customer management module to throw a symbol look-up error. This has been fixed.
3-18855799201	29036174	(Patch Set 23) In the subscription module, during the product cancellation operation, the refund amount was calculated incorrectly if it included in-advance charges. This was because it considered the event end date instead of the cycle end date for calculating the scale for the refund. This has been fixed.
3-18452678921	29042243	(Patch Set 23) During a billing delay period, discount cancellation operations were not applying refunds. This inconsistency occurred because the bill unit's accounting dates still reflected the previous cycle's information. This has been fixed by adding checks to handle these type of events during the delay period.
3-18889790481	29042247	(Patch Set 23) A memory leak occurred in the customer registration module. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-18793585311	29042249	(Patch Set 23) In some cases, PCM_OP_EXEC_PROC was not returning the correct response. This has been fixed.
3-18919001443	29120661	(Patch Set 23) A memory leak occurred in the Paymentech DM. This has been fixed.
3-18919001133	29120694	(Patch Set 23) When creating **/payinfo/cc** objects, any custom fields passing into the workflow were not dropped, which caused a schema error. This has been fixed.
3-18953049631	29126519	(Patch Set 23) In the subscription module, an incorrect discount amount was calculated when a discount was applied on a back-dated cycle forward monthly charge. This has been fixed.
3-18943590851	29127132	(Patch Set 23) The Paymentech simulator was sending an invalid number of bytes for non-CIT/MIT transactions that followed a CIT/MIT transaction.
3-18693381421	29127138	(Patch Set 23) In the subscription module, the PCM_OP_ SUBSCRIPTION_CANCEL_DEAL opcode caused a segmentation fault core dump when processing discounts. This has been fixed.
3-16749719711	29141790	(Patch Set 23) When rerating was done before billing, the invoice data received from ECE was not present in the rerated event. Instead, original invoice data was populated in the rerated event. This has been fixed.
3-18964843081	29146202	(Patch Set 23) The modify customer operation was not applying cycle discount information that was passed in the input. This was caused by a missing Portal object ID (POID) in PIN_FLD_DEAL_INFO field. This has been fixed.
3-18605545081	29162143	(Patch Set 23) The Purchase Package and Purchase Deal flows are now supported as embeddable URLs. See "Embeddable URLs for Purchase Package and Purchase Bundle Screens" for more information.
3-18980345811	29174545	(Patch 23) In Collections Manager, the PCM_OP_COLLECTIONS_ GROUP_CREATE opcode had memory leaks. This has been fixed.
3-18644785641	29178996 29174538	(Patch Set 23) Event adjustment was not working as expected when the amount or percentage was not provided in the input. The expectation was to do 100% event adjustment if the amount or percentage value was not provided. This has been fixed.
3-18987020121	29178998	(Patch Set 23) The wrong dates were displayed in the Item Adjustment dialog box for bills in progress. This has been fixed. The current billing cycle dates are now displayed.
3-15270580261	29204381	(Patch Set 23) In an Application Integration Architecture (AIA) deployed environment, during any transaction where the request is sent from BRM to ECE, if an error occurred in ECE, then AIA was not able to capture the error from BRM. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-19167494161	29223948	(Patch Set 23) During rerating, the event search workflow was not considering the configured **event_start_timestamp parameter** in the **pin_event_extract.cfg** file, but instead it was taking the event END_T. This has been fixed.
3-19012827981	29240929	(Patch Set 23) In Conversion Manager, when the input payload contained more than one service, balance, or account, the XML payload's i**nstance_type** was set incorrectly. This has been fixed.
3-19140579111	29243585	(Patch Set 23) To boost Customer Updater performance, indexes were added.
3-18536623001	29265112	(Patch Set 23) In discount sharing, when multiple reauthorization requests were created, the reservation quantity was not updated and it stayed at the sum of the quantity of the first authorization and last reauthorization. It was possible to reauthorize sessions indefinitely and certain limits were not enforced. This caused revenue leakage. This has been fixed.
3-19112468071	29272363	(Patch Set 23) The **Refund Bill** dialog box was displaying an error that the amount was greater than 999.99. This has been fixed.
3-19157592761	29278527	(Patch Set 23) In the subscription module, the plan transition opcode resulted in a segmentation fault dumping core. This has been fixed.
3-19133358468	29290978	(Patch Set 23) The collection actions scheduled dates were one day older than the actual due date. This has been fixed to show the correct scheduled dates.
3-19120021761	29290980	(Patch Set 23) When an account was created in Customer Center with one country, such as USA, and then the same account was opened in Billing Care, a different country was displayed in the account profile details. This has been fixed.
3-12647683891	29303584	(Patch Set 23) When the billing day of month was 28, 29, 30, or 31, its next cycle date was calculated incorrectly. This has been fixed.
3-19317248768	29315565	(Patch Set 23) The **Bill in Progress** text was displayed twice in the **Events** page header. This has been fixed.
3-18741993071	29342745	(Patch Set 23) When rating with a sponsored product, the credit limit check was done both on the sponsored product and the user product. This caused a credit limit breach to be reported when the user product sub-balance was positive. This has been fixed by removing the credit limit check for the user product when rating with the sponsored product.
3-19360664961	29342747	(Patch Set 23) CPU usage for the CM module reached and stayed at 100%. This has been fixed.
3-18957602481	29349019	(Patch Set 23) Discounts overridden as part of a product purchase were not in the Original Charge, Discount, or Net details of the Events dialog box. This has been fixed.

Table 1–1 (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-19278553351	29370863	(Patch Set 23) In the subscription module, the PCM_OP_SUBSCRIPTION_SET_DISCOUNTINFO opcode failed for an account-level discount. This has been fixed.
3-18738247231	29376632	(Patch Set 23) The Pipeline Manager Framework had a memory leak while converting decimal to string. This has been fixed.
3-19152779561	29376637	(Patch Set 23) Purchase reasons and notes could not be linked to a particular add-on purchase event. This has been fixed. A method has been added that retrieves a list of all purchase events that can be used in the Billing Care SDK to assign to the notes.
3-18937531041	29395717	(Patch Set 23) To improve the performance of the **Assets** user interface, lazy loading of the assets has been implemented. By default, limited service information is retrieved and when the customer service representatives expand the particular service card, the additional service and offer details are retrieved.
3-19425603631	29395723	(Patch Set 23) In a Service Lifecycle Management (SLM)-enabled deployment, when a deal was purchased with a zero balance, the service state was immediately set to **recharge_only**. This caused usage processing issues in ECE. This has been fixed. Now, the status is not changed to **recharge_only** as soon as the purchase is completed.
3-19456180091	29409244	(Patch Set 23) In the subscription module, during the product cancellation operation, the validity end dates for non-currency resources of an in-advance cycle was set incorrectly. This has been fixed.
3-19479366521	29428056	(Patch Set 23) When using the PCM_OP_SUBSCRIPTION_SET_DISCOUNTINFO or PCM_OP_SUBSCRIPTION_SET_PRODINFO opcode, the purchase START_T was not getting rounded, even if timestamp rounding was enabled. This resulted in errors when purchase START_T was later than cycle START_T. This has been fixed.
3-19353513291	29428267	(Patch Set 23) During the **pin_collect** process for payments, an error indicating PIN_ERR_PARTIAL was thrown, especially with CIT and MIT transactions. This has been fixed.
3-18861774371	29428271	(Patch Set 23) The Daylight Saving Time calculation was incorrect for Brazil. This has been fixed.
3-19172328801	29441730	(Patch Set 23) Overdue days were shown incorrectly as the last configured period of aging buckets. This has been fixed to show the actual overdue days. A new pop-up has been added to list the age of overdue balances as per the aging bucket configuration.
3-17880290091	29441734	(Patch Set 23) During the billing process, a few items were incorrectly filtered during final billing. This was caused by item pruning in cases of billing suppression, suspension, or resume billing. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-18731886071	29448149	(Patch Set 23) Event adjustment was not working properly for tax-only adjustments. This has been fixed.
3-19100404921	29448155	(Patch Set 23) In the subscription module, the product cancellation operation did not report missing validity information. This has been fixed.
3-19498301501	29454751	(Patch Set 23) Non-CIT and MIT were failing in an attempt to access the unavailable data. This has been fixed with appropriate null checks and error handling.
3-19555740471	29463335	(Patch Set 23) In the subscription module, the **pin_cycle_fees** utility was not selecting the tailor-made products when run in **Cancel** mode. This has been fixed.
3-19125464031	29480200	(Patch Set 23) In the AAA Services Framework, the PCM_OP_TCF_AAA_AUTHORIZE opcode had a memory leak. This has been fixed.
3-19549400461	29493382	(Patch Set 23) The Event Adjustment dialog box can now be customized to separate both the **Adjust the Amount** field and the **Adjust the Percent** field. Also, there was an issue with tax-only adjustment. This has been fixed.
3-19525755941	29514018	(Patch Set 23) During billing, price-overridden products were not considered properly for rating. This has been fixed.
3-19583668901	29514023	(Patch Set 23) When balances were concurrently updated in discount-sharing groups using the multithreaded application (MTA) framework, balance updates were not made correctly obtaining the necessary lock to the balance group. This has been fixed.
3-19611604151	29526004	(Patch Set 23) Multiple Rated Event (RE) Loader processes could not be run in parallel, because the row lock contentions rendered the processes non-responsive. This has been fixed.
3-19672982621	29532921	(Patch Set 23) The purchase of discounts was failing after enabling sequential discounting in scenarios in which the cycle beginning was earlier than the product commit date. This has been fixed.
3-19579803191	29533562	(Patch Set 23) The PCM_OP_PYMT_COLLECT opcode was not working for transaction IDs with a length of more than 16 characters. This has been increased to 22 characters to be consistent with the Paymentech specification.
3-19579899441	29533566	(Patch Set 23) The wrong quantity for an event was picked up for rating, because the event-matching logic was considering the events based on the order in which they appeared. This has been changed to the longest matching event and now that is considered first, overriding the order of events.
3-19586933771	29533571	(Patch Set 23) A tax percentage was not added even when tax calculation was not using third-party tax engines. This has been fixed by now checking tax_pkg_type for zero-tax amount cases.

Table 1–1 (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-14912351881	29549092	(Patch Set 23) The billing process was applying incorrect taxes when running the billing account as the brand user. This has been fixed.
3-17713284711	29557885	(Patch Set 23) For an offer, when usage events with a zero charge were rated and then the offer was changed and rerating was one, no adjustment event was created and no new usage event was created with zero charge. This has been fixed. Now, a new event with zero charge is created and the general ledger ID (G/L ID) corresponding to the offer is impacted.
3-19600571011	29584656	(Patch Set 23) When the price of a one-time charge product was changed post-billing and rerating and corrective invoicing was done, the rerated charge was not reflected in the invoice. This has been fixed.
3-19624443371	29590501	(Patch Set 23) RE Loader was failing with the "too many open files" error and required an update to handle the maximum number of files. This has been fixed.
3-19733153701	29596718	(Patch Set 23) The **pin_deferred_act** utility was generating an error message in certain cases when dropping array elements, such as PIN_FLD_TELCO_FEATURES. This has been fixed.
3-19793794931	29634984	(Patch Set 23) Even when a migration failed, the Conversion Manager was reporting it as a success. This has been fixed.
3-19317720898	29645138	Patch Set 23) Future-dated add-on purchases were being purchased with the wrong dates. This has been fixed.
3-19040270003	29646959	(Patch Set 23) An object serialization error was logged in the Oracle Entitlements Server client WebLogic logs. This has been fixed.
3-19188771891	29714062	(Patch Set 23) When a product was canceled, a refund was not applied when the product was purchased on Day 28 through Day 31 of a month with 31-day billing enabled and the next billing date did not exist in the subsequent month. This has been fixed.
3-20045914941	29783828 30286681	(Patch Set 23) The condition expression for evaluating discounts was 15-digit decimal by default. The condition evaluation was incorrect when this limit was exceeded. This has been fixed by optionally setting the limit to 28 digits with the new MAX28DIGIT_DECIMAL_SUPPORT environment variable before the Pipeline Manager is started.
3-19549400461	29789694	(Patch Set 23) The Oracle Entitlements Server obligation check was throwing an exception. A null value check for the percentage-only adjustment was done using customization was not introduced to avoid this exception. This has been fixed.
3-18860602351	29795751	(Patch Set 23) In the adjustment workflow, the decimal rounding precision was different from the configured precision for usage events. This has been fixed.

Table 1–1 (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-18941949321	29808541	(Patch Set 23) When the adjustment opcode was part of another bigger transaction, the error buffer was not reflecting the actual error condition. For a local transaction, the error buffer was required to be cleared, and only the result and description information was required to be returned. This has been fixed.
3-19875296431	29820120	(Patch Set 23) The **pin_mass_refund** utility was having performance issues. This has been fixed.
3-20042957751	29858022	(Patch Set 23) In the plan transition flow, a new **/event/notification/plan/transition/post_deal_cancel** notification event was required to be sent soon after cancellation. This has been added.
3-19883527851	29867408	(Patch Set 23) During the cancellation of a cycle-forward event, the subscription module did not fetch all related events for the reversal of charges. This has been fixed.
3-20246843021	29869223	(Patch Set 23) The CM was continuing to start even when there were timeout errors. This has been fixed by adding proper error checks during the start-up.
3-17856477511	29871638	(Patch Set 23) In the discounting module of Pipeline Manager, a memory leak occurred after unloading the existing configuration and then loading a new configuration. This caused a growth in the used memory. This has been fixed.
3-20178161421	29960513	(Patch Set 23) When running the **pin_del_closed_accts** utility, a NO_MEM error occurred. In such cases, memory was not cleared. This has been fixed.
3-19106227471	29966022	(Patch Set 23) There were memory management issues in the Oracle DM when a search was performed by using the PCM_OP_BILL_ITEM_ADJUSTEMENT opcode. This was because the search returned a huge number of events crossing the high watermark for the DM process. The search template has been fixed to retrieve the calculated sum from the database instead of retrieving a huge number of records and calculating the sum.
3-19353513291	29966024	(Patch Set 23) The Paymentech DM was not supporting Zero Value Account Verification (ZVAV) for American Express cards. This has been fixed.
3-19820667561	30031381	(Patch Set 23) The RE Loader Daemon was not processing certain files, resulting in unprocessed files pending in the input directory. This has been fixed.
3-18778333321	30072014	(Patch Set 23) BRM was generating cycle events for the first usage enabled plan during rerating, even if those events were billed. This has been fixed to generate the appropriate adjustment or shadow events.
3-20153617841	30095367	(Patch Set 23) RE Loader had an unaccounted growth in memory due to a memory leak. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-19814604931	30108677	(Patch Set 23) The **pin_cycle_fees** utility with the **cancel** option was not cancelling inactive products.
		This has been fixed by adding a new **inactive** option to the utility.
3-19581140931	30120447	(Patch Set 23) Processing real-time usage with the PCM_OP_ACT_USAGE opcode resulted in degraded performance. This occurred when a large number of system products were loaded for every child CM process.
		This has been has been fixed by caching the details during the CM startup.
3-20224205751	30125967	(Patch Set 23) During rerating, the rollover amount was getting doubled and a rollover event was not generated.
		This has been fixed.
3-20407424651	30133927	(Patch Set 23) In an expired discount sharing group, the partial billing was failing.
		This has been fixed so that it now checks the validity of the discount sharing group and then exits gracefully.
3-20674561991	30135334	(Patch Set 23) There were issues reported by Fortify scans in the following SDK source code: **fm_cust_pol_valid_all.c**, **sample_who.c**, and **BRMAdapterServletClient.java**.
		This has been fixed.
3-20586831151	30146957	(Patch Set 23) In Customer Center, when searching for payments in the **Payments** tab, the **All** entry in the **Bill Unit** drop-down was not displaying all payments made for the account.
		This has been fixed.
3-20237831311	30146960	(Patch Set 23) When a bill was paid in full with zero due, subsequent adjustments to the bill was allocated incorrectly.
		This has been fixed.
3-19783315511	30158955	(Patch Set 23) After a failed transaction in a batch, the **pin_deposit** utility was failing subsequent transactions.
		This has been fixed.
3-20656807751	30175032	(Patch Set 23) In Customer Center, users with read-only permission were not allowed to copy information from the application.
		This has been fixed to allow users to copy the service ID from the **Services** tab.
3-19908575371	30187911	(Patch Set 23) There were issues while generating HTML invoices using invoice formatter, indicating a duplicate variable date definition.
		This has been fixed.
3-19261875971	30187915	(Patch Set 23) During event adjustments, the corresponding tax calculation had rounding errors.
		This has been fixed.
3-19849106481	30228174	(Patch Set 23) In a custom workflow, if the same transaction was used to commit data into the BRM database and also publish to Oracle Advanced Queue DM, the data was committed to the database but the message was not published to Oracle Advanced Queue DM.
		This has been fixed. The message now also gets published when there is no exclusive transaction for Oracle Advanced Queue DM.
3-20313924221	30228178	(Patch Set 23) The **pin_del_closed_accounts** utility had a memory leak.
		This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-19215540181	30249956	(Patch Set 23) Schema validation in Web Services Manager was working incorrectly, allowing the workflow to continue to process the request with an incorrect payload. This has been fixed.
3-20747428241	30258066	(Patch Set 23) Bill adjustments were incorrect for bills that contained one or more settled disputes. This has been fixed.
3-20860270631	30276797	(Patch Set 23) Even though a service was mapped to its own balance group, an item adjustment for that service was wrongly updating the account balance group. This has been fixed.
3-19953272721	30287776	(Patch Set 23) When a discount's end date was modified, PIN_FLD_CYCLE_END_T was incorrect. This caused the refund and reapplication of the discount to not work correctly. This has been fixed.
3-20622939101	30287779	(Patch Set 23) If the customer canceled a discount after running Bill Now in a delay period, the charges were applied to the closed item in the wrong bill. This has been fixed.
3-20955329641	30291797	(Patch Set 23) A discount of 100% on a non-currency charge failed when multiple charge packets of multiple non-currency resources had both positive and negative charges. This has been fixed by properly segregating the charges for each resource and calculating the total for each resource to apply discounts.
3-19814604931	30292967	(Patch Set 23) The **pin_discount_cleanup** did not support cleaning up inactive discounts. This was fixed by adding a new **close_inactive** mode to the utility.
3-20573079451	30292977	(Patch Set 23) When balances were transferred between two balance groups by using the PCM_OP_BILL_ITEM_TRANSFER opcode, notifications were not generated. This has been fixed.
3-20212984941	30327228	(Patch Set 23) When the tax jurisdiction information was in multiple array elements, taxes were not considered during event adjustments. This caused incorrect balance impacts. This has been fixed.
3-21148367731	30360252	(Patch Set 23) The advanced discounting pipeline was returning PIN_ERR_BAD_VALUE when it was called from the **pin_cycle_fees** utility. This has been fixed.
3-20926194821	30385890	(Patch Set 23) The cycle date was calculated incorrectly when rerating quarterly cycle events. This has been fixed.
3-21108633031	30392334	(Patch Set 23) When two cycle events existed for the same product and period (due to a discount purchase), the rerated cycle event was not able to match the previous cycle event. Thus, the rerated cycle event was not populated with PIN_FLD_SESSION_OBJ. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-21242387561	30406782	(Patch Set 23) Real-time rerating was failing for a charge offer when the PIN_FLD_RATING_PRODUCTS information was truncated due to a string length limit. This has been fixed by increasing the string length.
3-20841881041	30406789	(Patch Set 23) During billing, incorrect products were selected for applying folds. This has been fixed.
3-19793726101	30410948	(Patch Set 23) A purchase fee was applied twice, even when the purchase was done only once. This has been fixed.
3-20670583751	30411711	(Patch Set 23) The Account Synchronization DM (**dm_ifw_sync**) was not supporting timeout for its database connection. This has been added now.
3-21313665271	30457058	(Patch Set 23) The Rated Event Loader daemon was not shutting down gracefully while processing rated events from ECE. In addition, when restarting, the daemon was not picking up pre-existing ***.bc** files. This has been fixed.
3-20926194821	30462363	(Patch Set 23) The PCM_OP_SUBSCRIPTION_SET_PRODINFO opcode called PCM_OP_SUBSCRIPTION_FEES even when PIN_FLD_ PURCHASE_START_T was not passed. The **calc_cycle_from_cycle_ start_t** entry in the CM configuration file affected the generation of the cycle arrear event. This has been fixed.
3-21158170251	30462365	(Patch Set 23) When you created two discount sharing groups, one with the current dated EFFECTIVE_T and the other for backdated EFFECTIVE_T, the backdated discount sharing group was not considered for valid backdated usage. This has been fixed.
3-21203320841	30510693	(Patch Set 23) Back-date validation failed when timestamp rounding was disabled and a full discount was purchased. The full discount rounded the discount's START_T to ACTG_LAST_T. When the discount's START_ T was earlier than the timestamp of the last status change, validation failed. This has been fixed.
3-19907943331	30521542	(Patch Set 23) The Paymentech Data Manager (dm_fusa) backend was reaching 100% CPU utilization when a verification request was sent and not returning from the call. This has been fixed.
3-21274191101	30521551	(Patch Set 23) BRM now supports extended ranges for newly added cards for China UnionPay BIN.
3-20087766421	30526514	(Patch Set 23) Paymentech Manager has been updated to support real-time account updater and China UnionPay card BIN ranges.
3-16159206021	27288693	(Patch Set 22) When doing a plan transition, it was not possible to override the resource balance granted or add any custom workflow. This has been fixed.
3-16932753911	27621457	(Patch Set 22) In Collections Manager, when an account had two bill units, a paying bill unit and a non-paying bill unit, the aging due was calculated incorrectly. This has been fixed.

Table 1–1 (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-15853592531	27632733 28045166	(Patch Set 22) BRM was not processing payments with stored credential framework (such as CIT/MIT) for VISA credit cards. This has been fixed.
3-16818528141	27684530	(Patch Set 22) In Collections Manager, if the PCM_OP_COLLECTIONS_GET_ACTION_HISTORY opcode was triggered with a transaction having a database number different from that of the collection event user, the opcode was failing. This has been fixed.
3-16910009551	27730467	(Patch Set 22) In the Event Browser of Customer Center, the account status was not displayed appropriately. This has been fixed.
3-16512320161	27738256	(Patch Set 22) When event adjustment was done after tax-only adjustment, the tax jurisdiction information was not updated properly in the balance impact of the event adjustment. This has been fixed.
3-17041510991	27745483	(Patch Set 22) BRM was not providing options to control or customize workflow over rerate requests which were created as part of subscription transfer operation. This has been fixed.
3-16449323311	27751024	(Patch Set 22) The PCM_OP_AR_RESOURCE_AGGREGATION opcode was returning incorrect aggregated amount. This has been fixed.
3-16918562891	27771471	(Patch Set 22) If a bill contains charges from subordinate bill units, the items were getting over allocated. This has been fixed.
3-16825381141	27771914	(Patch Set 22) The cancel discount operation was not setting the validity dates properly for discounts for which the end dates were in previous cycles. This has been fixed.
3-16798260391	27771918	(Patch Set 22) The **pin_deposit** utility was creating duplicate charge events. This has been fixed.
3-17161825201	27788397	(Patch Set 22) In Business Operations Center, if the SERVICE_HOST parameter in the **bocui-config.properties** file was set to the host name, the Internet Protocol (IP) address could not be used in the Business Operations Center URL. If the parameter was set to the IP address, the host name could not used in the Business Operations Center URL. This has been fixed by removing the dependency on the SERVICE_HOST parameter.
3-16736341981	27795344	(Patch Set 22) If sequential discounting was enabled, the PCM_OP_SUBSCRIPTION_SET_DISCOUNTINFO opcode was not working properly for in-advance billing periods. This has been fixed.
3-17062080421	27816385	(Patch Set 22) Even after paying the bill amount, the bill amount from the last bill was displayed as balance brought forward. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-17110341365	27823058	(Patch Set 22)The first column was **Name** in the Allocate Adjustment screen instead of **Account**. This has been fixed.
3-17102959567	27828886	(Patch Set 22)The Payment Allocation screen displayed the account POID instead of the account number. This has been fixed.
3-17069559841	27874942	(Patch Set 22) When a payment was first applied to an account and then moved to suspense and then again allocated to another account and then moved to suspense, the Audit Trail was not updated correctly. It was still showing the first account. This has been fixed.
3-16991351901	27874944	(Patch Set 22) While purchasing a product or discount, the dates were not displaying correctly if there were time zone differences. This has been fixed.
3-16926420921	27881740	(Patch Set 22) When an event was rerated twice, the tax jurisdiction was not handled properly for adjustment events. This has been fixed.
3-16672265011	27881742	(Patch Set 22) When the same product was purchased twice, cancelling one of the product deleted the provisioning tag from both the products. This has been fixed.
3-17181472981	27881744	(Patch Set 22) For billing cycles which spans across multiple months, newsfeed was getting created for the /event/notification/service_item/make_bill event for each accounting cycle. This has been fixed.
3-16778875601	27891286	(Patch Set 22) In a prepaid environment, when the subscriber's balance was lower than the required balance for a purchase and if a deal was purchased, BRM displayed the credit limit exceeded error. In addition, signal 11 was observed in Connection Manager. This has been fixed.
3-17204427041	27894047	(Patch Set 22) The PCM_OP_SUBSCRIPTION_TRANSITION_PLAN opcode was not canceling the deals from the existing plan while moving to the new plan. This has been fixed.
3-17010229176	27894049	(Patch Set 22) During item adjustment, the search operation got into a infinite loop. This has been fixed.
3-17274051251	27924912	(Patch Set 22) In Customer Center, when the **Show All Parents** option was selected from the **Hierarchy** tab of a child account, the parent account disappeared from the **Account Hierarchy** section. This has been fixed.
3-17270002631	27931961	(Patch Set 22) If a bundle was purchased with an override amount, the override amount was not accepted if it included ",". This has been fixed.
3-16428542811	27938631	(Patch Set 22) The dm_fusa front end was not receiving data after the connection manager established connection with it. This has been fixed.

Table 1–1 (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-17136830661	27938636	(Patch Set 22) It was not possible to locate the Secure Sockets Layer (SSL) client wallet file due to the use of back slash (\) in the resource path instead of a forward slash (/). This has been fixed.
3-16509283701	27938638	(Patch Set 22) The PCM_OP_BILL_GET_ITEM_EVENT_CHARGE_ DISCOUNT opcode was not allowing to add or modify the event data in its workflow through the PCM_OP_BILL_POL_GET_EVENT_SPECIFIC_ DETAILS policy opcode. This has been fixed.
3-17304458501	27938641	(Patch Set 22) The date in the Payment Reversal page after posting a comment was not displayed correctly unless the page was refreshed. Also, the first comment was not visible. This has been fixed.
3-17284651441	27945964	(Patch Set 22) Customer Center was allowing to open more than the maximum number of accounts specified. This has been fixed.
3-17133778471	27956400	(Patch Set 22) In Collections Manager, the collection write-off was failing for the bill unit in collection. This has been fixed.
3-16882624611	27979519	(Patch Set 22) The PCM_OP_SEARCH base opcode was failing when the template included a nested select query with the grouping by clause. This has been fixed.
3-17294590691	27986159	(Patch Set 22) In Customer Center, after viewing event details by navigating through a bill, the Event Browser was not showing any data, unless the Customer Center was relaunched. This has been fixed.
3-17296204671	27986161	(Patch Set 22) In Customer Center, it was not possible to hide the bill date field through customization. This has been fixed.
3-17247811981	27993351	(Patch Set 22) The Event Browser in Customer Center was not showing time information with the date. This has been fixed.
3-17025208951	27993356	(Patch Set 22) During billing, the grantor information in the rollover bucket was incorrectly set to null. This has been fixed.
3-17399412831	27993359	(Patch Set 22) In LDAP Manager, the entry update operation was failing. This has been fixed.
3-13130030441	28007849	(Patch Set 22) The sponsored products were not considered for rating and this resulted in incorrect balance impacts. This has been fixed.
3-17232910091	28089235	(Patch Set 22) Quarterly cycles were getting merged which caused issues in applying charges. This has been fixed.
3-17433817794	28089238	(Patch Set 22) The date format in Web Services Manager could not be configured based on the Java's SimpleDateFormat specification. This has been fixed.

Table 1–1 (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-17578946441	28119223	(Patch Set 22) When in-advance billing was enabled, purchasing discount with a future date to become valid on ACTG_NEXT_T resulted in validation errors. This has been fixed.
3-17548004211	28123146	(Patch Set 22) Conversion Manager was not providing an option to capture bill_accounting_cycles_left and next_bill_t information for migration. This has been fixed.
3-17548989291	28141240	(Patch Set 22) The dm_ldap process was failing to start when SSL was enabled. This has been fixed.
3-17298474221	28141242	(Patch Set 22) After loading the rated events from Pipeline Manager, it was found that MOD_T of the corresponding items and journals were less than the CREATED_T. This has been fixed.
3-16506227591	28149094	(Patch Set 22) Rated Event Loader (**pin_rel**) was exiting due to the out of memory error. This has been fixed.
3-16478416701	28159375	(Patch Set 22) When an adjustment was applied in BRM, the revision number for the balance group was set incorrectly to zero causing data inconsistency between BRM and ECE. This has been fixed.
3-17697487631	28187119	(Patch Set 22) BRM was using different versions of HTTP Client jar files for different operational scripts. This has been fixed.
3-17558077599	28200055	(Patch Set 22) After purchasing the monthly cycle forward product, the newsfeed for the same did not include the bill unit information. This has been fixed.
3-17515609821	28206781	(Patch Set 22) When Billing Care was customized, the cache did not automatically. The user had to clear the browser cache and log in again. This has been fixed.
3-17402905141	28220686	(Patch Set 22) The override amount was not being retained when the product status was changed to active. This has been fixed.
3-17120015936	28220689	(Patch Set 22) When there were multiple bill adjustments, reallocation of the payment was done incorrectly. This has been fixed.
3-17331083621	28247286	(Patch Set 22) The bill generated using Bill Now was not including all items due for billing. This has been fixed.
3-17489100311	28251457	(Patch Set 22) In Pipeline Manager, starting the batch rating engine with SSL enabled resulted in the ERR_INFRANET_GDD_INIT_FAILED error. This has been fixed.
3-17302144931	28255174	(Patch Set 22) Even if there was no amount left for adjustment, BRM was allowing adjustment up to the full adjustment amount. This has been fixed.

Table 1–1 (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-7711865221	28258830	(Patch Set 22) When BRM was processing orders by using JCA Adapter, if the CM instance goes down, the JCA Adapter was unable to restore the transaction state. As a result, the subsequent orders could not be processed without restart. This has been fixed.
3-17376756441	28259131	(Patch Set 22) When an APN Map was reloaded using a semaphore, the rating functionality did not consider the new APN Map configuration. This has been fixed.
3-17558202851	28261959	(Patch Set 22) BRM was considering the regular monthly cycle forward event as backdated if the billing was run after the specified in-advance billing days in the same month. This has been fixed.
3-17346452171	28261962	(Patch Set 22) The search results in the Payment Suspense screen was not displaying all the records as per the set pagination limit. This has been fixed.
3-17600593901	28261965	(Patch Set 22) For cycle forward events, having discounts the newsfeed functionality was not working. This has been fixed.
3-17306790271	28278326	(Patch Set 22) Setting purchase start dates for first usage products was not allowed by using the PCM_OP_SUBSCRIPTION_SET_PRODINFO opcode. This has been fixed.
3-17681700281	28342601	(Patch Set 22) When an account was created, the ACCOUNT_NO value was not updated correctly in the UNIQUE_ACCT_NO_T table. This has been fixed.
3-17540344751	28342606	(Patch Set 22) The event adjustment for the product configured for deferred taxes was not updating the tax jurisdiction information in the balance impacts correctly. This has been fixed.
3-17757279581	28342610	(Patch Set 22) When a zero amount payment was initiated by using CIT or MIT-enabled Payment Data Manager, the payment was failing. This has been fixed.
3-15944105871	28359385	(Patch Set 22) In Collections Manager, if schedule object was either completed or cancelled, it was effective only for collection group owners, but not for members. This has been fixed.
3-16857082511	28366494	(Patch Set 22) There were memory leaks observed in the PCM_OP_TCF_AAA_STOP_ACCOUNTING opcode workflow. This has been fixed.
3-17834273241	28366496	(Patch Set 22) There was a memory leaks observed in the op_tcf_aaa_search_session workflow. This has been fixed.
3-17592184931	28366498	(Patch Set 22) Web Services Manager was not logging the opcode's input and output data and the time taken to execute the web service call in the XML format. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-17912151191	28370208	(Patch Set 22) The PCM_OP_CUST_DELETE_ACCT opcode was not deleting the corresponding /purchased_bundle objects. This has been fixed.
3-17223827112	28379546	(Patch Set 22) In a BRM system integrated with ECE, External Manager (EM) Gateway was causing errors which led to data inconsistency. This has been fixed.
3-17307745081	28379550	(Patch Set 22) With in-advance billing, the scale was calculated incorrectly as zero for a valid purchased product having an end date set. This has been fixed.
3-17747525701	28399779	(Patch Set 22) The Oracle Data Manager (DM) was logging the warning message as error message. This has been fixed.
3-17876082331	28431425	(Patch Set 22) The Account Details page for an account with multiple bill units was taking more time to open which was leading to time out. This has been fixed.
3-16017296621	28463525	(Patch Set 22) The rerating flow was not updating the session_obj and rerated_obj information correctly. This has been fixed.
3-17796627641	28466538	(Patch Set 22) Indexes were getting rebuilt every time the audit tables were purged. This has been fixed.
3-17732092221	28490339	(Patch Set 22) During billing, if the product's END_T is same as ACTG_NEXT_T, END_T in the corresponding cycle-arrear event was incorrectly set. This was causing Pipeline Manager to set incorrect validity dates for the resource validity buckets. This has been fixed.
3-18039304221	28543517	(Patch Set 22) During subscription transfer, automatic account creation (AAC) details of the source service was not copied to the newly created service. This has been fixed.
3-18126737181	28549499	(Patch Set 22) The **pin_recover** utility was failing during the search for payments due for recovery. This has been fixed.
3-17768551081	28588794	(Patch Set 22) When an account with sequential discounting was updated using the PCM_OP_CUST_MODIFY_CUSTOMER opcode, multiple discount balance impacts were created. This has been fixed.
3-18187073311	28631059	(Patch Set 22) A memory leak was observed in the PCM_OP_SUBSCRIPTION_SET_PRODINFO opcode flow. This has been fixed.
3-17757279623	28387496 28573588	(Patch Set 22) In Paymentech Data Manager, there was no flexibility to set the transaction type for payments. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-15808938171	27067418	(Patch Set 21) When using Conversion Manager for loading data, the parent account and account receivable details could not be provided at bill-unit level. This was causing issues if the account had multiple bill units. This has been fixed.
3-15600725291	27159334	(Patch Set 21) The audit data retrieved from the database was not in the correct order. As a result, the rerating process was not creating charging events. This has been fixed.
3-16022883521	27159379	(Patch Set 21) When setting the discount validity dates on cycle boundaries, the discount validity rules were not considered for calculation and this resulted in incorrect discounts. This has been fixed.
3-16016616727	27178505	(Patch Set 21) Rerating was failing for usage events created on the billing day. This has been fixed.
3-15943051481	27181444	(Patch Set 21) For hierarchical accounts, bill-level adjustments were not getting synchronized with ECE properly. This has been fixed.
3-16117097141	27183213	(Patch Set 21) The value for the **StopBillClosedAccounts** business parameter was always getting set to 1 irrespective of the value specified. This has been fixed.
3-16240915721	27199236	(Patch Set 21) When applying cycle discounts, full discounts could not be applied due to incorrect discount start dates set by the set_discountinfo opcode. This has been fixed.
3-15979537621	27202234	(Patch Set 21) When accounts had hierarchical bill units, account deletion was failing. This has been fixed.
3-15997352581	27213532	(Patch Set 21) When the fetch size reached the maximum limit, the **pin_bill_accts** utility reported a performance issue. This has been fixed.
3-15695482521	27226302	(Patch Set 21) In BRM, it was possible to allocate the same adjustment to a bill twice. This has been fixed.
3-15233536061	27244351	(Patch Set 21) There was no option to disable journal creation for zero (0) balance records. This has been fixed.
3-16380399871	27252301	(Patch Set 21) Launching Customer Center with Java WebStart had issues due to the version mismatch between the shipped version (4.5.3) and the version specified (4.4) in the **orasoft.jnlp** file. This has been fixed.
3-16228876211	27266271	(Patch Set 21) When PDC was used for configuring pricing objects, there was some issue in the Item Type Selector configuration due to format mismatch. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-16013792861	27274073	(Patch Set 21) The discount purchase operation was not considering the appropriate rate plan resulting in incorrect calculation of the discount period. This has been fixed.
3-16186268621	27277543	(Patch Set 21) When a service configured to have only discounts was terminated, an error was thrown. This has been fixed.
3-16386155841	27304026	(Patch Set 21) Even if the log level was set to ERROR, some debug messages were getting recorded in the log files. This has been fixed.
3-16335738541	27309568	(Patch Set 21) The input data for the payment policy opcode, PCM_OP_PYMT_POL_PRE_REFUND, did not contain all the required information for policy processing. This has been fixed.
3-16344647651	27309572	(Patch Set 21) The **pin_deposit** utility was not collecting pre-authorized charges. This has been fixed.
3-16407795601	27323287	(Patch Set 21) In Customer Center, when the permission to access account receivables (**/accounttool/araccess**) was set to read-only, the customer service representative (CSR) was not able to view the adjustment details from the **Bill Details** or **Item Details** page. This has been fixed.
3-16103454181	27337655	(Patch Set 21) When making adjustments, if the adjustment amount was more than the actual due amount, an inconsistent behavior was observed. This has been fixed.
3-13406072941	27362563	(Patch Set 21) In multischema systems, after the service transfer, the **/uniqueness** object was created with the POID of the secondary database instead of the primary database. This has been fixed.
3-15683377181	27369058	(Patch Set 21) If the sequential discounting was enabled, the system-level discount if configured, was not applied for cycle arrear events. This has been fixed.
3-15833122031	27380777	(Patch Set 21) There was an issue with state enumerations that was causing a core failure in BRM. This has been fixed.
3-15728021501	27408003	(Patch Set 21) Customer Center was not supporting the customization of the Account Navigator class. Customer Center has been enhanced to support this customization.
3-15832032811	27415115	(Patch Set 21) Rerating events after changing the accounting cycle day of month (DOM) was incorrectly impacting the balances. This has been fixed.
3-16323836501	27418545	(Patch Set 21) The PCM_OP_COLLECTIONS_CALC_AGING_BUCKETS opcode was not considering the latest or current hierarchy to calculate the amount due from aging buckets. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-16634162461	27448145	(Patch Set 21) When the billing delay was configured, auto-triggered billing from ECE was generating a final bill instead of a partial bill. This has been fixed.
3-16264990561	27507370	(Patch Set 21) When a product configured with the cycle arrear event was cancelled with a backdated date, the refund was not applied properly. This has been fixed.
3-16547489391	27523583	(Patch Set 21) Rerating after purchasing a discount was not working as expected. This has been fixed.
3-16250465901	27523591	(Patch Set 21) When a child account was moved under a parent account, the usage charges were not included in the correct bill. This has been fixed.
3-14581820771	27527125	(Patch Set 21) Even after cancelling a discount, it remained active and also the discounted amount was not reversed until the end of the current cycle. This has been fixed.
3-16628324941	27539378	(Patch Set 21) In some cases, while disconnecting a service, the PCM_OPCUST_SET_STATUS opcode was entering a deadlock. This has been fixed.
3-15870945191	27539384	(Patch Set 21) If sequential discounting was enabled, the subscription discounting was getting applied on top of the system-level discount. This was causing errors in some scenarios. This has been fixed.
3-16424349221	27552473	(Patch Set 21) During rerating, additional tax balance impacts were created. As a result, the adjustment calculated was incorrect. This has been fixed.
3-16850439811	27554937	(Patch Set 21) In Customer Center, the posted date in the **Item Details** page was incorrect. This has been fixed.
NA	27577924	(Patch Set 21) When the credit limit threshold was breached, the authorization was granted for the amount more than the available balance. This has been fixed.
3-15405314431	27584540	(Patch Set 21) Payment Tool was crashing when an offline payment was allocated for written-off accounts. This has been fixed.
3-16395624221	27606734	(Patch Set 21) If the cycle DOM for a deactivated service was updated and the service was reactivated after the delay period, duplicate events were retrieved and refunded during the product cancellation. This has been fixed.
3-16653172661	27613632	(Patch Set 21) During cancellation of a product configured with in-advance billing, incorrect START_T and END_T were set in the events. This has been fixed.
3-17005468741	27677138	(Patch Set 21) There was a memory issue reported when calling the PCM_OP_ACT_USAGE opcode with a large input flist. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-16813237871	27745488	(Patch Set 21) When the **EventAdjustmentDuringcancellation** flag was enabled, the flist data corruption issue occurred intermittently, which was dumping core. This has been fixed.
3-15223564141 3-15882582121	26557885 27389700	(Patch Set 21) Web Services Manager was returning the Cannot Initialize error when triggering the opcodes. This has been fixed.
3-15224841731	26810955 27168883	(Patch Set 21) When the tiered taxation was applied, the tax information was consolidated instead of keeping it separate for each tier. This has been fixed.
3-15903641491 3-16506227591	27613610 27613616	(Patch Set 21) Rated Event Loader (**pin_rel**) was exiting due to the out of memory error. This has been fixed.
3-15043369201	26270062	(Patch Set 20) The PCM_OP_AR_REVERSE_WRITEOFF opcode was not considering the POID information when errors were encountered. This has been fixed.
3-15062165691	26443324	(Patch Set 20) When the PCM_OP_AR_GET_ACCT_BILLS opcode was used, the buffer size was insufficient to accommodate large number of item types. This was causing memory corruption and the requested bills were not generated. This has been fixed.
3-15206727661	26501994	(Patch Set 20) While transferring subscriptions, closed bundles were also transferred and this was causing inconsistencies in Application Integration Architecture (AIA). This has been fixed.
3-14865010831	26524618	(Patch Set 20) After moving an account as subordinate, if the day of month (DOM) change was done for the parent account, the PIN_FLD_ACTG_CYCLES_LEFT field was copied to the subordinate account, resulting in incorrect calculation of NEXT_BILL_T. This was affecting the bill cycles. This has been fixed.
3-15377635591	26550597	(Patch Set 20) The 32-bit BRM client applications were not working properly with large files on Linux platforms. This has been fixed.
3-14974066751	26552099	(Patch Set 20) When there were two or more shared (secondary) balance reservations involved in a session, the reservations were getting overwritten. This has been fixed.
3-15461953783	26597170	(Patch Set 20) Any timeout in the Oracle Data Manager (DM) was causing synchronization issues between BRM and Oracle Communications Billing and Revenue Management Elastic Charging Engine (ECE). This has been fixed.
3-15489007441	26612474	(Patch Set 20) The Rated Event (RE) Loader daemon was not picking up all unprocessed files in the staging directory, if the number of files was more than the configured maximum number of handler threads. This was making the RE Loader wait for new files again before processing the remaining files. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-15022585701	26612477	(Patch Set 20) The **pin_invoice_doc_gen** utility was failing with exceptions. This has been fixed.
3-15263935901	26612479 26737489 26741072 26772690	(Patch Set 20) The DM was not returning correct results in case the pagination conditions were not passed as bind variables. This has been fixed.
3-14911716001	26618791	(Patch Set 20) Pipeline Manager was unexpectedly exiting abruptly during the startup of rating or validation modules. This has been fixed.
3-15091245471	26618793	(Patch Set 20) An adjustment of an event, which has more than one tax balance impact, was incorrectly calculated. This has been fixed.
3-13280510771	26626275	(Patch Set 20) On IBM-AIX platform with daylight saving time (DST) enabled, the DST switch over was working when rounding was enabled with the IMDB Cache. This has been fixed.
3-15421326531	26649053	(Patch Set 20) The service transfer operation between two accounts was not working correctly when the **recreate_with_subecription_transfer** business parameter was enabled. This has been fixed.
3-14954703421	26666820	(Patch Set 20) If an account was configured for multiple bills and rerating was run for that account, the cycle events were not rerated properly. This has been fixed.
3-15019554421	26666824 26913720	(Patch Set 20) After a service transfer from one account to another using the PCM_OP_SUBSCRIPTION_SERVICE_BALGRP_TRANSFER opcode, the UNIQUENESS_T table was not updated with the correct account POID causing a mismatch with the correct account POID in the SERVICE_T table. This has been fixed.
3-15456361471	26666826	(Patch Set 20) The reason code used for the SEPA Payment Reversals was incorrect. This has been fixed.
3-14620709761	26728389	(Patch Set 20) The cycle forward grants were having incorrect validity period. This has been fixed.
3-15461073033	26730528	(Patch Set 20) The **pin_ctl** process was not showing the correct status of batch controller. This has been fixed.
3-15547947371	26745539	(Patch Set 20) In Collections Manager, rescheduling collection actions was incorrectly creating duplicate actions. This has been fixed.
3-15318901771	26749448	(Patch Set 20) In a multischema environment with uniqueness objects, creating an account with multiple billing profiles was not allowed. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-15288812761	26750543	(Patch Set 20) Event Browser in Customer Center was displaying incorrect data. This has been fixed.
3-15504857121	26750548 26772988	(Patch Set 20) The PIN_ERR_LOG_FLIST function was generating core dump when any field in the flist logged was null. This has been fixed.
3-15175943251	26758260	(Patch Set 20) During discount cancellation, the end dates were set incorrectly for full discount configurations and this resulted in incorrect discount calculations. This has been fixed.
3-15018428789	26758262	(Patch Set 20) When the discount information was added using the PCM_OP_SUBSCRIPTION_SET_DISCOUNTINFO opcode, the discount start date was being overwritten causing validation errors. This has been fixed.
3-15377005591	26789166	(Patch Set 20) In a BRM deployment with EAI Manager, the eai_js process was failing if the payload contained a substruct field in the flist format. This has been fixed.
3-15289852771	26810953	(Patch Set 20) Web Services Manager was not fully compliant to SOAP 1.2 format. This has been fixed.
3-15466654821	26827378	(Patch Set 20) The **pin_crypt_upgrade** utility was returning incorrect results. This has been fixed.
3-14030991431	26878389	(Patch Set 20) In a BRM deployment with branding enabled, the settlement action was failing in the validation phase. This has been fixed.
3-15698161021	26879600	(Patch Set 20) Conversion Manager was throwing an error when the input XML contains a comma (,) in it. This has been fixed.
3-15479026641	26886829	(Patch Set 20) The PCM_OP_AR_GET_ACCT_ACTION_ITEMS opcode was incorrectly returning payment items in duplicate when the account's bill unit had a non-paying child unit. This has been fixed.
3-15423599201	26954697	(Patch Set 20) For a quarterly billing cycle, the accounting dates were calculated incorrectly and this resulted in incorrect accounting periods. This has been fixed.
3-14874018361	26961855	(Patch Set 20) Refunding a fixed discount was incorrectly causing the refund of extra charges or other charges. This has been fixed.
3-15522227631	26968648	(Patch Set 20) The RE Loader was having issues loading call detail records (CDRs) for accounts for which multiple service transfer happened at the same time. This has been fixed.

Table 1–1 (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-15795611881	26980057	(Patch Set 20) During product cancellation, while setting the product's charged period dates based on proration settings, the in-advance bill period was also being considered and this was causing inconsistencies. This has been fixed.
3-15704767301	27001612 27143369	(Patch Set 20) In Collections Manager, when a scenario is replaced with another, the due date calculated for collection actions was incorrect. This has been fixed.
3-15224336401	27001623	(Patch Set 20) In Collections Manager, there was a deadlock situation during the collections process. This has been fixed.
3-15833386211	27001629	(Patch Set 20) When getting the aggregated information about a resource from BRM, the process was failing if the events for those resources were purged in the system. This has been fixed.
3-15122787861	27016774	(Patch Set 20) After the backdated modification of the discount end time (END_T), the charges were calculated incorrectly if sequential discounting was enabled. This has been fixed.
3-13660071891	25240446	(Patch Set 19) There was a degradation in performance in a multi-threaded BRM application when the PCM_OP_COLLECTIONS_GROUP_GET_BILLINFO opcode was called. This has been fixed.
3-13813075501	25334224	(Patch Set 19) There was a degradation in performance when a bill unit was attached to a large number of services. This has been fixed.
3-14122314541	25464417	(Patch Set 19) During the BRM patch set upgrades, there was a system downtime. This has been fixed by minimizing the system downtime and by providing better availability of the system with minimal interruption.
3-14249145251	25546346	(Patch Set 19) Direct Debit checkpoint payment did not create the respective event in the system. This has been fixed.
3-14361292201	25713679	(Patch Set 19) The connection manager (CM) processes did not start if the allowed maximum number of child processes could not be determined using the system configuration. This has been fixed.
3-14247873971	25725598	(Patch Set 19) When a discount was purchased backdated on the cycle boundaries, the discounts were not applied to the earlier cycle. This has been fixed.
3-14310713771	25750163	(Patch Set 19) When the PCM_OP_ACT_USAGE opcode was invoked in the CALC_ONLY mode, the applicable rate_plans were not considered. This has been fixed.
3-14546012460	25774362	(Patch Set 19) When some mandatory fields were missed in the input flist of PCM_OP_COLLECTIONS_PROCESS_BILLINFO opcode, the Connection Manager process failed due to missing validations. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-14084083091	25783177	(Patch Set 19) When the literal_indicator parameter for Universal Event Loader (UEL) was set to double quotation marks (") and the input file had the value set to double quotation marks ("), the UEL process did not work. This has been fixed.
3-14400498151	25800305	(Patch Set 19) The array PIN_FLD_TAX_JURISDICTIONS was missing in the post rating policy and this caused issues with the existing customizations. This has been fixed.
3-14400155241	25817739	(Patch Set 19) The invoices did not reflect adjustment items intermittently. This has been fixed.
3-13458873301	25829045	(Patch Set 19) The Connection Manager (CM) did not track the number of its child processes properly, which resulted in connection issues even though the maximum configured value was not reached. This has been fixed.
3-14265015501	25835769	(Patch Set 19) In JCA Adapter, each request in the NO_TRANSACTION mode used two connection contexts, instead of using just one, and due to this, some requests were being turned down due to non-availability of connection contexts. This has been fixed.
3-14341801311	25835779	(Patch Set 19) In EAI Manager, if two business events were defined for the same BRM event, then only one event got published. This has been fixed.
3-14573934621	25860231	(Patch Set 19) The **pin_inv_accts** utility generated an error indicating missing account object information. This has been fixed.
3-14542975481	25864152	(Patch Set 19) The upgrade to BRM Maintenance Patch Set 1 (MPS1) resulted in the local environment variables getting updated, and hence the upgrade failed. This has been fixed.
3-13471295171	25876118	(Patch Set 19) The Paymentech DM (**dm_fusa**) did not handle the error or response code 201 from Paymentech. This has been fixed.
3-14569078401	25876123	(Patch Set 19) On Solaris, with a multi-schema setup, during a specific upgrade scenario, the Oracle Data Manager (**dm_oracle**) exited with a core dump. This has been fixed.
3-14521118471	25889799	(Patch Set 19) With the **ApplyProrationRules** parameter configured, when a product was cancelled, the proration rule was not applied correctly. This was because of using the incorrect billing day of the month for scale calculation required for proration. This has been fixed.
3-14600792321	25917261	(Patch Set 19) When an adjustment was made with an amount greater than the actual due amount, then the system behavior was inconsistent across bill level, item level, and event level adjustments. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-14750240151	25945428	(Patch Set 19) The Invoice DM did not start properly. This has been fixed.
3-13897786211	25945561	(Patch Set 19) In Collections Manager, when there was a promise-to-pay breach, the breach event was not created and handled. This has been fixed.
3-14572302481	25952685	(Patch Set 19) After Bill Now, the bill's current total and due amount did not match the charges in the items for that bill. This has been fixed.
3-14350195371	25959908	(Patch Set 19) Web Services Manager loaded a custom opcode once every request. This resulted in performance issues and random ClassNotFound exceptions. This has been fixed.
3-13940231411	25967164	(Patch Set 19) The name of a rate plan was not allowed to include hyphen (-) as a character, and if included, Pipeline Manager split the rate plan into multiple rate plans assuming the hyphen (-) to be a delimiter. This has been fixed.
3-14703478511	25985623	(Patch Set 19) When a balance group or subscription was transferred, the response of that operation did not include the updated bundle information. This has been fixed.
3-14737800351	25999513	(Patch Set 19) Connection Manager (CM) sometimes exited during AAA update and reauthorize operations and this was due to a memory issue while iterating the flist. This has been fixed.
3-13252806101	26006258	(Patch Set 19) For a subscriber with service usage configured to use shared resources, when an overlapping quantity existed in a single RUM scenario, the credit limit check failed resulting in units being granted incorrectly during authorization and reauthorization requests. This has been fixed.
3-14728435161	26029915	(Patch Set 19) The **pin_invoice_doc_gen** utility generated SQL/DB error related to BILL_NO in the XMLP_INVOICE_JOB table. This has been fixed.
3-14589977741	26029920	(Patch Set 19) The Pipeline Manager failed during startup due to an error from the **DAT_BalanceBatch** module. This has been fixed.
3-14529175191	26085485	(Patch Set 19) The PCM_OP_SUBSCRIPTION_PURCHASE_DISCOUNT opcode did not work when the discount's validity rule, **valid from the middle of cycle**, was set to **Full Discount**. This has been fixed.
3-14888243941	26100353	(Patch Set 19) A degradation in billing performance was observed post upgrading to BRM Patch Set 17. This has been fixed.
3-13852541781	26107196	(Patch Set 19) The Oracle DM used all the available CPU cycles during step search operations when the search flag was set to SRCH_EXACT. This has been fixed.

Table 1–1 (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-14493964131	26135770	(Patch Set 19) After rerating, the backdated events were assigned to incorrect bill items. This has been fixed.
3-14827608361	26193458	(Patch Set 19) With an extra field separator, there was an issue with decoding of the invoice data. This has been fixed.
3-13532086711	26204154	(Patch Set 19) Bill adjustments were applied incorrectly because the correct tax rate for the tax code from the tax configurations with multiple jurisdictions. This has been fixed.
3-14782734341	26239806	(Patch Set 19) In certain scenarios, the PCM_OP_BILL_DEBIT opcode did not close transactions on exit. As a result, the transactions were not stored in the database. This has been fixed.
3-14853336641	26280881	(Patch Set 19) Rated Event (RE) Loader generated an error for event files rated by ECE, when run in the override mode. This has been fixed.
3-14743158171	26313708	(Patch Set 19) In a billing hierarchy, when billing was run only for the parent account, the billing time taxation was calculated incorrectly. This has been fixed.
3-14315882811	26314351	(Patch Set 19) When trying to associate a balance group to an account, calling the PCM_OP_CUST_SET_BAL_GRP opcode along with PIN_FLD_EFFECTIVE_T set to a future date resulted in an error. This has been fixed.
3-15139673371	26364577	(Patch Set 19) The **pin_bill_day** utility displayed an error message for some accounts. This has been fixed.
3-15076550621	26377182	(Patch Set 19) During product cancellation, **effective_t** was not updated in the cancel event. This has been fixed.
3-15261774191	26410685	(Patch Set 19) In the Java Portal Communications Module (PCM), when the SparseArray method was used for modifying some arrays in an existing flist, other arrays in the flist also got truncated or modified. This has been fixed.
3-13096763071	26430393	(Patch Set 19) In-session threshold notifications were not triggered during authorize and update_reauthorize operations for threshold breaches of shared balances. This has been fixed.
3-13928804061	26446758	(Patch Set 19) During account hierarchy creation, BRM automatically triggered billing for the accounts in the hierarchy. This issue has been fixed.
3-15066030741	26385151	(Patch Set 19) In Customer Center, when typing notes in the Service Status Change screen, there was a beep sound. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-14716833563	25974262	(Patch Set 19) In Customer Center, the View and Edit tabs in the Event Browser were disabled. This has been fixed.
3-14061077121	25550034	(Patch Set 18) After assigning a role (user) to an account, suspense payment allocation to that account fails. This has been fixed.
3-14098212791	25550036	(Patch Set 18) During an adjustment, when an amount was entered with a comma or an amount with a comma was edited, the adjustment operation failed. This has been fixed.
3-6840187551	16452443	(Patch Set 18) When a billing delay was configured with a specific time zone, the account was not billed immediately after the delay period, because the delay end date was not rounded to midnight. This has been fixed.
3-8680637521	18413221	(Patch Set 18) During migration, Conversion Manager was not updating the profile_serv_extrating_t.status information. This has been fixed.
3-12068971221	22681654	(Patch Set 18) When the PCM_OP_CUST_MODIFY_CUSTOMER opcode is invoked to transfer a balance group to a new bill unit, fm_subs_service_balgrp_transfer_create_event returns an error indicating PIN_ERR_NONEXISTANT_POID. This has been fixed.
3-12542642001	23152228	(Patch Set 18) While adding a zone map, Oracle Data Manager displayed an error even when the zone added was correct. This has been fixed.
3-13207523901	24491176	(Patch Set 18) Connection Manager returns a validation error because of inconsistent length of the PI_USER_ID, CORRELATION_ID, and EXTERNAL_USER_ID columns in the USER_ACTIVITY_T table. This has been fixed.
3-13305792511	24668579	(Patch Set 18) After terminating a sharing group profile, the subsequent billing process failed because of the invalid ordered balance group for recurring cycle fees. This has been fixed.
3-13524642831	24951997	(Patch Set 18) When there was a database connection time out, Oracle Data Manager was dumping core. This has been fixed.
3-13573525811	25029365 25449664	(Patch Set 18) Vertex Data Manager rounds off only up to five decimals, while Vertex Communications Tax Q (CTQ) Series 6 supports the number of decimal places. This has been fixed.
3-13338336781	25063374	(Patch Set 18) While recording an activity in BRM by calling PCM_OP_ACT_ACTIVITY, Connection Manager returns the PIN_ERR_NO_MEM error. This has been fixed.
3-12947507881	25091034	(Patch Set 18) Issues in shared memory management was causing Oracle Data Manager to exit with a core dump. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-13472287511	25123938 25183512	(Patch Set 18) Due to thread safety issues, Pipeline Manager was crashing when CRITICAL errors were reported in multiple pipelines at the same time. This has been fixed.
3-13542781371	25135167	(Patch Set 18) For a cycle arrears charge, when a prorated discount was configured at the account level and it was valid only till the middle of cycle, the prorated discount was not applied if both the discount and the service were cancelled on the same date. This has been fixed.
3-13625140111	25153115	(Patch Set 18) A backdated purchase deal operation was not considering the backdated timestamp that was provided as input in the END_T table. This has been fixed.
3-13546068891 3-14381630221	25153126 25754938	(Patch Set 18) Oracle Data Manager front-end process appeared to be stuck when writing an error message. This has been fixed.
3-13113661251	25153130	(Patch Set 18) Notification to DM_AQ fails when published using a new PCM context. This has been fixed.
3-13795594741	25212239	(Patch Set 18) The billing process found to have performance issues when the system encountered large number of rate plans. This has been fixed.
3-13398571066	25216293	(Patch Set 18) When a backdated cycle arrears product was cancelled, the discount was not refunded. This has been fixed.
3-13313629991	25239758	(Patch Set 18) Vertex Data Manager did not capture the additional details that CTQ was sending about jurisdiction tax information. This has been fixed.
3-13799140661	25252132	(Patch Set 18) In Customer Center, when the permission (**/accounttool/araccess**) to access account receivables was set to read-only, the customer service representative (CSR) was not able to view the events data. This has been fixed.
3-13620339771	25257283	(Patch Set 18) When a CSR's account credentials with only the admin_ client service was used, Developer Center did not connect to BRM. This has been fixed.
3-13734860181	25260496	(Patch Set 18) Generation of product subscription report through Oracle Business Intelligence Publisher (BIP) took much longer time than expected. This has been fixed.
3-13352676671	25286694	(Patch Set 18) BRM JCA Resource Adapter had issues connecting to BRM. This has been fixed.
3-13821721911	25291179	(Patch Set 18) When tax-only adjustment was done on an event that had a charge, discount, and a tax-balance impact, the tax amount calculated was incorrect. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-13830581521	25330942	(Patch Set 18) Pipeline Manager was not considering an additional custom block in the recycle pipeline. This has been fixed.
3-13977677641	25366578	(Patch Set 18) When the reversal of suspense payment was done, the specified reason code was not considered. This has been fixed.
3-13966999801	25368307	(Patch Set 18) There was a data corruption issue in the PCM_OP_AR_REVERSE_WRITEOFF opcode that was making DB_ID of POIDs invalid. This has been fixed.
3-14032769211	25390783	(Patch Set 18) During rerating with ECE, the PCM_OP_RATE_ECE_RATE_EVENT opcode was generating an error because BRM did not support currency-based rate plan in the rerating workflow. This has been fixed.
3-13443399571	25392597 25533633	(Patch Set 18) BRM was not supporting Discover Diner's club cards. This has been fixed.
3-13994227971	25392601	(Patch Set 18) If the first customer order was a separate step after the account creation, Bill Now was failing with errors. This was due to calling the PCM_OP_ACT_USAGE opcode in the Bill Now workflow in the CALC_ONLY mode. In this case, the cycle dates were calculated incorrectly leading to the error while fetching the required rate plans. This has been fixed.
3-13993841711	25428475	(Patch Set 18) There were some issues with refunds because the original charge information was a mandatory input for the operation. This has been fixed.
3-14074130271	25533630	(Patch Set 18) The Trial Billing process was not generating journals. This has been fixed. Support for generating journals can be added by setting the value of the **PerfAdvancedTuningSettings** field in the billing instance to **64**. See "General Ledger Data Can Now Be Collected for Trial Billing (Patch Set 18)".
3-14114368231	25548992	(Patch Set 18) BRM Vertex Data Manager was not caching the location and rate data even though caching was enabled in the CTQ configuration files. This has been fixed.
3-12997396951	25549663	(Patch Set 18) When PCM_OP_SUBSCRIPTION_SET_DISCOUNTINFO was invoked, the configured discount for recurring fees was not applied correctly. This has been fixed.
3-14143676731	25590020	(Patch Set 18) Billing failed when the PCM_OP_ACT_USAGE was called in the billing workflow in the CALC_ONLY mode. While fetching the required rate plans, the cycle dates were calculated incorrectly leading to an error. This has been fixed.
3-13264171831	25590023	(Patch Set 18) In Pipeline Manager, because the charge packets were not populated with proper RUM_ID, pipeline was not differentiating between multi-RUM and single-RUM scenarios, which resulted in incorrect rated and unrated quantity during re-authorization. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-14057864471	25590026	(Patch Set 18) When transferring a balance group, the value of END_T was not being used as-is, which was causing the validity of the bundle being set to a wrong time stamp. This has been fixed.
3-13747453381	25594145	(Patch Set 18) When a cycle arrears product with the prorate_full configuration was cancelled on the same day as purchase, the discount proration was done, which is incorrect. This has been fixed.
3-13791538961	25651351	(Patch Set 18) In Customer Center, there was an issue in creating a customer account with some specific plans. This has been fixed.
3-14307011981	25651354	(Patch Set 18) When a user logs in to Collections Center as an agent, the refresh functionality did not work properly and the account information was not displayed. This has been fixed.
3-14370068511	25744510	(Patch Set 18) In Customer Center, when allocating an adjustment to a bill (with bill numbers in a custom format), an error was encountered. This has been fixed.
3-14249145251	25822151	(Patch Set 18) Direct Debit checkpoint payment was failing to create proper event records in the BRM database. This occurred because it did not call the PCM_OP_RATE_POL_POST_RATING opcode in the workflow for a failed check pointed payment. This has been fixed.
3-12020971061	17974184	(Patch Set 17) When a bill was suppressed multiple times, multiple bill sequence numbers were used for that single bill even if the bill was finalized only once. This has been fixed. Now, only one bill sequence number is used when a single bill is finalized even if the bill was suppressed multiple times.
3-12097820661	22834517	(Patch Set 17) When preprocessed rated event files were loaded into BRM from ECE, the POIDs for start and end events and the number of total records were not populated in the BATCH_REL_T table in the BRM database. This has been fixed.
3-12671374091	23238436	(Patch Set 17) When subscriptions were transferred multiple times between multiple accounts, the transfers were not recorded properly. As a result, the batch rating pipeline was associating those subscriptions with the old accounts instead of the new accounts. This has been fixed.
3-12739165801	23333014	(Patch Set 17) The size of the IMPACT_CATEGORY column in the IFW_DSCBALIMPACT table did not match the size of the IMPACT_CATEGORY column in other tables. The size of the IMPACT_CATEGORY column in the IFW_DSCBALIMPACT table has been changed to 255 characters to match the size of the IMPACT_CATEGORY column in other tables.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-12728088621	23525690	(Patch Set 17) When detailed general ledger reports were generated in the **export** mode for the unbilled revenue, the incremental calculation was incorrect because the item number was considered for calculation instead of the item's POID number. This has been fixed. Detailed general ledger reports for the unbilled revenue now contain the item's POID number instead of the item number.
3-12475143731	23569372	(Patch Set 17) The PCM_OP_SUBSCRIPTION_BAL_GRP_TRANSFER opcode was throwing an error if the product or discount to be transferred was purchased without a valid deal. This has been fixed.
3-12570234591	23625088	(Patch Set 17) In the previous releases, there were performance issues while trying to generate general ledger reports. This has been fixed.
3-12976128781	23749714	(Patch Set 17) Unbilled revenue for delayed events was not reported correctly in general ledger reports. This has been fixed.
3-12873281731	23761100	(Patch Set 17) When in-advance billing was enabled, events were not picked correctly for rerating. This has been fixed.
3-12617497411	23853541	(Patch Set 17) When multiple rateable usage metrics (RUMs) were configured for products, reservation objects were updated with incorrect quantity. This has been fixed.
3-12641919131	24353733	(Patch Set 17) When a service was transferred to another account, the **pin_rel** utility was failing to load the rated event files created before the service transfer. This has been fixed.
3-12662024951	24353735	(Patch Set 17) When a sharing group was created or modified, incorrect effective date (**effective_t**) was set in the **ordered_balgrp** object. This has been fixed.
3-12938014551	24367838	(Patch Set 17) While running the **fm_reserve.so** file run for a list of reservations, core dump was encountered due to cookies issue. This has been fixed.
3-12089684631	24367842	It was observed that the payment validation was taking more time than in the previous releases. This has been fixed.
3-12884086551	24392363	(Patch Set 17) Batch Controller was not locking its socket when in use and this resulted in incorrect network statistics for the port. This has been fixed.
3-12936657820	24406668	(Patch Set 17) BRM was considering the account currency rather than the product currency for calculating the overridden price for any product or discount. This has been fixed.
3-12910977581	24432423	(Patch Set 17) While updating the discount data with unicode characters, the **loadpricelist** utility was throwing an error. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-12981780191	24457765	(Patch Set 17) When multiple transactions were initiated as part of the parent opcode, some events were missing and also some duplicate events were found in the **user_activity** object. This has been fixed.
3-13100040921	24465697	(Patch Set 17) After upgrading from BRM 7.4 to BRM 7.5 Patch Set 15, Pipeline Manager was failing with the "Rateplan Code Not Found" error. This has been fixed.
3-13176066961	24489406	(Patch Set 17) Vertex Data Manager was failing if geocodes were used for calculating taxes. This has been fixed.
3-12980968901	24489409	(Patch Set 17) The PCM_OP_SUBSCRIPTION_PURCHASE_DISCOUNT opcode was throwing an error due to **rec_id** mismatch. This has been fixed.
3-12228822261	24489416	(Patch Set 17) Parallel discounts could not be applied when one of the charges was a noncurrency resource. This has been fixed.
3-13149110821	24505529	(Patch Set 17) When an account status was changed from active to again active, the PCM_OP_CUST_SET_STATUS opcode was checking all services and child accounts for the status change. This was leading to timeouts in deployments with Application Integration Architecture (AIA). This has been fixed.
3-12518696571	24512761	(Patch Set 17) For some accounts, the cycle fold events were not generated even if the monthly billing was successful. This has been fixed.
3-13116025071	24513307	(Patch Set 17) The Account Migration Manager was very slow when the **pin_amt** utility was run with the **-p** parameter. This has been fixed.
3-13107338631	24521236	(Patch Set 17) The FM_RATE_GET_ERAS_SHARING_PROFILE_INFO opcode was not retrieving the correct extended rating attribute (ERA) from the audit entries. This has been fixed.
3-12437095421	24521240	(Patch Set 17) The PCM_OP_CUST_SET_STATUS opcode was not updating the life cycle state of a service when that opcode was called to update the account or service status. This has been fixed.
3-13081468121	24529102	(Patch Set 17) When rerating events using pipeline, sharing group profiles could not be properly retrieved for rerating. This has been fixed.
3-13268762951	24576127	(Patch Set 17) The PCM_OP_SUBSCRIPTION_SERVICE_BALGRP_TRANSFER opcode was throwing the TRANS_ALREADY_OPEN error if the **disable_pcm_mempool** entry was set to 1. This has been fixed.
3-12524400811	24580051	(Patch Set 17) The Secure Sockets Layer (SSL) security could not be enabled for communications between LDAP Manager and LDAP directory severs. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-13264469981	24599347	(Patch Set 17) For accounts with multiple bill units, cycle tax events were getting assigned to wrong bill items leading to billing issues. This has been fixed.
3-13172735661	24605850	(Patch Set 17) The **pin_clean_rsvns** utility did not release expired reservations. This has been fixed.
3-13206038831	24695837	(Patch Set 17) While creating a new scenario, Collections Configuration Center was throwing an error even after creating the scenario successfully. This has been fixed.
3-12997396951	24695840	(Patch Set 17) Discounts were not calculated correctly when the proration was set to **Full** and the validity date was set to a date in the middle of the cycle. This has been fixed.
3-13230539401	24695843	(Patch Set 17) If BRM was installed on Linux, some localized strings for the Spanish language could not be loaded into the **/strings** objects. This has been fixed.
3-13325011251	24700018	(Patch Set 17) Permissioning Center was not retrieving correct strings from the STRINGS_T table for the locale. Instead, it was displaying the default message. This has been fixed.
3-13217914741	24709974	(Patch Set 17) The **pin_bill_accts** utility was throwing an error when run with the **-file** or **-from_file** parameter. This has been fixed.
3-13372714781	24718494	(Patch Set 17) During the balance group transfer from one account to another, if the source account had multiple services associated with the balance group, an error was thrown. This has been fixed.
3-12970508781	24733423	(Patch Set 17) A core dump was generated when destroying the result flists returned by plan transition opcodes for deallocating the memory. This has been fixed.
3-13389593571	24738636	(Patch Set 17) In Event Browser, the **View** menu was disabled even after the search operation was successful. This has been fixed.
3-13332806131	24749273	(Patch Set 17) The PCM_OP_CUST_UPDATE_SERVICES opcode was not generating the service order correctly when a device was added to or removed from a service while at the same time updating the extended service attributes. This has been fixed.
3-13201400631	24763741	(Patch Set 17) The real-time discounting pipeline was failing with an error while reloading discount data and processing transactions. This has been fixed.
3-13241090781	24795455	(Patch Set 17) When a rerating job fails in ECE, the status was not updated in BRM. This was causing a status mismatch across applications. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-13426267481	24798272	(Patch Set 17) Voucher Administration Center was not displaying batch and package numbers properly. This has been fixed.
3-13024757541	24809098	(Patch Set 17) When a product with the monthly cycle forward events had a rateplan selector configured, rerating of cycle forward events created by in-advance billing was failing with an error. This has been fixed.
3-13426747241	24815801	(Patch Set 17) When the PCM_OP_SUBSCRIPTION_SET_BUNDLE opcode was called, deadlocks were observed due to transaction issues. This has been fixed.
3-13163266321	24835077	(Patch Set 17) When daily bundles had offer profiles configured, adjusting noncurrency resources was failing with an error. This has been fixed.
3-12553755381	24840793	(Patch Set 17) Backdated deal cancellation was failing with an error. This has been fixed.
3-13344058551	24841742	(Patch Set 17) When a product with a multi-rate tier was cancelled, the cancellation was not rated with the same rate tier as the purchase. This has been fixed.
3-13432002211	24841746	(Patch Set 17) When a cycle fee event had balance impacts for multiple tax jurisdictions, only the first tax jurisdiction was considered for tax calculation for adjustments, which was incorrect. This has been fixed.
3-13490510391	24903949	(Patch Set 17) Customer Center was not retrieving correct strings from the STRINGS_T table for the locale. Instead, it was displaying the default message. This has been fixed.
3-13363588451	24925871	(Patch Set 17) When a future-dated purchased product was cancelled, its **end_t** was set to the cancellation date causing the end date to be earlier than the start date. This was causing issues in Customer Updater. This has been fixed.
3-13342815461	24949007	(Patch Set 17) It was observed that several classes were missing from **CustomerCenterAll.jar** file. This has been fixed.
3-13543733701	24966692	(Patch Set 17) Pipelines were not stopped immediately even when Pipeline Manager encountered a critical error during startup. This has been fixed.
3-13398571051	25033819	(Patch Set 17) For cycle arrear products, backdating was not working for **purchase_deal** operations. This has been fixed.
3-13149479481	25033823	(Patch Set 17) Running the **pin_recover** utility with the **-resubmit** parameter was not retrieving the fields in the PCM_OP_PYMT_POL_PRE_COLLECT policy opcode. This has been fixed.
3-13274113961	25063367	(Patch Set 17) When purchasing an offer, an invalid ERA profile was tagged to a service or an account. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-13458652441	25097712	(Patch Set 17) Executing scheduled actions created by the PCM_OP_ SUBSCRIPTION_SERVICE_BALGRP_TRANSFER opcode triggered billing even before the services were transferred. As a result, charges were applied to the old account instead of the new account. This has been fixed.
3-5055201651	13566849	(Patch Set 16) In the previous releases, when a cycle product with proration was canceled, the cycle charges were not calculated correctly. This has been fixed.
3-7845445021	17508188	(Patch Set 16) In the previous releases, the PCM_OP_AR_GET_ACCT_ ACTION_ITEMS opcode was returning all payments irrespective of the threshold value. Opcode Flist Reference has been updated to reflect the actual behavior.
3-9985216391	20183379	(Patch Set 16) In the previous releases, the description of closed_t field in the bill object was not correctly indicating when this field was updated. This has been fixed.
3-10667223261	20996132	(Patch Set 16) In the previous releases, Payment Tool was timing out due to a performance issue with the PCM_OP_AR_GET_BAL_SUMMARY opcode. This has been fixed.
3-11100306391	21501457 24298600	(Patch Set 16) In the previous releases, **dm_vertex** was failing with an error when multiple tax information was passed as input. This has been fixed.
3-11274029641	21881000	(Patch Set 16) In the previous releases, when a balance group was transferred from one account to another, the return flist did not contain the newly purchased product information for the destination account. This has been fixed.
3-11515873601	22006333	(Patch Set 16) In the previous releases, when the **pin_inv_accts** utility was run, deadlocks were observed on account balance groups. This has been fixed.
3-11580848801 3-12114762961	22158896 22740631	(Patch Set 16) In the previous releases, the **pin_dd_to_schema** script was not generating the complete XSD schema for storable classes. This has been fixed.
3-11642142981	22573754 22588436 22588437 22627808	(Patch Set 16) In the previous releases, the INVOICE_DATA value for rerated batch usage events was incorrect when the INVOICE_DATA string length exceeded 4000 characters. This has been fixed.
3-12036976641	22582506	(Patch Set 16) In the previous releases, the PCM_OP_IC_DAILY_ LOADER opcode was failing when it was run by using Universal Event (UE) Loader. This has been fixed.
3-11642142981	22588436 22588437 22627808	(Patch Set 16) In the previous releases, if the event cache size of the PIN_ FLD_INVOICE_DATA field was greater than 4000 bytes, the PIN_FLD_ INVOICE_DATA field was ignored and the invoice displayed a zero amount. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-10705203421	22655347	(Patch Set 16) In the previous releases, even when bill suppression was enabled, zero-valued bill items were being created at the time of billing. This has been fixed.
3-10750802301	22724240	(Patch Set 16) In the previous releases, if rerating was done in a delayed billing period, rolled-over resources from the last completed accounting cycle were not processed properly, leading to incorrect resource balance impacts. This has been fixed.
3-11932780481	22730114	(Patch Set 16) In the previous releases, when importing data into BRM by using Conversion Manager, the service-level promotion data was rejected. This has been fixed.
3-12000405661	22748339	(Patch Set 16) In the previous releases, when a price list was updated in Pricing Design Center (PDC) and synchronized with BRM, the PCM_OP_PRICE_SET_PRICE_LIST opcode failed with an error. This has been fixed.
3-11880725231	22763774	(Patch Set 16) In the previous releases, corrective billing operation was not calling the PCM_OP_BILL_POL_SPEC_BILLNO opcode when the bill number format was customized. This has been fixed.
3-11618027191	22811706	(Patch Set 16) In the previous releases, Pricing Center was throwing an error when a product with a rate plan was selected. This has been fixed.
3-11959116791	22831805	(Patch Set 16) In the previous releases, Customer Center was not validating the override amount and discount amount entered for purchase and cycle fees against the amount range set by using Permissioning Center. This has been fixed.
3-11698443221	22834515	(Patch Set 16) In the previous releases, in a multischema system, payments made for written-off accounts or for accounts in the secondary schema, which are not billed for a few cycles, were not successful if made through Payment Tool. This has been fixed.
3-12036318891	22834701	(Patch Set 16) In the previous releases, the PCM_OP_BAL_GET_ECE_BALANCES opcode reference included the PIN_FLD_BALANCES array instead of the PIN_FLD_BAL_IMPACTS array. This has been fixed.
3-12374243801	22859580	(Patch Set 16) In the previous releases, when a hierarchy of accounts was billed, and a bill search was done after the billing, the results were incorrect because the search operation was not grouping the results based on the parent bill object. This has been fixed.
3-11598661051	22900599	(Patch Set 16) In the previous releases, when a subscription was transferred from account A to account B and then back to account A, Pipeline Manager was failing to rate any usage for services associated with account A. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-11615508101	22900605	(Patch Set 16) In the previous releases, while rerating rated events for hierarchical accounts with sponsor groups, if any of the original event had a sponsor balance impact, an item transfer was incorrectly triggered. This has been fixed.
3-12222709621	22900611	(Patch Set 16) In the previous releases, the file description handlers opened by the **pin_rel** utility were not closed even after successfully processing the rated event files, and this was causing an error. This has been fixed.
3-12340452461	22914083	(Patch Set 16) In the previous releases, Customer Center was accepting only 10-digit voucher PIN instead of 12 digits. This has been fixed.
3-12268786281	22965000 22997214	(Patch Set 16) In the previous releases, even if **pin_virtual_time** was enabled, Pipeline Manager was using the system time instead of **pin_virtual_time**, resulting in inconsistent output. This has been fixed.
3-12284111761	22969395	(Patch Set 16) In the previous releases, Java Portal Communication Module (Java PCM) was only supporting the PIN_XML_BY_SHORT_NAME type of XML files as input for the XmlToFlist API, and this was impacting the performance of Java PCM. This has been fixed. The XmlToFlist API now supports even the PIN_XML_BY_NAME type of XML files as input.
3-12077416621	22974343	(Patch Set 16) In the previous releases, JCA Resource Adapter was not considering the timeout (in milliseconds) configuration. This has been fixed.
3-12403659151	22999620	(Patch Set 16) In the previous releases, taxes were incorrectly applied because the PCM_OP_CUST_POL_TAX_CALC policy opcode selected incorrect locales for applying tax. This has been fixed.
3-12380336861	23010127	(Patch Set 16) In the previous releases, there were performance issues while trying to delete a payment method from a bill unit. This has been fixed.
3-12202890451	23016705	(Patch Set 16) In the previous releases, DAT_AccountBatch did not consider the ProfilesNotLoadedIntoEdr registry entry for retrieving account data from the BRM database. This was resulting in incorrect charging of the account. This has been fixed.
3-12377373051	23038870	(Patch Set 16) In the previous releases, the **pin_collect** utility was not considering daylight saving time (DST) when start and end dates were specified. This has been fixed.
3-12283528931	23082792	(Patch Set 16) In the previous releases, while deploying Web Services Manager on the Tomcat server, an error was displayed. This has been fixed.
3-12454313361	23130331	(Patch Set 16) In the previous releases, batch rating of corporate or large accounts with each account having large number of services was affecting the performance of Pipeline Manager. The performance of Pipeline Manager for batch rating of large accounts is now improved.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-12545355561	23133662	(Patch Set 16) In the previous releases, the Java main() function was not handling all types of exceptions. This has been fixed.
3-12323233041	23153186	(Patch Set 16) In Payment Tool, after changing the password for the first time, the password was not expiring even after the specified number of days. This has been fixed.
3-12486171031	23173729	(Patch Set 16) In the previous releases, cycle fees were calculated incorrectly for accounts migrated with multiple rate plans. This has been fixed.
3-12388438191	23189574	(Patch Set 16) In the previous releases, when the product end date was the same as the product start date, the refund for the product was applied twice if auto-triggered billing was enabled for the account. This has been fixed.
3-12342817211	23209097	(Patch Set 16) In the previous releases, when multiple discounts were configured in the cascade mode and the credit check was enabled, the charge packets were incorrectly split. This was leading to errors. This has been fixed.
3-12373678031	23209908	(Patch Set 16) In the previous releases, when the discount offer was configured in PDC and then purchased for an account in BRM, the discounts in that offer were not applied even if the discount offer was configured to be effective immediately after the purchase. This has been fixed.
3-11852984381	23235096	(Patch Set 16) In the previous releases, Pipeline Manager was considering only older item POIDs for billing even after running Bill Now. This has been fixed.
3-12445911211	23246386	(Patch Set 16) In the previous releases, Pipeline Manager was sometimes failing with errors without handling the situation gracefully. This has been fixed.
3-11495174191	23251348	(Patch Set 16) In the previous releases, when a product was purchased, a previously canceled discount was considered for calculating the discount for that product even if no discounts were purchased for that product. This has been fixed.
3-11878456711	23251354	(Patch Set 16) In the previous releases, a cascade discount which is of low priority was applied even after the entire charge packet was evaluated and discounted by the sequential discount. This has been fixed.
3-12504192321	23259588	(Patch Set 16) In the previous releases, when a deal was purchased, the workflow was internally invoking the PCM_OP_ACT_USAGE opcode twice in the CALC_ONLY mode. This was leading to errors. This has been fixed.
3-12434179761	23259597	(Patch Set 16) In Pricing Center, when you select an existing discount and click the **Detailed Discount info** tab, the following error was displayed: `There is already a discount in the database with this name. Enter another name, and try again` This has been fixed.
3-12643536841	23275535	(Patch Set 16) The performance of the credit profile search function has now been improved.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-12587445691	23275537	(Patch Set 16) In Customer Center, Event Browser was sorting the events based on date instead of month. This has been fixed.
3-12558102191	23275541	(Patch Set 16) In the previous releases, if billing cycle frequency was changed from monthly to quarterly, the CHARGED_TO_T table was not in synchronization with the NEXT_BILL_T table. This has been fixed.
3-12641416411	23282974	(Patch Set 16) In the previous releases, when a monthly cycle product was deactivated and reactivated on the same day, the refund amount was not rounded properly because of rounding discrepancies. This has been fixed.
NA	23305816	(Patch Set 16) In the previous releases, after updating Public User Identity (PUID) for a customer, if rerating was run, it failed with error. This has been fixed.
3-12240382681	23313608	(Patch Set 16) In the previous releases, the tax exemption was not properly taken into consideration for bill-level adjustments and was leading to incorrect tax calculation. This has been fixed.
3-12166242231	23313612 23321069	(Patch Set 16) The performance of the agent tasks list filter in Collections Center has been improved.
3-12465715931	23321067	(Patch Set 16) In the previous releases, when a SIM number of a customer was changed, the SERVICE_ALIAS_LIST_T table was not populated with the change. As a result, the customer was not able to use the service. This has been fixed.
3-12337146091	23324796	(Patch Set 16) In the previous releases, the Collections Scenario object was updated even if there was no change in its data. This has been fixed.
3-11873951621	23338036	(Patch Set 16) In the previous releases, the **pin_rerate** utility was not supporting any custom fields. This has been fixed.
3-12718771361	23345973	(Patch Set 16) In the previous releases, billing was failing due to an issue with journals update. This has been fixed.
3-12437095421	23477401	(Patch Set 16) In the previous releases, the Subscriber Lifecycle Management (SLM) feature did not support changing the states manually. This has been fixed.
3-12431591421	23484524	(Patch Set 16) In the previous releases, when the billing DOM of a customer was changed, the old billing DOM was considered for billing instead of the new billing DOM. This has been fixed.
3-12654995364	23484529	(Patch Set 16) In the previous releases, JCA Resource Adapter was substituting NULL POIDs with -1. This was causing opcodes to fail. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-12592091731	23504062	(Patch Set 16) In the previous releases, the PCM_OP_CUST_DELETE_ PAYINFO opcode was dumping core while logging errors. This has been fixed.
3-11221300411	23511636	(Patch Set 16) In the previous releases, after a discount was canceled, it was not refunded to the customer. This has been fixed.
3-11999870941	23511638 23625091	(Patch Set 16) In the previous releases, when a subscription transfer was performed, the validity dates were not properly synchronized and in some cases valid-to dates were earlier than valid-from dates. This has been fixed.
3-12462917501	23525693	(Patch Set 16) In the previous releases, updating the data dictionary in a multischema system by using the **pin_deploy** utility with the replace parameter failed with an error. This has been fixed.
3-12817579931	23540419	(Patch Set 16) In the previous releases, discounts were not triggered for accounts migrated by using Conversion Manager. This has been fixed.
3-12199073961	23541931	(Patch Set 16) In the previous releases, the **pin_event_extract** utility was dumping core while processing large records. This has been fixed.
3-12522649241	23562128	(Patch Set 16) In the previous releases, the Connection Manager (CM) was taking an unusually long time to cache impact categories for large rate plans. This has been fixed.
3-12444157381	23562131	(Patch Set 16) In the previous releases, it was not possible to remove the invoice payment type or override any default payment types in the **pay_ type** entry in the **pin_collections** configuration file. This has been fixed.
3-12480280741	23568900	(Patch Set 16) **dm_fusa** was not supporting the new two series Bank Identification Number (BIN) range. This has been fixed.
3-12647476131	23572494 23750675	(Patch Set 16) In the previous releases, **dm_vertex** did not support detailed tax override input to Vertex CTQ limiting its functionality. This has been fixed.
3-12648686821	23584601	(Patch Set 16) In the previous releases, the **pin_cycle_fees** utility was passing incomplete information to the MTA_WORKER_JOB_DONE policy opcode. This has been fixed.
3-12800014741	23584604	(Patch Set 16) In the previous releases, it was not possible to add regular expressions for event types in the *BRM_home*/**sys/data/config/pin_notify** file. This has been fixed.
NA	23591943	(Patch Set 16) In the previous releases, while migrating accounts by using Account Migration Manager, the data in the EVENT_ESSENTIALS_T table was not completely migrated. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-12289669581	23632579	(Patch Set 16) In the previous releases, the refund for a backdated cancellation was applied to an incorrect bill. This has been fixed.
3-12021174581	23643943	(Patch Set 16) In the previous releases, the PCM_OP_SUBSCRIPTION_ SHARING_GROUP_SET_PARENT opcode was failing in cases where a discount sharing group existed, but it was not associated with any discount. This has been fixed.
3-12910977581	23645760	(Patch Set 16) In the previous releases, the **LoadPriceList** utility was failing with errors while updating discount descriptions. This has been fixed.
3-12837866961	23697852	(Patch Set 16) It was not possible to access Customer Center after upgrading from BRM 7.5 Patch Set 11 to BRM 7.5 Patch Set 15. This has been fixed.
3-12865935611	23698566	(Patch Set 16) In the previous releases, when the time-stamp rounding was disabled, discounts were not calculated properly because of incorrect cycle start dates for purchased discounts. This has been fixed.
3-12341554256	23699332	(Patch Set 16) In the previous releases, in Payment Tool, the channel ID was not properly assigned to individual payments. This has been fixed.
3-12452686011	23717288	(Patch Set 16) In the previous releases, the EAI Java Server or **eai_js** was failing due to memory corruption. This has been fixed.
3-12749292641	23724483	(Patch Set 16) In the previous releases, when some events were already generated for an account for the billing cycle and later in the same billing cycle if the charge or discount sharing was configured for that account, billing failed with error. This has been fixed.
3-12831213851	23731708	(Patch Set 16) In the previous releases, if selective rerating was performed based on product IDs, the discount-only events were not considered for rerating. This has been fixed.
3-12228822261	23734922	(Patch Set 16) In the previous releases, parallel discounts were not working when one of the charges was a noncurrency resource and the discounts also impacted the same noncurrency resource. This has been fixed.
3-12819905941	23736820	(Patch Set 16) Customer Center was not supporting the new MasterCard two series range. This has been fixed.
3-12918802781	23743609	(Patch Set 16) In the previous releases, the PCM_OP_SUBSCRIPTION_ READ_ACCT_PRODUCTS opcode was using an incorrect search template. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-12588673231	23748049	(Patch Set 16) In the previous releases, when rerating after a subscription transfer, adjustments created for an event with a time stamp earlier to the subscription transfer were incorrectly referring to the new bill unit instead of the original bill unit. This has been fixed.
3-12108079471	24288417	(Patch Set 16) In the previous releases, when corrective billing was run, the **pin_inv_export** utility generated both original and corrected invoices. This has been fixed.
3-12972611701	24296212	(Patch Set 16) In the previous releases, when the **pin_deferred_act** utility was run for multiple refunds to an account, the corresponding balance group was not locked resulting in multiple threads accessing the same balance group at the same time causing incorrect results. This has been fixed.
3-12570234591	24370489	(Patch Set 16) In the previous releases, the **pin_round_beid** function was affecting the performance of ledger reports generation. This has been fixed.
3-6989239001	16691280	(Patch Set 15) In the previous releases, the global value of **perf_features_flags** was being masked by a declaration in the **fm_inv_pol_init.c** file resulting in unwanted behavior during the invoicing process; for example, even if the **perf_features_flags** flag was globally set to not include balance impact details, the balance impacts were still included. This has been fixed.
3-11373910241	21865265	(Patch Set 15) In the previous releases, for an account configured for charging with multiple tiers, even when the multiple tiers were valid during a billing cycle, the tier-based charges were not applied, resulting in an incorrect balance impact. This has been fixed.
3-11374233391	21871620	(Patch Set 15) In the previous releases, the **pin_deferred_act** utility was not picking up scheduled actions that were scheduled for the current time. The utility was only picking up scheduled actions that were for a time earlier than the current time. This has been fixed.
3-11385755391	21881531	(Patch Set 15) In the previous releases, the tax calculations in the response from Vertex for a bundled product was incorrectly removed or replaced within BRM, giving an incorrect tax breakup for the bundle. This has been fixed.
3-11364258861	21894628	(Patch Set 15) In the previous releases, when the number of records in BILL_T and ITEM_T was large, running the database upgrade script appeared to be stuck at **update_bill_closed_t.source** due to a performance issue. This has been fixed.
3-9507283071	22007500	(Patch Set 15) In the previous releases, the invoicing performance needed improvement. This has been fixed.
3-11080511951	22085110	(Patch Set 15) In the previous releases, during rerating for scenarios that involved in-advance billing, the support for in-advance billing for rerating was not available, resulting in incorrect results. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-11500844421	22086287	(Patch Set 15) In the previous releases, when running **pin_inv_accts**, a deadlock error was encountered and subsequently the bill generation was halted. This has been fixed.
3-11408397211	22111548	(Patch Set 15) In the previous releases, the Bill Now process for hierarchical accounts was generating core dump. This has been fixed.
3-11434416981	22158407	(Patch Set 15) In the previous releases, in a BRM system integrated with PDC, actions such as transition delete and update on a plan were failing due to an inconsistent transition cache. This has been fixed.
3-11715122011	22249269	(Patch Set 15) In the previous releases, a segmentation fault was observed while fetching a large number of products. This has been fixed.
3-11674774671	22251408	(Patch Set 15) In the previous releases, the **/event/modification/bal_grp/modify** event did not contain billinfo POID under BAL_INFO, resulting in an error while updating customer information using Customer Updater. This has been fixed.
3-10803830141	22269706	(Patch Set 15) In the previous releases, when Collections Manager was inactivating a product, an error was observed due to the PIN_FLD_CYCLE_FEE_AMT value being set to NULL; the **pbo_decimal** operation was trying to convert the NULL value to a decimal value. This has been fixed.
3-11177821381	22269710	(Patch Set 15) In the previous releases, with a backdated cancellation of a discount with 30-day proration enabled, the discount refund was incorrectly calculated and the refund given was more than 100%. This has been fixed.
3-10059727906	22269713	(Patch Set 15) In the previous releases, the **pin_recover** utility was not picking up custom events corresponding to custom pay types. This has been fixed.
3-11424089751	22276095	(Patch Set 15) In the previous releases, upon rerating, the billed unearned for the previous month was not matching the billed earned in the current month. This has been fixed.
3-11120885701	22276097	(Patch Set 15) In the previous releases, performance issues were observed in queries on the ITEM_T table that did not have **account_obj_id0**. This has been fixed.
3-10364717921	22276099	(Patch Set 15) In the previous releases, when an opcode call was made into an Payload Generator External Module (EM) process whose service was down, both the child and the main CM processes were getting terminated. This has been fixed.
3-11519598881	22286351	(Patch Set 15) In the previous releases, when unicode data was present in a message, the Oracle Advance Queue (AQ) Data Manager's enqueue procedure was incorrectly calculating the length of the incoming buffer and the procedure was failing. This has been fixed.

Table 1–1 (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-11156397081	22313546	(Patch Set 15) In the previous releases, a memory leak in the CM was observed during billing. This has been fixed.
3-11341723261	22320187	(Patch Set 15) In the previous releases, when transferring a service from one balance group to another, the VALID_TO of the old bundle and VALID_FROM of the new bundle were set to current date even when END_T was passed. This has been fixed.
3-11791539691	22321839	(Patch Set 15) In the previous releases, the CM process was not connecting to a stand-by Oracle Data Manager (**dm_oracle**) in a high-availability set up. This has been fixed.
3-11581690731	22329992	(Patch Set 15) In the previous releases, with Pipeline Manager deployed, after a service transfer when a usage having a later time stamp (than service transfer date and time) was rated, the event was being assigned to the same earlier item instead of to a new item after the service transfer. This has been fixed.
3-11176687358	22337575	(Patch Set 15) In the previous releases, when collections actions were run at the same time as billing, a balance group deadlock was observed. This has been fixed.
3-11451172981	22370499	(Patch Set 15) In the previous releases, the time stamps were not printed in the JCA Resource Adapter log. This has been fixed.
3-11178803541	22467428	(Patch Set 15) In the previous releases, with Pipeline Manager, when you configured a cascade discount with a noncurrency resource spanning multiple charge or discount packets, the discounts were incorrectly calculated. This has been fixed.
3-11659326011	22473891	(Patch Set 15) In the previous releases, when tokenization was enabled, the direct debit response from Paymentech was treated with an assumption that it contained token data, which resulted in an erroneous response processing. This has been fixed.
3-11841216601	22473893	(Patch Set 15) In the previous releases, there was a discrepancy in the data length of SERVICECLASS in the IFW_USC_MAP and IFW_RATEPLAN_CNF tables. The SERVICECLASS in IFW_USC_MAP was 2000 bytes and the SERVICECLASS in IFW_RATEPLAN_CNF was only 5 bytes. This has been fixed.
3-11337762771	22477718	(Patch Set 15) In the previous releases, when calling the PCM_OP_SEARCH opcode along with an input flist in LDAP Data Manager, LDAP Data Manager was crashing with the PIN_ERR_STREAM_EOF error. This has been fixed.
3-11738715311	22481019	(Patch Set 15) In the previous releases, it was not possible to connect Pricing Center to the Pipeline Manager database. This has been fixed.
3-11799329311	22483768	(Patch Set 15) In the previous releases, with newly migrated accounts the cycle fees was incorrectly computed. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-11900189651	22540509	(Patch Set 15) In the previous releases, a duplicate refund was generated when an offer was purchased, the offer's END_T was updated, and then the offer was canceled. Refunds were observed during the cancellation as well as upon termination of the offer. This has been fixed.
3-11520613171	22581032	(Patch Set 15) In the previous releases, if you had configured Business Intelligence (BI) Publisher, instead of BRM, to generate invoices, it was not possible for you to view the invoices from Customer Center. This has been fixed. A new API is added to invoke the invoice viewer to show invoices generated in BI Publisher from Customer Center.
3-12021174581	22589036	(Patch Set 15) In the previous releases, the PCM_OP_SUBSCRIPTION_ SHARING_GROUP_SET_PARENT opcode was failing when a discount sharing group with no discounts attached was passed in. This has been fixed.
3-12001113061	22596513	(Patch Set 15) In the previous releases, JCA Resource Adapter was failing and throwing the TRANS_ALREADY_OPEN error. This has been fixed.
3-12069499931	22609212	(Patch Set 15) In the previous releases, with Pipeline Manager deployed, when using custom iScripts, querying for the billinfo POID ID was returning random IDs. This has been fixed.
3-12049991891	22655343	(Patch Set 15) In the previous releases, if there was a rate change during an in-advance period, the event was not split. This has been fixed.
3-11753120051	22655345	(Patch Set 15) In the previous releases, when a rate plan selector product was canceled, the refund amount was incorrectly calculated. This has been fixed.
3-11930646441	22664031	(Patch Set 15) In the previous releases, in a multi-schema setup, the PCM_OP_CUST_COMMIT_CUSTOMER opcode was throwing the PIN_ ERR_STORAGE and PIN_ERR_NOT_FOUND errors. This has been fixed.
3-11152745001	22733153 22752947	(Patch Set 15) In the previous releases, an unresolved dispute link was active in Customer Center, even after settling the dispute. This has been fixed.
3-12020846971	22733156	(Patch Set 15) In the previous releases, in a BRM setup with Pricing Design Center, if a rate change was performed during in advance period, the charges were not split based on the rate change date. This has been fixed.
3-12040149611	22753017	(Patch Set 15) In the previous releases, it was not possible to perform a top-up operation in Customer Center. This has been fixed.
3-11698443221	22989300	(Patch Set 15) In the previous releases, in a multischema environment, if **payment_batch_lock** was disabled and billing was due on the account, the cross-schema payments were failing. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-9816123031	19989168	(Patch Set 14) In the previous releases, the PCM_OP_SEARCH opcode was failing with segmentation faults for an object having multiple array elements with more than two levels of nesting. This has been fixed.
3-10282277281	20603996	(Patch Set 14) In the previous releases, the **pin_ledger_report -export -regenerate** command was dumping core when regenerating general ledger (G/L) reports for a segment that no longer existed in the system. This has been fixed.
3-9590288361	20616930	(Patch Set 14) In the previous releases, child CM was dumping core during transactions. This has been fixed.
NA	20756902 21864451	(Patch Set 14) In the previous releases, the PCM_OP_COLLECTIONS_ GET_ACTION_HISTORY opcode had performance issues. This has been fixed. The performance is improved by adding appropriate indexes.
3-9963951711 3-10870421591	20777995 20963200 21155233 21363715	(Patch Set 14) In the previous releases, with the **collection_action_ dependency** parameter enabled, two actions configured to run on different dates were rescheduled to run on the same day due to weekend. This has been fixed.
3-10467936061	20814811	(Patch Set 14) In Conversion Manager, it was not possible to migrate both the paying and non-paying billing profiles using the same XML file. This has been fixed.
3-10364717921	20866124	(Patch Set 14) When the CM process was calling an opcode into an EM process whose service was down, the CM process was getting terminated. This has been fixed.
3-10522390581	20890104	(Patch Set 14) In the previous releases, when synchronizing the credit profile updates from BRM to Oracle Communications Elastic Charging Engine (ECE), ECE was rejecting the updates due to invalid revision numbers. This has been fixed.
3-10669370901	21097636	(Patch Set 14) In the previous releases, the one-time purchase product that was purchased before subscription transfer was getting transferred to the destination account when a rate plan change was done on the source account after the subscription transfer. This has been fixed.
3-10630091291	21128282	(Patch Set 14) In the previous releases, when the END_T of a discount was updated from **Never** to a specific date, an improper discount refund was applied. This has been fixed.
3-10836873011	21183816	(Patch Set 14) In the previous releases, Pipeline Manager was getting into a deadlock state due to database failure. This has been fixed.
3-10699989601	21243860	(Patch Set 14) In the previous releases, Conversion Manager was not considering the element ID for an array provided in the input XML file and was always starting with 1 and was getting incremented by 1. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-11010667451	21420827	(Patch Set 14) In the previous releases, if discounts existed for member services not belonging to an ordered balance group, the discounts were not considered and they were not triggering discount sharing. This has been fixed.
3-10912456301	21464324	(Patch Set 14) In Pipeline Manager, the FCT_Discard module was not discarding an event data record (EDR) when the wholesale charged amount value was zero. This has been fixed.
3-10932386241	21500606	(Patch Set 14) In the previous releases, when the information in the PIN_FLD_INVOICE_DATA field was incomplete, the PCM_OP_INV_DECODE_INVOICE_DATA opcode was failing to decode the invoice data. This has been fixed.
3-11097633291	21507510	(Patch Set 14) In Payment Tool, when the Payment ID for a reversal batch was pasted by pressing CTRL+V, the **Validate** button was not enabled. This has been fixed.
3-11024263721	21515642	(Patch Set 14) In the previous releases, with a two-phase billing cycle enabled, if a discount is purchased after the first phase of billing but before the second phase, the balance impacts were not correctly applied. This has been fixed.
3-11109513621	21518610	(Patch Set 14) Rated Event Loader (RE Loader) was generating a NULL pointer exception, causing the script to exit abnormally. This has been fixed.
3-11095181638	21524370	(Patch Set 14) In the previous releases, a performance issue was observed while searching on the ITEM_T table in the database. This has been fixed.
3-11022806461	21531014	(Patch Set 14) In the previous releases, when payment collection functionality was run using the PCM_OP_PYMT_COLLECT opcode, an error was thrown indicating that the object in question was already locked. This has been fixed.
3-10988403271	21542770	(Patch Set 14) In the previous releases, the address and geocode information were missing in the response of the PCM_OP_RATE_TAX_CALC opcode when called with a Vertex bundle that included multiple service offerings. This has been fixed.
3-10743305811	21546504	(Patch Set 14) In the previous releases, if the product was purchased backdated in such a way that the backdated month was not the same as the month of billing day of month, the event charge period was not aligning with the account's bill cycle period. This has been fixed.
3-10356603521	21569623	(Patch Set 14) When applying BRM 7.5 Maintenance Patch Set 1 on a version earlier than BRM 7.5 Patch Set 7, the installation was failing. This was due to an incorrect Perl version. This has been fixed.
3-10750433691	21595773	(Patch Set 14) When using Conversion Manager, the parent object information in the AU_ACCOUNT_T and AU_PURCHASED_BUNDLE_T audit tables were not correctly populated. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-10855755781	21595780	(Patch Set 14) In the previous releases, when a service was canceled, the related purchased products under the canceled service were not getting canceled. This has been fixed.
3-11199163741	21595784 21675549 21824653	(Patch Set 14) In a multischema environment, when creating customer accounts using the PCM_OP_CUST_COMMIT CUSTOMER opcode, JCA Resource Adapter was having issues with BRM transaction modes. The opcode was failing with the TRANS_ALREADY_OPEN error. This has been fixed.
3-11068191911	21606114	(Patch Set 14) In the previous releases, Pipeline Manager was crashing while processing call detail records (CDRs). This has been fixed.
3-11109021221	21613112	(Patch Set 14) In the previous releases, Pipeline Manager was crashing when processing CDRs with CDR data that could cause decimal overflow exception. This has been fixed.
3-11142650741	21614254	(Patch Set 14) In the previous releases, Payment Center was not returning all the suspended payments gracefully due to an exception raised while extracting information from the database. This has been fixed.
3-10772078691	21678704	(Patch Set 14) In the previous releases, during an auto-triggered billing due to the closure of products and discounts for a specific service, the discounts specific to other services for the bill unit were not applied. This has been fixed.
3-10803830141	21678707	(Patch Set 14) Using Collections Manager to inactivate a purchased product was throwing an error. This has been fixed.
3-11022484061	21682537	(Patch Set 14) In the previous releases, when a backdated cancellation of a discount was performed, an error was being thrown with incorrect balance impacts. This has been fixed.
3-11037628041	21697562	(Patch Set 14) In the previous releases, while processing an account-level discount, with a discount sharing group configured, the account-level discount was being applied twice. This has been fixed.
3-10435300951	21747749	(Patch Set 14) In the previous releases, when a product purchase and cancellation happened in the first cycle for an account, the rating was incorrectly done to apply prerate first and last together. This has been fixed.
3-11123628271	21755058	(Patch Set 14) After a subscription transfer, if rerating was performed, the items created for the period earlier to the subscription transfer were pointing to the new bill unit rather than the earlier bill unit created before subscription transfer. This has been fixed.
3-11093115191	21790869	(Patch Set 14) In the previous releases, an account hierarchy migrated using Conversion Manager was showing the lineage of just the immediate parent, rather than the lineage up to the top-most account. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-11170191281	21790875	(Patch Set 14) In the previous releases, there was an issue starting Pipeline Manager. This has been fixed.
3-10843510721	21802894	(Patch Set 14) When processing a CDR through Pipeline Manager, even after processing the CDR correctly, an error stating missing G/L ID information in the charge packet was being logged in the stream log. This has been fixed.
3-11183270671	21802897	(Patch Set 14) In the previous releases, the Customer Care API was not type-checking the Java Date objects and the custom panels were throwing the **ClassCastException** exception. This has been fixed.
3-10724768341	21810082	(Patch Set 14) In the previous releases, any data deleted within Pricing Design Center was not synchronizing properly with BRM, and the **load_config** utility was not able to replace the existing configuration data with the new data. Instead, the **load_config** utility was saving the union of the old and new data. This was resulting in errors in the processes such as G/L reporting and rounding. This has been fixed.
3-11320673461	21862443	(Patch Set 14) In Customer Center, the status was being displayed as enumerated values (10101/10102/10103) instead of a descriptive string (Active/Inactive/Closed). This has been fixed.
3-11214835211	21869020	(Patch Set 14) In the previous releases, even after the time stamp rounding to midnight was disabled by enabling the **UseExactTimeForDeferredAction** parameter, the deferred action was not running at the specified time. This has been fixed.
3-11394611861	21888994	(Patch Set 14) In the previous releases, the events from BRM were being published to ECE even after the extended architecture (XA) transactions were aborted. The transactions were aborted within the Oracle Data Manager (**dm_oracle**) but not in the Account Synchronization DM (**dm_ifw_sync**) and Synchronization Queue Manager DM (**dm_aq**) processes, which was allowing the events to be dequeued and were incorrectly updated within the ECE cache. This has been fixed.
3-11422022411	21895538	(Patch Set 14) In the previous releases, Connection Manager was dumping core while running the **pin_load_rerate_jobs** utility. This has been fixed.
3-11216336171	21905222	(Patch Set 14) In the previous releases, selective-backout-only rerating of purchase events for item products was not working. This has been fixed.
3-11303731981	21924257	(Patch Set 14) In the previous releases, the Promise-to-Pay dialog box in Collections Center and some other components were displaying the currency symbol from the locale rather than the actual symbol for the currency for the account. This has been fixed.
3-11309199071	21930128	(Patch Set 14) In the previous releases, rerating was failing when thresholds were breached on a monitor balance group. This has been fixed.

Table 1–1   (Cont.) Customer-Reported Fixes

SR Number	Bug Number	Description
3-11349585561	21935499	(Patch Set 14) In the previous releases, with credit card tokenization enabled, the Paymentech DM (**dm_fusa**) was dumping core. Also, data loss was observed during the Paymentech response processing. This has been fixed.
3-11280015011	21951980	(Patch Set 14) In the previous releases, when a product was purchased and canceled in the same cycle and the **pro_first** flag was set, the balance impact was incorrect. This has been fixed.
3-11019022461	21983222	(Patch Set 14) In the previous releases, in case of a rated event with multiple ratable usage metrics (RUMs) or G/L IDs, the tax calculation was incorrect. This has been fixed.
3-11367254741	22026797	(Patch Set 14) In Collections Manager, the Promise-to-Pay agreement with a single installment was not resulting in a consistent collections behavior. This has been fixed.
3-11520918511	22045215	(Patch Set 14) In the previous releases, the **pin_inv_send** utility was failing due to memory-related errors. This has been fixed.
3-11492911931	22064951	(Patch Set 14) In the previous releases, the PCM_OP_BULK_WRITE_FLDS opcode was failing due to a database query that included table aliases. This has been fixed.
3-11553109821	22085120	(Patch Set 14) In the previous releases, when rating CDRs, at times the item tag assignment was incorrect. This has been fixed.
3-11223742991	22111551	(Patch Set 14) With Pipeline Manager, when processing a CDR if the balance group data was not available, the DAT_Balance module was generating a database error while trying to fetch the required balance information. This has been fixed.
3-11153439631	22116586	(Patch Set 14) In a multischema environment, it was not possible to call the PCM_OP_CUST_SET_LOGIN opcode on an existing transaction opened with the PCM_TRANS_OPEN_LOCK_DEFAULT flag. This has been fixed.
3-9816123031	22187191 22230280	(Patch Set 14) In the previous releases, the PCM_OP_SEARCH opcode was failing with PIN_ERR_STREAM_EOF error on a Portal Communications Protocol (PCP) connection. This has been fixed.
3-11385755391	22249335	(Patch Set 14) For a bundled product, the tax calculation response from Vertex was eventually getting lost due to the overwriting of the tax breakup information with "No Taxes". This has been fixed.

Table 1–2 lists the service request (SR) issues reported by external sources for Billing Care and provides a brief description of the resolution. The SRs are grouped by the respective patch sets.

Table 1–2   Customer-Reported Fixes for Billing Care

SR Number	Bug Number	Description
3-19083734451	29170772	(Patch Set 23) The Billing Care SDK now supports implementing the logic for filtering deals lists to display manual discount deals only. See *Oracle Communications Billing Care SDK Guide*.
3-19495959241	29681829	(Patch Set 23) In Billing Care, it took a longer time to display the **Account** page. This was due to the PCM_OP_AR_GET_ACCT_ ACTION_ITEMS opcode delaying loading of accounts to the **Account** page. This has been fixed.
3-19408274651	29833414	(Patch Set 23) In Billing Care, the Timezone name string and offset were not supported for handling DST using the **brmserver.timezone** parameter. This has been fixed.
3-17157581651	30418718	(Patch Set 23) In Billing Care, there was no support for the following: ■ Disabling backdated account creation and backdated service purchases ■ Enabling backdated product activation in the purchase bundle flow This has been added now.
3-20063381831	29837456	(Patch Set 23) In Billing Care, the account hyperlink from the **Bills** tab of a child account to a parent account was not working. This has been fixed.
3-21084025481	30541400	(Patch Set 23) In Billing Care, it was not possible to view Bill Adjustment details for adjustments done using custom opcodes without notes. This has been fixed.
3-20800040981	30292972	(Patch Set 23) In Billing Care, the Account page was not loaded when an account had multiple bill units. The Oracle Data Manager threw a "search TEMPLATE too big" error. The search failed because it exceeded 2048 characters. This has been fixed now by optimizing search template.
3-19533307321	29759307	(Patch Set 23) The Billing Care Item Adjustment dialog box can display the total amount for which an adjustment is done. However, it does not display how much other amount was adjusted against the specific item. This has been fixed.
3-20815136391	30528413	(Patch Set 23) In Billing Care, it was not possible to process batch payments with custom payment templates that use out of the box payment types. This has been fixed.
3-19530710241	29759311	(Patch Set 23) To improve performance, Billing Care has been enhanced to disable direct clicking on the **Assets** view from the **Home** tab through customization. It is now possible to search through the service ID to go to the **Assets** page, which displays only services associated with the search criteria.
3-19083920361	29705002	(Patch Set 23) You can now customize Billing Care to include start date- and end date-based filtering for add-on deal purchases.
3-19040269941	29272366	(Patch Set 23) There were performance issues with the Billing Care bill details view. It was taking more time to load, particularly for flows involving Billing Care URLs embedded in other applications. This has been fixed.

Table 1–2   (Cont.) Customer-Reported Fixes for Billing Care

SR Number	Bug Number	Description
3-19161875121	29376635	(Patch Set 23) You can now display custom error messages in the Billing Care user interface when purchasing a bundle.
3-19076461581	29219680	(Patch Set 23) In Billing Care, the labels in the Tax Setup dialog box were misaligned. This has been fixed.
3-16250214071	29161375	(Patch Set 23) Billing Care now displays bills that were generated before an account was moved under a hierarchy.
3-16250214071	28848745	(Patch Set 23) The Billing Care user interface was not displaying the details for a bill that was generated before the account was moved into a hierarchy. This has been fixed.
3-20342294551	30332377	(Patch Set 23) In Billing Care, the security headers were missing as part of the response for each request to the server. This has been fixed. Security headers like X-FRAME-OPTIONS, X-XSS-Protection, Strict-Transport-Security, Expect-CT, and X-Content-Type-Options were added to the response for each request to the server.
3-18930292991	29039454	(Patch Set 23) Billing Care SDK now supports implementing the logic to restrict the deal list based on the role of the customer service representative. See *Oracle Communications Billing Care SDK Guide*.
3-18504936134	28912851	(Patch Set 23) Billing Care now displays a tooltip for the Bill ID field of these dialog boxes: Payment Details, Payment Details Item Affected, Account Adjustment, and Account Adjustment Details.
3-18501913282 3-18306721201	28853675 28671908	(Patch Set 23) If there was a browser tab already logged in to Billing Care, it was not possible to log in to Billing Care from a new browser tab using a bookmarked URL. This has been fixed.
-	28671903	(Patch Set 23) The Billing Care embedded flow was expecting account and bill POIDs in place of account and bill numbers. This has been fixed.
3-18195333761	28624763	(Patch Set 23) In the Billing Care Asset view, clicking **Show Rate Customization** was throwing an error if the number of products purchased was more than 150. This has been fixed.
3-15288812761	27730464	(Patch Set 22) In Billing Care, there were issues in viewing events in the Events screen. This has been fixed.
3-16951952221	27764509	(Patch Set 22) In Billing Care, lengthy bill numbers and amount details were not displayed properly. This has been fixed.
3-16770126831	27924914	(Patch Set 22) Using the Billing Care SDK, it was not possible to customize the purchase deal screen and add a few custom fields. Also it was not possible to display the new fields in the asset display screen, changing the start /end date and change the overridden amount. This has been fixed.
3-17410770761	28047574	(Patch Set 22) In Billing Care, any backdated cancellation was not prorating the charges. This has been fixed.

Table 1–2   (Cont.) Customer-Reported Fixes for Billing Care

SR Number	Bug Number	Description
3-17556441791	28466515	(Patch Set 22) In Billing Care, selecting the Show Payment in Suspense option in News Feed displayed the Payment Search page instead of displaying the suspended payment. This has been fixed.
3-18258591791	28622335	(Patch Set 22) In Billing Care, after a non-currency adjustment, the user interface did not get displayed properly. This has been fixed.
3-15485573861	26608782	(Patch Set 21) In Billing Care, in the Payment Details dialog box, the payment allocation table was not aligned properly. This has been fixed.
3-16877587301	27123466	(Patch Set 21) In Billing Care, it was not possible to customize the Payment Suspense flow to display the last suspended date. Billing Care has been enhanced to support this customization.
3-16426973211	27375507	(Patch Set 21) In Billing Care, it was not possible to save the notes in the Payment Details dialog box when the amount was more than 999 and when the payment was added by using opcode. This has been fixed.
3-16877587301	27423360	(Patch Set 21) In Billing Care, in the Payment Suspense interface, the account number link on the Audit Trail for the **Moved to Suspense From** entry was opening an incorrect account. This has been fixed.
3-16877587301	27500262	(Patch Set 21) In Billing Care, the Make a Payment and Reverse Payment dialog boxes were not displaying the notes entered during payments and payment reversals respectively. This has been fixed.
3-16982060751	27698944	(Patch Set 21) In Billing Care, a performance issue was reported while listing the deals during a product purchase operation. This has been fixed.
3-15126099871	26501992	(Patch Set 20) In Billing Care, the **Home** tab on the account page was not showing the balances correctly when the bill units of the same account were part of a hierarchy. This has been fixed.
3-15234199311	26518258	(Patch Set 20) In Billing Care, the **Home** tab on the account page was displaying the credit card payment type wrongly when the credit card number included was less than 15 digits or blank. This has been fixed.
3-15209580691	26518264	(Patch Set 20) In Billing Care, in the All Unallocated Adjustments dialog box, both the original and unallocated amounts were displayed with incorrect symbols. This has been fixed.
3-15082378951	26576561	(Patch Set 20) Billing Care was taking longer time to open an account. This has been fixed.
3-15331219191	26584192	(Patch Set 20) In Billing Care, the payment detail searches were taking longer time to display the results. This has been fixed.

Table 1–2   (Cont.) Customer-Reported Fixes for Billing Care

SR Number	Bug Number	Description
3-15263935901	26737489	(Patch Set 20) In Billing Care, when a search for suspense payments was made from the Suspense Payment Search page, no suspense payments were displayed. This has been fixed.
3-15506402121	26618784	(Patch Set 20) In Billing Care, the **Clear** button was not working as expected for credit adjustments with allocation. This has been fixed.
3-15402263771	26714609	(Patch Set 20) In Billing Care, when an allocated adjustment was exported it was containing invalid data. Also when using Firefox browser, clicking Export button was not exporting the data. This has been fixed.
3-15425689461	26737486	(Patch Set 20) In Billing Care, when the payment suspense records were exported, the payment suspense handler in the exported data was displaying the user ID instead of the user name. This has been fixed.
3-15263935901	26737489	(Patch Set 20) In Billing Care, there were additional clicks required to retrieve next set of records when all the payments from the first set is filtered out. This has been fixed.
3-15241019581	26737494 26741075	(Patch Set 20) When a payment was applied for an incorrect account, the appropriate error message was not displayed. The "Payment is not recorded for correct account" error message is displayed when the payment was applied for an incorrect account.
3-15573085961	26745541	(Patch Set 20) In Billing Care, when a regular payment is moved to suspense, the dates were not displayed properly on the Suspense Payment Details screen. This has been fixed.
3-15558035121	26789169	(Patch Set 20) In Billing Care, when a previous bill was selected from the news feed, it was incorrectly showing the details of the bill in progress instead of the selected bill. This has been fixed.
3-15557592801	26801755	(Patch Set 20) In Billing Care, the start and end dates displayed in the news feed for generated bills were incorrect. This has been fixed.
3-15331619251	26886832	(Patch Set 20) In Billing Care, always the time information was displayed based on the local CSR time zone. It did not have an option to choose between CSR timezone and BRM Server timezone. This has been fixed.
3-15827231141	26927036	(Patch Set 20) In Billing Care, when bill units of the same account, including the non-paying bill units, were customized to be a part of a hierarchy, the events were not displayed for non-paying bill units. This has been fixed.
3-15788700521	26933233	(Patch Set 20) In Billing Care, event adjustment was not supported from non-primary tabs. This has been fixed.
3-15539367521	26933237	(Patch Set 20) In Billing Care, updated reversal notes appeared only when the Payment Details dialog box was reopened. This has been fixed.

Table 1–2   (Cont.) Customer-Reported Fixes for Billing Care

SR Number	Bug Number	Description
3-15826956091	26941131	(Patch Set 20) In Billing Care, it was not possible to do a payment suspense allocation if the amount had more than seven digits. This has been fixed.
3-15801920663	26996135	(Patch Set 20) In Billing Care, there was a refresh issue after event adjustment. This has been fixed.
3-15679531981	27073243	(Patch Set 20) In Billing Care, an account search was invoking the search operation twice in some cases. This has been fixed.
3-14480094831	25726786	(Patch Set 19) In Oracle Communications Billing Care, it was not possible to filter payments made to an account and then move those to suspense.This has now been fixed by adding a new "Unclassified" filter to filter the suspended payments that do not have any reason code associated with them. This has been fixed.
3-14576679591	25797177, 25797419	(Patch Set 19) The transaction amount did not match the total due in Billing Care user interface because the feed from BRM was selective and was not completely implemented. This has been fixed.
3-14451121761	25846725	(Patch Set 19) In Billing Care, for a hierarchy of accounts with a paying parent, Newsfeeds were missing for adjustments or payment allocations from the paying parent account to its child accounts. This has been fixed.
3-14592811191	25864153	(Patch Set 19) In Billing Care, when displaying the information for an account hierarchy, the details of Payment and Account Receivables were not loaded from the bills of subordinate accounts. This has been fixed.
3-14481233091	25889793	(Patch Set 19) In Billing Care, when viewing suspended payments, in some scenarios, the "Assigned to me" filter did not work. This has been fixed.
3-14473220911	25896184	(Patch Set 19) In Billing Care, after a fully allocated suspense payment was moved back into suspense, assigning the suspended payment to another payment handler resulted in an error. This has been fixed.
3-14719934811	25915194	(Patch Set 19) In Billing Care, it was not possible to simulate Oracle Entitlements Server (OES) enabled testing in a non-OES environment through the Billing Care SDK. This has been fixed.
3-14716777701	25985626	(Patch Set 19) For event adjustments, Billing Care did not send information on the reason code and domain ID in the input flist to BRM. This has been fixed.
3-14802824251	25985628	(Patch Set 19) In Billing Care, in the Account Adjustment dialog box, if the TAB key was used to navigate from one field to the other field, the data entered was not saved properly. This has been fixed.

Table 1–2   (Cont.) Customer-Reported Fixes for Billing Care

SR Number	Bug Number	Description
3-14754078271	25999511	(Patch Set 19) In Billing Care, **Account Search** returned only the first 50 accounts and it was not possible to configure the number of accounts to be retrieved and displayed. This has been fixed.
3-14768872851	26029912	(Patch Set 19) In Billing Care, when trying to retrieve the list of users for suspense handlers, Oracle Identity and Access Management (IAM) displayed an exception error due to batch size limitations. This has been fixed.
3-14739234581	26050395	(Patch Set 19) After updating or redeploying Billing Care, the browser's cache was not updated automatically, and therefore, the browsers that were already running Billing Care continued to run with the older version of the application. This has been fixed and Billing Care now refreshes the cache automatically when a new patch is deployed.
3-14628572091	26148457	(Patch Set 19) In Billing Care, the due dates were displayed based on time zone of the customer service representative (CSR). This caused a problem if the subscriber (for the same account) reached a CSR in a different locale/time zone. This has been fixed and Billing Care now displays the due dates based on the time zone of the BRM server.
3-14974062541	26177147	(Patch Set 19) In Billing Care, some exceptions were raised when Billing Care REST services were invoked for the first time. This has been fixed.
3-14891739451	26244742	(Patch Set 19) In Billing Care, there were performance issues with the payment suspense search results. This has been fixed.
3-15159463381	26318024	(Patch Set 19) In Billing Care, changes to the hierarchy type were not updated on the Summary screen until the page was refreshed. This has been fixed.
3-15260446001	26428378	(Patch Set 19) In Billing Care, there was a display issue on the Organization Hierarchy screen when using Internet Explorer 11 and Google Chrome browsers. This has been fixed.
3-14974383861	26504854	(Patch Set 19) In Billing Care, the user/handler details from the LDAP directory were not displayed in the notes widget. This has been fixed and Billing Care now displays the external LDAP user ID.
3-15105073081	26513335	(Patch Set 19) In Billing Care, there were performance issues when exporting comma separated values (CSV) for a large number of payment suspense records. This has been fixed.
3-14068138991	25597318	(Patch Set 18) In Billing Care, when a payment was made to an account and then moved to suspense, followed by a role (user) assignment, upon querying the system, the correct assignee was not fetched by the user interface. This has been fixed.

Table 1–2   (Cont.) Customer-Reported Fixes for Billing Care

SR Number	Bug Number	Description
3-14472451743	25725595	(Patch Set 18) In Billing Care, in the Hierarchy screen, instead of displaying the account number, the account POID was displayed. This has been fixed.
3-13587184518	25392708	(Patch Set 18) In the Payment Details dialog, Billing Care required viewing and traceability of payments by showing both transaction ID and payment ID. This has been fixed.
3-13587184450	25047365	(Patch Set 17) Payments in Billing Care could not be searched by payment ID. This has been fixed.

Fixed Known Problems

Table 1–3 lists known problems in previous patch sets that are now fixed.

Table 1–3   Known Problems Fixed

SR Number	Bug Number	Resolution
Not applicable	25251345	When **infranet.job.rendering=true**, **pin_job_executor** tries to trigger the **pin_inv_doc_gen** utility's "**doc_gen.sh**" script, it now runs successfully without any errors.
Not applicable	22285536	In a test environment where the **pin_virtual_time** utility is used to set virtual time, when the **/item** object is partitioned using the BRM partitioning utility, the usage charges rated by Pipeline Manager or ECE are now included in the bill.
Not applicable	22320470	You can now use the **BRMAdapterServletClient** application to call any opcodes that are supported by JCA Resource Adapter.
Not applicable	22329621	The issue with the duplicated lines in the *BRM_home*/**apps/cmt/pin_cmt** file is now fixed, where *BRM_home* is the directory in which BRM is installed, and you can now run the Conversion Manager **pin_cmt** utility.

2

New Features

This chapter provides an overview of the new features in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

For information about new features in related products, see the following guides:

- *BRM Elastic Charging Engine 11.3 Release Notes, Release 7.5*

- *Oracle Communications Billing Care Release Notes, Release 7.5*

- *Oracle Communications Pricing Design Center Release Notes, Release 11.2*

New Features in BRM 7.5 Patch Set 23

BRM 7.5 Patch Set 23 includes the following enhancements:

- Billing Enhancements

- Customer Management Enhancements

- Payments Enhancements

- Pipeline Manager Enhancements

- Support and Certification Enhancements

Accounts Receivable Enhancements

This section describes the enhancements to accounts receivable.

Wildcard in Item Type Selectors (Patch Set 22)

Oracle Communications Pricing Design Center (PDC) now supports wildcard (*) in item type selectors. By setting the **true** or **false** value for the **applicableToAllChildServices** and **applicableToAllChildEvents** elements in PDC, you can configure whether all the child services or events of a service or event must be considered for item assignment.

If set to **true**, the real-time rating engine and batch rating engine consider all child services or events for the specified item assignment. If set to **false**, the real-time rating engine and batch rating engine do not consider child services or events for the specified item assignment.

If you are using wildcard in item type selectors, you must set the **PDCEnable** entry to **true** in the **DAT_ItemAssign** module in the *Pipeline_home*/**conf/wireless.reg** file.

For more information on using wildcard in item type selectors, see *PDC 11.2 Release Notes*.

Bill-Level Adjustments Improved for Fully or Partially Paid Bills (Patch Set 18)

In previous releases, you could perform bill-level adjustments only for the remaining due amount (current bill due) for a fully or partially paid bill.

You can now improve performance of bill-level adjustments for fully or partially paid bills by setting the **BillPaymentDeallocation** field in the **ar** instance of the **/config/business_params** object to **enabled**.

When the **BillPaymentDeallocation** field is enabled, you can use PCM_OP_AR_BILL_ ADJUSTMENT to adjust the total bill amount for a fully or partially paid bill. The amount of adjustment for the bill can be more than the remaining due, but it cannot exceed the total bill amount. For example, if the total bill amount is $5 and you have already made a partial payment of $2, the remaining due is $3. In this scenario, you can perform a credit adjustment for up to $5 (total bill amount).

However, if there is an A/R action (such as an adjustment or a dispute) already performed on the bill, you can perform adjustments for only up to the amount due after the initial A/R action is performed. For example, if an item-level adjustment of $1 is made on a bill of $5 and you have already made a partial payment of $2, the remaining due is $2. In this scenario, you can perform a credit adjustment for only up to $4 (which is the amount due after item-level adjustment).

For more information, see the discussion about improving bill-level adjustments for fully or partially paid bills in *BRM Managing Accounts Receivable*.

Billing Enhancements

This section describes the enhancements to billing.

View Bills Generated Before Moving the Account to a Hierarchy (Patch Set 23)

In previous releases, when an account was moved to a hierarchy as a child account, the bills generated for the account earlier were not displayed in the bills list.

With this enhancement, you can view the bills that are generated before and after moving the account to a hierarchy in the account's **Bills** > **Switch Bills** menu.

For more information, see the discussion about switch bills in the Billing Care Online Help.

General Ledger Data Can Now Be Collected for Trial Billing (Patch Set 18)

You can now collect the general ledger (G/L) data for trial billing by setting **PerfAdvancedTuningSettings** in the **billing** instance of the **/config/business_params** object to **64**. This enables the creation of journals (**/journal** objects) for trial billing.

For more information, see the discussion about billing business_params entries in *BRM System Administrator's Guide*.

Skip the Previous Total Unpaid Bill for Open Item Accounting Type When Calculating the Current Bill (Patch Set 14)

You can now skip the previous total unpaid bill for an open item accounting type bill unit (**/billinfo** object) when calculating the current bill by setting the business profile

key, **Skip_Prev_Total**. By setting **Skip_Prev_Total**, you can reduce the time taken for calculating the current bill for open item accounting type.

For more information, see the discussion about using business profiles to improve performance by skipping the previous total for an open item accounting type when calculating the current bill in *BRM System Administrator's Guide*.

Business Operations Center Enhancements

This section describes the enhancements to Oracle Communications Billing and Revenue Management (BRM) Business Operations Center.

For more information on the following functionality, see *Oracle Communications Billing and Revenue Management (BRM) Business Operations Center Online Help*.

Resolving Failed Payments (Patch Set 17)

You can now resolve the following types of failed BRM payments in Business Operations Center:

- Failed credit card transactions.
- Payments failed due to issues in the payment clearing house.
- Payments failed due to loss of connection.

Synchronizing Product Catalogs (Patch Set 17)

You can now configure a product catalog synchronization job in Business Operations Center to update plans for different pricing components, such as charge offers, discount offers, packages, and so on, in the BRM server.

Refunding Payments (Patch Set 17)

You can now configure a job in Business Operations Center to find accounts that have refund items and to make online refund transactions.

Configuring and Scheduling Jobs (Patch Set 17)

Business Operations Center now enables you to do the following:

- Send email notifications to users after a job is completed.
- Display completed and upcoming jobs in a scrolling, calendar-like format.
- Configure a recurring job to run at the last day of the month.
- Edit a job.
- Deactivate and activate a job.
- Create a blackout period.

  A blackout period is a time in the future during which one-time jobs cannot be scheduled to run.

Filtering Jobs (Patch Set 17)

You can now filter jobs by name, category, status, frequency, tag, time period, and job ID.

Settling Preauthorized Credit Card Transactions (Patch Set 17)

You can now deposit all preauthorized credit card and direct debit transactions made within the past 30 days (from yesterday) in Business Operations Center.

Customer Management Enhancements

This section describes the enhancements in customer management.

Managing Discount Validity Starting or Ending in Future Cycles (Patch Set 23)

In previous releases, the discount proration was not set properly if the discount validity was starting or ending in a future cycle.

With this enhancement, during billing, BRM identifies the discounts that starts or ends in the next billing cycle and sets the discount validity and proration appropriately. For example, if proration for a discount is set to **Full discount**, full discount is applied even if the discount validity ends in the middle of the next billing cycle.

For more information on discount validity, see the discussion about configuring discount validity in *PDC User's Guide* if you are using PDC or the Pricing Center Online Help if you are using Pricing Center.

Support for Incremental Migration of Legacy Service and Balance Data into BRM and ECE (Patch Set 22)

In previous releases, you could not migrate legacy service and balance data incrementally into the BRM system by using the **pin_cmt** utility. For example, when the legacy data was migrated into BRM in phases, if the account already migrated to BRM had some services associated with it, you could not migrate additional legacy services for the same account. As a result, the legacy service and balance updates could not be loaded incrementally into Oracle Communications Billing and Revenue Management Elastic Charging Engine (ECE) in real time.

With this enhancement, you can migrate legacy service and balance data incrementally into the BRM system by using the **pin_cmt** utility and also load the migrated data into ECE synchronously in real time. For example, after the initial migration of the legacy account and service data into BRM and ECE, you can migrate additional legacy services and balances for the same migrated accounts into BRM and also synchronize them with ECE in real time.

To migrate the legacy service and balance data incrementally into BRM and ECE synchronously, the following changes have been made in BRM:

- The **CMT_Service.xsd** schema file has been introduced to support incremental migration of legacy service data.

- The **CMT_Balances.xsd** schema file has been modified to support incremental migration of legacy balance data.

- A new entry, **infranet.cmt.uselegacybalances**, has been introduced in the *BRM_home*/**apps/cmt/Infranet.properties** file to support incremental migration of legacy balance data.

- The **cmt_mta_cycle_fees** utility, which is run internally by the **pin_cmt** utility, has been modified and renamed as **cmt_mta_deploy**. Do not run this utility by itself.

- Following new parameters are introduced for migrating legacy data by using the **pin_cmt** utility:

- **deploy_db** specifies to deploy the migrated data in BRM and also load them into ECE synchronously (in real time). You can use this parameter only when you are migrating the complete legacy data and you have ECE integrated with BRM.

Note: After deploying the legacy data by using this parameter, you need to load the data manually into ECE by using the **CustomerLoader** utility and then run the **pin_cmt** utility with the **apply_cycle_fees** parameter to apply the cycle fees for the migrated accounts.

For information on loading data using the **CustomerLoader** utility, see the discussion about using **CustomerLoader** in *BRM Elastic Charging Engine Implementation Guide*.

- **apply_cycle_fees** specifies to apply the cycle fees for the migrated accounts. You can apply the cycle fees after deploying the migrated accounts in BRM and then loading them into ECE synchronously. You can use this parameter only when you are migrating the complete legacy data and you have ECE integrated with BRM.

- **deploy_ece** specifies to deploy the migrated data in BRM and also load them into ECE synchronously. You can use this parameter when you are migrating the legacy data incrementally and you have ECE integrated with BRM.

Note: If ECE is not integrated with BRM, you can use the **deploy** parameter for both complete and incremental migration of legacy data into BRM. For more information, see the discussion about loading legacy data into the BRM database in *BRM Managing Customers*.

When you use the **deploy_ece** parameter, the **pin_cmt** utility deploys the migrated data in BRM and also sends it to ECE in real time through External Manager (EM) Gateway. In this case, both the BRM database and the ECE cache updates occur in a single transaction. If the ECE cache update succeeds, the updates are saved to the BRM database. If the cache update fails, the database updates are rolled back. This ensures that the BRM and ECE data remain synchronized whether the cache update succeeds or fails. You can use the **cmt.pinlog** files in BRM and error logs in ECE to troubleshoot the errors. For more information on troubleshooting Conversion Manager, see *BRM Managing Customers*. For more information on troubleshooting ECE, see *BRM Elastic Charging Engine System Administrator's Guide*.

For migrating service or balance data incrementally, see:

- Migrating Legacy Service Data Incrementally into BRM and ECE

- Migrating Legacy Balance Data Incrementally into BRM and ECE

Merging Legacy Balances

BRM merges the migrated legacy balance data with the existing balance data in the BRM database. If the sub-balance already exists in the BRM database, it replaces the sub-balance with the corresponding legacy balance. If the sub-balance does not exist, it adds the legacy balance to the BRM database. BRM identifies the existing sub-balances in the BRM database by using the combination of the following data in **/cmt_balances** objects:

- resource ID

- POID of the granting product/charge offer or discount

- VALID_FROM date

In case if the VALID_FROM date is not specified, the first sub-balance available for the specified granting product or discount is replaced with the legacy balance. However, you must ensure that the VALID_FROM date is specified for all the legacy balances to be migrated. This ensures that the balances are replaced appropriately.

In case if the POID of the granting product or discount is not specified, a new sub-balance is created with the specified VALID_FROM and VALID_TO dates.

Migrating Legacy Service Data Incrementally into BRM and ECE

To migrate the legacy service data incrementally into BRM and ECE synchronously:

1. Create XML files with the legacy service data, which conform to the format detailed in the **CMT_Service.xsd** file.

2. Go to the *BRM_home*/**apps/cmt** directory.

3. Import the legacy service data into the BRM database by running the following command:

   pin_cmt -import -file *XML_input_data_file stage_ID*

   where:

   - *XML_input_data_file* is the XML file with the legacy service data.

   - *stage_ID* is the unique identity of the staging area.

   > **Note:** Ensure that the *stage_ID* is unique for each migration.

   ---

4. Ensure that all the pricing data is loaded into the ECE cache. See the discussion about verifying that pricing data is loaded into ECE in *BRM Elastic Charging Engine Implementation Guide*.

5. Ensure that the real-time synchronization is enabled in ECE. See the discussion about enabling real-time synchronization of BRM and ECE customer data updates in *BRM Elastic Charging Engine Implementation Guide*.

6. Deploy the staged data to the production area and load the data into ECE synchronously by running the following command:

   pin_cmt -deploy_ece *DOM stage_ID*

   where *DOM* is the billing cycle's day of month.

   The services are deployed in BRM and are synchronized with ECE in real time.

   After deploying the services, the **pin_cmt** utility does the following:

   - Applies the cycle fees in BRM and synchronize them with ECE if the **infranet.cmt.deploy.opcode** entry is set to **true**. See the discussion about applying cycle fees to deployed accounts in *BRM Managing Customers*.

   - Deploys the legacy balances if the **infranet.cmt.uselegacybalances** entry is set to **true**. For more information, see "Migrating Legacy Balance Data Incrementally into BRM and ECE".

For more information on migrating data, see the discussion about loading legacy data into the BRM database in *BRM Managing Customers*.

Migrating Legacy Balance Data Incrementally into BRM and ECE

To migrate the balance data incrementally into BRM and ECE synchronously:

1. Open the *BRM_home***/apps/cmt/Infranet.properties** file in a text editor.

2. If you want to replace the existing balances in BRM with the legacy balances, set the **infranet.cmt.uselegacybalances** entry to **true**.

> **Note:** This entry takes precedence over the **infranet.cmt.deleteexistingbalances** entry. If set to **true**, the **infranet.cmt.deleteexistingbalances** entry is not used.

> **Important:** When the **infranet.cmt.uselegacybalances** entry is set to **true**, you must ensure the following:
>
> - Check if the VALID_FROM date is specified for all the sub-balances to be migrated. The VALID_FROM date is required for identifying the sub-balances to be replaced.
>
> - Import the legacy balances before deploying the account and service data to the BRM production area. You cannot replace the balances after you deploy the migrated account and service data.

3. Save and close the file.

4. Create XML files with the legacy balance data, which conform to the format detailed in the **CMT_Balances.xsd** file.

5. Go to the *BRM_home***/apps/cmt** directory.

6. Import the legacy balance data into the BRM database by running the following command:

```
pin_cmt -import -file XML_input_data_file stage_ID
```

where:

- *XML_input_data_file* is the XML file with the legacy balance data.

- *stage_ID* is the unique identity of the staging area.

> **Note:** Ensure that the *stage_ID* is unique for each migration.

7. Ensure that all the pricing data is loaded into the ECE cache. See the discussion about verifying that pricing data is loaded into ECE in *BRM Elastic Charging Engine Implementation Guide*.

8. Ensure that the real-time synchronization is enabled in ECE. See the discussion about enabling real-time synchronization of BRM and ECE customer data updates in *BRM Elastic Charging Engine Implementation Guide*.

9. Deploy the staged data to the production area and load the data into ECE in real time by running the following command:

> **Important:** You can import the legacy account, service, and balance data into the BRM database and then deploy all the legacy data together.
>
> For deploying accounts and services, see "Migrating Legacy Service Data Incrementally into BRM and ECE" and the discussion about loading legacy data into the BRM database in *BRM Managing Customers*.

```
pin_cmt -deploy_ece DOM stage_ID
```

where *DOM* is the billing cycle's day of month.

The imported legacy data is deployed in BRM and synchronized with ECE in real time.

BRM Now Applies Proration Rules to All Product Purchases or Cancellations (Patch Set 19)

By default, BRM does not apply proration rules to product purchases or cancellations that align with the start of the product cycle. This allows you to apply full cycle fees or refunds for such purchases or cancellations. For example, if start date of the product cycle is July 14 and the product is purchased on the same day, proration rules are not applied and full cycle fees are applied for that product. However, if the product is purchased on July 20, proration rules are applied and the cycle fee is prorated.

You can now configure BRM to apply proration rules for all product purchases or cancellations irrespective of whether they align with the start of the product cycle or not. You can configure this by enabling the **ApplyProrationRules** business parameter in the **subscription** instance of the **/config/business_params** object.

For more information, see the discussion about enabling BRM to apply proration rules in *BRM Configuring and Running Billing*.

Retrieval of Product Details Improved for Product Purchase (Patch Set 18)

By default, BRM retrieves product details from the rating cache during product purchase. However, reading a large number of rate plans for retrieving product details can consume a lot of time. This slows down product purchase.

To speed up the product purchase process, you can enable BRM to retrieve product details directly from the BRM database during product purchase and disable the retrieval of product details from the rating cache. You can do this by setting the **GetRatePlanFromCache** field in the **subscription** instance of the **/config/business_params** object to **disabled**.

> **Note:** Setting the **GetRatePlanFromCache** field to **disabled** will impact the billing performance.

For more information, see the discussion about improving performance in retrieving product details during product purchase in *BRM System Administrator's Guide*.

Logging External User Information in Error Logs (Patch Set 14)

In the previous releases, when using an external application to connect to BRM, BRM did not log any information about a request from the external application. If the request failed, identifying the original request from the external application was not easy.

With this patch, BRM can now log the external user and the external correlation ID in the correlation ID of the error message header in the BRM error logs. The external user and the external correlation ID can be used to track the original request from the external application.

The input and output flists of the standard and policy opcodes called by the external application now include the following optional fields in the PIN_FLD_CONTEXT_INFO substruct:

■ PIN_FLD_EXTERNAL_USER: Specifies the external user from the external application

■ PIN_FLD_CORRELATION_ID: Specifies the external correlation ID from the external application

> **Note:** If the external application does not provide the external user and external correlation ID, the correlation ID displays empty strings.

For more information, see the discussion about using error logs to troubleshoot BRM in *BRM System Administrator's Guide*.

Event Notification Enhancements

This section describes enhancements to event notification.

Regular Expressions Now Supported in the Event Notification List (Patch Set 16)

In previous releases, each entry in the event notification list had to match the full name of an event type. Sometimes, that requirement made the list very long and difficult to maintain.

Now, you can shorten the list by using regular expressions to make a single entry apply to multiple event types.

For example, you can replace all the following entries:

```
301     0     /event/session/call
301     0     /event/session/dialup
301     0     /event/session/pcm_client
301     0     /event/session/telco
301     0     /event/session/telco/gprs
301     0     /event/session/telco/gprs/master
301     0     /event/session/telco/gprs/subsession
301     0     /event/session/gsm
301     0     /event/session/imt
301     0     /event/session/telco/pdc
```

With one regular expression:

```
301     0     /event/session/*
```

To use this feature, you must enable it.

For more information, see the discussion on using regular expressions in the event notification list in *BRM Developer's Guide*.

LDAP Manager Enhancements

This section describes the enhancements to LDAP Manager.

Secure Communication between LDAP Data Manager and Connection Manager (Patch Set 22)

BRM now supports Transport Layer Security (TLS) to provide secure communication between LDAP Data Manager and Connection Manager (CM).

To enable secure communication between LDAP Data Manager and CM:

1. Download the Oracle Database 12c Release 1 (12.1.0.2.0) client libraries (32-bit) for Linux from the Oracle Technology Network Web site.

2. Install the client libraries in a location that is accessible to LDAP Data Manager (**dm_ldap**).

3. Open the **start_dm_ldap** script in a text editor.

4. Add the following lines immediately after line 58:

   ```
   LDAP_12C_LIBS=client_libraries_path
   if [ "$LD_LIBRARY_PATH" = "" ];
   then
   LD_LIBRARY_PATH=${LDAP_12C_LIBS}
   else
   LD_LIBRARY_PATH=${LDAP_12C_LIBS}
   :$
   {LD_LIBRARY_PATH}
   ```

   where *client_libraries_path* is the path to Oracle Database 12c Release 1 (12.1.0.2.0) client libraries.

5. Save and close the file.

6. Create a soft link of **dm_ldap** to point to **dm_ldap12c** by running the following command:

   ```
   ln -sf BRM_home/bin/dm_ldap12c BRM_home/bin/dm_ldap
   ```

7. Restart LDAP Data Manager (**dm_ldap**).

Secure Communication between LDAP Manager and LDAP Directory Severs (Patch Set 17)

BRM now supports TLS to provide secure communication between LDAP Manager and LDAP Directory Severs.

For more information, see the discussion about enabling secure communication between LDAP Manager and LDAP Directory Severs in *BRM LDAP Manager*.

Payments Enhancements

This section describes the enhancements to payments.

Support for Stored-Credential Transactions for Payments (Patch Set 23)

Credit card networks, such as VISA, MasterCard, Diners, Discover, JCB, and American Express, support the stored credential framework. They allow the merchants to use stored credentials for transactions. A stored credential is a payment information (such as an account number or a payment token) of a card holder stored by a merchant or its agent, a payment facilitator, or a staged digital wallet operator to process future transactions for the card holder. The Paymentech card processors also support customer-initiated or merchant-initiated transactions with stored credentials.

With this enhancement, BRM supports payment transactions with stored credentials for VISA, MasterCard, Diners, Discover, JCB, and American Express cards. You can also customize BRM to support stored-credential transactions for other card networks. When VISA, MasterCard, Diners, Discover, JCB, and American Express cards are used for payments, the PCM_OP_PYMT_COLLECT opcode sends the following information required for card transactions to Paymentech Data Manager (**dm_fusa**) and stores the responses received from Paymentech DM for future transactions:

- Type of charge, such as recurring, one-time, and installment.

- Transaction type.

- Information on whether the card details are stored for future use.

- A unique ID (TXID) obtained from a previous verify/charge transaction of the same type

You can override this information sent to Paymentech DM based on your business requirements. If you do not want to store credentials for future transactions, you can remove this information from the input passed to the PCM_OP_PYMT_COLLECT opcode.

For more information on storing or purging card credentials, see the following:

- Storing Card Credentials for Future Transactions

- Purging Card Credentials

If you already have payment information stored in BRM for cards that support the stored credential framework, see "Migrating Legacy Payment Information".

To support the stored credential framework, the following changes have been made in BRM for this feature:

- A new array, PIN_FLD_TRANSACTIONS, has been introduced in the **/payinfo/cc** storable class with the following optional fields to hold the Stored Credential Framework-specific information:

    - **PIN_FLD_BILLINFO_OBJ.** The bill unit (billinfo) for which payment is applied using the payment information (payinfo) in this array.

        > **Note:** You can associate one payment information with multiple bill units. Each bill unit has its own recurring cycle and each series of recurring cycles must have its own TXID.

    - **PIN_FLD_MODE.** The message type with which the initial transaction was performed.

    - **PIN_FLD_TRANS_ID.** The TXID received in the initial transaction response.

- A new array, PIN_FLD_TRANSACTIONS, has been introduced in the **/event/billing/charge/cc** and **/event/billing/validate/cc** storable class with the

following optional fields to hold the Stored Credential Framework-specific information:

- **PIN_FLD_TRANS_ID.** The TXID received in the initial transaction response.

- **PIN_FLD_MODE.** The message type with which the transaction was performed.

- **PIN_FLD_FLAGS.** The flag which indicates whether the credentials are stored in the file.

- **PIN_FLD_TYPE.** The transaction type.

■ The following opcodes have been modified to include the PIN_FLD_TRANSACTIONS array:

- PCM_OP_PYMT_COLLECT

- PCM_OP_PYMT_POL_PRE_COLLECT

- PCM_OP_PYMT_CHARGE

- PCM_OP_PYMT_CHARGE_CC

- PCM_OP_CUST_COMMIT_CUSTOMER

- PCM_OP_CUST_CREATE_PAYINFO

- PCM_OP_CUST_SET_PAYINFO

- PCM_OP_CUST_POL_VALID_PAYINFO

■ The following tables have been added to store the information in the PIN_FLD_TRANSACTIONS array:

- EVT_BILLING_CHARGE_CC_TRANS_T

- EVT_BILL_VLDT_CC_TRANS_T

- PAYINFO_CC_TRANS_T

■ BRM payment collection utilities, such as **pin_collect** and **pin_deposit,** have been enhanced to support stored credentials.

For more information on the field definitions and valid values, see *BRM Opcode Flist Reference*.

Storing Card Credentials for Future Transactions

To store the credit card information for future transactions, use PCM_OP_PYMT _ COLLECT.

This opcode does the following:

1. Receives the PIN_FLD_TRANSACTIONS array from the following opcodes if a VISA, MasterCard, Diners, Discover, JCB, or American Express card is registered for payment:

    ■ **PCM_OP_CUST_COMMIT_CUSTOMER.** This opcode passes the PIN_FLD_TRANSACTIONS array as input when you register a new customer with **Credit Card** as the default payment method and the cc_validate or cc_collect flag in the CM configuration file or credit card tokenization is enabled.

    ■ **PCM_OP_CUST_SET_PAYINFO.** This opcode passes the PIN_FLD_TRANSACTIONS array as input when you set **Credit Card** as the default payment method for the account.

■ **PCM_OP_CUST_CREATE_PAYINFO.** This opcode passes the PIN_FLD_ TRANSACTIONS array as input when you add a new credit card and set that as the default payment method for the account.

2. Accepts the card information in the PIN_FLD_TRANSACTIONS array, adds missing information as required, and then passes the information as input to the PCM_OP_PYMT_POL_PRE_COLLECT policy opcode.

Note: You can add, update, or remove the card information in the PIN_FLD_TRANSACTIONS array by customizing the PCM_OP_ PYMT_POL_PRE_COLLECT policy opcode.

---

3. Receives the updated card information and PIN_FLD_CHARGES from the PCM_ OP_PYMT_POL_PRE_COLLECT policy opcode.

4. Sends the card information in the PIN_FLD_TRANSACTIONS array to Paymentech DM by calling the PCM_OP_PYMT_CHARGE or PCM_OP_PYMT_ CHARGE_CC opcode.

   Paymentech DM appends the required records based on the information received and sends the transactions to Paymentech. If the transaction is successful, Paymentech DM retrieves the TXID from the Paymentech response and passes it to the PCM_OP_PYMT_COLLECT opcode.

5. Accepts the TXID received from Paymentech DM and stores it in the PIN_FLD_ TRANSACTIONS array in the **/payinfo/cc** object for future transactions.

Purging Card Credentials

When **Credit Card** is set as the default payment method, the PIN_FLD_ TRANSACTIONS array with the card information for each bill unit is stored in the **/payinfo/cc** object. If the default payment method is changed to any other method or card, the PIN_FLD_TRANSACTIONS array in the **/payinfo/cc** object are automatically purged from the database if the payments for the accounts are not in cardholder-initiated installments. If the payments are in cardholder-initiated installments, the card holder must delete the PIN_FLD_TRANSACTIONS array manually after the payment is made for the last installment.

Migrating Legacy Payment Information

If there is legacy payment information in BRM for cards that support stored credential framework, it is automatically migrated to the new format, which includes the fields for storing credentials. BRM uses this information only for merchant-initiated transactions.

After migration, when the merchant initiates the first transaction with this payment information, the PCM_OP_PYMT _COLLECT opcode sets the TXID in the input as **EXISTING9999999** to indicate that this transaction is initiated with the legacy payment information. The opcode then stores the TXID received from Paymentech DM as an additional TXID.

Additional Card Security Presence Values Supported for Card Validation or Authorization (Patch Set 23)

For credit card validations or authorizations, Paymentech Data Manager (**dm_fusa**) sends the Fraud Format Indicator (FR) or Product Record (PFR) record with the card security presence value. When the card security code (such as VISA CVV2) is present

in the PIN_FLD_SECURITY input flist field, Paymentech DM sets the card security presence value to 1 and sends the FR or PFR record for validation by default.

With this enhancement, you can customize BRM opcodes to send other card security presence values (such as 9 (No Value)) in the input flist to Paymentech DM. You can use the PIN_FLD_AVAILABLE flist field to provide the card security presence value.

> **Note:** The PIN_FLD_AVAILABLE field can be used for both online and batch transactions.

Following are the enumerated names and values supported in the PIN_FLD_ AVAILABLE field:

```
typedef enum pin_pymt_card_secid_presence {
 PIN_PYMT_CSP_BLANK = 0,
 PIN_PYMT_CSP_AVAILABLE = 1,
 PIN_PYMT_CSP_ILLEGIBLE = 2,
 PIN_PYMT_CSP_NOT_PROVIDED = 5,
 PIN_PYMT_CSP_NO_CSV = 9,
 } pin_pymt_card_secid_presence_t;
```

These names and values are defined in the *BRM_home***/include/ pin_pymt.h** file.

You can customize the PCM_OP_PYMT_POL_PRE_COLLECT opcode to send PIN_ FLD_AVAILABLE and PIN_FLD_SECURITY_ID in the input flist.

For credit card transactions, Paymentech Data Manager now does the following:

- If only PIN_FLD_SECURITY_ID value is present in the input flist, Paymentech DM sends the FR or PFR record for validation with the card security presence value set to 1 (value present).

- If both PIN_FLD_SECURITY_ID and PIN_FLD_AVAILABLE values are present in the input flist, Paymentech DM sends the FR or PFR record for validation with the card security presence value set to the PIN_FLD_AVAILABLE value.

- If only the PIN_FLD_AVAILABLE value is present in the input flist, Paymentech DM sends the FR or PFR record for validation with the card security presence value set to the PIN_FLD_AVAILABLE value.

- If both PIN_FLD_SECURITY_ID and PIN_FLD_AVAILABLE values are not present in the input flist, FR or PFR record is not sent for validation.

Card Security Code Is Now Masked in Logs (Patch Set 23)

BRM applications may log flists containing the sensitive customer data. In previous releases, the card security code, such as VISA CVV2 or American Express CID, passed in the PIN_FLD_SECURITY_ID input flist field was not masked and appeared as clear text in the logs.

With this enhancement, the PIN_FLD_SECURITY_ID value is masked during logging. The card security codes passed in this field appear as masked fields in logs.

Delay Interval Can be Configured for Resolving Failed Payments (Patch Set 21)

In previous releases, when the **pin_recover** utility and a custom application were run in parallel to resolve failed credit card or debit card payments, duplicate transaction IDs were created for such transactions.

With this patch, a new entry, **event_search_delay**, has been introduced in the *BRM_home*/**apps/pin_billd/pin.conf** file to specify the delay interval for resolving failed payments. You can now run the **pin_recover** utility with **event_search_delay** to delay the search of events so that **pin_recover** processes only the events (event/billing/charge/cc) that were created before the specified delay interval.

Configuring Delay Interval for Resolving Failed Payments

To configure delay interval for resolving failed payments:

1. Open the billing utility configuration file (*BRM_home*/**apps/pin_billd/pin.conf**) in a text editor.

2. Search for the **event_search_delay** entry.

3. Specify the delay interval:

   pin_recover event_search_delay *value*

   where *value* is the delay interval in seconds. By default, it is set to 0.

   For example, setting the **event_search_delay** entry to 300 delays the event search for resolving failed payments by 5 minutes:

   ```
   pin_recover event_search_delay 300
   ```

4. Save and close the file.

Improved Payment Allocation Performance (Patch Set 17)

You can improve performance of the payment allocation by disabling the payment validation for due amounts. To disable the payment validation for the due amounts, set the **DisableBatchDue** entry in the **PaymentTool.ini** configuration file to **1**. When the payment validation is disabled for due amounts, the due amounts are not displayed in the **Due Amount** column in Payment Tool.

For more information, see the discussion about improving payment allocation performance in *BRM Configuring and Collecting Payments*.

Improving Suspended Payment Handling by Using Multiple Payment Suspense Accounts (Patch Set 14)

In the previous releases, you could create only one payment suspense account per schema to handle suspended payments. This payment suspense account was identified by using the first name, **payment**, and the last name, **suspense**.

With this patch, you can now create multiple payment suspense accounts per schema. Each payment suspense account is identified by using the first name, **payment_***value*, and the last name, **suspense_***value*, where *value* is any string to distinguish the payment suspense account.

value can be same or different for **payment** and **suspense**. For example, **payment_USD suspense_country** or **payment_USD suspense_USD**.

You can categorize the incoming suspended payments by distributing them among the multiple payment suspense accounts.

You can now access Payment Center using suspense account credentials to view the payments related to that account only.

You can now search for the payment suspense account information by using the **Suspense Account** list in Payment Center. For more information about the search criteria in Payment Center, see the Payment Center Help.

For more information about multiple payment suspense accounts, see the discussion about creating payment suspense accounts in *BRM Configuring and Collecting Payments*.

Payment Tool Now Supports Making Payments in Any Currency (Patch Set 14)

Payment Tool now allows you to make a payment to an account in any currency. The amount will be converted to the account's primary currency and then posted to the account.

For more information about making payments in Payment Tool, see the discussion about working with multiple currency types in Payment Tool in *BRM Configuring and Collecting Payments*.

Pipeline Manager Enhancements

This section describes the enhancements for Pipeline Manager.

Pipeline Manager Can Now Support 28-Digit Decimal (Patch Set 23)

You can now configure Pipeline Manager to support 28-digit decimal rather than the default of 15-digit decimal.

To configure Pipeline Manager to support up to 28-digit decimal, set the MAX28DIGIT_DECIMAL_SUPPORT environment variable to **Y** before you start Pipeline Manager and its services.

Rating Enhancements

This section describes the enhancements for rating.

BRM Supports POID Generation in ECE (Patch Set 22)

In the previous releases, ECE was using the Portal object IDs (POIDs) generated in BRM for tracking rated events and bill items created in ECE.

With this enhancement, POIDs can be generated in ECE. ECE uses Rated Event Formatter to generate the required POIDs. To support this feature, the following changes have been made in BRM:

- All the existing BRM storable class definitions have been modified to include the event type. The event type is used for creating separate partitions for different set of events. When you create new custom classes in BRM, you must now set the **Event Type** field. For more information, see "About Creating Custom Classes".

- The PCM_OP_SDK_SET_DD, PCM_OP_SET_DD, and PCM_OP_GET_DD opcodes have been modified to support the partitioning of prepaid events.

- The following have been introduced to enable partitions for prepaid events:

  - The **prepaid_partition_set** and **prepaid_partition_transition_mode** entries introduced in **dm_oracle**.

  - The **prepaidPartitionSet** parameter introduced in the **system** instance of the **/config/business_params** object.

  For more information, see "Enabling Prepaid-Event Partitions".

■   The **partition_utils** utility now supports the **-t prepaid** parameter. You can run the **partition_utils** utility with the **enable** operation and this parameter to create partitions for the prepaid events.

Enabling Prepaid-Event Partitions

If you are using ECE for usage rating, you must enable prepaid-event partition in BRM for generating the POIDs in ECE.

To enable prepaid-event partitioning:

> **Important:**   In multischema systems, perform this task first on the primary BRM installation machine and then on the secondary BRM installation machines.

1. Open the *BRM_home***/sys/dm_oracle/pin.conf** file in a text editor.

2. Set the **prepaid_partition_set** entry to a numerical value between **2** and **7**. For example:

    ```
    - dm prepaid_partition_set 2
    ```

    If this entry is set to **0**, ECE uses the POIDs received from BRM for the prepaid events.

3. Set the **prepaid_partition_transition_mode** entry to **1**:

    > **Note:**   Setting this entry to **1** enables Data Manager to retrieve the partitions for the existing events. After retrieving all the partitions for the existing events (for example, after 90 days), set this entry to **0** to disable this mode.

    ```
     - dm prepaid_partition_transition_mode 1
    ```

4. Save and close the file.

5. Create an editable XML file from the **system** instance of the **/config/business_ params** object:

    ```
    pin_bus_params -r BusParamsSystem bus_params_system.xml
    ```

6. Set the **prepaidPartitionSet** parameter to the value you specified in step 2. For example:

    ```
    <prepaidPartitionSet>2</prepaidPartitionSet>
    ```

7. Save the file as **bus_params_system.xml**.

8. Load the XML file into the BRM database:

    ```
    pin_bus_params bus_params_system.xml
    ```

9. Stop and restart the CM.

10. (Multischema systems only) Run the **pin_multidb** script with the -R CONFIG parameter. For more information, see *BRM System Administrator's Guide*.

11. Go to the *BRM_home***/apps/partition_utils** directory.

12. Create partitions for the prepaid events by running the following command:

```
partition_utils -o enable -t prepaid
```

For more information, see the discussion about partitioning database tables in *BRM System Administrator's Guide*.

For information on enabling POID generation and prepaid-event partitions for ECE, see the discussion about POID generation in *BRM Elastic Charging Engine Release Notes*.

About Creating Custom Classes

When you create new custom classes in BRM, you must now set the **Event Type** field. Table 2–1 lists the event types in BRM. For instructions on how to create custom classes, see the discussion about creating custom classes in *BRM Developer's Guide*.

Important: When you create a custom class, note the following:

- If the event type is set to NONE, the corresponding event is not synchronized with PDC.

- When you add a subclass, ensure that the event type matches the event type of the parent class if the event type is set to anything other than NONE.

Table 2–1   Event Types in BRM

Event Type	Description
USAGE_PREPAID	Specifies the prepaid events (real-time charging events) from ECE.
USAGE_POSTPAID	Specifies the delayed events in BRM and postpaid events (offline charging events) from ECE.
SUBSCRIPTION_ RECURRING	Specifies the recurring subscription event.
SUBSCRIPTION_ ROLLOVER	Specifies the subscription events generated for rollovers.
SUBSCRIPTION_BILL_ TIME_DISCOUNT	(For internal use only) Specifies the subscription events generated for bill-time discounts.
SUBSCRIPTION_FOLD	(For internal use only) Specifies the subscription events generated for folds.
SUBSCRIPTION_ONE_ TIME	(For internal use only) Specifies the one-time subscription events.
SUBSCRIPTION_ REMITTANCE	(For internal use only) Specifies the subscription events generated for remittances.
NONE	Specifies that the event does not belong to any other event type.

After you create the custom class and synchronize it with PDC, it is not recommended to change the event type of the custom class. However, if you have set the incorrect event type, you can change the event type by updating it first in BRM and then in PDC.

For changing the event type in BRM by editing the custom class, see the discussion about creating, editing, and deleting fields and storable classes in *BRM Developer's Guide*.

For updating the event type in PDC and publishing it to ECE, see the discussion about synchronizing and publishing the event type in *PDC 11.2 Release Notes*.

Improved BRM-to-ECE Data Synchronization (Patch Set 22)

In the previous releases, sometimes there was a lag between the BRM database and the ECE cache update when the BRM data commit failed. During the lag, the BRM and ECE data were unsynchronized.

With this enhancement, the **ece_post_commit_enabled** entry has been introduced in BRM. The **ece_post_commit_enabled** entry specifies to commit the data in the ECE cache after the BRM data commit. The default value is **0**. You must set this entry in the Connection Manager (CM) configuration file to **1** to enable post commit in BRM. This ensures that the data in BRM and ECE are synchronized even if the BRM data commit fails.

For information on enabling post commit in BRM and ECE, see *BRM ECE 11.3 Release Notes*.

BRM-to-ECE Data Updates Are Now Synchronized in Real Time (Patch Set 15)

When the BRM server performs customer management and billing transactions, it stores the results in the BRM database. To enable Oracle Communications Billing and Revenue Management Elastic Charging Engine (ECE) to rate usage events properly, all customer data updates made in the BRM database must also be made in the ECE cache.

In the previous releases, such updates were published to ECE asynchronously. In that mode, the ECE cache was updated after the updates were saved to the BRM database and the transaction was closed. The process used the Account Synchronization Data Manager (DM), an Oracle Advanced Queuing (AQ) database queue, and the ECE Customer Updater. Because delays could occur when Customer Updater dequeued the updates, a lag could exist between the time the BRM database was updated and the time the ECE cache was updated. During the lag, the BRM and ECE data were unsynchronized. In addition, because the updates had already been saved to the BRM database, the BRM and ECE data would be unsynchronized if the ECE cache update failed. If ECE used the unsynchronized data to rate usage events, the events might be incorrectly rated.

Now, such updates are published to ECE synchronously. In this mode, both the database and the cache updates occur within the original transaction. If the ECE cache update succeeds, the updates are saved to the BRM database. If the cache update fails, the database updates are rolled back. Because both the database and the cache are updated within the same transaction, no lag time occurs, and the BRM and ECE data remain synchronized whether the cache update succeeds or fails. Maintaining the synchronization of the BRM and ECE data preserves the integrity within the BRM system of calculations ECE makes based on that data. This process uses ECE External Manager (EM) Gateway.

See the discussion about synchronizing BRM and ECE customer data in *BRM Elastic Charging Engine Concepts*.

BRM Now Sends Account-Level Details to ECE During Rerating (Patch Set 15)

With this patch, BRM now sends account-level product, discount, discount-sharing group, and charge-sharing group details to ECE during rerating.

See the discussion about supporting customer-level product, discount, charge-sharing, and charge offers published by BRM in the ECE documentation.

Support and Certification Enhancements

This section describes the enhancements to support and certification.

BRM 7.5 Now Supports Oracle Database 18*c* R1 and Oracle Real Application Clusters 18*c* R1 (Patch Set 23)

With this patch, BRM 7.5 supports Oracle Database 18*c* R1 and Oracle Real Application Clusters 18*c* R1.

For more information, see *BRM Installation Guide*.

BRM 7.5 Is Now Certified with Perl 5.28.1 (Patch Set 23)

Currently, BRM 7.5 is certified with Perl 5.28.0. With this patch, BRM 7.5 is certified with Perl 5.28.1.

For more information, see *BRM Installation Guide*.

BRM 7.5 Is Now Certified with Java JRE 1.8.0_201 (Patch Set 23)

Currently, BRM 7.5 is certified with Java JRE 1.8.0_45. With this patch, BRM 7.5 is certified with Java JRE 1.8.0_201.

For more information, see *BRM Installation Guide*.

BRM 7.5 Is Now Certified with Business Intelligence Publisher 12c (Patch Set 23)

Currently, BRM 7.5 is certified with Business Intelligence Publisher 11.1.1.9. With this patch, BRM 7.5 is certified with Business Intelligence Publisher 12c.

For more information, see *BRM Installation Guide*.

BRM 7.5 Is Now Certified with Apache Xerces-C++ 3.2.2 and HttpComponents HttpClient 4.5.8 (Patch Set 23)

Currently, BRM 7.5 is certified with Apache Xerces-C++ 3.2.1 and Apache HttpComponents HttpClient 4.5.3. With this patch, BRM 7.5 is now certified with Apache Xerces-C++ 3.2.2 and Apache HttpComponents HttpClient 4.5.8.

For more information, see *BRM Installation Guide*.

BRM 7.5 Is Now Certified with Perl 5.28.0 (Patch Set 22)

Currently, BRM 7.5 is certified with Perl 5.26.1. With this patch, BRM 7.5 is certified with Perl 5.28.0.

For more information, see *BRM Installation Guide*.

BRM Client Applications and PCC are Now Certified on Windows 10 (Patch Set 22)

Currently, BRM Client Applications and Pipeline Configuration Center (PCC) are certified on Windows 8.

With this patch, BRM Client Applications and PCC are now certified on Windows 10.

For more information, see *BRM Installation Guide*.

BRM 7.5 Is Now Certified with Apache Xerces-C++ 3.2.1 and Xerces-J (Java) 2.12.0 (Patch Set 22)

Currently, BRM 7.5 is certified with Apache Xerces-C++ 3.1.4 and Xerces-J (Java) 2.11.0. With this patch, BRM 7.5 is now certified with Apache Xerces-C++ 3.2.1 and Xerces-J (Java) 2.12.0.

For more information, see *BRM Installation Guide*.

BRM 7.5 Is Now Certified with Vertex Communications Tax Q Series 3.00.02 (Patch Set 22)

Currently, BRM 7.5 is certified with Vertex Communications Tax Q Series CTQ 1.00.13, CTQ 1.01.06, CTQ 2.00.05, and CTQ 3.0.

With this patch, BRM 7.5 is now also certified with Vertex Communications Tax Q Series 3.00.02.

For more information, see *BRM Installation Guide*.

BRM 7.5 Is Now Certified with Vertex Sales Tax Q Series 5.0 (Patch Set 22)

Currently, BRM 7.5 is certified with Vertex Sales Tax Q Series STQ 3.1.6, STQ 3.2.21, and STQ 4.0.6.

With this patch, BRM 7.5 is now also certified with Vertex Sales Tax Q Series 5.0.

For more information, see *BRM Installation Guide*.

BRM 7.5 Now Supports Oracle Database 12*c* R2 and Oracle Real Application Clusters 12*c* R2 (Patch Set 22)

With this patch, BRM 7.5 supports Oracle Database 12*c* R2 (Oracle 12.2.0.1.0) and Oracle Real Application Clusters 12*c* R2.

For more information, see *BRM Installation Guide*.

BRM 7.5 Is Now Certified with Perl 5.26.1 (Patch Set 21)

Currently, BRM 7.5 is certified with Perl 5.24.0. With this patch, BRM 7.5 is certified with Perl 5.26.1.

For more information, see *BRM Installation Guide*.

Web Services Manager Is Now Certified on Apache Tomcat 8.5.16 (Patch Set 21)

Currently, Web Services Manager is certified on Apache Tomcat version 7.0.62.

With this patch, Web Services Manager is now certified on Apache Tomcat version 8.5.16.

For more information, see *BRM Installation Guide*.

Xalan-Java and Xalan-C++ are Replaced With Oracle XDK (Patch Set 21)

Currently, BRM 7.5 is certified with Xalan-Java 2.7.2 and Xalan-C++ 1.11. With this patch, Xalan-Java and Xalan-C++ are not supported in BRM 7.5. BRM now uses Oracle XDK.

For more information, see *BRM Installation Guide*.

> **Important:** From BRM 7.5 Patch Set 21, BRM does not support the Xalan XSLT processor for generating HTML invoices. You can use a different XSLT processor by configuring it for BRM. For more information, see the discussion about using an XSLT Processor other than the Xalan XSLT Processor in *BRM Designing and Generating Invoices*.

BRM 7.5 Is Now Certified with Vertex Communications Tax Q Series 3.0 (Patch Set 20)

Currently, BRM 7.5 is certified with Vertex Communications Tax Q Series CTQ 1.00.13, CTQ 1.01.06, and CTQ 2.00.05.

With this patch, BRM 7.5 is now also certified with Vertex Communications Tax Q Series 3.0.

For more information, see *BRM Installation Guide*.

BRM 7.5 Is Now Certified with Perl 5.24.0 (Patch Set 18)

Currently, BRM 7.5 is certified with Perl 5.18.2. With this patch, BRM 7.5 is certified with Perl 5.24.0.

For more information, see *BRM Installation Guide*.

BRM 7.5 Is Now Certified with Xalan-Java 2.7.2 (Patch Set 16)

Currently, BRM 7.5 is certified with Xalan-Java 2.7.1. With this patch, BRM 7.5 is now certified with Xalan-Java 2.7.2.

For more information, see *BRM Installation Guide*.

BRM 7.5 Is Now Certified with Apache Xerces-C++ 3.1.4 (Patch Set 16)

Currently, BRM 7.5 is certified with Apache Xerces-C++ 3.1.3. With this patch, BRM 7.5 is now certified with Apache Xerces-C++ 3.1.4.

For more information, see *BRM Installation Guide*.

Web Services Manager Is Now Certified on Oracle WebLogic Server 12*c* Enterprise Edition 12.2.1 (Patch Set 16)

Currently, Web Services Manager is certified on Oracle WebLogic Server 12*c* Enterprise Edition 12.1.3.

With this patch, Web Services Manager is now also certified on Oracle WebLogic Server 12*c* Enterprise Edition 12.2.1.

BRM 7.5 Now Supports Solaris 11.x (Patch Set 15)

With this patch, BRM 7.5 supports Solaris 11.2.

> **Important:** You cannot upgrade from Solaris 10 to Solaris 11.2. For Solaris 11.2, Oracle recommends that you install BRM 7.5 using the BRM 7.5 installer package for **Solaris11**.

For more information, see *BRM Installation Guide*.

BRM 7.5 Now Includes Business Operations Center (Patch Set 15)

With this patch, you can use Oracle Communications Billing and Revenue Management Business Operations Center to run the following operations: billing, payment collection, invoicing, and general ledger (G/L) reporting. You can also use Business Operations Center to view graphs that track business trends based on data generated by those operations.

For more information about Business Operations Center, see the following:

- "Using Business Operations Center" in *BRM System Administrator's Guide*
- *Business Operations Center Installation Guide*
- Business Operations Center security in *BRM Security Guide*
- Business Operations Center Help

BRM 7.5 Is Now Certified with Business Intelligence Publisher 11.1.1.9 (Patch Set 15)

Currently, BRM 7.5 is certified with Business Intelligence Publisher 11.1.1.7.

With this patch, BRM 7.5 is now also certified with Business Intelligence Publisher 11.1.1.9.

BRM 7.5 Is Now Certified with Apache Xerces-C++ 3.1.3 (Patch Set 15)

Currently, BRM 7.5 is certified with Apache Xerces-C++ 2.7.0 and Apache Xerces-C++ 3.1.1.

With this patch, BRM 7.5 is now also certified with Apache Xerces-C++ 3.1.3.

BRM 7.5 Supports Oracle Linux 7.x and Red Hat Enterprise Linux 7.x (Patch Set 15)

With this patch, BRM 7.5 supports Oracle Linux 7.*x* and Red Hat Enterprise Linux 7.*x*.

For more information, see *BRM Installation Guide*.

BRM 7.5 No Longer Supports Oracle Linux 4.x and Red Hat Enterprise Linux 4.x (Patch Set 15)

With this patch, BRM 7.5 no longer supports Oracle Linux 4.*x* and Red Hat Enterprise Linux 4.*x*.

For more information, see *BRM Installation Guide*.

Web Services Manager Is Now Certified on Oracle WebLogic Server 12*c* (Patch Set 14)

Currently, Web Services Manager is certified on Oracle WebLogic Server 11*g* Enterprise Edition 10.3.6.

With this patch, Web Services Manager is now also certified on Oracle WebLogic Server 12*c* Enterprise Edition 12.1.3.

System Administration Enhancements

This section describes the enhancements to system administration.

Enhanced Data Protection (Patch Set 22)

BRM now includes the following security enhancements to protect the subscriber's personal data:

- Deleting closed accounts and all the related objects (such as events, items, bills, invoices, journals, newsfeeds, and user activities) and the audit data automatically from BRM after the specified retention period.

- Purge deleted accounts and the associated customer data synchronously on BRM and Oracle Communications Elastic Charging Engine (ECE). For more information, see the discussion about purging accounts from the ECE cache in *BRM ECE 11.3 Release Notes*.

- Securing communications between BRM applications and the database. See the discussion about configuring SSL for the BRM database in *BRM 7.5 Patch Set 22 Installation Guide*.

To support the security enhancements, the following changes have been made in BRM:

- The **ClosedAcctsRetentionMonths** business parameter has been introduced to specify the retention period for the closed accounts. See "Specifying Retention Period for Closed Accounts".

- The **pin_del_closed_accts** utility has been introduced to delete closed accounts from BRM after the specified retention period. See "pin_del_closed_accts".

- The PCM_OP_CUST_DELETE_ACCT opcode has been modified to ensure that all the BRM objects and audit entries containing the subscriber's personal data are purged.

> **Caution:** You can use the PCM_OP_CUST_DELETE_ACCT opcode to delete accounts in a production system, but ensure that you use this opcode with care.

For more information on the PCM_OP_CUST_DELETE_ACCT opcode, see the discussion about deleting accounts in *BRM Opcode Guide*.

> **Important:** The PCM_OP_CUST_DELETE_ACCT opcode does not delete all the custom objects. You can write a custom logic to clean up the custom objects in BRM when the **/event/notification/account/pre_delete** and **/event/notification/account/delete events** are generated by the PCM_OP_CUST_DELETE_ACCT opcode.

Specifying Retention Period for Closed Accounts

You can specify the number of months the closed accounts must be retained in BRM by setting the **ClosedAcctsRetentionMonths** parameter in the **customer** instance of the **/config/business_params** object.

To specify the retention period for closed accounts:

1. Go to *BRM_home***/sys/data/config**.

2. Create an XML file from the **/config/business_params** object:

```
pin_bus_params -r BusParamsCustomer bus_params_customer.xml
```

3. Set the **ClosedAcctsRetentionMonths** entry to the number of months that you want to retain the closed accounts:

    ```
    <ClosedAcctsRetentionMonths>number_of_months</ClosedAcctsRetentionMonths>
    ```

4. Save the file as **bus_params_customer.xml**.

5. Load the XML file into the BRM database:

    ```
    pin_bus_params bus_params_customer.xml
    ```

6. Stop and restart the CM.

7. (Multischema systems only) Run the **pin_multidb** script with the -R CONFIG parameter. For more information, see *BRM System Administrator's Guide*.

Deleting Closed Accounts

You can delete the closed accounts in BRM after the retention period by using the **pin_del_closed_accts** utility.

To delete closed accounts:

1. Go to the *BRM_home*/**apps/pin_billd** directory.

2. Do the following as appropriate:

    > **Note:**   To delete all the closed child accounts in a hierarchy and the sharing groups you need to run the following commands in the following order.

    -   To delete all the closed nonpaying child accounts at different levels in a hierarchy, run the following command:

        ```
        pin_del_closed_accts -subord -leaf
        pin_del_closed_accts -subord
        ```

    -   To delete the member accounts of the sharing groups, run the following command:

        ```
        pin_del_closed_accts -members_sharing
        ```

    -   To delete the paying child accounts at different levels in a hierarchy, run the following command:

        ```
        pin_del_closed_accts -members_billing
        ```

    > **Note:**   You need to run this command for each paying account in a hierarchy. For example, if there are two paying accounts in the hierarchy, you must run this command twice to delete both the paying accounts.

3. Run the following command, which deletes all the remaining closed accounts, including the top-level parent account in the hierarchy:

    ```
    pin_del_closed_accts
    ```

4. If you want to delete specific closed accounts by using a file, run the following command:

> **Note:** Run the **pin_del_closed_accts -file** command only if you want to delete specific accounts, but ensure that you use this command with care.

pin_del_closed_accts -file *file_name*

For example:

```
pin_del_closed_accts  -file  closed_accts_list.txt
```

The utility deletes the accounts specified in the input file. You must provide the account details in the flist format in this file. For example:

```
0 PIN_FLD_RESULTS      ARRAY [0] allocated 20, used 1

1     PIN_FLD_POID         POID [0] 0.0.0.1 /account 123 0

0 PIN_FLD_RESULTS      ARRAY [1] allocated 20, used 1

1     PIN_FLD_POID         POID [0] 0.0.0.1 /account 234 0
```

For more information on the **pin_del_closed_accts** utility and parameters, see "pin_del_closed_accts".

pin_del_closed_accts

Use the **pin_del_closed_accts** utility to delete closed accounts from BRM. This utility calls the PCM_OP_CUST_DELETE_ACCT opcode to delete the closed accounts that are older than the specified retention period. For specifying the retention period, see "Specifying Retention Period for Closed Accounts".

To connect to the BRM database, the **pin_del_closed_accts** utility needs a configuration file in the directory from which you run the utility. See the discussion about connecting BRM utilities in *BRM System Administrator's Guide*.

Location
BRM_home/**bin**

Syntax
```
pin_del_closed_accts
                    -subord [-leaf]
                    -members_sharing
                    -members_billing
                    -file file_name
                    [-verbose][-help]
```

Parameters
- **subord [leaf].** Deletes the closed nonpaying child accounts at the bottom of the hierarchy.
- **subord.** Deletes the remaining closed nonpaying child accounts which are parents of other child accounts at the different levels of the hierarchy. Running the **pin_del_closed_accts** utility with this parameter does not delete the top-level parent account in the hierarchy.

You need to run the **pin_del_closed_accts** utility without any parameters after deleting all the paying and nonpaying child accounts at different levels in the hierarchy to delete the top-level parent account.

- **members_sharing.** Deletes the member accounts of the sharing groups; for example, discount and charge sharing groups.

- **members_billing.** Deletes the closed paying accounts in the hierarchy that are used for billing purposes.

- **file** *file_name***.** Deletes the accounts specified in the input file. The *file_name* is the name and location of the file that contains the list of accounts for deletion. The account details in this file must be in the flist format.

> **Important:** Running the **pin_del_closed_accts** utility with this parameter deletes all the accounts specified in the input file even if the accounts are not older than the retention period. When you use this parameter, ensure that the input file contains only the closed accounts that need to be deleted.

- **verbose.** Displays information about successful or failed processing as the utility runs.

- **help.** Displays the syntax and parameters for this utility.

Results

The **pin_del_closed_accts** utility notifies you when it successfully deletes the closed accounts and the associated customer data.

If the **pin_del_closed_accts** utility does not notify you that it was successful, look in the utility log file (**default.pinlog**) to find any errors. The log file is either in the directory from which the utility was started or in a directory specified in the configuration file.

After you have resolved the errors, you can delete the closed accounts by running the **pin_del_closed_accts** utility again.

Enhanced Security for Root Wallet (Patch Set 20)

When you run the **pin_crypt_app** utility with the **-genrootkey** parameter, BRM now prompts for the root wallet password. This ensures that the root wallet is secured.

For more information, see the discussion about modifying the root encryption key in *BRM Developer's Guide*.

BRM Now Supports Modifying the Root Encryption Key (Patch Set 14)

Currently, when you run the **pin_crypt_app** utility with the **-genrootkey** parameter, a root encryption key is generated and is stored in an Oracle wallet.

With this patch, if the root encryption key already exists, you can run the **pin_crypt_app** utility with the **-genrootkey** parameter to modify the existing root encryption key.

> **Important:** After you modify the root encryption key, re-encrypt all the passwords and update the entry in the appropriate configuration file.

> **Note:** For multischema systems, you must run the **pin_crypt_app** utility with **-genrootkey** only from the primary schema, which will update the existing root encryption key in the Oracle wallet with the new root encryption key. The utility re-encrypts the data keys in the CRYPTKEY_T table with the new root encryption key for all the secondary schemas.

For more information, see the discussion about modifying the root encryption key in *BRM Developer's Guide*.

Web Services Manager Enhancements

This section describes the enhancements to Web Services Manager.

Web Services Manager Now Supports SOAP 1.2 (Patch Set 17)

Currently, Web Services Manager supports the SOAP 1.1 format.

With this patch, Web Services Manager supports the SOAP 1.2 format for both **BrmWebServices.war** and **infranetwebsvc.war** files.

Web Services Manager now Supports OAuth 2.0 for Authentication and Authorization (Patch Set 16)

With this patch, Web Services Manager supports the OAuth 2.0 protocol for authorization. OAuth 2.0 is an open standard protocol for token-based authentication and authorization that enables client applications to obtain access to BRM web services without sharing a password. OAuth 2.0 provides various authentication flows. Web Services Manager supports the Authorization Code Grant flow.

When this feature is enabled, Web Services Manager authenticates and authorizes clients' access to BRM web services by validating an access token that clients use. To use OAuth 2.0 with BRM web services, configure a service for OAuth 2.0 on the Oracle Identity and Access Management server.

For more information about OAuth support in Web Services Manager, see the discussion about securing BRM web services with OAuth in *BRM Web Services Manager*.

Web Services Manager Now Uses WebLogic Server Security Policy to Authorize and Authenticate BRM Web Services (Patch Set 14)

In the previous releases, Web Services Manager used the **BrmWsmRole.properties** file, which contained Apache Axis handler configurations, to authorize web services.

With this patch, Web Services Manager now uses WebLogic Server security policy to authorize and authenticate BRM web services.

> **Note:** The **BrmWsmRole.properties** file is no longer part of the Web Services Manager installation package.

For more information, see *BRM Web Services Manager*.

Web Services Manager Now Uses the JAX-WS Framework to Support SOAP Web Services as an XML Element Payload (Patch Set 14)

In the previous releases, Web Services Manager used the Apache Axis framework to support SOAP web services as an XML string payload and an XML element payload.

With this patch, Web Services Manager no longer uses Apache Axis framework for SOAP web services as an XML element payload. Web Services Manager now uses the JAX-WS framework to support SOAP web services as an XML element payload. To continue to use SOAP web services as an XML element payload, regenerate the web services clients with JAX-WS-based service URLs.

For more information, see *BRM Web Services Manager*.

3

Opcode Changes

This chapter provides an overview of the opcode changes introduced in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

New Opcodes

This section describes the standard and policy opcodes introduced in BRM 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

New Standard Opcodes

This section describes the standard opcodes introduced in BRM 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

Balance FM Standard Opcodes

Table 3–1 lists the new Balance framework standard opcodes.

Table 3–1   New Balance FM Standard Opcodes

New Standard Opcode	Description
PCM_OP_BAL_GET_ECE_BALANCES	(Patch Set 15) Gets the real-time balances for a service from Oracle Communications Billing and Revenue Management Elastic Charging Engine (ECE).

Job FM Standard Opcodes

Table 3–2 lists the new Job framework standard opcodes.

Table 3–2   New Job FM Standard Opcodes

New Standard Opcode	Description
PCM_OP_JOB_PROCESS_TEMPLATE	(Patch Set 15) Creates, modifies, or deletes the **/job_template** objects.

Changed Opcodes

This section describes the standard and policy opcodes changed in BRM 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

Changed Policy Opcodes

Table 3–3 lists the changed policy opcodes.

Table 3–3   Changed Policy Opcodes

Changed Policy Opcode	Description
PCM_OP_PYMT_POL_PRE_COLLECT	(Patch Set 23) Modified to support PIN_FLD_TRANSACTIONS array for stored-credential transactions.
PCM_OP_CUST_POL_VALID_PAYINFO	(Patch Set 23) Modified to support PIN_FLD_TRANSACTIONS array for stored-credential transactions.
All policy opcodes	(Patch Set 14) Modified to include the PIN_FLD_CORRELATION_ID and PIN_FLD_EXTERNAL_USER fields in the PIN_FLD_CONTEXT_INFO substruct in the input and output flists.

Changed Standard Opcodes

Table 3–4 lists the changed standard opcodes.

Table 3–4   Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_CUST_COMMIT_CUSTOMER	(Patch Set 23) Modified to include the PIN_FLD_TRANSACTIONS array for storing card credentials.
PCM_OP_CUST_CREATE_PAYINFO	(Patch Set 23) Modified to include the PIN_FLD_TRANSACTIONS array for storing card credentials.
PCM_OP_CUST_SET_PAYINFO	(Patch Set 23) Modified to include the PIN_FLD_TRANSACTIONS array for storing card credentials.
PCM_OP_PYMT_CHARGE	(Patch Set 23) Modified to use the stored card credentials for payment transactions.
PCM_OP_PYMT_CHARGE_CC	(Patch Set 23) Modified to use the stored card credentials for payment transactions.
PCM_OP_PYMT _COLLECT	(Patch Set 23) Modified to use the stored card credentials for payment transactions.
PCM_OP_CUST_DELETE_ACCT	(Patch Set 22) Modified to delete all the objects (such as **/event** and **/bill**) and audit entries when the corresponding account is deleted.
PCM_OP_AR_GET_ACCT_ACTION_ITEMS	(Patch Set 16) Modified to include additional information about the PIN_FLD_THRESHOLD field in the input flist.
All standard opcodes	(Patch Set 14) Modified to include the PIN_FLD_CORRELATION_ID and PIN_FLD_EXTERNAL_USER fields in the PIN_FLD_CONTEXT_INFO substruct in the input and output flists.

4

Storable Class Changes

This chapter provides an overview of the storable class changes introduced in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

New Storable Classes

Table 4–1 lists the storable classes introduced in the BRM 7.5 patch sets. The new storable classes are grouped by the respective patch sets.

Table 4–1   New Storable Classes

New Storable Class	Description
/cmt_balances	(Patch Set 22) Stores the balance data temporarily.
/recurring_bundle_history	(Patch Set 21) Stores information about recurring bundles.
/job/boc	(Patch Set 15) Stores information about Oracle Communications Billing and Revenue Management Business Operations Center jobs.
/job/system	(Patch Set 15) Stores information about the jobs assigned to BRM.
/job_template	(Patch Set 15) Stores all the data about the different types of jobs running in BRM.
/job_template/billing	(Patch Set 15) Stores all the data about the billing jobs running in BRM.
/job_template/collect	(Patch Set 15) Stores all the data about the collection jobs running in BRM.
/job_template/invoice	(Patch Set 15) Stores all the data about the invoicing jobs running in BRM.
/job_template/ledger_report	(Patch Set 15) Stores all the data about the general ledger (G/L) reporting jobs running in BRM.
/process_audit/analytics	(Patch Set 15) Stores all the business metrics data generated by the **pin_generate_analytics** utility.
/process_audit/analytics/accounts_by_status	(Patch Set 15) Stores by status the business metrics data about the accounts generated by the **pin_generate_analytics** utility.

Table 4–1 (Cont.) New Storable Classes

New Storable Class	Description
/process_ audit/analytics/accounts_by_ subscription	(Patch Set 15) Stores by subscription the business metrics data about the accounts generated by the **pin_generate_ analytics** utility.
/process_ audit/analytics/accounts_ receivable	(Patch Set 15) Stores the business metrics data about the accounts receivable (A/R) generated by the **pin_generate_ analytics** utility.
/process_audit/analytics/billed_ revenue	(Patch Set 15) Stores the business metrics data about the billed revenue generated by the **pin_generate_analytics** utility.
/process_ audit/analytics/payments_ collected	(Patch Set 15) Stores the business metrics data about the collected payments generated by the **pin_generate_ analytics** utility.
/process_audit/ledger_report	(Patch Set 15) Stores information about the G/L reports.

Changed Storable Classes

Table 4–2 lists the storable classes changed in the BRM 7.5 patch sets. The changed storable classes are grouped by the respective patch sets.

Table 4–2   Changed Storable Classes

Changed Storable Class	Description
/event/billing/charge/cc	(Patch Set 23) Modified to support stored-credential transactions.
/event/billing/validate/cc	(Patch Set 23) Modified to support stored-credential transactions.
/event/customer/nameinfo	(Patch Set 23) Modified to support stored-credential transactions.
/payinfo/cc	(Patch Set 23) Modified to store card credentials for future transactions.
/profile/serv_extrating	(Patch Set 18) The PIN_FLD_STATUS field now includes all the transitory states in the provisioning process, such as provisioning, active, unprovisioning, suspending, and so on.
/user_activity	(Patch Set 18) The length of the PIN_FLD_API_USER, PIN_ FLD_CORRELATION_ID, and PIN_FLD_EXTERNAL_ USER fields have been modified to 128 characters.
/job/boc	(Patch Set 17) Now includes the PIN_FLD_SCHEDULE_T field to store the schedule for running Business Operations Center jobs.
/job	(Patch Set 15) Now includes the PIN_FLD_TRACKING_ID field to store the Business Operations Center job ID passed to the **pin_job_executor** utility when the utility is run.
/process_audit	(Patch Set 15) Now includes the PIN_FLD_JOB_OBJ field, which stores a link to the **/job** object.

Table 4–2   (Cont.) Changed Storable Classes

Changed Storable Class	Description
/process_audit/billing	(Patch Set 15) Now includes the following: ■ PIN_FLD_NUMBER_OF_BILLS field in the PIN_FLD_BILLING_SEGMENTS array to store the number of bills processed in a billing job ■ PIN_FLD_NUMBER_OF_BILLS field in the PIN_FLD_BILLING_INFO substruct to store the number of bills processed in a billing job

5

Schema and Index Changes

This chapter provides an overview of the schema and index changes introduced in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

Schema and Index Changes (Patch Set 23)

BRM 7.5 Patch Set 23 included the following schema and index changes:

- The following tables were added:
  - EVT_BILLING_CHARGE_CC_TRANS_T
  - EVT_BILL_VLDT_CC_TRANS_T
  - PAYINFO_CC_TRANS_T
- The following table was modified:
  OPTIONAL_PARTITION
- The following column was added in EVT_BILLING_CHARGE_CC_TRANS_T and EVT_BILL_VLDT_CC_TRANS_T tables:
  - PIN_FLD_AMOUNT_ORIG
- The following indexes were added:
  - I_AU_GROUP_ACC__ID
  - I_AU_GROUP_SHARING_MEM__ID

Schema and Index Changes (Patch Set 22)

BRM 7.5 Patch Set 22 included the following schema and index changes:

- The following table was added:
  - CMT_BALANCES_T

Schema and Index Changes (Patch Set 21)

BRM 7.5 Patch Set 21 included the following schema and index changes:

- The following table was added:
  - RECURRING_BUNDLE_HISTORY_T

Schema and Index Changes (Patch Set 20)

BRM 7.5 Patch Set 20 included the following schema and index changes:

- The following table was added:
  - PRODUCT_DELIVERABLE_T
- The following columns were added in the JOURNAL_T table:
  - TYPE
  - CONTRACT_OBJ_DB
  - CONTRACT_OBJ_ID0
  - CONTRACT_OBJ_TYPE
  - CONTRACT_OBJ_REV
  - CONTRACT_START_T
  - CONTRACT_END_T
- The following columns were added in the PLAN_T and DEAL_T tables:
  - SUBSCRIPTION_TERMS_OBJ_ID0
  - SUBSCRIPTION_TERMS_OBJ_TYPE
  - SUBSCRIPTION_TERMS_OBJ_REV
  - SUBSCRIPTION_TERMS_OBJ_DB
- The following column in the EVENT_T table was deleted:
  - COMPACT_SUB_EVENT
- The size of the AU_SERVICE_T and EVENT_CUSTOMER_PASSWORD_T columns were changed to VARCHAR2 (1024).

Schema and Index Changes (Patch Set 18)

BRM 7.5 Patch Set 18 included the following schema and index changes:

- The size of the API_USER_ID, CORRELATION_ID, and EXTERNAL_USER_ID columns in the USER_ACTIVITY_T table were changed from VARCHAR2 (255) to VARCHAR2 (128).

Schema and Index Changes (Patch Set 17)

BRM 7.5 Patch Set 17 included the following schema and index changes:

- The following column was added in the PROFILE_CUSTOMER_CARE_T table:
  - GROUP_TYPE
- The size of the IMPACT_CATEGORY column in the IFW_DSCBALIMPACT table was changed from VARCHAR2 (10) to VARCHAR2 (255).

Schema and Index Changes (Patch Set 16)

BRM 7.5 Patch Set 16 included the following schema and index changes:

- The following tables were added:

- CONFIG_BUSINESS_EVENTS_T
- CONFIG_PROV_TAX_INFO_T
- CONFIG_PROV_TAX_JUR_T
- CONFIG_PROV_TAXES_T
- JOB_TEMPLATE_COLL_AC_INFO_T
- JOB_TEMPLATE_PRICE_SYNC_INFO_T
- JOB_TEMPLATE_PYMT_CLEAN_T
- JOB_TEMPLATE_RCVR_ACTION_T
- JOB_TEMPLATE_RCVR_PAY_TYPES_T
- JOB_TEMPLATE_REF_STATUSES_T
- JOB_TEMPLATE_REF_PAY_TYPES_T
- PROC_AUD_BATCH_PAYMENT_T
- PROC_AUD_PRICE_SYNC_T

- The following columns were added in the EVENT_BILLING_REVERSAL_CC_T and EVENT_BILLING_REVERSAL_DD_T tables:
  - AUTH_CODE
  - AUTH_DATE
  - RESULT
  - VENDOR_RESULTS
- The following column was added in the CONFIG_TAXES_T table:
  - INPUT_ID
- The following columns were added in the PROC_AUD_BILL_T table:
  - AMOUNT
  - AMOUNT_ORIG
- The following columns were added in the JOB_TEMPLATE_T table:
  - CREATED_BY
  - EMAIL_ADDR
  - JOB_OBJ_DB
  - JOB_OBJ_ID0
  - JOB_OBJ_REV
  - JOB_OBJ_TYPE
  - JOB_TYPE
  - MODIFIED_BY
  - NOTIFY_FLAG
  - PARENT_TEMPLATE_OBJ_DB
  - PARENT_TEMPLATE_OBJ_ID0
  - PARENT_TEMPLATE_OBJ_REV

- PARENT_TEMPLATE_OBJ_TYPE

- USER_TAG

■ The following column was added in the JOB_TEMPLATE_GL_INFO_T table:

- START_UNIT

■ The following indexes were added:

- I_BATCH_PAYMENT_FAILED_ID

- I_BATCH_PAYMENT_FILENAME_ID

- I_PROC_AUD_BATCH_PAYMENT_ID

- I_PROC_AUD_POCESS_END_ID

■ The following views were added:

- JOB_HISTORY_VW

- REV_ASSURANCE_VW

Schema and Index Changes (Patch Set 15)

BRM 7.5 Patch Set 15 included the following schema and index changes:

■ The following tables were added:

- AU_JOB_TEMPLATE_BILL_DOMS_T

- AU_JOB_TEMPLATE_BILL_PAY_TYP_T

- AU_JOB_TEMPLATE_BILL_SEGMENT_T

- AU_JOB_TEMPLATE_BILL_STATUSE_T

- AU_JOB_TEMPLATE_BILLINFO_T

- AU_JOB_TEMPLATE_COLL_PAY_TYP_T

- AU_JOB_TEMPLATE_COLL_STATUSE_T

- AU_JOB_TEMPLATE_GL_INFO_T

- AU_JOB_TEMPLATE_GL_TYPES_T

- AU_JOB_TEMPLATE_INV_BILLS_T

- AU_JOB_TEMPLATE_INV_INFO_T

- AU_JOB_TEMPLATE_INV_PAY_TYPE_T

- AU_JOB_TEMPLATE_T

- CONFIG_BOC_ANALYTICS_T

- JOB_BOC_T

- JOB_TEMPLATE_BILL_DOMS_T

- JOB_TEMPLATE_BILL_PAY_TYPES_T

- JOB_TEMPLATE_BILL_SEGMENTS_T

- JOB_TEMPLATE_BILL_STATUSES_T

- JOB_TEMPLATE_BILLINFO_T

- JOB_TEMPLATE_COLL_PAY_TYPES_T

- JOB_TEMPLATE_COLL_STATUSES_T
- JOB_TEMPLATE_GL_INFO_T
- JOB_TEMPLATE_GL_TYPES_T
- JOB_TEMPLATE_INV_BILLS_T
- JOB_TEMPLATE_INV_INFO_T
- JOB_TEMPLATE_INV_PAY_TYPES_T
- JOB_TEMPLATE_T
- PROC_AUD_GL_REPORT_T
- PROCAUD_ACC_BY_STATUS_T
- PROCAUD_ACC_BY_SUBS_T
- PROCAUD_ACCS_RECEIVABLE_T
- PROCAUD_BILLED_REVENUE_T
- PROCAUD_PYMTS_COLLECTED_T

- The following column was added in the EVENT_CUSTOMER_NOTE_DATA_T table:
  - EXTERNAL_USER_NAME
- The following column was added in the JOB_T table:
  - tracking_id
- The following column was added in the NOTE_DATA_T table:
  - EXTERNAL_USER_NAME
- The following columns were added in the PROC_AUD_T table:
  - JOB_OBJ_DB
  - JOB_OBJ_ID0
  - JOB_OBJ_REV
  - JOB_OBJ_TYPE
- The following column was added in the PROC_AUD_BILL_SEGMENTS_T table:
  - NUMBER_OF_BILLS
- The following column was added in the PROC_AUD_BILL_T table:
  - NUMBER_OF_BILLS
- The following indexes were added:
  - I_JOB_TEMPLATE__ID
  - I_JOB_TRACKING_ID

Schema and Index Changes (Patch Set 14)

BRM 7.5 Patch Set 14 included the following schema and index changes:

- There were no schema changes in this release.
- The following indexes were added:

- – i_au_c_action_parent_obj__id
- – i_au_coll_inv_reminder__id
- – i_au_collections_action__id
- – i_au_collections_dunning__id
- – i_event_audit_object__id

6

Utility Changes

This chapter provides an overview of the utility changes introduced in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

New Utilities

Table 6–1 lists the utilities introduced in BRM 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

Table 6–1   New Utilities

New Utility	Description
pin_del_closed_accts	(Patch Set 22) Introduced to delete closed accounts in BRM. This utility calls the PCM_OP_CUST_DELETE_ACCT opcode to delete the closed accounts that are older than the specified retention period.
	See "Enhanced Data Protection (Patch Set 22)" for more information.
pin_generate_analytics	(Patch Set 15) Generates business metrics data for accounts by status, accounts by subscription, payments, billed revenue, and accounts receivable (A/R) and loads the metrics data into the BRM database. Oracle Communications Billing and Revenue Management Business Operations Center displays graphs based on the business metrics data generated by this utility.
	See the discussion about collecting metrics to display in Business Operations Center in *BRM System Administrator's Guide*.
pin_job_executor	(Patch Set 15) Runs BRM applications such as **pin_bill_accts**, **pin_collect**, and **pin_inv_accts** when called by Business Operations Center. This is an internal utility that cannot be run from the command line.
	See the discussion about running jobs in Business Operations Center in *BRM System Administrator's Guide*.

Changed Utilities

Table 6–2 lists the utilities changed in BRM 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

Table 6–2   Changed Utilities

New Utility	Description
pin_cmt	(Patch Set 22) Modified to migrate legacy service and balance data incrementally into the BRM system. You can now run the **pin_cmt** utility with the following new parameters to migrate data: ■ **deploy_db** ■ **deploy_ece** See "Support for Incremental Migration of Legacy Service and Balance Data into BRM and ECE (Patch Set 22)" for more information.
cmt_mta_cycle_fees	(Patch Set 22) Renamed as **cmt_mta_deploy** and modified to support incremental migration of legacy BRM data. See "Support for Incremental Migration of Legacy Service and Balance Data into BRM and ECE (Patch Set 22)" for more information.

7

Documentation Updates

This chapter provides an overview of the documentation updates introduced in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

Documentation Updates in Patch Set 16

This section describes the documentation updates in BRM 7.5 Patch Set 16.

Renamed Business Operations Center to Revenue Assurance Center

The Business Operations Center Windows client application is now renamed to Revenue Assurance Center.

Documentation Updates in Patch Set 15

This section describes the documentation updates in BRM 7.5 Patch Set 15.

Oracle Application Server Information Removed

JCA Resource Adapter is not supported on Oracle Application Server. Therefore, the Oracle Application Server information in the BRM 7.5 documents was removed.

Documentation Updates in Patch Set 14

This section describes the documentation updates in BRM 7.5 Patch Set 14.

Updates to BRM 7.5 TAP and EDR Field Mappings

Information about the TAP and EDR input and output field pairs is now added in "TAP and EDR Field Mappings" in *BRM Configuring Roaming in Pipeline Manager*.

8

Known Problems

This chapter provides an overview of the known problems in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 14 through BRM 7.5 Patch Set 23.

Billing

This section describes known problems and workarounds for billing.

Allocation of a Bill-Level Adjustment with Tax to an Item Does Not Work

SR number: Not applicable

BugDB number: 18619238

When performing bill-level adjustments using the PCM_OP_AR_BILL_ADJUSTMENT opcode, allocating an adjustment with tax implications to an individual item does not work.

There is no workaround.

BRM API

This section describes known problems and workarounds for the BRM API.

Cannot Use the Customized Policy Opcodes

SR number: 3-4896783891

BugDB number: 13375180

Sometimes, the functions defined in a customized policy opcode are not called by BRM. This occurs when the functions defined in the customized policy source file have the same name as the functions defined in the default policy source file. BRM calls the function from the default policy source file, overriding the function defined in the customized policy file.

To work around this problem, when modifying a policy opcode or adding a new policy opcode, open the opcode's **.c** file and define all the functions, except the entry point for the opcode, as static.

The following example shows the entries in the **fm_cust_pol_tax_calc.c** file for the customized PCM_OP_CUST_POL_TAX_CALC policy opcode:

```
void op_cust_pol_tax_calc(…)
static void fm_cust_pol_tax_calc(…)
```

In situations where you want to define a custom function as non-static, make sure that the name of this function does not match an existing name in the default policy source file.

PCM_OP_CUST_SET_PAYINFO Sets the Wrong Invoice Type

SR number: Not applicable

BugDB number: 13794390

When you use the PCM_OP_CUST_SET_PAYINFO opcode to set or modify a customer's invoice type, the opcode may write the wrong invoice type value to the **/payinfo/invoice** object's PIN_FLD_INV_TYPE field.

To work around this problem, when setting or modifying a customer's invoice type, set the PCM_OP_CUST_SET_PAYINFO opcode's PIN_FLD_INV_TYPE input flist field to the following:

- **2** to specify a summary invoice type. This will set the **/payinfo** object's PIN_FLD_INV_TYPE field to **1**.

- **1** to specify a detailed invoice type. This will set the **/payinfo** object's PIN_FLD_INV_TYPE field to **0**.

BRM Client Applications

This section describes known problems and workarounds for the BRM client applications.

BRM Client Applications Using the Java PCM API Cannot Connect to a BRM Server Listening on a Specific IPv6 Address

SR number: Not applicable

BugDB number: 16394226

By default, any BRM client applications based on the Java Portal Communication Module (PCM) API cannot connect to a BRM server listening on a specific Internet Protocol Version 6 (IPv6) address.

To work around this problem, do one of the following:

- On your UNIX system, run the Java-based BRM client application with the **-Djava.net.preferIPv6Addresses=true** option.

  For example:

  ```
  #!/bin/sh
  BRM_home/ThirdPartyApps/jre/1.6.0/bin/java -Djava.net.preferIPv6Addresses=true
  -cp "$PIN_HOME/jars/loadpricelist.jar"
  ```

- On your Windows system, connect your Java-based BRM client application to the BRM server by using the BRM server's IPv6 address.

See the Oracle Java documentation for more information about using IPv6 in Java.

BRM 7.5 Patch Set 7 Client Applications Cannot be Uninstalled on Windows XP

SR number: Not applicable

BugDB number: 18159951

If a BRM 7.5 Patch Set 7 client application is installed on Windows XP and you want to uninstall the client application, the uninstaller does not work.

To work around this problem, manually delete the client application installation directory.

BRM Database

This section describes known problems and workarounds for the BRM database.

The pin_virtual_gen Utility Fails in an AIX Environment

SR number: Not applicable

BugDB number: 17480385, 18471076

The **pin_virtual_gen** utility fails in an AIX environment if you use the Oracle ZT PKI encrypted password as the value for the **infranet.vcol.password** entry in the *BRM_home*/**apps/pin_virtual_columns/Infranet.properties** file.

To work around this problem, do one of the following:

- Go to the following location and apply the OS patch on AIX:

  http://www-01.ibm.com/support/docview.wss?uid=isg1IV30118

- Use the Advanced Encryption Standard (AES) encrypted password as the value for the **infranet.vcol.password** entry in the *BRM_home*/**apps/pin_virtual_columns/Infranet.properties** file.

Error When Running BRM 7.5 Patch Set Database Upgrade Scripts from an Oracle Database 12*c* Client Connected to an Oracle Database 12*c* Server

SR number: Not applicable

BugDB number: 18803069

If you use an Oracle Database 12*c* client connected to an Oracle Database 12*c* server to run the BRM 7.5 patch set database upgrade scripts, the following error message appears:

```
Unable to update the Portal Base database.
```

To work around this problem, run the BRM 7.5 patch set database upgrade scripts from an Oracle Database 11*g* client connected to an Oracle Database 12*c* server.

Error When Running pin_rel with BRM Running on Oracle Database 10*g*

SR number: Not applicable

BugDB number: Not applicable

When you run the **pin_rel** utility with BRM running on Oracle Database 10*g*, the following error message appears:

Error encountered in the REL Driver: 1010

To work around this problem, do the following before you run the **pin_rel** utility:

1. Copy the **tnsnames.ora** and **sqlnet.ora** files to a directory in the same BRM server.

2. Set the $TNS_ADMIN to point to the directory that contains the **tnsnames.ora** and **sqlnet.ora** files by running the following command:

```
Setenv TNS_ADMIN Dir_Path
```

Where *Dir_Path* is the path to the directory that contains the **tnsnames.ora** and **sqlnet.ora** files.

3. In the **tnsnames.ora** file, ensure that the ORACLE_SID is set to *database_alias* without the domain name, where *database_alias* is the BRM database alias.

For example:

```
database_alias =
  (DESCRIPTION =
        (ADDRESS = (PROTOCOL= TCP)(Host=database_host_name)(Port= 1521))
        (CONNECT_DATA = (SID = pindb))
```

4. In the **sqlnet.ora** file, ensure that the following entry is commented:

```
#NAMES.DEFAULT_DOMAIN = Default_Domain
```

Error When Running pin_setup with BRM Running on Oracle Database 12*c*

SR number: Not applicable

BugDB number: 17461628

When you run the **pin_setup** script with BRM running on Oracle Database 12*c* where the database tablespaces are already created, the following error message appears:

```
get_database_db_no: sql_select failed with err=0(PIN_ERR_NONE), x = 2
```

To work around this problem, do the following before you run the **pin_setup** script:

1. Enter the following command, which opens SQL*Plus:

   sqlplus sys/password**@**database_alias **as sysdba**

   where:

   - *password* is the Oracle database user password.

   - *database_alias* is the BRM database alias.

2. Enter the following commands in the given order:

   ```
   SQL> alter user pin01 QUOTA UNLIMITED ON pin00;
   SQL> alter user pin01 QUOTA UNLIMITED ON pinx00;
   ```

   where:

   - *pin00* is the name of your data tablespace.

   - *pinx00* is the name of your index tablespace.

   The user is granted unlimited quota on the database tablespaces.

3. Enter the following command, which exits SQL*Plus:

   ```
   SQL>exit
   ```

BRM Multischema Systems

This section describes known problems and workarounds for BRM multischema systems.

- dm primary_schema Does Not Work

SR number: Not applicable

BugDB number: 13476637

When you run **pin_multidb.pl -i** while setting up a multischema system, the script instructs you to use the **- dm primary_schema** entry to set up schema qualifications. In BRM 7.5 Patch Set 4, however, that entry does not work.

To work around this problem, use the **- dm schema** entry instead. That entry, which provides multischema support for payment processing, can be used to create schema qualifications for any type of multischema system.

For detailed instructions, see the discussion about setting up schema qualifications for payment processing in *BRM Installation Guide*.

BRM Software Packages

This section describes known problems and workarounds for the BRM software packages.

Java 1.8 Must Be Uninstalled Before Installing BRM Software Packages That Use the ISMP Installation Method

SR number: Not applicable

BugDB number: 21434029

When installing BRM software packages that use the InstallShield MultiPlatform (ISMP) installation method, if you have JRE 1.8 installed and the JAVA_HOME environment variable is set to the directory in which you installed JRE 1.8, the installation fails and the following error message appears:

```
could not load wizard
```

To work around this problem, do the following:

1. Uninstall JRE 1.8.

2. If JRE 1.6 is not installed, install JRE 1.6.

3. Set the JAVA_HOME environment variable to the directory in which JRE 1.6 is installed.

4. Install the BRM software packages that use the ISMP installation method.

   The installation is now successful.

5. Install JRE 1.8.

6. Set the JAVA_HOME environment variable to the directory in which you installed JRE 1.8. See the discussion about setting the JAVA_HOME environment variable in *BRM 7.5 Maintenance Patch Set 1 Installation Guide*.

Collections Manager

This section describes known problems and workarounds for Collections Manager.

Collections Action Dependencies May Reschedule Actions Incorrectly

SR number: Not applicable

BugDB number: 14377855

When collections action dependency is enabled and an action is completed after its due date, the **pin_collections_process** utility reschedules the scenario's remaining actions. However, when more than one action has the same due date and then the utility is run on or after that due date, the utility may change the due date of those actions, whereas the due dates should remain unchanged.

For example, assume a collections scenario contains the following actions:

- Action A with a due date of June 1

- Actions B and C with a due date of June 5

If you run the utility on June 2, it leaves Action A's due date as June 1 and reschedules Actions B's and Action C's due dates to June 6. If the next time you run the utility is June 7, it correctly leaves either Action B's or Action C's due date as June 6, but incorrectly changes the remaining Action B's or Action C's due date to June 7.

There is no workaround.

Developer Utilities

This section describes known problems and workarounds for the BRM developer utilities.

The pin_bus_params Utility Displays Warning messages

SR number: Not applicable

BugDB number: Not applicable

If Java 1.7 is installed in the BRM system, the **pin_bus_params** utility displays warning messages while loading business parameters from XML files into the BRM database.

There is no workaround. You can skip these warning messages.

EAI Manager

This section describes known problems and workarounds for EAI Manager.

stop_eai_js Does Not Work

SR number: Not applicable

BugDB number: 18151799

When you run **stop_eai_js**, the script does not work and the following error message appears:

```
stop_eai_js: ERROR: no pid file.
```

To work around this problem, do the following:

1. Open the *BRM_home*/**bin/ stop_eai_js** file in a text editor.

2. Search for the following entry:

    ```
    LOGDIR=$PIN_LOG/dm_eai
    ```

3. Change this entry to:

```
LOGDIR=$PIN_LOG/eai_js
```

4. Save and close the file.

Event Browser

This section describes known problems and workarounds for Event Browser.

Event Browser Displays Data Internal to BRM in the Event Description

SR number: Not applicable

BugDB number: 18430561

For usage events that were rated by Elastic Charging Engine (ECE), Event Browser displays data internal to BRM in the event description.

There is no workaround.

Invoicing

This section describes known problems and workarounds for invoicing.

Cannot Generate Invoices When Running the pin_inv_doc_gen Utility in an AIX Environment

SR number: Not applicable

BugDB number: 17463239

When you run the **pin_inv_doc_gen** utility in an AIX environment, the following exception is thrown and the invoice documents are not generated:

```
Exception in thread "main" java.lang.NoClassDefFoundError
```

There is no workaround.

pin_inv_accts Fails for Migrated Accounts if Business Intelligence Publisher Invoicing Integration Is Enabled

SR number: Not applicable

BugDB number: 16437786

If Oracle Business Intelligence Publisher (BI Publisher) invoicing integration is enabled, the **pin_inv_accts** utility fails for migrated accounts and an error is logged in the **cm.pinlog** file.

To work around this problem, do the following before migrating the accounts:

1. Open the *BRM_home***/sys/amt/data/create_generate_amt_metadata.sql** file in a text editor.

2. Search for the following lines:

```
ELSIF (column_r.column_name LIKE '%POID_LIST') THEN
 --
-- operation: rewrite the POID_DB reference in %_POID_LIST fields
-- (i.e. account_t.next_item_poid_list, account_t.item_poid_list)
-- while preserving the null value
--
```

```
          -- assumption: POID_DB reference is starts at character position 1 and the
          format is 0.0.0.x
          --
          -- call custom Java stored procedure convert_poid_list()
          --
          select_column_list := select_column_list||
          ', convert_poid_list('||column_r.column_name||', #)';
          dbms_output.put_line('replace list reference with dest_db_id');
```

3. Add the following lines after the ELSIF condition you searched for in step 2:

```
 ELSIF (column_r.column_name LIKE '%OBJ_LIST') THEN
 select_column_list := select_column_list||
 ', convert_poid_list('||column_r.column_name||', #)';
dbms_output.put_line('replace list reference with dest_db_id');
```

4. Save and close the file.

5. Run the **pin_amt_install.pl** script.

6. Stop and start the Data Manager (DM) and Connection Manager (CM) services.

7. Start migrating the accounts.

pin_inv_doc_gen Fails with JDK 1.7.0_171 or Later

SR number: Not applicable

BugDB number: 29386840

When you run the **pin_inv_doc_gen** utility with JDK 1.7.0_171 and later versions, the following exception is thrown:

```
java.lang.UnsupportedOperationException: This class does not support JDK1.5
```

To work around this problem, do the following:

1. Copy the **xmlparserv2.jar** file from the *Middleware_home*/**oracle_ common/modules/oracle.xdk_11.1.0** directory to the **pin_inv_doc_gen** utility's **lib/xmlp** directory, where *Middleware_home* is the directory in which you installed Oracle Business Intelligence Enterprise Edition.

2. Modify the CLASSPATH variable for **docgen.sh** to place **xmlparserv2.jar** before **$WL_LIB**. For example:

```
CLASSPATH="$DOC_GEN_HOME/lib/xmlp/xmlparserv2.jar:$WL_LIB:$XMLP_LIB:$XERCES_
LIB:.:$PCM_LIB:$DG_LIB"
```

Payment Tool

This section describes known problems and workarounds for Payment Tool.

Payment Tool Does Not Work on Windows XP

SR number: Not applicable

BugDB number: 18165037

With this patch, Payment Tool does not work on Windows XP.

To work around this problem, install the BRM 7.5 Patch Set 6 version of Payment Tool on Windows XP.

Revenue Assurance Center

This section describes known problems and workarounds for Revenue Assurance Center.

Revenue Assurance Center Cannot be Uninstalled on Windows

SR number: Not applicable

BugDB number: 23743343

If Revenue Assurance Center is installed on Windows and you want to uninstall the client application, the uninstaller does not work.

To work around this problem, do the following manually:

1. Delete the Revenue Assurance Center installation directory.

    The Revenue Assurance Center installation directory is specified in the **setup.cnf** file in the directory where you downloaded and extracted the software **.tar.Z** file.

2. Remove Revenue Assurance Center from the Windows Start menu.

Service Lifecycle Management

This section describes known problems and workarounds for the Service Lifecycle Management (SLM) feature.

Sample Prepaid Service Life Cycle Does Not Support Provisioning of Telco Services

SR number: Not applicable

BugDB number: Not applicable

The sample prepaid service life cycle does not support provisioning of telco services.

To work around this problem, enable the sample prepaid service life cycle to support the provisioning of telco services by adding the following state transition to that life cycle before associating the life cycle with a telco service type:

■   **From state:** Preactive (ID 101)

■   **To state:** Suspended (ID 107)

For information about adding state transitions to service life cycles, see the discussion about managing service life cycles in *BRM Managing Customers*.

The SLM Feature Does Not Support Account Billing Relationships

SR number: Not applicable

BugDB number: 13890966

The SLM feature does not support the following account relationships, which enable customers to pay other customers' bills:

■   Parent/nonpaying child hierarchies

■   Owner/member charge sharing or discount sharing

■   Owner/member sponsorship

If a service involved in such a relationship uses a custom life cycle, the SLM feature does not consider the condition of the parent/owner account when an event occurs that triggers a service state change in a child/member account.

For example, Service A uses the sample prepaid service life cycle. For that service, a parent account has a credit limit of 100 euros and its nonpaying child account has a credit limit of 0 euros. In both the parent and the child, the state of Service A is Active. After an account adjustment of 2 euros is applied to the child account, however, the state of Service A in the child account changes to Recharge Only, even though the parent account's available credit limit is still 100 euros.

Therefore, service types involved in account billing relationships must use the default service life cycle (Active, Inactive, Closed). They cannot use custom service life cycles.

To work around this problem, customize the PCM_OP_BAL_POL_CHECK_LIFECYCLE_STATE policy opcode to consider the condition of parent/owner accounts when a service state change is triggered in child/member accounts.

See the discussion about managing service life cycles in *BRM Managing Customers* for more information.

Web Services Manager

This section describes known problems and workarounds for Web Services Manager.

Error When Configuring or Modifying Security Policies for Web Services Manager for JAX-WS

SR number: Not applicable

BugDB number: 22320315

If you have configured security policies for Web Services Manager for JAX-WS or if you have modified the security policies, the request sent by the client to the server fails and the following error message appears:

```
headers:[{http://docs.oasis-open.org/wss/2004/01/oasis-200401-wss-wssecurity-secext-1.0.xsd}Security] are not understood
```

To work around this problem, if your client caches service WSDLs, refresh the WSDLs before sending the requests to the server.