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Billing and Revenue Management

Maintenance Patch Set 1 Release Notes

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Contents

Preface	xi
Audience	xi
Accessing Oracle Communications Documentation	xi
Documentation Accessibility	xi
Document Revision History	xi
1 Summary of Customer-Reported Fixes	
Customer-Reported Fixes	1-1
Fixed Known Problems	1-61
2 New Features	
New Features in BRM 7.5 Maintenance Patch Set 1	2-1
Account Migration Enhancements	2-1
Account Migration Manager Supports IMDB Cache-Enabled Systems (Patch Set 2)	2-1
Accounts Receivable Enhancements	2-2
Collections Manager Now Supports Reversal of Written-Off Bill Units (Patch Set 10)	2-2
Billing Enhancements	2-2
Improving Billing Performance by Using Multiple Item Configurations (Patch Set 12)	2-2
Improving Performance by Skipping Billing-Time Tax Calculation (Patch Set 12)	2-2
Additional Flexibility in Creating a Bill Unit Hierarchy (Patch Set 9)	2-3
Improving Performance for Billing Cycle Fees (Patch Set 5)	2-3
Cycle Fees Can Now Be Applied Based on Product Priority (Patch Set 4)	2-4
BRM Database Enhancements	2-4
Enhanced Partitioning and Purging Features (Maintenance Patch Set 1)	2-4
Enabling Open Items to Be Purged (Patch Set 12)	2-5
BRM Database Support for Virtual-Column Feature in Oracle Database 11g (Patch Set 3) ...	2-5
Collections Center Enhancements	2-5
Restricting the Number of Tasks Displayed in Collections Center (Patch Set 3)	2-5
Collections Manager Enhancements	2-6
Entering the Field Name to Configure Additional Collections Scenario Parameters (Patch Set 4)	2-6
Collections Manager Now Supports Promise-to-Pay Agreements (Patch Set 2)	2-6
Collections Manager Now Supports Collections Actions Dependency (Patch Set 2)	2-7
Collections Manager Now Supports Scenario Replacement (Patch Set 2)	2-7
Collections Manager Now Supports Rule-Based Scenario Assignment (Patch Set 2)	2-7

Enhancements to Assignment to Debt Collections Agencies (Patch Set 2)	2-8
Collections Manager Now Supports Optional Collections Actions (Patch Set 2)	2-8
Collections Manager Now Supports Collections Sharing Groups (Patch Set 2).....	2-8
Customer Center Enhancements	2-9
Hiding the Password Fields in Customer Center to Enhance Security (Patch Set 6).....	2-9
Customer Center Enhancements for Wholesale Customers (Patch Set 5)	2-9
Additional Criteria for Event Searches	2-9
Enhancements to the Event Search Dialog Box	2-10
Balance Group Search Enhancements.....	2-10
Locating a Balance Group Using the New Balance Group Search Dialog Box.....	2-11
Setting the Threshold Value for Displaying Available Balance Groups.....	2-11
Product/Discount Search Enhancements.....	2-11
Locating Products/Discounts Using the New Product/Discount Search Dialog Box..	2-11
Setting the Maximum Number of Available Products/Discounts to Display	2-12
Service Search Enhancements for Non-Currency Resources.....	2-12
Change to Other Services Accessing These Resources Display Location.....	2-12
Service Search Enhancements (Patch Set 5).....	2-12
Locating a Service Using the New Service Search Dialog Box.....	2-13
Setting the Threshold Value for Displaying Available Services	2-13
Payment Allocations Improved for Multiple Bill Unit Scenarios (Patch Set 5)	2-13
Customer's Collections Profiles Can Be Created at the Time of Customer Account Creation (Patch Set 4) 2-14	
Customers Can Now Purchase Plans with Options Containing Services Not Associated with a Deal (Patch Set 3) 2-14	
Purchasing Optional Services and Transitioning to Different Plans.....	2-14
Setting Subscriber Preferences in Customer Center (Patch Set 1).....	2-15
Customer Management Enhancements	2-15
Storing a Summary of Activities Performed on an Account (Patch Set 12).....	2-15
Limiting Search Results by Using the PIN_FLD_MIN_ROW and PIN_FLD_MAX_ROW Fields (Patch Set 12) 2-15	
Logging External Customer Service Representative Information (Patch Set 12)	2-16
General Ledger Enhancements	2-16
Segregate Unbilled Revenue by General Ledger Cycle within a Billing Cycle (Maintenance Patch Set 1) 2-16	
New Controls for Handling Non-Currency Journal Creation (Patch Set 6).....	2-16
Invoicing Enhancements	2-16
Displaying Large Invoices More Efficiently (Patch Set 10).....	2-16
Faster Hierarchical Account Invoice Generation with Oracle Business Intelligence Publisher 11g (Patch Set 9) 2-17	
Invoices Can Be Designed and Generated in Oracle Business Intelligence Publisher 11g (Patch Set 4) 2-17	
The BRM-BI Publisher Invoicing Integration Now Supports Multischema Systems (Patch Set 2) 2-17	
Integration Enhancements	2-18
BRM Contains a Pre-Built Integration with Elastic Charging Engine (ECE) (Patch Set 3)...	2-19
Integrating Real-Time Collections Actions (Patch Set 3).....	2-19
Integrating Account Migrations in a Multischema Environment (Patch Set 3)	2-19
Integrating Collections in a Multischema Environment (Patch Set 3)	2-19

BRM Now Supports Synchronizing Products with Multiple Rate Plans (Patch Set 3).....	2-19
IP Address Administration Center Enhancements	2-20
Support for IPv6 Addresses Added (Patch Set 4)	2-20
Item Assignment Enhancements	2-20
Balance Impacts of an Event Can Now Be Tracked in Individual Items (Patch Set 4)	2-20
Individual Member Charges of a Charge Sharing Account Can Now Be Tracked (Patch Set 4)...	2-20
JCA Resource Adapter Enhancements	2-20
JCA Resource Adapter XA Transaction Support Enhanced (Patch Set 8)	2-20
Payments Enhancements	2-21
BRM Now Supports Credit Card Tokenization (Patch Set 10).....	2-21
BRM Now Supports SEPA Direct Debit and SEPA Credit Transfer Payment Processing (Patch Set 9)	2-21
Payment Tool Now Supports Secure Communication on the Windows 7 Operating System (Patch Set 7)	2-22
Payment Allocations Improved for Multiple Bill Unit Scenarios (Patch Set 5)	2-22
Payment Center and Payment Tool Support Multischema Environments (Patch Set 4)	2-22
Improved Performance of Searches for Payment Events in Payment Center (Patch Set 2)	2-22
Permissioning Center Enhancements	2-23
CSRs Can Now Transfer Credits to Positive Bills (Patch Set 5).....	2-23
Pipeline Manager Enhancements	2-23
Pipeline Manager Enhancements for Roaming Partner Management (Patch Set 7)	2-23
Pipeline Manager Can Now Rate Calls by CAMEL Destination Number	2-23
Pipeline Configuration Center Now Supports Configuring the Number of Decimal Places for Outgoing Charges for Each Roaming Partner	2-23
Pipeline Configuration Center Now Supports Specifying Country Codes for Roaming Partners	2-24
Pipeline Configuration Center Now Supports Specifying whether the HUR Report or the NRTRDE Files Should Be Generated for a Roaming Partner	2-24
Pipeline Manager Startup Performance Improved (Patch Set 3)	2-24
Improving DAT_AccountBatch and DAT_BalanceBatch Loading Performance.....	2-24
Improving Pipeline Manager Startup by Specifying the Non-Currency Sub-Balances to Load	2-25
Increasing Pipeline Manager Throughput When an EDR Is Associated with Multiple Output Streams (Patch Set 2)	2-25
Pricing Center Enhancements	2-25
Increase in the Fixed Credit Threshold Value Limit in Pricing Center (Patch Set 11)	2-25
Plan with Options Can Contain Services Not Associated with a Deal (Patch Set 3)	2-25
Rated Event Loader Enhancements	2-26
Loading Preprocessed Rated Events from ECE (Patch Set 12).....	2-26
Running the RE Loader Daemon to Load Pipeline-Rated Events (Patch Set 1)	2-26
Rating Enhancements	2-26
Rerating Events by Using the Rates Applied when the Rating Conditions Change During the Session (Patch Set 12)	2-26
Rerating Events That Include Conditional Balance Impacts (Patch Set 12)	2-26
BRM Can Now Calculate Deferred Taxes During Rerating (Patch Set 11)	2-26
New Rating Engine for Handling Rerating Functionality (Patch Set 5)	2-27
Service Enhancements	2-27

BRM Now Supports Custom Service Life Cycles (Patch Set 1).....	2-27
Services Framework Enhancements	2-27
BRM Supports Policy-Driven Charging Sessions (Patch Set 3).....	2-27
Services Framework Manager Now Supports In-Session Notifications (Patch Set 1)	2-28
Services Framework AAA Manager Now Supports Custom Service Life Cycles (Patch Set 1).....	2-28
Subscription Management Enhancements	2-29
Subscription Services Can Now Be Transferred from an Account in a Schema to Another Account in a Different Schema (Patch Set 6) 2-29	
Including Event Adjustments in Product Cancellation Refunds (Patch Set 1)	2-29
Support and Certification Enhancements	2-29
BRM Is Now Certified with Oracle Java Runtime Environment 1.8 Update 45 (Maintenance Patch Set 1) 2-29	
JCA Resource Adapter Is Now Also Certified on Oracle WebLogic Server 12c (Maintenance Patch Set 1) 2-30	
Web Services Manager Is Now Certified on Apache Tomcat 7.0.59 (Patch Set 12).....	2-30
BRM 7.5 Now Supports Oracle Database 12.1.0.2 (Patch Set 12)	2-30
BRM Is Now Certified on Oracle GlassFish Server 3.1.2.2 (Patch Set 12).....	2-30
BRM Is Now Certified with Apache HttpComponents HttpClient 4.4 (Patch Set 12).....	2-30
Pipeline Configuration Center Is Now Certified with Oracle Java Development Kit 1.7 Update 51 (Patch Set 11) 2-30	
Pipeline Configuration Center Is Now Certified with Oracle Fusion Middleware Application Development Framework 11.1.1.6.0 (Patch Set 11) 2-30	
Pipeline Configuration Center Is Now Certified on Oracle WebLogic Server 10.3.6 (Patch Set 11) 2-31	
BRM 7.5 Is Now Certified on Windows 8.1 (Patch Set 10).....	2-31
OpenSSL Software No Longer Part of BRM Patch Set Installation Package (Patch Set 10) .	2-31
BRM 7.5 Is Now Certified with Perl 5.18.2 on AIX and HP-UX IA64 (Patch Set 9)	2-31
BRM 7.5 Is Now Certified with Remote Diagnostic Agent 8.03 on AIX and HP-UX IA64 (Patch Set 9) 2-31	
BRM 7.5 Is Now Certified with Apache Xalan-C++ 1.11 (Patch Set 9).....	2-31
BRM 7.5 Is Now Certified with Apache Xerces-C++ 3.1.1 (Patch Set 9)	2-31
BRM 7.5 Is Now Certified with Apache Xerces-J (Java) 2.11.0 (Patch Set 9)	2-31
BRM 7.5 Now Supports RADIUS Manager (Patch Set 9).....	2-31
Web Services Manager Is Now Certified on Apache Tomcat 7.0.54 (Patch Set 9).....	2-32
BRM 7.5 Is Now Certified on Oracle Enterprise Linux 6 Update 3 and Red Hat Enterprise Linux 6 Update 3 (Patch Set 8) 2-32	
BRM 7.5 Is Now Certified with OpenSSL 1.0.1g (Patch Set 8).....	2-32
BRM 7.5 Is Now Certified with Remote Diagnostic Agent 8.03 (Patch Set 8).....	2-32
BRM 7.5 Is Now Certified with Perl 5.18.2 (Patch Set 8)	2-32
Web Services Manager Is Now Certified on Apache Axis2/Java 1.6.2 (Patch Set 8).....	2-32
Web Services Manager and Self-Care Manager Are Now Certified on Apache Tomcat 7.0.42 (Patch Set 7) 2-32	
BRM 7.5 Now Supports Oracle Database 12c Release 1 (Patch Set 6)	2-32
Web Services Manager and Self-Care Manager Are Now Certified on Apache Tomcat 7.0.30 (Patch Set 3) 2-32	
System Administration Enhancements	2-32
Secure Communication between BRM Components (Patch Set 12).....	2-33

BRM Supports Sensitive Data Masking in Transaction Responses and Logging (Patch Set 9).....	2-33
BRM Supports Secure Communication between PCM Clients and the Connection Manager (Patch Set 6)	2-33
New Encryption Protection and Password Restriction Controls for Internet Transactions (Patch Set 6)	2-33
TAP Roaming Manager Enhancements	2-34
TAP Roaming Manager Supports TAP 3.12 GSM TD57 Version 32.1 (Patch Set 8).....	2-34
TAP Roaming Manager Supports RAP 1.6 TD32 Version 6.11 (Patch Set 8)	2-34
Configuring Multiple Instances of Sequencers, Output Streams, or System Brands (Patch Set 4)	2-34
TAP Roaming Manager Supports TAP 3.12 GSM TD57 Version 30.1 (Patch Set 3).....	2-35
TAP Roaming Manager Supports RAP 1.5 Standard (Patch Set 2)	2-35
Tax Packages Enhancements	2-36
Mapping of Some Vertex CTQ Jurisdiction Codes to Internal BRM Jurisdiction Codes Is Now Changed (Patch Set 6)	2-36
Web Services Manager Enhancements	2-36
Web Services Manager Now Supports Calling More BRM Opcodes Through SOAP Web Services (Patch Set 10)	2-36
Web Services Manager Now Supports Standards-Compliant SOAP Development Tools to Generate Industry-Standard Client Application Code (Patch Set 8)	2-37
Web Services Manager Now Supports Calling Additional Opcodes Through SOAP Web Services (Patch Set 8)	2-37
Web Services Manager Is Now Secured with Oracle WebLogic Server (Patch Set 8)	2-37

3 Opcode Changes

New Opcodes	3-1
New Helper Opcodes	3-1
Services Framework AAA Manager FM Helper Opcodes	3-1
New Policy Opcodes.....	3-1
Activity FM Policy Opcodes.....	3-1
Balance FM Policy Opcodes	3-2
Collections Manager FM Policy Opcodes	3-2
RADIUS Manager FM Policy Opcodes.....	3-3
Services Framework AAA Manager FM Policy Opcodes.....	3-3
New Standard Opcodes	3-4
Accounts Receivable FM Standard Opcodes	3-4
Collections Manager FM Standard Opcodes	3-4
Customer FM Standard Opcodes	3-5
Customer Care FM Standard Opcodes	3-6
Offer Profile FM Standard Opcodes.....	3-7
RADIUS Manager FM Standard Opcodes	3-7
Services Framework AAA Manager FM Standard Opcodes.....	3-7
Changed Opcodes	3-8
Changed Policy Opcodes	3-8
Changed Base Opcodes.....	3-9
Changed Standard Opcodes.....	3-10

4	Storable Class Changes	
	New Storable Classes	4-1
	Changed Storable Classes.....	4-4
	New Notification Events.....	4-10
5	Schema and Index Changes	
	Schema and Index Changes (Maintenance Patch Set 1)	5-1
	Schema and Index Changes (Patch Set 12)	5-2
	Schema and Index Changes (Patch Set 11)	5-3
	Schema and Index Changes (Patch Set 10)	5-3
	Schema and Index Changes (Patch Set 9)	5-4
	Schema and Index Changes (Patch Set 8)	5-4
	Schema and Index Changes (Patch Set 7)	5-6
	Schema and Index Changes (Patch Set 6)	5-6
	Schema and Index Changes (Patch Set 5)	5-8
	Schema and Index Changes (Patch Set 4)	5-8
	Schema and Index Changes (Patch Set 3)	5-9
	Schema and Index Changes (Patch Set 2)	5-11
	Schema and Index Changes (Patch Set 1)	5-12
6	Utility Changes	
	New Utilities	6-1
	Changed Utilities.....	6-2
7	Module and iScript Changes	
	New Modules	7-1
	New iScripts	7-1
	Changed iScripts	7-3
8	Removed Features	
	Removed Features in Patch Set 12.....	8-1
	The UseActualBilledTimeForGLReport Business Parameter Is Obsolete	8-1
9	Documentation Updates	
	Documentation Updates in Maintenance Patch Set 1	9-1
	Taxware Information Removed	9-1
	BRM CDR Format Renamed.....	9-1
	Documentation Updates in Patch Set 12	9-1
	Updates to BRM 7.5 Developer’s Reference.....	9-1
	Documentation Updates in Patch Set 5	9-1
	Updates to Account Synchronization Multidatabase and Multischema Information.....	9-1
	Documentation Updates in Patch Set 4	9-2
	Updates to Multidatabase and Multischema Information.....	9-2
	Documentation Updates in Patch Set 3	9-2
	Updates to BRM 7.5 Changing Service Status Documentation.....	9-2

Updates to BRM 7.5 Custom Field ID Information.....	9-2
Updates to Information about Installing 32-Bit Client Libraries	9-3

10 Known Problems

Billing	10-1
Allocation of a Bill-Level Adjustment with Tax to an Item Does Not Work.....	10-1
BRM API	10-1
Cannot Use the Customized Policy Opcodes	10-1
PCM_OP_CUST_SET_PAYINFO Sets the Wrong Invoice Type	10-2
BRM Client Applications	10-2
BRM Client Applications Using the Java PCM API Cannot Connect to a BRM Server Listening on a Specific IPv6 Address 10-2	
BRM 7.5 Patch Set 7 Client Applications Cannot be Uninstalled on Windows XP.....	10-2
BRM Database	10-3
The pin_virtual_gen Utility Fails In an AIX Environment.....	10-3
Error When Running BRM 7.5 Patch Set Database Upgrade Scripts from an Oracle Database 12c Client Connected to an Oracle Database 12c Server 10-3	
Error When Running pin_setup with BRM Running on Oracle Database 12c	10-3
BRM Multischema Systems	10-4
- dm primary_schema Does Not Work	10-4
BRM Software Packages	10-4
Java 1.8 Must Be Uninstalled Before Installing BRM Software Packages That Use the ISMP Installation Method 10-4	
Collections Manager	10-5
Collections Action Dependencies May Reschedule Actions Incorrectly	10-5
EAI Manager	10-5
stop_eai_js Does Not Work.....	10-5
Event Browser	10-6
Event Browser Displays Data Internal to BRM in the Event Description.....	10-6
Invoicing	10-6
Cannot Generate Invoices When Running the pin_inv_doc_gen Utility in an AIX Environment 10-6	
pin_inv_accts Fails for Migrated Accounts if Business Intelligence Publisher Invoicing Integration Is Enabled 10-6	
Payment Tool	10-7
Payment Tool Does Not Work on Windows XP.....	10-7
Service Lifecycle Management	10-7
Sample Prepaid Service Life Cycle Does Not Support Provisioning of Telco Services.....	10-7
The SLM Feature Does Not Support Account Billing Relationships.....	10-8

Preface

This document includes information about Oracle Communications Billing and Revenue Management (BRM) 7.5 patch sets. Detailed information on the patch set features is included in the BRM 7.5 documentation.

Audience

This document is intended for all BRM users.

Accessing Oracle Communications Documentation

BRM documentation and additional Oracle documentation, such as Oracle Database documentation, is available from Oracle Help Center:

<http://docs.oracle.com>

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Document Revision History

The following table lists the revision history for this guide:

Version	Date	Description
E28199-01	May 2012	Initial release. Added information about Patch Set 1 features, which are identified by "(Patch Set 1)."

Version	Date	Description
E28199-02	August 2012	Added information about Patch Set 2 features, which are identified by "(Patch Set 2)."
E28199-03	December 2012	Added information about Patch Set 3 features, which are identified by "(Patch Set 3)."
E28199-04	March 2013	Added information about Patch Set 4 features, which are identified by "(Patch Set 4)."
E28199-05	July 2013	Added information about Patch Set 5 features, which are identified by "(Patch Set 5)."
E28199-06	October 2013	Added information about Patch Set 6 features, which are identified by "(Patch Set 6)."
E28199-07	February 2014	Added information about Patch Set 7 features, which are identified by "(Patch Set 7)."
E28199-08	April 2014	Added information about Patch Set 8 features, which are identified by "(Patch Set 8)."
E28199-09	August 2014	Added information about Patch Set 9 features, which are identified by "(Patch Set 9)."
E28199-10	October 2014	Added information about Patch Set 10 features, which are identified by "(Patch Set 10)."
E28199-11	January 2015	Added information about Patch Set 11 features, which are identified by "(Patch Set 11)."
E28199-12	May 2015	Added information about Patch Set 12 features, which are identified by "(Patch Set 12)."
E28199-13	June 2015	Added more information about Patch Set 12 features, which are identified by "(Patch Set 12)."
E28199-14	August 2015	Added information about Maintenance Patch Set 1 features, which are identified by "(Maintenance Patch Set 1)."
E28199-15	December 2015	Made formatting and text changes.
E28199-16	August 2016	Removed references of Business Operations Center.

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 1 through BRM 7.5 Maintenance Patch Set 1.

Customer-Reported Fixes

[Table 1-1](#) lists the service request (SR) issues reported by external sources 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
3-10261348621	20543454	(Maintenance Patch Set 1) In the previous releases, during rerating with the AllocateReratingAdjustments business parameter enabled, if an original item was not found for an adjustment, the rerating process was failing with an error message instead of just a warning. This has been fixed.
3-10282666271	20580074	(Maintenance Patch Set 1) In the previous releases, when an event did not have a service reference, recording each prerated event was creating a new item at the account level in the system. This has been fixed.
3-10238714961	20584864	(Maintenance Patch Set 1) In the previous releases, the POID sequences were getting exhausted quickly and after exhausting the allowed sequence, the pin_rel utility was rejecting the files because the POID sequence was out of bounds. This has been fixed.
3-10293093941	20601260 20616928	(Maintenance Patch Set 1) In the previous releases, after a plan transition, if a comprehensive rerating was performed for a period earlier than the plan transition, the items were not properly allocated for the rerated events. This has been fixed.
3-10373813551	20670369	(Maintenance Patch Set 1) In the previous releases, after a subscription transfer, when rerating was performed, the validity dates set for the non-currency resources were incorrect. This has been fixed.

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

SR Number	Bug Number	Description
3-10285773521	20707738	(Maintenance Patch Set 1) Conversion Manager was not populating the record IDs or element IDs for the service-level promotion object correctly based on the input data. This has been fixed.
3-10430483161	20728521	(Maintenance Patch Set 1) In the previous releases, after a line service transfer, when rerating was done for the source account from which the line was transferred, the validity of the cycle grant was not updated correctly to the time at which the transfer took place, but instead it was set to the billing date of the account to which the line was transferred. This has been fixed.
3-8254002681	20748847	(Maintenance Patch Set 1) The USC_MAP iScript required optimizations for using complex regular expressions. This has been fixed.
3-10226840141	20753835	(Maintenance Patch Set 1) The upgrade script for BRM 7.5 Patch Set 9 was not backing up the files and also the updates made to some configuration or script files were having an incorrect path. This has been fixed.
3-10426548251	20762874	(Maintenance Patch Set 1) In the previous releases, when purchasing a deal, an error indicating exceeding the credit limit was thrown incorrectly. This has been fixed.
3-10445099231	20770712	(Maintenance Patch Set 1) In the previous releases, the PCM_OP_SEARCH base opcode was not working with the Group By clause. This has been fixed.
3-10450127891	20789186 20803791	(Maintenance Patch Set 1) In the previous releases, when a product was purchased and canceled on the same day with proration set to Charge for the entire cycle , and later if rerating was done, the rerating flow was calculating charges differently compared to the rating. Also, the resource sub-balance validity was not getting set to the cancellation time during the rerating. This has been fixed.
3-10468216051	20813075	(Maintenance Patch Set 1) In Conversion Manager, when importing some tables, MOD_T was set to NULL instead of a proper value. This has been fixed.
3-10504790741	20827660	(Maintenance Patch Set 1) In the previous releases, during rerating, discounts associated with a discount sharing group were not considered, resulting in incorrect balance impacts. This has been fixed.
3-10238213241	20865577	(Maintenance Patch Set 1) In the previous releases, when cycle end_t discount was moved from a future cycle to the current cycle and then moved from the current cycle to the future cycle, the discount calculations were incorrect. This has been fixed.
3-10479032591	20865590 21367571	(Maintenance Patch Set 1) In the previous releases, when Customer Center event browser was used to browse events pertaining to an account in collections, the event descriptions for /event/schedule/modify and /event/activity/collections/promise_to_pay were blank. This has been fixed.

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

SR Number	Bug Number	Description
3-10131283021	20869650	(Maintenance Patch Set 1) In the previous releases, inactivating and reactivating long cycle products was resulting in reactivation charging as a series of month-long charges instead of a single long cycle charge. This has been fixed.
3-10490996091	20908660	(Maintenance Patch Set 1) In the previous releases, when running the pin_monitor_balance utility to update the balance monitors, deadlocks were observed due to the balance group locking the account while updating the status in the /monitor_queue objects. This has been fixed.
3-10572022381	20909982	(Maintenance Patch Set 1) In the previous releases, when rerating was run on a closed account, the monthly cycle fees were not reapplied. This has been fixed.
3-10401734041	20921774	(Maintenance Patch Set 1) In the previous releases, when a discount was purchased backdated to a date which was earlier than the product purchase date, the discount was not applied correctly. This has been fixed.
3-10571864541	20929227	(Maintenance Patch Set 1) If an event has a mix of balance impacts and the last one in that is a non-currency balance impact, the pin_rel utility was not inserting journals into the database. This has been fixed.
3-10573768511	20948696	(Maintenance Patch Set 1) In the previous releases, rerating was not completing due to nonexistence of sub-balances. This has been fixed.
3-10246738261	20988724	(Maintenance Patch Set 1) In the previous releases, for an auto-triggered billing of a subordinate account, if the parent account's billing was skipped, the status of the items was not updated from pending to open . This has been fixed.
3-10119628461	21033499	(Maintenance Patch Set 1) In the previous releases, for corrective bills, the due dates were updated incorrectly instead of maintaining the actual due dates that were computed during the normal billing. This has been fixed.
3-10439611661	21048743	(Maintenance Patch Set 1) In the previous releases, the PCM_OP_COLLECTIONS_GET_ACTION_HISTORY opcode was throwing an error in Oracle Data Manager (DM). This has been fixed.
3-10385944441	21048748	(Maintenance Patch Set 1) In the previous releases, the PCM_OP_AR_GET_ACCT_ACTION_ITEMS opcode was throwing the PIN_ERR_NOT_FOUND error. This has been fixed.
3-10295629441	21060570	(Maintenance Patch Set 1) In the previous releases, when processing credit card payments, if there were any failed payments in the response file, those failed payments were also getting processed as successful payments. This has been fixed.

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

SR Number	Bug Number	Description
3-10713112001	21067601	(Maintenance Patch Set 1) In the previous releases, comprehensive rerating was failing on some accounts. After receiving an error in rerating, the transaction was not rolled back. This has been fixed.
3-10718604951	21073288	(Maintenance Patch Set 1) In the previous releases, when Provisioning DM was starting up, it was opening an incorrect number of sockets. This has been fixed.
3-9923242751	21097643	(Maintenance Patch Set 1) In the previous releases, for a non-currency resource with credit limit set to zero (0), it was possible to have the current balance with a value greater than zero (0). This has been fixed.
3-10577232581	21105739	(Maintenance Patch Set 1) In the previous releases, when a negative discount with a cycle forward event was purchased in a previous billing cycle and the billing was run and later if the discount was canceled in the current billing cycle, the balance impacts were dropped. This has been fixed.
3-10708774291	21105744	(Maintenance Patch Set 1) In the previous releases, the partition_utils utility was showing a deprecation message with the Perl version 5.18.2. This has been fixed.
3-10245158971	21113987	(Maintenance Patch Set 1) In the previous releases, when the tax code configured for adjustment action was having more than one different percentage value for different validity periods, and when an adjustment is performed, an invalid tax code percentage (not belonging to the current valid period) was fetched for tax calculation, resulting in an incorrect tax. This has been fixed.
3-10790592468	21138111	(Maintenance Patch Set 1) In the previous releases, when starting or stopping any BRM service (CM) with the pin_ctl utility, even though the pin_ctl process had successfully completed, it was displaying an error message. This has been fixed.
3-10643615171	21147654	(Maintenance Patch Set 1) Using Account Migration Manager, when the UNIQUE_ACCT_NO_T table was migrated from one schema to another, the account object ID column was not getting updated with the target database number. This has been fixed.
3-10728919061	21155231	(Maintenance Patch Set 1) In the previous releases, when a new user created with read-only permissions in Permissions Center is used to log in to Customer Center, the Problem constructing the contact information panel error was displayed. This has been fixed.
3-10788686351	21160864	(Maintenance Patch Set 1) In the previous releases, the PCM_OP_SUBSCRIPTION_SERVICE_BALGRP_TRANSFER opcode was crashing when no information was passed in the BAL_INFO array in the input to the opcode. This has been fixed.

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

SR Number	Bug Number	Description
3-6305986021	21177291	(Maintenance Patch Set 1) In the previous releases, when trying to PRINTDATALOGIN in the pipeline router mode, Pipeline Manager was dumping core. This has been fixed.
3-9636994891	21178749	(Maintenance Patch Set 1) In the previous releases, on a bill having two items, one associated with a tax and the other without any tax, if a bill-level debit adjustment with tax was performed, the tax was not calculated on the adjustment amount. This has been fixed.
3-10768253411	21207832	(Maintenance Patch Set 1) In the previous releases, when multiple concurrent operations were carried out on the service-level balance groups of the same account, deadlocks were observed. This has been fixed.
3-10660659161	21207836	(Maintenance Patch Set 1) In the previous releases, when the service status update functionality is invoked, it was not picking up the correct services for an update, resulting in an incorrect status update to some services. This has been fixed.
3-10853477701	21209857	(Maintenance Patch Set 1) In the previous releases, the path to the Perl software was hardcoded in all the Perl files in the software package. This has been fixed.
3-10749230211	21211511	(Maintenance Patch Set 1) In the previous releases, when an account having a subscription that included a product having both monthly and annual cycle forward events configured was trying to transfer its subscription to another account, the subscription transfer was failing. This has been fixed.
3-10766603697	21211517	(Maintenance Patch Set 1) In the previous releases, cycle charges were applied twice for a product having both annual and monthly cycle forward events configured. This has been fixed.
3-10835117301	21224175	(Maintenance Patch Set 1) In the previous releases, in the PCM_OP_CUST_MODIFY_BAL_GRP opcode, the PIN_FLD_PROGRAM_NAME input field was mandatory. This has been fixed. The PIN_FLD_PROGRAM_NAME input field is now optional.
3-10563895651	21231573	(Maintenance Patch Set 1) In the previous releases, for an account with a cycle skipped for billing, the next bill run was not calculating taxes on the cycle forward fees for the subordinate accounts from the previous cycles. This has been fixed.
3-10889929861	21245048	(Maintenance Patch Set 1) In the previous releases, for payments from BRM, the select status values of MANUAL_ALLOC or ALLOCATION_DEFERRED were not stopping the auto-allocation of payments. This has been fixed.

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

SR Number	Bug Number	Description
3-10655923781	21255926	(Maintenance Patch Set 1) In the previous releases, when a new non-payee child account was created and added to an existing payee account/hierarchy, an existing child account was overwritten in the GROUP_BILLING_MEMBERS_T table. This has been fixed.
3-10538158611	21263431	(Maintenance Patch Set 1) In the previous releases, searching for deal objects on the secondary schema using In-Memory Database (IMDB) Cache Data Manager was throwing errors. This has been fixed.
3-10837700311	21280144	(Maintenance Patch Set 1) Customer Center was not displaying the Direct Debit payment method. This has been fixed.
3-10305930231	21291935	(Maintenance Patch Set 1) Account Migration Manager was running for a long duration and was then rolling back displaying a Java exception. This has been fixed.
3-10750433691	21293094	(Maintenance Patch Set 1) Conversion Manager was not populating some fields in the AU_ACCOUNT_T and AU_PURCHASED_BUNDLE_T audit tables. This has been fixed.
3-10860918611	21312155	(Maintenance Patch Set 1) In the previous releases, in the Customer Center Plans tab, the Product Detail and Discount Detail fields were having alignment issues. This has been fixed.
3-10855121661	21356302	(Maintenance Patch Set 1) In the previous releases, an item type that was configured to pre-create for a specific service type (for example, /service/telco/gsm,) was getting created even for a subclass of the configured service (for example, /service/telco/gsm/telephony). This has been fixed.
3-10979682507	21356309	(Maintenance Patch Set 1) In the previous releases, in a multischema environment, the create_procedure.plb script was failing to load into the secondary schema. This has been fixed.
3-10427229851	21363713	(Maintenance Patch Set 1) In the previous releases, an item type that was configured to pre-create for a specific service type, was continuing to create items even after the service was disconnected. This has been fixed.
3-10911712171	21376738	(Maintenance Patch Set 1) In the previous releases, the loadpricelist utility was restricting the timezone offsets within the range -12 to +12 and the exported file was including an invalid timestamp, and hence the file could not be imported using the loadpricelist utility. This has been fixed.
3-10966666201	21391750	(Maintenance Patch Set 1) On Windows 8, Payment Tool was crashing when the arrow keys were used to move between controls and when some data was pasted into any text box field. This has been fixed.

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

SR Number	Bug Number	Description
3-10733800551	21391756	(Maintenance Patch Set 1) In the previous releases, when the PCM_OP_ACT_FIND opcode was called in a deployment with IMDB Cache DM, a memory leak was identified within the Connection Manager (CM) module. This has been fixed.
3-10904843431	21435526	(Maintenance Patch Set 1) In the previous releases, for a product with prorate_first and prorate_last set to a value, the charge was prorated. This has been fixed.
3-10931353761	21443073	(Maintenance Patch Set 1) In the previous releases, when the PIN_FLD_QUANTITY field was not equal to zero, the bill_item_assign function was returning a segmentation fault. This has been fixed.
3-10935513451	21457586	(Maintenance Patch Set 1) In the previous releases, when a subscription with an annual cycle fee was transferred from account A to account B and rerating was run on account A from the last billing cycle, the rerating was failing. This has been fixed.
3-10542624811	21464320	(Maintenance Patch Set 1) In the previous releases, during a service transfer with backdating, the source service was getting closed on the specified date, but the destination service was getting created with the current date, resulting in incorrect prorated balance impacts on the destination account. This has been fixed.
3-11010667451	21566190	(Maintenance Patch Set 1) In the previous releases, the bill time discounting at the member service level was not triggering for discount sharing. This has been fixed.
3-5896168931	14498154	(Patch Set 12) In the previous releases, when cleaning up the completed rerate jobs with the pin_rerate utility, the process was returning an error and the purging was not successfully completed. This has been fixed.
3-7755663121	17422610	(Patch Set 12) In the previous releases, when accounts were migrated using Conversion Manager, the billinfo POID was populated with the type as /billinfo% instead of /billinfo and the ID was incorrect. This has been fixed.
3-7705325011	17666544 17736769	(Patch Set 12) Conversion Manager, when migrating accounts, bad files were getting generated for purchased products and purchased discounts. This has been fixed.
3-7930330891	17766399	(Patch Set 12) In the previous releases, Conversion Manager was not: <ul style="list-style-type: none"> ■ Assigning credit profiles correctly. The credit limit and credit floor were populated with zero instead of NULL. ■ Supporting the credit_thresholds_fixed tag. This has been fixed.

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

SR Number	Bug Number	Description
3-8235143371	18511981	(Patch Set 12) In Conversion Manager, during the migration of accounts with profiles related to extended rating attributes, the reference count value in profile_serv_extrating_t was always set to 1 , instead of the actual value. This has been fixed.
3-8855539641	18673846	(Patch Set 12) In the previous releases, when generating an invoice for an account with sponsored charges rolled up, the events from /config/invoice_events were not considered and hence the invoice event types were not filtered for the sponsored charges. This has been fixed.
3-7596524091	19140671 20558999	(Patch Set 12) In the previous releases, the Rated Event (RE) Loader was failing with the POID range issue. This has been fixed.
3-9424735361	19488357	(Patch Set 12) The PCM_OP_SUBSCRIPTION_SET_BUNDLE opcode was resulting in balance group locking, due to an unnecessary rating call for the /event/billing/suppression , /event/billing/bundle , /event/billing/bundle/create , and /event/billing/bundle/modify events for which the RUM information was not properly configured in the /config/rum object. This has been fixed.
3-9513800701	19688970 20564179	(Patch Set 12) When a terminate request (AAA) in Direct Debit mode was processed for an unbilled account, intermittent timeouts were observed. This has been fixed.
3-9500867391	19896391	(Patch Set 12) In the previous releases, the duplicate check functionality was not working as expected in Pipeline Manager and was resulting in a unique constraint violation error when trying to persist the data in the database. This has been fixed.
3-8254002681	19911447	(Patch Set 12) In the previous releases, loading the USC Map DAT module was taking a lot of memory, when .* was used as a regular expression. This has been fixed.
3-9765366348	19919863	(Patch Set 12) In the previous releases, when the pin_ledger_report utility was run in export mode it was failing. This has been fixed.
3-9984434411	20187975	(Patch Set 12) In the previous releases, the watermark on a duplicate invoice generated through BIP was constant and there was no provision to configure a different watermark. With this release, you can now configure the watermark using the entries in Infranet.properties file.
3-9753446251	20197522	(Patch Set 12) In the previous releases, the start time of an active session was being incorrectly modified during reauthorization. This was impacting the incorrect balance buckets. This has been fixed.
3-9495753081	20220828	(Patch Set 12) When the collections process was trying to add a configuration scenario data to its cache, a message was incorrectly logged as an error into the log file. This has been fixed.

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

SR Number	Bug Number	Description
3-9829284161	20229069	(Patch Set 12) When a monthly cycle forward non-currency resource deal, which was providing resources one month in advance and without proration, was canceled, valid_to of respective sub balance in bal_grp_sub_bals_t was not updated based on the cancellation date. This has been fixed.
3-9951038171	20229074	(Patch Set 12) The pin_ledger_report utility in detailed mode was not returning the correct report due to incomplete calculations without account number and item number information. This has been fixed.
3-9484526921	20236481 20462699	(Patch Set 12) The best pricing calculation was incorrectly calculating the alternative price during rerating. This has been fixed.
3-10000421741	20262918	(Patch Set 12) For an account with multiple balance groups, with an active session in progress, the subsequent authorization or re-authorization flows involving discounting were reporting a credit check failure. This has been fixed.
3-7427949411	20301369	(Patch Set 12) In the previous releases, due to the lack of synchronization of threads for logging, for higher log levels the threads were waiting longer times affecting performance. This has been fixed.
3-10031473161	20310218	(Patch Set 12) When a product was canceled, the applicable credits were not applied. This has been fixed.
3-10023359921	20318012	(Patch Set 12) With Number Administration Center, the device.useglobalsearch = true configuration parameter was not actually resulting in a global search. This has been fixed.
3-9885466281	20331918	(Patch Set 12) With Collections Manager, the PCM_OP_COLLECTIONS_TAKE_ACTION opcode was failing when run through the PCM_OP_ACT_SCHEDULE opcode without the required DUE_T information. This has been fixed.
3-10003034921	20331920	(Patch Set 12) For an account with tax exemptions, the tax calculation flow was incorrectly dropping the data related to exemptions and subsequently causing the account to be taxed. This has been fixed.
3-9704723441	20345113	(Patch Set 12) Whenever a rollover product end date coincides with the billing date for the account, the rollover was not happening properly. This has been fixed.
3-10117682977	20371184	(Patch Set 12) A discount configured with scale of zero (0) was causing the discount to be applied twice. This has been fixed.
3-9712476101	20375902	(Patch Set 12) In Customer Center, an error message was displayed when viewing a plan detail containing an offering that was deleted from the system. This has been fixed.

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

SR Number	Bug Number	Description
3-10010476311	20375906	(Patch Set 12) While rating an event, the rating cache was returning invalid information resulting in incorrect balance impacts. This has been fixed.
3-10019459157	20386251	(Patch Set 12) When billing day of the month was updated with the offset of more than two cycles, the valid_to field was incorrectly populated based on next_t instead of future_t . This has been fixed.
3-9985167281	20393441	(Patch Set 12) When an account closure is scheduled using Customer Center for a future date creating a scheduler object, it was observed that the last_status and laststat_cmnt fields were updated even before the actual status change. This has been fixed.
3-10037858781	20401985	(Patch Set 12) When a product with the Charge for the entire cycle proration setting was purchased for an account and canceled before the cycle ended, the entire charges for the product was incorrectly refunded. This has been fixed.
3-10144245101	20416284	(Patch Set 12) When an account was created with a long cycle, the sub-balances with non-currency resources were having an incorrect valid_to value. This has been fixed.
3-9953216281	20422775	(Patch Set 12) While discounting, rounding was done incorrectly if the precision was more than 15 digits after the decimal point. This has been fixed.
3-10176053261	20432187	(Patch Set 12) With Automated Monitor Setup (AMS) configuration for Balance Monitoring, for every rerating request, an extra rerating job was created causing an accumulation of rerating jobs. This has been fixed.
3-10187518331	20436888	(Patch Set 12) When calling PCM_OP_SUBSCRIPTION_SET_PRODINFO to set cycle_end_t to 0, the values for charged_from_t were incorrectly aligning with charged_to_t , and cycle_fee_start_t was incorrectly aligning with cycle_fee_end_t . This has been fixed.
3-10105991631	20450292	(Patch Set 12) During trial billing, for a purchased product starting from billing DOM, charge_from was incorrectly calculated. This has been fixed.
3-10128809191	20452428	(Patch Set 12) In a multidatabase system, the offer profile tables were not replicated. This has been fixed.
3-10117542611	20462695	(Patch Set 12) While purchasing a deal, the purchased product's purchase or cycle or usage end date was set one day prior to the expected date. This has been fixed.
3-10180364211	20471105	(Patch Set 12) In a multischema environment, the payment reversals could be done multiple times from each schema, because the lookup for an already executed payment reversal was not processed globally across all the schema, for a particular payment. This has been fixed.

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

SR Number	Bug Number	Description
3-10051409151	20479692	(Patch Set 12) The plan transition was failing for member services when it required a status update to those member services. This has been fixed.
3-8959105771	20527047	(Patch Set 12) When Login Exclusion was configured, the system was still performing a login search first instead of just the aliases search for that login. This has been fixed.
3-8892430511	20534430	(Patch Set 12) The PCM_OP_SUBSCRIPTION_READ_ACCT_PRODUCTS opcode was generating core due to an uninitialized cookie after each iteration. This has been fixed.
3-10000209801	20583621	(Patch Set 12) The PCM_OP_SUBSCRIPTION_CANCEL_DISCOUNT opcode was not saving the value passed in for PIN_FLD_DESCR into the generated cancel event. This has been fixed.
3-10353697641	20645464	(Patch Set 12) During the subscription transfer operation, a rerate job was created with an incorrect start date. This has been fixed.
3-10334546841	20654250	(Patch Set 12) The rerating operation was failing when trying to back out monitor update events belonging to a previous bill cycle. This has been fixed.
3-10301779691	20677976	(Patch Set 12) When a subscriber who had entered into a promise-to-pay agreement, even after fulfilling the agreement by paying an amount more than actually promised, the subscriber was not coming out of the promise-to-pay agreement. This has been fixed.
3-10375299561	20720288	(Patch Set 12) With a billing DOM of first of a month, ACTG_NEXT_T set to 1 and advance_bill_cycle also set to 1, for the month of March the value of ACTG_FUTURE_T was incorrectly set. This has been fixed.
3-10286852131	20733490	(Patch Set 12) The PCM_OP_BULK_DELETE_OBJ opcode was failing to delete when called from within a transaction on an object type without specifying any objects to delete. This has been fixed.
3-10249511381	20736200 20802638 20816269	(Patch Set 12) The performance of pin_ledger_report was degraded due to the introduction of the get_gl_bill_t stored function. This has been fixed.
3-9529076071	20785075	(Patch Set 12) MTA's search feature was not working. This has been fixed.
3-10179553901	20785078	(Patch Set 12) In Suspense Manager, while reprocessing a suspended call details record (CDR), there was an error when querying for the event data record (EDR) version information and when parsing the recycled CDR for rating. This has been fixed.

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

SR Number	Bug Number	Description
3-10450819691	20785084	(Patch Set 12) The charged amount values against individual RUMs were incorrect in the Charge Packets for fixed charge calls when such calls overlapped multiple time zones. This has been fixed.
3-10341449171	20805907	(Patch Set 12) During the step search, when an error condition was met, step_end was not explicitly called resulting in further errors. This has been fixed.
3-10434604941	20827663	(Patch Set 12) In Collections Manager, the Next Payment Due field name was changed to Payment Due because it was not correctly representing the field.
3-10438654581	20832904	(Patch Set 12) In Collections Manager, the promise-to-pay actions agent information was not updated. This has been fixed.
3-9771430971	20839673	(Patch Set 12) When the pin_inv_accts utility was run with PIN_BILL_FLG_SKIPPED_BILL , the utility was not adding information on failed bill objects into failed accounts' audit objects. This left incomplete failed accounts audit objects. This has been fixed.
3-10018355111	20843636	(Patch Set 12) The data manager for IMDB Cache (TimesTen) was generating core. This has been fixed.
3-10127021691	20854256	(Patch Set 12) Row lock contentions were observed during transactions opened when pin_deferred_act was run. This has been fixed.
3-5566352891	13996314	(Patch Set 11) In the previous releases, Pricing Center was not displaying the correct transition plans under the allowable plan list. This has been fixed.
3-5695750521	14091039	(Patch Set 11) In the previous releases, when you restarted Pricing Center after creating a plan with options having a subscription group and deals, the subscription group service and deals associated under that plan were not displayed. This has been fixed.
3-6507644791	16696707	(Patch Set 11) In Revenue Assurance Center, for the revenue assurance data, the invoice total was always displayed as 0 (zero) in the default setup. This has been fixed. The invoice total is now removed from the invoice section of Revenue Assurance Center.
3-7483002591	17071366	(Patch Set 11) In the previous releases, a customer service representative (CSR) with read-only access could update the validity of resources using Customer Center. This has been fixed.
3-6867499371	17528910	(Patch Set 11) In Pricing Center, if a copy (P1) of a product (P) already existed, creating a copy P2 from P resulted in overwriting P1. This has been fixed.

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

SR Number	Bug Number	Description
3-6508537831	18589292	(Patch Set 11) In Pricing Center, the Transition tab for a deal was not displaying all the possible transitions because the transitions for the deals were not retrieved properly from the database. This has been fixed.
3-9232635917	19384069	(Patch Set 11) In Customer Center, accounts and services were displayed multiple times in the list for the Account Status link in the Summary tab. This has been fixed.
3-9447740581	19386804	(Patch Set 11) In the previous releases, even though Vertex Quantum Manager was only for Sales Tax Q (STQ), it was throwing errors if Communications Tax Q (CTQ) was not installed and configured. This has been fixed.
3-9225436091	19408414	(Patch Set 11) In the previous releases, when generating an invoice with debug mode on, a core dump was generated when searching items with the Group By clause. This has been fixed.
3-9506658234	19561377	(Patch Set 11) In the previous releases, the Oracle Data Manager (DM) was dumping core when reading NULL-terminated Character Large Object (CLOB) data. This has been fixed.
3-9578603551	19595644	(Patch Set 11) In the previous releases, EAI Manager (dm_eai) was throwing a getaddrinfo failed error while publishing messages. This has been fixed.
3-9479605561	19595654	(Patch Set 11) In the previous releases, when purchasing a deal or modifying a customer, when purchasing a discount and an invalid discount object was passed to the operation, core dump was generated during service creation. This has been fixed.
3-8807271531	19603741	(Patch Set 11) In the previous releases, when a charging group was created with an existing account as owner, having multiple services with some in open and some in closed status, the created sharing group was showing closed status. This has been fixed.
3-9372408131	19603744	(Patch Set 11) In the previous releases, the Event Details window of Event Browser was not displaying the correct time information based on the timezone. This has been fixed.
3-9597886941	19623442	(Patch Set 11) In the previous releases, Customer Center was allowing CSRs to do adjustments greater than the event adjustment limit set in Permissioning Center. This has been fixed.
3-9561429431	19627250	(Patch Set 11) In the previous releases, for a failed payment, Customer Center was displaying the corresponding event with an incorrect payment type. This has been fixed.

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

SR Number	Bug Number	Description
3-9384144601	19628977	(Patch Set 11) In the previous releases, Pipeline Manager was throwing a compilation error during the promotion of data types used in the parameter list for any function called from an iScript. This has been fixed.
3-9523337291	19637922	(Patch Set 11) In the previous releases, the threshold breach calculation was incorrectly performed for in-session notifications. This has been fixed.
3-9345733151	19644047	(Patch Set 11) In the previous releases, when a product was purchased with a large (a day or more) offset for the start time, because of which the product effective date was earlier than the product created date, the purchase and cycle fees were not applied. This has been fixed.
3-6793501601	19644052 19649816	(Patch Set 11) In the previous releases, there was a restriction that pin_event_extract and pin_rel could not be run in parallel. This has been fixed. Changes were made in the event selection criteria in pin_event_extract so that events that are not completely processed by Rated Event Loader (RE Loader) cannot be extracted. This ensures that the integrity of the events to be rerated is not disturbed while extracting events using pin_event_extract .
3-7941628591	19651427	(Patch Set 11) In the previous releases, when writing off an account, the tax part of the amount being written off was incorrectly calculated. This has been fixed.
3-9567425201	19651433	(Patch Set 11) In the previous releases, after migrating an account using Conversion Manager, the values of offering_obj fields in the AU_GROUP_SHARING_DISCOUNTS_T table were not correctly populated. This has been fixed.
3-9531426771	19655833	(Patch Set 11) In the previous releases, with billing delay and proration settings configured to calculate charges based on usage for both purchase and cancel operations, when a cycle forward product was canceled, after inactivating and reactivating the product, the prorated cycle forward charges due to cancellation were not refunded. This has been fixed.
3-9600184221	19669597	(Patch Set 11) In the previous releases, with propagate_discount set to 1 in the Connection Manager's (CM's) pin.conf file to enable the discount sharing startup from the beginning of the next billing cycle to the time of creating the discount sharing group or adding a member, when a member was added, BRM was throwing an error during the reevaluation of discounts in the discount sharing group. This has been fixed.
3-9649089721	19699063	(Patch Set 11) In the previous releases, the discount was calculated for a time period that was outside of the validity period. This has been fixed.
3-9533882771	19699070	(Patch Set 11) In the previous releases, when an account had multiple bill units, the Collection Manager's pin_collections_process utility was entering into a deadlock, and Collection Manager was hanging. This has been fixed.

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

SR Number	Bug Number	Description
3-9653218061	19704712	(Patch Set 11) In the previous releases, when 30 days proration was enabled, sequential discounting was applying a discount greater than 100%. This has been fixed.
3-9589343971	19712308	(Patch Set 11) In the previous releases, when an account was migrated using Conversion Manager, the item_tar_billinfo_obj_id0 was incorrectly populated with the service-level bill unit instead of the account-level bill unit. This has been fixed.
3-9591167041	19734105	(Patch Set 11) In the previous releases, moving a subordinate account from one account to another resulted in a validation failure. This has been fixed.
3-9627117591	19780375	(Patch Set 11) In the previous releases, the PCM_OP_SUBSCRIPTION_READ_ACCT_PRODUCTS opcode was dumping core. This has been fixed.
3-9673843028	19787832	(Patch Set 11) In the previous releases, after a bill unit name is updated, refreshing the Balance tab in Customer Center was throwing the Error Communicating with BRM error. This has been fixed.
3-9613131901	19801369	(Patch Set 11) In the previous releases, the loadpricelist utility was failing while loading pricing objects when a large result set was returned from a /config/glid search. This has been fixed.
3-9539885621	19805696	(Patch Set 11) In the previous releases, when the db2irules.pl script was run with the -u parameter, the generated output file was not matching the ST_CIBER_VAL.xml file that was loaded in the database. Additionally, when the script was run with the -d parameter, CIBER validation rules were not deleted from the database. This has been fixed.
3-9658464901	19822362	(Patch Set 11) In Collections Manager, the collection rescheduling was failing for the current or any future date. This has been fixed.
3-9379625544	19831218	(Patch Set 11) In the previous releases, if all members and the parent of the subscription group are members of a discount sharing group, the recurring charges were not reflected in balance monitoring for the newly added member service into the subscription group. This has been fixed.
3-9692801681	19851513	(Patch Set 11) In Collections Center, the Number of Bill Units field data was not correctly aligned. Additionally, the Assigned Bill Units and Agent fields were blank. This has been fixed.
3-9768695701	19866783	(Patch Set 11) In Roaming Manager, the CIBER records were rejected with a validation error for the SPECIAL_FEATURES_USED field. This has been fixed.

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

SR Number	Bug Number	Description
3-9624210961	19875341	(Patch Set 11) In Collections Manager, when an account entered collections, the collections due date field was being omitted by the PCM_OP_COLLECTIONS_POL_CALC_DUE_DATE policy opcode. This has been fixed.
3-9658332011	19881465	(Patch Set 11) In Roaming Manager, the CIBER records were rejected with a validation error for the ORIG_BATCH_SEQ_NO field. This has been fixed.
3-9709832411	19911438	(Patch Set 11) In Conversion Manager, during the migration of non-currency balances, loading the XML file was very slow, irrespective of the size of the file. Additionally, the following occurred: <ul style="list-style-type: none"> ▪ The process would hang. ▪ An ArrayIndexOutOfBoundsException exception was thrown while loading the non-currency balances. ▪ Duplicate record ID combinations were generated for sub-balances. This has been fixed.
3-9698602741	19911455	(Patch Set 11) In the previous releases, when a subordinate account was created with the account creation time greater than ACTG_NEXT_T of the parent, the ACTG_NEXT_T of the subordinate was aligning to ACTG_FUTURE_T, instead of to ACTG_NEXT_T, of the parent bill unit. This has been fixed.
3-9455198081	19931091	(Patch Set 11) In Conversion Manager, for account-level products, purchased_product_t.plan_obj_id0 was incorrectly populated. This has been fixed.
3-9800104001	19948636	(Patch Set 11) In Collections Manager, when a payment was made to a written-off account, the tax events were not created correctly. This has been fixed.
3-9619119681	19957521	(Patch Set 11) In the previous releases, in the rerating workflow, item adjustments were created by RE Loader not just for billed events but also for the unbilled events, which was incorrect. This has been fixed.
3-9685906951	20001526	(Patch Set 11) In the previous releases, BRM was incorrectly allowing the application of recurring cycle forward fees for a canceled product period. This has been fixed.
3-9740493385	20017115	(Patch Set 11) In the previous releases, when a charge was applied for a future cycle, the scale was incorrectly calculated as 0. This has been fixed.
3-9382785971	20017119	(Patch Set 11) With Conversion Manager, during migration, if partial rollover data (for example, not containing ValidFromDetails and ValidToDetails) was provided in the input XML file, the corresponding sub-balance creation was incorrect. Additionally, while importing balances with infranet.cmt.billingdelay set to true , the due amount was sometimes overwritten. This has been fixed.

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

SR Number	Bug Number	Description
3-9761054791	20032761	(Patch Set 11) In the previous releases, when an annual cycle forward product was purchased with backdating, the cycle end time was incorrectly calculated and was resulting in incorrect charging of the account. This has been fixed.
3-9811088441	20060558	(Patch Set 11) In a multischema environment, when a payment was posted to an account in a secondary schema with Payment Tool, by a user other than an administrator user, the payment was going through, but the payment event was containing incorrect user information. This has been fixed.
3-9309436241	20068404	(Patch Set 11) In the previous releases, when a deal was purchased with an extended rating attribute (ERA), the effective time of the ERA profile was not properly set and was not matching the purchased product for which the effective time was correctly set. This has been fixed.
3-9763470341	20076840	(Patch Set 11) In the previous releases, when corrective billing was run, the PIN_FLD_NAME field was containing invalid data. So, identifying a corrective bill for the due date calculation using PIN_FLD_NAME was not possible. This has been fixed.
3-9887999451	20081079	(Patch Set 11) In the previous releases, if the purchase of a tailor-made plan was beyond the current product cycle, it was incorrectly refunding and reapplying the base product cycle fees. This has been fixed.
3-9889133741	20102108	(Patch Set 11) In the previous releases, for a monthly recurring charges product with multiple rate tiers for rate change purchased with backdating in such a way that the purchase effective date was prior to the rate change date and charges were applied for the rate change period, the backdated cancellation with effective date prior to the rate change was incorrectly calculating the refund. This has been fixed.
3-9901763406	20102113	(Patch Set 11) In the previous releases, the Customer Center AR Adjustment dialog box was not closing when the OK button was clicked after entering the required information for adjustment, even though the adjustment went through successfully. This has been fixed.
3-9828162251	20102120	(Patch Set 11) In the previous releases, the PCM_OP_SUBSCRIPTION_POL_SPEC_CYCLE_FEE_INTERVAL policy opcode was not being called when a cycle arrears product was canceled, which was restricting any possible customizations to arrive at the cycle fees interval during cancellation. This has been fixed.
3-9685949901	20114129	(Patch Set 11) In the previous releases, the future-dated service disconnections were generating incorrect refunds. This has been fixed.
3-9755304631	20136958	(Patch Set 11) In the previous releases, corrective billing was not calling the PCM_OP_BILL_POL_SPEC_BILLNO policy opcode in its workflow to enable the bill-number-related format customizations. This has been fixed.

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

SR Number	Bug Number	Description
3-8534671511	20166721	(Patch Set 11) In the previous releases, the event browser in Customer Center was not displaying the event time information based on the timezone. This has been fixed.
3-9926769431	20181649	(Patch Set 11) In the previous releases, when a product with a rate plan selector was used, the PIN_FLD_SCOPE information (whether cycle forward or cycle arrears) was missing in the input of the PCM_OP_SUBSCRIPTION_POL_SPEC_CYCLE_FEE_INTERVAL policy opcode. This has been fixed.
3-9980011471	20208772	(Patch Set 11) In Customer Center, the phone number was not correctly displayed on the Balance tab. This has been fixed.
3-9874595211	20241294	(Patch Set 11) In the previous releases, Pricing Center was not opening due to memory-full issue due to large G/L ID objects. This has been fixed.
3-9464578441	20025156 20032766	(Patch Set 11) In the previous releases, in a multischema environment, duplicate POIDs were getting generated while creating new POIDs through Pipeline Manager. This has been fixed.
3-7153450471	16965406 19352822	(Patch Set 10) In the previous releases, Payment Tool was not honoring access with the permissions defined in /service/admin_client . The only way to access was to define permissions in Permissioning Center. This has been fixed.
3-7730960101	17834397 17928712 19368177	(Patch Set 10) In the previous releases, the pin_trial_bill_accts utility was taking a very long time to process accounts for trial billing. This was observed for large account hierarchies. This has been fixed.
3-7752886781	17970904	(Patch Set 10) In the previous releases, for an account when a proration-enabled product was purchased or canceled on cycle boundaries, the proration was getting into effect, but it was not necessary to do the proration when the dates were aligned to the cycle dates. This has been fixed.
3-8546674701	18389662 19143314	(Patch Set 10) In the previous releases, in Customer Center, when modifying products that had a relative offset period set to an absolute date, the date was defaulting to 31-Dec-1969 rather than the absolute date corresponding to the relative offset that was defined earlier. This has been fixed.
3-8657352981	18425860	(Patch Set 10) In the previous releases, real-time pipelines for rerating and discounting were not supporting the EDRTTrace feature. This has been fixed.
3-8668009771	18433221	(Patch Set 10) In the previous releases, in Customer Center, the units in the Products - Product Details tab were disappearing when choosing between Relative and Date options. This has been fixed.

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

SR Number	Bug Number	Description
3-8389236441	18475426	(Patch Set 10) From BRM 7.5 Patch Set 7, the link edit between libportal.so and Oracle 11g client libclntsh.so was failing while building custom applications. This has been fixed.
3-8781616941	18508380	(Patch Set 10) In the previous releases, the pin_mass_refund utility was not working for bill units with open item accounting. This has been fixed.
3-8380836155	18511978	(Patch Set 10) In the previous releases, when Connection Manager Master Process (CMMP) was used as a load balancer, switching transaction state, even for non-transactional opcodes, was then resulting in an ERR_TRANS_ALREADY_OPEN error. This has been fixed.
3-8331979191	18519249	(Patch Set 10) In the previous releases, when using Conversion Manager, the actual values provided for deal_obj_db and plan_obj_db were disregarded and these parameters were always incorrectly set to 1. This has been fixed.
3-8834248071	18546684 19207928	(Patch Set 10) In the previous releases, the subscription-level balance monitor was correctly updated with subscription-level adjustments when the subscription service POID was passed in the input flist of the PCM_OP_AR_ACCOUNT_ADJUSTMENT opcode. This information was not correctly documented in the opcode specification. This has been fixed.
3-8835796891	18546903	(Patch Set 10) In the previous releases, the Customer Center SDK method was setting the date incorrectly in the PAIDateField class. This has been fixed.
3-8826336531	18614306	(Patch Set 10) In the previous releases, in Event browser, the Connection Manager (CM) connection was not released even after closing the window. This has been fixed.
3-8902318711	18665392	(Patch Set 10) In the previous releases, multiple warning messages were displayed when launching Customer Center from a web browser. This has been fixed.
3-8674415121	18699624	(Patch Set 10) In the previous releases, the timestamp fields of the uniqueness table were populated based on the system date. This has been fixed. The timestamp value is now set to the value stored in the database.
3-7560575581	18739065	(Patch Set 10) In the previous releases, the BRM general ledger reports considered revenue to be billed based on the end time of the corresponding bill period. For example, if the bill period is Jan 1 through Feb 1, but the actual bill run is on Feb 3, the revenue is considered billed on Feb 1. With this release, you can now set the new UseActualBilledTimeForGLReport billing business parameter to consider the revenue billed to be on the actual bill run date.

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

SR Number	Bug Number	Description
3-8640746111	18752383	(Patch Set 10) In the previous releases, when using Conversion Manager, if pin_cmt_deploy was run multiple times for same stage ID, it was resulting in inconsistent data in the au_profile_t and au_service_t audit tables. This has been fixed.
3-7617935901	18791573	(Patch Set 10) In the previous releases, when the discount was applied to the same non-currency resource as the charge, the base amount for a sequential discount was incorrectly calculated. This has been fixed.
3-8735434341	18826015 19569009	(Patch Set 10) In the previous releases, when submitting duplicate payments for the same account in a single batch of Payment Tool, both payments were being applied on the account without any check for overallocation to items. This was resulting in a negative account balance. With this release, a new business parameter, ItemOverAllocation , is added to determine whether any item can be allocated beyond its due. By default, the value of the business parameter is enabled.
3-8926475921	18903914	(Patch Set 10) In the previous releases, when publishing events from eai_js , the format of the timestamps sent out was incorrect. This has been fixed.
3-8777861598	18948667	(Patch Set 10) In the previous releases, during migration with Conversion Manager, while trying to update bal_grp_t as first day of previous month , the effective date in bal_grp_t was incorrectly set to created_t . This has been fixed. The value is now set to effective_t .
3-8951132071	18957536	(Patch Set 10) In the previous releases, Conversion Manager was hanging with java.lang.NullPointerException in the Java stack trace. This has been fixed.
3-9074661021	19021970 19341890 19342928	(Patch Set 10) In the previous releases, BRM was not supporting querying the latest real-time-balance information from Elastic Charging Engine (ECE). This has been fixed.
3-8956489561	19031334	(Patch Set 10) In the previous releases, when timestamp rounding is enabled for all the non-currency resource grants due to the cycle forward event, bal_grp_sub_bals_t.valid_from in the granted sub-balance was rounded to midnight. Controlling this rounding for purchase grants was not possible. With this release, a new business parameter, TimestampRoundingForPurchaseGrant , is added for rating. This business parameter works along with the timestamp_rounding parameter in the pin.conf file. When the business parameter is enabled and the timestamp_rounding parameter in the pin.conf file is also enabled, the purchase grant will be rounded to midnight. By default, the value of the business parameter is enabled (set to 1).
3-9000971543	19052369	(Patch Set 10) In the previous releases, the client patch did not specify a build number. This has been fixed.

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

SR Number	Bug Number	Description
3-9107610731	19055312	(Patch Set 10) In the previous releases, when multiple transactions were active, FCT_ApplyBalance was not properly renaming the notification files to have .xml extension. It was picking up only the latest stream for verifying and renaming only the corresponding notification file. This has been fixed.
3-9084752364	19062931	(Patch Set 10) In the previous releases, when in maintenance mode, updating the cycle end date was not working. It was always defaulting to the next cycle end date. This has been fixed.
3-9097643431	19067183	(Patch Set 10) In the previous releases, it was not possible to configure an RSC_Map using a rateplan code, even though using a rateplan code was more intuitive than using a rateplan identifier. With this release, you can now set the optional Boolean UserRatePlanCode registry parameter to use rateplan code. The default is false . To use rateplan code, set the parameter to true .
3-9065871071	19078159 19259074	(Patch Set 10) In the previous releases, the pin_rel utility was not updating the /journal objects with events corresponding to zero event balances. With this release, you can now set the ZeroEventBalances business parameter to update the /journal objects with events corresponding to zero event balances. By default, the value of the business parameter is 0 , which is to not include the zero event journal balances. To include zero event journal balances, set the business parameter to 1 .
3-8900925751	19128368	(Patch Set 10) In the previous releases, while migrating non-currency resources using Conversion Manager, the realtime_cntr and rec_id fields of the existing sub-balances were not properly updated. This has been fixed.
3-9277903901	19158265 19329665	(Patch Set 10) In the previous releases, the PIN_FLD_GEOCODE and PIN_FLD_TAXPKG_TYPE fields were missing from PCM_OP_BAL_GET_ACCT_BILLINFO JCA XSD file, due to which the information in these fields were not passed to the opcode for proper opcode functionality. This has been fixed.
3-9267909481	19164918	(Patch Set 10) In the previous releases, in multischema account migration using Conversion Manager, when other accounts were created using standard account creation opcodes, the POID_ID0 field of the uniqueness object was not mangled, resulting in an unique constraint violation error. This has been fixed.
3-9044443971	19170129	(Patch Set 10) In the previous releases, when a service for an account having purchased discounts was inactivated first and later the service was reactivated and the discount was repurchased, the discounts were not getting applied. This has been fixed.
3-8841891961	19172383	(Patch Set 10) In the previous releases, when purchasing a one-time deal to an existing service, the Customer Center Plans tab was showing the correct product name, but the deal name was incorrect. This has been fixed.

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

SR Number	Bug Number	Description
3-8894533131	19194696	(Patch Set 10) In the previous releases, while calculating payment incentives, the TOTAL_DUE (that included the previous dues) was incorrectly mapped instead of just the current month due. Due to this, the payment incentive calculation was incorrect. This has been fixed.
3-8963911221	19194698	(Patch Set 10) In the previous releases, during migration using Conversion Manager, the group object ID values were not properly populated, and this was causing operations like PCM_OP_BILL_DEBIT to fail, which in turn was accessing the group sharing objects. This has been fixed.
3-9311090061	19202345	(Patch Set 10) In the previous releases, the pin_discount_cleanup utility was crashing. This has been fixed.
3-9294585111	19217389	(Patch Set 10) In the previous releases, when more than one discount was present with sequential discounting enabled, the discount calculation was incorrect and impacted the balances. This has been fixed.
3-9347295804	19219139	(Patch Set 10) In the previous releases, when trying to start Customer Center with Java Webstart, the JAR resources in JNLP file are not signed by same certificate error message appeared. This has been fixed.
3-9527135271	19227016	(Patch Set 10) In the previous releases, every time the BufferLimit or StoreLimit parameters was updated, the index was getting recreated for FCT_DuplicateCheck in Pipeline Manager. This was taking a long time to complete and there was no control to make it optional. This has been fixed.
3-9121968561	19227161	(Patch Set 10) In the previous releases, when a group of accounts was migrated in bulk using Conversion Manager, the timestamps for created_t , effective_t , and mod_t were inconsistent in the UNIQUENESS_T and AU_UNIQUENESS_T tables. This has been fixed.
3-9028194391	19236913	(Patch Set 10) In the previous releases, when using Conversion Manager with multithreading, an ArrayIndexOutOfBoundsException exception was thrown. This has been fixed.
3-9028022821	19246390	(Patch Set 10) In the previous releases, when data was migrated from older releases like Portal 7.2.1 to BRM 7.5, FCT_DuplicateCheck was failing due to the way the search key was derived. Prior to BRM 7.5, the search key was directly inserted into the database, whereas in BRM 7.5 a hashed value was being inserted. So on a migrated instance, FCT_DuplicateCheck failed because it was expecting a hashed key rather than the actual key. This has been fixed.
3-9219324731	19246395	(Patch Set 10) In the previous releases, when unit was DAYS, daylight saving time (DST) was not considered for calculating the relative time, which resulted in incorrect values for the product cycle timestamps. This has been fixed.

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

SR Number	Bug Number	Description
3-9309315781	19246403	(Patch Set 10) In the previous releases, during the delay period, a backdated cancellation was pushing the discount refund to the next bill cycle. This has been fixed.
3-9348642551	19254938	(Patch Set 10) In the previous releases, the extended rating attribute (ERA) Extension APIs used the local time rather than the UTC time. This was resulting in inconsistent behavior. This has been fixed.
3-9302735771	19276557	(Patch Set 10) In the previous releases, during the inactivation of a subscription, an incorrect end_t was calculated and was being used. This has been fixed.
3-9309315781	19276560	(Patch Set 10) In the previous releases, when two discounts were configured with sequential discounting enabled, canceling one discount was causing the other discount to be applied during the next cycle instead of during the current cycle. This has been fixed.
3-9320949131	19284834	(Patch Set 10) In the previous releases, when the product end date was changed within the cycle, the cycle forward charges were getting unnecessarily applied even though the charges were already applied. This has been fixed.
3-9375886241	19295129	(Patch Set 10) In the previous releases, open billing was failing because of locking of balance groups. This has been fixed.
2-5816784	19304275	(Patch Set 10) In the previous releases, during plan transition, there was an issue with credit limit exceeding for prepaid scenarios. This has been fixed.
3-9389962401	19305846	(Patch Set 10) In the previous releases, a tailor-made product that had a future cycle_start in the current cycle was getting skipped. This has been fixed.
3-9248293521	19323346	(Patch Set 10) In the previous releases, in Customer Center, it was not possible to transfer balance if it had a negative decimal amount. This has been fixed.
3-9198088431	19323348	(Patch Set 10) In the previous releases, during plan transition, if there were any common services, the service orders were created only for deactivation and the rest of the activities through the provisioning flow were not considered. This has been fixed.
3-9362428291	19334711	(Patch Set 10) In the previous releases, if you were not using tailor-made products, the locks on the derived rateplans were not getting released. This was increasing the number of locks in the system, eventually shutting down the pipeline process. With this release, the locks on the rateplans are released properly. Additionally, you can set the TailormadeProductsSearch business parameter to disabled to skip locking the rateplans.

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

SR Number	Bug Number	Description
3-9373391501	19336565	(Patch Set 10) During the BRM 7.5 Patch Set 8 installation, pin_setup was failing. This was due to the installation scripts pointing to Perl 5.8.0 instead of newly packaged Perl 5.18.2. This has been fixed.
3-8855926111	19344824	(Patch Set 10) In the previous releases, in Pricing Center, whenever a rate description was modified for a product, a new rate object was created, without deleting the old rate object. This has been fixed.
3-9138903801	19344829	(Patch Set 10) In the previous releases, in Pipeline Manager, even after reloading APN Map by passing a semaphore, it was still referring to old data. This has been fixed.
3-7051155361	19408407	(Patch Set 10) In the previous releases, when a zone map was updated while the zoning PCM_OP_ZONEMAP_POL_GET_LINEAGE policy opcode was being run, sometimes it went into an infinite loop, and the process was hanging. This has been fixed.
3-9416116906	19408411	(Patch Set 10) In the previous releases, in some scenarios the total tax from the written-off balance impacts was not matching the total tax of the actual item totals. This has been fixed.
3-9469185811	19445384	(Patch Set 10) In the previous releases, when the input data for collections did not contain the POID values, the process was dumping core. This has been fixed.
3-8628294001	19445804	(Patch Set 10) In the previous releases, the rating pipeline stops and was erroring out with ERR_THREAD_EXCEPTION and invalid state change errors due to a local variable being accessed simultaneously across two different transactions in the FCT_EventOrder module. This has been fixed.
3-9352596531	19466104	(Patch Set 10) In the previous releases, in a Services Framework enabled environment, when an account with a discount was first created and later the service was activated, the end date of the discount was getting set during the activation. This has been fixed.
3-9508509961	19487669	(Patch Set 10) In the previous releases, when processing a CIBER record type 22 for Mobile Terminating Call with an Initial Cell Site field value 11 spaces (blank), the CIBER InProcessing pipeline rejected the call record with an error. This has been fixed.
3-9436828911	19508032	(Patch Set 10) In the previous releases, the PCM_OP_BILL_ITEM_REFUND opcode was throwing a TRANS_ALREADY_OPEN error. This has been fixed.
3-8612866981	19523820	(Patch Set 10) In the previous releases, when a system product was configured to give incentives to customers who paid their bills before the due date, the incentives were not applied to customers who came out of collections making an overpayment. This has been fixed.

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

SR Number	Bug Number	Description
3-9383592677	19533783	(Patch Set 10) In the previous releases, when a product was purchased with a future cycle start date, the existing discounts, if any, were not applied properly. This has been fixed.
3-7791124141	19561370	(Patch Set 10) In the previous releases, when fetching data from database in double format, rounding issues were identified in the Rogue Wave library. This has been fixed.
3-9445909211	19561375	(Patch Set 10) In the previous releases, pin_dd_schema was not working due to the updated version of Perl. This has been fixed.
3-9294386997	19569312	(Patch Set 10) In the previous releases, Purify tests at customer sites indicated that the subscription module read memory that was earlier freed. This has been fixed.
3-9513444631	19587204	(Patch Set 10) In the previous releases, when updating a discount's purchase, cycle, and usage dates information, the PCM_OP_SUBSCRIPTION_SET_DISCOUNTINFO opcode was throwing an error. This has been fixed.
NA	19616033	(Patch Set 10) In the previous releases, the PCM_OP_AR_GET_ACCT_ACTION_ITEMS opcode was not returning tax-only disputes information to be displayed in Customer Center. This has been fixed.
3-6967792101	16723615	(Patch Set 9) In the previous releases, the pin_ledger_report-export command was ignoring the transaction_grouping parameter setting in the pin.conf file. This has been fixed.
3-7404740751	17248392	(Patch Set 9) In the previous releases, when a collections task was inserted into the workflow by a CSR and then subsequently updated, it was never scheduled. Also, the /schedule object was NULL and it was not showing in the list of deferred actions for the account in Customer Center. This has been fixed.
3-7250627677	17282786	(Patch Set 9) In the previous releases, the RE Loader daemon was not processing files that were staged on a file system other than the one on which the BRM instance existed. This has been fixed.
3-7511849521	17287756	(Patch Set 9) In the previous releases, there was no link between the refund object and the original event for which the refund was granted, making it difficult to track. This has been fixed.
3-6945487611	17588608	(Patch Set 9) In the previous releases, when rerating for a particular service S2 after rerating for another service S1, the adjustment event related to S1 was getting reapplied, resulting in incorrect balance impacts. This has been fixed.

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

SR Number	Bug Number	Description
3-8014826971	17705577	(Patch Set 9) In the previous releases, a taxation-related SQL query was degrading the performance of billing. This has been fixed.
3-8237233401	17974361	(Patch Set 9) In the previous releases, the pin_bus_params utility was not working. This has been fixed.
3-8261620171	18062835	(Patch Set 9) In the previous releases, when an account was charged a usage with a discount, upon billing the account, the general ledger (G/L) report incorrectly displayed both gross credit and gross debit amounts instead of displaying only the gross credit amount. This has been fixed.
3-8107252761	18077057	(Patch Set 9) In Customer Center, canceled products were displayed multiple times when you selected Cancelled Products on the Plans/Products tab, Customize Plan table. This has been fixed.
3-8417183481	18174307	(Patch Set 9) In the previous releases, FCT_EventOrder was generating files out of order without a .xml extension. This has been fixed.
3-7335940201	18202671	(Patch Set 9) In the previous releases, if a credit limit check failed in the real-time pipeline and a discount was involved, there was no appropriate error set in the error buffer and the event was incorrectly allowed to be rated and recorded. This has been fixed.
3-8542691131	18233807	(Patch Set 9) In the previous releases, the start time was not being set for duration-based-charging resulting in a NULL_PTR error in the PCM_OP_TCF_AAA_UPDATE_AND_REAUTHORIZE opcode flow. This has been fixed.
3-8197785961	18255638 18229692	(Patch Set 9) In the previous releases, BRM did not take into account the event quantity rounding rules configured at the product level in the price list during authorization when the credit limit was exceeded. With this patch, in both CRE and the real-time discount pipeline, when the credit limit is exceeded during authorization or reauthorization, the last incremental quantity can be rounded based on a new business parameter configuration.
3-9021829121	18289230	(Patch Set 9) In the previous releases, account-level provisioning tags were disabled in Pricing Center. This has been fixed.
3-8591368871	18359129	(Patch Set 9) In the previous releases, inactivating an account or a service, when pin_cycle_fees was not run between purchase and inactivation, resulted in charges for the deferred purchased products, if any, being not applied. This has been fixed.
3-8475279591	18360125	(Patch Set 9) In the previous releases, the Vertex DM was not reconnecting after it accidentally lost the connection to the CTQ database due to a communication error. This has been fixed.

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

SR Number	Bug Number	Description
3-7508765131	18371432	(Patch Set 9) The Payment Center search for payments was not displaying removed payments. The documentation mentioned that the removed payments would be shown with an icon, which is no longer available. This has been fixed.
3-8621557868	18403909	(Patch Set 9) In the previous releases, the first usage validity was not being set during the authorization. This has been fixed.
3-8553106291	18413331	(Patch Set 9) In the previous releases, the batch rating pipeline was not starting. This has been fixed.
3-8622307441	18416747 18416749	(Patch Set 9) In the previous releases, when there were no events in the Account Sync queue, ORA-04043 errors were being reported continuously in the truss output. This has been fixed.
3-8712240501	18423624	(Patch Set 9) In the previous releases, with EventAdjustmentsDuringCancellation for an account set to 1 , after an adjustment to an event an error was being thrown while trying to close that account. This has been fixed.
3-8213387071	18425704 18637848	(Patch Set 9) In the previous releases, during account creation, the /profile/event_ordering object was not synchronized with Pipeline Manager, causing the Pipeline Manager to crash. This has been fixed.
3-8688345841	18425710	(Patch Set 9) In the previous releases, during backdated cancellation, the cycle arrears charges were getting refunded. This has been fixed.
3-8583691721	18425712	(Patch Set 9) In the previous releases, the pin_recover utility was failing when resubmitting a failed batch. This has been fixed.
3-8707362221	18426258	(Patch Set 9) In a multischema environment, the Oracle DM was not starting due to non-availability of required views. This has been fixed.
3-6422186321	18433223	(Patch Set 9) In the previous releases, the backdated cancellation of a product that was updated to have a rate plan in place of a rate plan selector, was failing. This has been fixed.
3-8678625411	18445287	(Patch Set 9) In the previous releases, the transactions related to group management operations were failing. This has been fixed.
3-8695016731	18474465	(Patch Set 9) In the previous releases, a backdated purchase of a product was causing cycle_fee_t and charge_to_t to have incorrect timestamps. This has been fixed.

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

SR Number	Bug Number	Description
3-8544120811	18474467	(Patch Set 9) In the previous releases, when a cycle forward arrears event was rerated, even though the event was unbilled, it was incorrectly flagged as billed, resulting in the creation of an adjustment item. This has been fixed.
3-8472342851	18497159	(Patch Set 9) In the previous releases, in the PCM_OP_CUST_UPDATE_CUSTOMER opcode workflow, the /billinfo information was not updated properly in /profile/colletions_params . This has been fixed.
3-7925391041	18497164	(Patch Set 9) In the previous releases, the Oracle DM was crashing when running the PCM_OP_BULK_DELETE_OBJ opcode to delete event objects. This has been fixed.
3-8743735041	18504193	(Patch Set 9) In the previous releases, if a monthly cycle arrears deal was purchased, and if the end date was set to a future date twice within the same cycle, the charges corresponding to the deal for the first month were not applied. This has been fixed.
3-8727444791	18511970	(Patch Set 9) In the previous releases, when an event did not have service information, for such events, a new /item/misc object was created for each instance, resulting in the creation of multiple /item/misc objects. This has been fixed.
3-8665711001	18511972	(Patch Set 9) In the previous releases, an account created with a short billing cycle (creation date is January 27 and the billing DOM January 29 and cycle length is SHORT), was incorrectly having a long accounting cycle. This has been fixed.
3-7480137371	18511976	(Patch Set 9) In the previous releases, with the configuration of opcode statistics logging, BRM was logging unnecessary opcode information even when an opcode was not run. This has been fixed.
3-8707682611	18519242	(Patch Set 9) In the previous releases, the LoadIfwConfig process was failing with a segmentation fault error. This has been fixed.
3-8819613341	18536832	(Patch Set 9) In the previous releases, when loading BEID information into BRM, the load_pin_beid utility was truncating the resource name and was updating the PIN_FLD_VALIDITY_IN_DAYS field with an invalid value when the resource name ended with digits. This has been fixed.
3-8738918541	18550833	(Patch Set 9) In the previous releases, the PCM_OP_PRICE_COMMIT_TRANSITION opcode was not recognized as a valid opcode when called directly, even though it was a recommended opcode. With this patch, you can directly call the PCM_OP_PRICE_COMMIT_TRANSITION opcode.

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

SR Number	Bug Number	Description
3-8065938551	18597350	(Patch Set 9) In the previous releases, with partitioning enabled, the PCM_OP_SEARCH opcode was not returning objects from the PARTITION_MIGRATE partition. This has been fixed.
3-8838587351	18599070	(Patch Set 9) In the previous releases, in some cases, the trial billing workflow was finalizing the pending bill. This has been fixed.
3-8516133441	18600210	(Patch Set 9) In the previous releases, the PCM_OP_SEARCH opcode was throwing an error in the DM log, indicating respawning of a backend child. This has been fixed.
3-8795168801	18607787	(Patch Set 9) In the previous releases, the rollover functionality was not working correctly in the month of February for accounts with the billing DOM set to 29, 30, or 31. This has been fixed.
3-8754436561	18607791	(Patch Set 9) In the Customer Center Payment tab, a NULL pointer exception was thrown when custom.jnlp was uncommented in CustomerCenter_en_jnlp . This has been fixed.
3-8729438171	18607793	(Patch Set 9) In Customer Center, the number of decimal digits in the quantity fields was hardcoded to 2. With this patch, you can configure the number of decimal digits in the preferences section.
3-8750007371	18607797	(Patch Set 9) In the previous releases, with 30-day proration enabled, the cycle fees were incorrectly calculated for a product that ended within a cycle. This has been fixed.
3-8860097101	18610275	(Patch Set 9) During TAP3 validation in Roaming Manager, a warning message was being generated on the Recording Entity Code field. This has been fixed.
3-8710825661	18645100	(Patch Set 9) In the previous releases, Pipeline Manager was considering incorrect or invalid sub-balances to consume from, when the usage timestamp was at the boundary of the correct or valid sub-balance. This has been fixed.
3-8698446761	18645102	(Patch Set 9) In the previous releases, the Service Order update was failing for the service closure order when the transaction included service closure and deal cancel orders. This has been fixed.
3-8381104581	18671002	(Patch Set 9) In the previous releases, Conversion Manager was not updating the data for a few columns in the BILL_T table. This has been fixed.
3-8593446251	18677858	(Patch Set 9) In the previous releases, any backdated purchase of a product was charging the account twice for that product. This has been fixed.

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

SR Number	Bug Number	Description
3-8099775021	18677873	(Patch Set 9) In a bill cycle, purchasing and cancelling a cascade cycle arrears discount along with a sequential cycle arrears discount was not working properly. This has been fixed.
3-8603079881	18684106	(Patch Set 9) In the previous releases, there was no failure code to notify duplicate rate descriptions in price plans. With this patch, the new PIN_PRICE_ERR_DUPLICATE_RATE_DESC failure code has been added.
3-8782137751	18695752 18704226	(Patch Set 9) In the previous releases, the balance impacts in the adjustment items generated during event rerating were not rounded and were shown unrounded in the invoice. This has been fixed.
3-8748740281	18699628	(Patch Set 9) In the previous releases, purchasing of an annual product on the 29th, 30th, or 31st day of a month was charging the customer incorrectly. This has been fixed.
3-8952197881	18710796	(Patch Set 9) In the previous releases, a debug log message was being logged in cm.pinlog even when the Connection Manager (CM) log level was set to log error messages only. This has been fixed.
3-8749232001	18718420	(Patch Set 9) In the previous releases, Developer Center was sending an UnknownProgramName error when a user was logging in. This has been fixed.
3-8925838164	18725429	(Patch Set 9) In Customer Center, after the password expiry, the Change Password dialog box was not appearing. This has been fixed.
3-8586941611	18740144	(Patch Set 9) In the previous releases, if the current balance was below the threshold, the same threshold notification was sent to the subscriber repeatedly until a new threshold was crossed. With this patch, the threshold notification is sent only for the first session request across the threshold.
3-8846734881	18747414	(Patch Set 9) In the previous releases, the in-session threshold notification was generated even when the reservation had not breached any configured threshold points. This has been fixed.
3-8970377371	18749612	(Patch Set 9) In a multischema environment, when Payment Tool was opened on one schema and the reversal batch was for another schema, the application was throwing a currency conversion error during validation. This has been fixed.
3-8773202601	18752381	(Patch Set 9) In the previous releases, the pin_rerate utility was not recycling EDRs that were suspended during rerating. This has been fixed.
3-8902318711	18754591	(Patch Set 9) In the previous releases, Customer Center was launching with a warning about missing classes. This has been fixed.

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

SR Number	Bug Number	Description
N/A	18795043	(Patch Set 9) In the previous releases, any positive balance impact due to a discount was considered to be a discount in the Billing Record module and would continue to reflect as a discount in the /journal object, instead of as a charge. This has been fixed.
3-8769392381	18817035	(Patch Set 9) In the previous releases, the tax calculations were incorrect during billing. This has been fixed.
N/A	18826005	(Patch Set 9) In the previous releases, if a cycle arrears discount was purchased before the inactivation or reactivation feature was introduced, after upgrade to BRM 7.5, those discounts did not have all the new fields. Because these fields were required in BRM 7.5, when the discount was applied during billing, the cycle arrears discounts were not applied properly. This has been fixed.
3-9021271001	18826382	(Patch Set 9) In the previous releases, the item number was being updated by the system based on the bill number. With this patch, you can now control updating the item number with the perf_advanced_tuning_settings business parameter, which allows you to set a custom item number that is not updated by the billing process.
3-8762099671	18831341	(Patch Set 9) In the previous releases, when a recycle payment was made from a regular account to a suspense account, the description for the payment was missing. This has been fixed.
3-8935719631	18831343	(Patch Set 9) In the previous releases, when a service owned by a parent account was transferred to its non-paying child account using the PCM_OP_SUBSCRIPTION_SERVICE_BALGRP_TRANSFER opcode, the pay_type of the child account's /billinfo was getting corrupted. This has been fixed.
3-8893050931	18864043	(Patch Set 9) In the previous releases, even when incorrect account_poid and /billinfo were passed to the PCM_OP_CUST_SET_PAYINFO opcode, despite throwing an error the opcode was creating a /payinfo object. This has been fixed.
3-8826242781	18879621	(Patch Set 9) In a multischema setup, the POID database of the product object was always getting set to the default value of 1 , instead of basing the database information from the account object. This has been fixed.
3-8961751531	18886374	(Patch Set 9) In the previous releases, during a failed job creation, the rerating request data such as EVENTS/SERVICES/PRODUCTS/DISCOUNTS/DEALS/OVERRIDE_PRODUCTS/OVERRIDE_DISCOUNTS were not carried onto the new job. This has been fixed.

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

SR Number	Bug Number	Description
3-8331542331	18895133	(Patch Set 9) In the previous releases, the notification sequence generated in Pipeline Manager was incorrect. If an account's balance was configured for 75%, to be breached at 80%, and with a usage event impacting the balance beyond 80%, Pipeline Manager was generating the 80% balance first and then the 75% balance, instead of the other way. This has been fixed.
3-8698446761	18914088 18914083	(Patch Set 9) In the previous releases, during a plan transition, the service orders were not generated properly, resulting in inconsistent results cancelling only a portion of the earlier purchased plan. This has been fixed.
3-8979975258	18922448	(Patch Set 9) In the previous releases, the pin_collect utility was not processing the batch when the per_batch parameter was set to 1. This has been fixed.
3-8674263601	18938586	(Patch Set 9) In the previous releases, Pipeline Manager was not starting when the profile selection criteria included a large number of profiles to be loaded. This has been fixed.
3-8980965901	18938589	(Patch Set 9) In the previous releases, when a non-paying child account was added to an existing hierarchy, the non-paying account's billing cycle did not get synchronized with the billing cycle of the parent account in the hierarchy. This has been fixed.
3-8986813581	18938592	(Patch Set 9) In the previous releases, the sequential discounts were not calculated correctly, resulting in generation of invalid invoices. This has been fixed.
3-8956489561	18957533	(Patch Set 9) In the previous releases, there was no option to control the rounding of valid_from separately from timestamp rounding. This has been fixed.
3-8949337811	18966929	(Patch Set 9) In the previous releases, during subscription transfer there was no validity check on the deal object, which resulted in updating the deal object with the passed value even if the deal object had NULL POID ID. This has been fixed.
3-1829300141	16712903	(Patch Set 8) In the previous releases, billing time taxation was not considering rerated events. This has been fixed.
3-7264844381	16934735	(Patch Set 8) In Collection Center, the password update functionality was not working correctly. This has been fixed.
3-6942999391	17374482	(Patch Set 8) In the previous releases, the flexible cycles feature was not available for cycle arrears events. This has been fixed.
3-7575635931	17426332	(Patch Set 8) In the previous releases, reprocessing suspended payments was not possible. This has been fixed.

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

SR Number	Bug Number	Description
3-7883532671	17547351	(Patch Set 8) When a device is disassociated from a service, the telco features and the service status were set to inactive. This has been fixed.
3-7795922241	17554381	(Patch Set 8) In the previous releases, running pin_collections_process -billinfo was not considering custom pay types. This has been fixed.
3-3203134721	17558049	(Patch Set 8) In the previous releases, when an event is adjusted to a zero amount, BRM was not allowing further adjustments to the same event. This has been fixed.
3-7761178911	17613917	(Patch Set 8) In the previous releases, when an Oracle Business Intelligence Publisher (BI Publisher) job fails, the pin_inv_doc_gen application was not responding. This has been fixed.
3-3224766561	17649746	(Patch Set 8) In the previous releases, when a discount was purchased or canceled, events corresponding to the non-relevant discounts with a net zero balance impact were generated during sequential discounting. This has been fixed.
3-8024405931	17737580	(Patch Set 8) While prorating cycle fees for the first cycle, the proration was incorrectly done due to rounding errors. This has been fixed.
3-7916589241	17758446	(Patch Set 8) In BRM multischema systems, data errors caused by conflicting storable class IDs sometimes occurred during the following operations: <ul style="list-style-type: none"> ■ Participating in global (XA) transactions involving multiple schemas ■ Migrating accounts from one schema to another schema This has been fixed.
3-6544659031	17782269	(Patch Set 8) When Customer Center was used to modify accounts, after modifying 10 accounts (canceling a deal or a product, or modifying an account or a service status), when the 11th account is opened for editing by closing the previously opened accounts, Customer Center was hanging. This has been fixed.
3-7983376211	17782272	(Patch Set 8) In Pricing Center, the chargeshare model search functionality was not refreshing the results for display. This has been fixed.
-	17834402	(Patch Set 8) In the previous releases, non-currency resources were being incorrectly included in the tax calculation. This has been fixed.
3-8068729561	17841880	(Patch Set 8) In the previous releases, updating the /profile/collection_params object with the billinfo_obj object was not supported with the PCM_OP_CUST_UPDATE_CUSTOMER and PCM_OP_CUST_CREATE_CUSTOMER opcodes. This has been fixed.

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

SR Number	Bug Number	Description
3-7737814231	17845539	(Patch Set 8) In the previous releases, reading an event related to a charge packet or a tax packet not having general ledger information by using testnap or applications was not possible. This has been fixed.
3-8064376913	17889096	(Patch Set 8) In the previous releases, the HUR summary report was throwing an error when used with multiple time zones. This has been fixed.
3-7894667251	17896043	(Patch Set 8) In the previous releases, Web Services Manager was not able to call custom opcodes. This has been fixed.
3-8196304884	17900751	(Patch Set 8) In the previous releases, Connection Manager was signaling that the transaction was already open, even when it was not open. This has been fixed.
3-7894706101	17903777	(Patch Set 8) In the previous releases, Customer Center was throwing an error when attempting to transfer a negative bill balance. This has been fixed.
3-6440870677	17935807	(Patch Set 8) In Collection Center, a user with read-only permissions could create and modify collections scenarios. This has been fixed.
3-7960600071	17950186	(Patch Set 8) In certain scenarios, all non-currency resource buckets were not following the ALIGN mode for sub-balances, even though /config/business_params was configured to do so. This has been fixed.
3-8193290131	17950189	(Patch Set 8) When reactivating an account, even though the account was configured for not charging (change_start_time_on_activation set to 0), all the deals purchased during the inactive period were charged. This has been fixed.
3-8035728931	17953892	(Patch Set 8) In the previous releases, Account Migration Manager was incorrectly updating the POID data of the migrated objects. This has been fixed.
3-8236511011	17960952	(Patch Set 8) In the previous releases, a deal could not be purchased with a cycle end date later than the purchase end date, and the error message thrown was also incorrectly referring to the cycle start date rather than the cycle end date. This has been fixed.
3-8227147931	17969941	(Patch Set 8) In the previous releases, the answer-b simulator was not handling files containing more than 15000 records. This has been fixed and the limit has been removed.
3-8146998271	17979806	(Patch Set 8) In the previous releases, Account Migration Manager was not considering au_bal_grp_bals_t and au_bal_grp_sub_bals_t for migration. This has been fixed.

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

SR Number	Bug Number	Description
3-8252791781	17979811	(Patch Set 8) In the previous releases, while processing a large amount of subscription operations during migration, there was a memory leak in the subscription module, resulting in a PIN_ERR_NO_MEM error. This has been fixed.
3-8077624361	17986166	(Patch Set 8) In the previous releases, even though the parent billing was suppressed, the effective_t for child items was set during the billing. This has been fixed.
3-8029971471	17987706	(Patch Set 8) In the previous releases, there were memory leaks during the invoice generation. This has been fixed.
3-8129157061	17988212	(Patch Set 8) In the previous releases, canceling a deal that had any old cycle events having zero balance impact was not possible. This has been fixed.
3-8225910261	17989494	(Patch Set 8) In the previous releases, for child accounts in a hierarchy with an annual cycle plan, cycle_end_t was not set correctly after billing. This has been fixed.
3-8115209561	17989498	(Patch Set 8) In the previous releases, the pin_bill_accts utility was dumping core due to memory corruption. This has been fixed.
3-8187852561	17989500	(Patch Set 8) In the previous releases, the rejection percentage calculation was incorrect in Pipeline Manager, and Pipeline Manager was not honoring the actual MaxErrorRates.INF_EDR_REJECTED setting due to this error. This has been fixed.
3-5392047531	18000150	(Patch Set 8) In the previous releases, there was an issue with rounding in the bill adjustment functionality. This has been fixed.
3-8091699931	18000153	(Patch Set 8) In the previous releases, setting new validities for a balance group was not working. This has been fixed.
3-8262672901	18000156	(Patch Set 8) In the previous releases, running pin_collections_process -billinfo failed when a 64-bit POID was passed in. This has been fixed.
3-7967455551	18003074	(Patch Set 8) In the previous releases, running pin_cycle_fees -cancel failed to cancel expired products. This has been fixed.
3-8066512611	18009156	(Patch Set 8) In the previous releases, Customer Center was not considering non-ASCII characters for status change note. This has been fixed.
3-8234687951	18011724	(Patch Set 8) In the previous releases, when a deferred purchase of a cycle arrears product was performed for the previous accounting cycle, with the cycle start date in the current accounting cycle, the cycle arrears charges were applied during the purchase for the previous accounting cycle. This has been fixed.

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

SR Number	Bug Number	Description
3-8235356971	18018966	(Patch Set 8) In Payment Center, the Undo Allocation dialog box was not displaying any information. This has been fixed to show the relevant information.
3-8298105494	18020803	(Patch Set 8) In the previous releases, there were memory leaks in subscription module affecting the get_offerings functionality. This has been fixed.
3-8302820211	18021949	(Patch Set 8) In the previous releases, updating the customer-specific values for ERAs was not allowed in Customer Center. This has been fixed.
3-8241871651	18028894	(Patch Set 8) While rerating, the rerated events were created with event types different from the actual or original event types. This has been fixed.
3-7680101571	18035886	(Patch Set 8) In the previous releases, deferred taxes for adjusted events were incorrectly taken into account twice: once when calculated, and then again during billing. This has been fixed.
3-8225157841	18039440	(Patch Set 8) In the previous releases, core dump was encountered while fetching item-level products using the PCM_OP_SUBSCRIPTION_READ_ACCT_PRODUCTS opcode. This has been fixed.
3-8147489964	18045426	(Patch Set 8) In the previous releases, there was no transaction timeout set in JCA Resource Adapter, which resulted in JCA Resource Adapter waiting indefinitely. This has been fixed.
3-8039516251	18045562	(Patch Set 8) In the previous releases, account creation through JCA Resource Adapter failed because of an incorrect PIN_FLD_TXN_FLAGS value (2). This has been fixed.
3-8195716611	18048135	(Patch Set 8) In the previous releases, when different parameters for PIN_FLD_STATUS were sent, the PCM_OP_AR_GET_DISPUTES opcode was not working as per the documentation. This has been fixed.
3-7547410071	18058584	(Patch Set 8) In the previous releases, cancellation of one product resulted in an update to the validity of another product. This has been fixed.
3-8326842051	18065158	(Patch Set 8) In the previous releases, when a deferred purchase of a tailor-made plan was done, creation of cycle events was inconsistent for the tailor-made product. This has been fixed.
3-7785161621	18075534	(Patch Set 8) In the previous releases, when an external transaction errored out, the uniqueness entries for the relevant account were getting removed. This has been fixed.
3-8107252761	18077057	(Patch Set 8) In Customer Center, canceled products were displayed multiple times. This has been fixed.

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

SR Number	Bug Number	Description
3-8253376711	18082392	(Patch Set 8) In the previous releases, when a balance group is transferred from one bill unit to another, events prior to the transfer were referring to the latter bill unit for rounding. This has been fixed.
3-8268530121	18089341	(Patch Set 8) In the previous releases, the Oracle DM was crashing intermittently during the billing process. This has been fixed.
3-8218411461	18089343	(Patch Set 8) In the previous releases, the refunded discount amount was different from what was actually charged. This has been fixed.
3-8360703251	18089346	(Patch Set 8) In an upgraded system (for example, from 7.2.1 to 7.5), setting the cycle fee end date using the PCM_OP_SUBSCRIPTION_SET_PRODINFO opcode for a product purchased before the upgrade did not generate the cycle forward event. This has been fixed.
3-8171715051	18097559	(Patch Set 8) In Customer Center, when canceling a deal, the dialog box was not sized properly and the contents of the dialog box were off the viewing area. This has been fixed.
3-8114388951	18105060	(Patch Set 8) In a multischema environment, attempting to perform a service transfer within a schema other than the primary schema resulted in a duplicate login error.
3-8236030981	18105062	(Patch Set 8) In the previous releases, for the PCM_OP_BILL_GET_ITEM_EVENT_CHARGE_DISCOUNT opcode, the amount (MINIMUM, MAXIMUM fields) and the resource ID were not working as documented and as expected. This has been fixed.
3-8255438523	18105066	(Patch Set 8) In Account Migration Manager, migration of the POID data inside BLOB value of the invoice_formats_but_t table was incorrect. This has been fixed.
3-8224919131	18105068	(Patch Set 8) In the previous releases, the PCM_OP_BILL_GET_ITEM_EVENT_CHARGE_DISCOUNT opcode took longer than expected and caused system performance issues. This has been fixed.
3-8234687951	18105071	(Patch Set 8) In the previous releases, the cycle_fees dates were not correctly computed in a short cycle. This has been fixed.
3-7929514301	18123572	(Patch Set 8) In the previous releases, viewing the bill details of a bill with zero item_total and due caused Customer Center to error out without displaying the bill details. This has been fixed.
3-7815391001	18130721	(Patch Set 8) In the previous releases, products with a deferred purchase start date were being considered for an incorrect period during billing. This has been fixed.

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

SR Number	Bug Number	Description
3-8167352561	18130728	(Patch Set 8) In the previous releases, an incorrect value was reported in special drawing rights (SDR) in the Detail section, which resulted in an incorrect value for the PARAM_THRESHOLD_VALUE field of HUR reports. This has been fixed.
3-8156854901	18137014	(Patch Set 8) In the previous releases, an incorrect discount was being applied with the PCM_OP_SUBSCRIPTION_SET_DISCOUNTINFO opcode. This has been fixed.
3-8390593051	18143076	(Patch Set 8) In the previous releases, the pin_flist_to_xml macro was not supporting special character codes. This has been fixed.
3-8148669581	18145951	(Patch Set 8) In the previous releases, the flexible cycles feature was not available for cycle arrears events. This has been fixed.
3-8434449451	18148830	(Patch Set 8) In the previous releases, the behavior of the pin_deferred_act utility with exit code was inconsistent compared to other utilities. This has been fixed.
3-8021529961	18153415	(Patch Set 8) In the previous releases, existing discounts were not getting applied after purchasing a new discount. This has been fixed.
3-8189645221	18160124	(Patch Set 8) In Customer Center, running deferred actions was throwing errors. This has been fixed.
3-8447740781	18181447	(Patch Set 8) In the previous releases, when migrating existing balances and sub-balances using Conversion Manager, bal_grp_bals_t was not populated by the pin_cmt utility. This has been fixed.
3-8511819171	18189283	(Patch Set 8) In the previous releases, Conversion Manager was not recognizing the AAC_ACCESS, AAC_PACKAGE, AAC_PROMO_CODE, AAC_SERIAL_NUM, AAC_SOURCE, and AAC_VENDOR fields. This has been fixed.
3-8255438426	18195447	(Patch Set 8) In the previous releases, the AMM Monitor module was not able to process certain event types. This has been fixed.
3-8164081675	18200941	(Patch Set 8) In the previous releases, sending a file as an input to the pricing_admin.pl script was not possible. This has been fixed.
3-8138316801	18202674	(Patch Set 8) In the previous releases, an account-level bill time discount was applied to only one bill unit, even though the account had multiple bill units. This has been fixed.
3-8518620561	18205040	(Patch Set 8) In the previous releases, the Paymentech DM was logging unnecessary errors in its pinlog file. This has been fixed.

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

SR Number	Bug Number	Description
3-8064029011	18207660	(Patch Set 8) In Customer Center, when an adjustment failed, an incorrect error message was displayed. This has been fixed.
3-8372565791	18229698	(Patch Set 8) In the previous releases, when a tailor-made product was canceled, refunds were incorrectly calculated. This has been fixed.
3-7967455551	18255628	(Patch Set 8) In the previous releases, running pin_cycle_fees -cancel failed to cancel expired products. This has been fixed.
3-8161921671	18255630	(Patch Set 8) In a short cycle, the proration was incorrectly performed without considering the actual number of days. This has been fixed.
3-8243499441	18255632	(Patch Set 8) In Pipeline Manager, the PLAN_LIST block was not getting reset after each time a CDR was processed. This has been fixed.
3-8435611631	18260632	(Patch Set 8) In Customer Center, for soft decline cases, the resource ID and amount were not displayed in the payment details section. This has been fixed.
3-8580826221	18277424	(Patch Set 8) In the previous releases, after each successful login, unnecessary updates occurred in the /service/admin_client object and the /service/pcm_client object. This has been fixed.
3-8411543901	18292808	(Patch Set 8) In the previous releases, the loadpricelist utility was not checking for the existence of price plans and rate plans in the source file; instead, it was throwing a <code>NullPointerException</code> exception while trying to load from an XML file. This has been fixed.
3-2578237711	18293638	(Patch Set 8) In the previous releases, the PCM_OP_AR_BILL_ADJUSTMENT opcode was erroring out because the IN clause of the search template exceeded the limitation of the Oracle DM buffer. This has been fixed.
3-8580263821	18313822	(Patch Set 8) The pin_cycle_fees utility was accessing more than the normal number of records for processing and was taking an unusually long time to compute cycle fees. This has been fixed.
3-8501473801	18344997	(Patch Set 8) In the previous releases, the subscription transfer operation was not working and was throwing errors. This has been fixed.
3-8648711551	18360130	(Patch Set 8) In the previous releases, the CM was looping infinitely when an error was thrown from the PCM_OP_CUST_POL_PREP_BILLINFO policy opcode. This has been fixed.
3-8161921671	18380888	(Patch Set 8) In the previous releases, during a short cycle, the proration was incorrectly performed. This has been fixed.

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

SR Number	Bug Number	Description
3-8475279591	18435484	(Patch Set 8) In the previous releases, the Vertex DM was not reconnecting after losing connection to the CTQ database. This has been fixed.
3-6455148891	15887303	(Patch Set 7) In the previous releases, during the trial billing operation, BRM rolled back only the charges and not the taxes. This has been fixed.
3-6648900291	16221298	(Patch Set 7) When you are launching Web-based Pricing Center, the "Could not load suite definition file. Exiting application" error was thrown. This has been fixed.
3-6866310181	16660459	(Patch Set 7) In the previous releases, after a pay type was modified, any refund requests made against the payment amounts were refunded to the new or modified pay type, instead of refunding to the pay type that was used to make the payment. This has been fixed.
3-6739714431	16696696	(Patch Set 7) In the previous releases, if there was a need to implement the <code>/service/partner_csr</code> custom service type similar to <code>/service/admin_client</code> , the Change Password dialog box defaulted to <code>/service/admin_client</code> . This has been fixed. The Change Password dialog box no longer defaults to <code>/service/admin_client</code> and the custom service is now read from a properties file.
3-7277349381	16921531	(Patch Set 7) In the previous releases, there was a memory leak in the <code>PCM_OP_SUBSCRIPTION_CANCEL_DISCOUNT</code> opcode. This has been fixed.
3-7229470961	16954176	(Patch Set 7) In the previous releases, an account that had several products associated to different deals was showing the same deal name for all the deals in Customer Center. This has been fixed.
3-7264288811	16983887	(Patch Set 7) In the previous releases, even when the tax engines such as Vertex DM were down, instead of throwing an error and aborting the transaction, the tax calculation was succeeding incorrectly, showing 0 taxes. With this patch, an error is thrown when the tax engine is down.
3-7484824561	17183808	(Patch Set 7) When BI Publisher 10g reports were deployed on a port other than 9704, reports failed to run because the location of the sub-templates was hardcoded into the reports. With this patch, the customer intervention is now reduced to only changing the port in a property file, which updates a variable, and all the reports with sub-templates are updated with this variable.
3-7517206641	17289102	(Patch Set 7) In the previous releases, the Vertex DM was not working for Canadian addresses. This has been fixed.
3-7443116061	17334137	(Patch Set 7) In the previous releases, service orders were not being generated for a change in the <code>status_flags</code> parameter. This has been fixed.

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

SR Number	Bug Number	Description
3-7391444541	17338355	(Patch Set 7) In the previous releases, when billing was run by passing a control file, such as PinBillRunControl.xml , the default due date was not considered for billing. This has been fixed.
3-7640890711	17356834	(Patch Set 7) The memory monitoring module in the router pipeline was generating a false alarm on the available memory and was causing the pipeline to shut down. This has been fixed.
3-7548257081	17367213	(Patch Set 7) In the previous releases, the CSR accounts created using Permissioning Center were incorrectly picked up for billing. This has been fixed.
3-7721921861	17386134	(Patch Set 7) In the previous releases, tax was not applied on late fee or finance charges because the tax details sent through the policy opcodes were not honored. This has been fixed.
3-7742042501	17388514 17388516	(Patch Set 7) In the previous releases, balance threshold notification was not including the record ID information. With this patch, the record ID is now included as the <INFO> element within the notification XML file.
3-7702402441	17392322	(Patch Set 7) In the previous releases, the parent bill unit of the collections group was incorrectly entering into collections, even when the bill unit was exempted from collections. This has been fixed.
3-7076809871	17392324 17392333	(Patch Set 7) In the previous releases, the PCM_OP_SUBSCRIPTION_SET_DISCOUNT_STATUS opcode was not supporting inactivation and reactivation of a cycle arrears discount. This has been fixed.
3-7659413561	17415780	(Patch Set 7) When loading rated events using PIN_REL, if there was a failure, PIN_REL was incorrectly moving the file to the archive directory instead of to the reject directory. This has been fixed. In case of a failure, the file is now moved to the reject directory.
3-7743065831	17422613	(Patch Set 7) In the previous releases, rating was failing for accounts migrated through Conversion Manager because the CREATED_T, MOD_T, and EFFECTIVE_T entries in the UNIQUENESS_T, AU_UNIQUENESS_T, and UNIQUE_ACCT_NO_T tables were not populated with the value in CREATED_T of ACCOUNT_T. This has been fixed.
3-7725919111	17442229	(Patch Set 7) In the previous releases, there was no configuration that governs whether to keep or delete the existing balances when new balances were migrated using Conversion Manager. This has been fixed.
3-7782875571	17448898	(Patch Set 7) Conversion Manager was not populating the REC_ID of SERVICE_ALIAS_LIST_T based on the ELEM ID passed in the Subscriber.xml file. This has been fixed.

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

SR Number	Bug Number	Description
3-7615827681	17455607	(Patch Set 7) In the previous releases, an incorrect discount Portal ID (POID) in the input to the PCM_OP_SUBSCRIPTION_PURCHASE_DEAL opcode was causing the CM to crash without returning an appropriate error. This has been fixed.
3-7644617461	17481884	(Patch Set 7) The PCM_OP_BILL_MAKE_INVOICE opcode was not picking up events generated by trial bill. This was due to the incorrect event search criteria used in the opcode. This has been fixed.
3-7725634881	17488108	(Patch Set 7) In the previous releases, rerating was throwing a unique constraint error on ITEM_NO. This has been fixed.
3-7562871791	17495576	(Patch Set 7) When Pricing Design Center was enabled, the transition code was getting incorrectly copied to the transition name. This has been fixed.
3-7740495438	17502487	(Patch Set 7) In the previous releases, during billing, a product was rated with an incorrect scale after the charged_from and charged_to dates were updated. This has been fixed.
3-7792071021	17502491	(Patch Set 7) The purchase fees for the products whose deferred time coincides with the billing time were not being considered in the ongoing cycle, even though the purchase_fees_backcharge entry in the pin.conf file was enabled. This has been fixed.
3-7458554491	17509041	(Patch Set 7) In the previous releases, reversals were not recognized as backdated even after passing END_T in the input of the PCM_OP_BILL_REVERSE opcode. This has been fixed.
3-7504743251	17509050, 17646849	(Patch Set 7) In the previous releases, when processing the usages for a service, there were validation failures for which the payer was updated during the delay period. This has been fixed.
3-7605568281	17509052	(Patch Set 7) Rated Event Loader (RE Loader) was not using bind variables in some SQL queries, which was resulting in unwanted memory use of the shared pool. This has been fixed.
3-7861651681	17511460	(Patch Set 7) In the previous releases, one-time credit card topup was failing because of a mismatch in the data type used to store the port number. This has been fixed.
3-7788938941	17540679	(Patch Set 7) In spite of specifying a custom /config/config/payment object in the CM's pin.conf file, it was not being referred. This has been fixed.
3-7545970761	17564123	(Patch Set 7) The PCM_OP_AR_GET_ACTION_ITEMS opcode was returning PIN_ERR_MISSING_ARG when called with the default input data for the opcode. This has been fixed.

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

SR Number	Bug Number	Description
3-7761024621	17564132	(Patch Set 7) The PCM_OP_COLLECTIONS_PROCESS_BILLINFO opcode was erroring out when the disable_pcm_mempool entry was set in the CM's pin.conf file. This has been fixed.
3-7773678861	17564134	(Patch Set 7) While using the PCM_OP_ACT_SCHEDULE_CREATE opcode for deferred purchases, a value of 0 for the IP address was causing an error. This has been fixed.
3-7758018551	17581601	(Patch Set 7) In the previous releases, attempting to purchase a product under the root service of account (/service) was throwing errors. This has been fixed.
3-6972678311	17588615	(Patch Set 7) With advance_bill_cycle set to 1 in the CM's pin.conf file, the cycle day of month (DOM) was incorrectly set to 2 for accounts created on the 29th, 30th, or 31st of a month. This has been fixed.
3-7725919111	17595091 17713807	(Patch Set 7) When migrating balances through Conversion Manager, the existing items were overwritten. This has been fixed.
3-7892680211	17613909	(Patch Set 7) The PCM_OP_SUBSCRIPTION_GET_ACTG_DATES opcode was throwing a warning about the unsupported flag (0x2000) and subsequently throwing a PIN_STREAM_EOF error. This has been fixed.
3-7704113271	17613922	(Patch Set 7) In the previous releases, billing performance was degraded and required improvement for cases where a large number of rate plans existed for different combinations of event types, causing flist manipulation in the subscription module to take more time. This has been fixed.
3-7850053441	17634054	(Patch Set 7) When a backdated purchase of an annual product was made to an account, the dates in the cycle_fees array were incorrectly set, leading to an incorrect rating. This has been fixed.
3-7533451661	17640560	(Patch Set 7) The pin_cycle_fees utility was failing to create the /process_audit/billing object. This has been fixed.
3-7939096121	17641286	(Patch Set 7) The PCM_OP_COLLECTIONS_GROUP_GET_BILLINFO opcode was failing when the collections group included the owner but not the members. This has been fixed.
3-4556934401	17646959	(Patch Set 7) Web Services Manager was waiting until the response was received from BRM, without timing out and it seemed like it was hanging. This has been fixed. Web Services Manager now considers the timeout parameter from the properties file.
3-7449246051	17647842	(Patch Set 7) In the previous releases, the ORA-00445 message was frequently detected because a background process could not be started after a specific interval. This has been fixed.

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

SR Number	Bug Number	Description
3-7785285591	17661531	(Patch Set 7) When a discount was canceled, the balances were not impacted even if the keep_cancelled_products_or_discounts parameter was disabled. This has been fixed.
3-7809032181	17661535	(Patch Set 7) For an account with a service having discounts and products, when the service was closed, discounts were applied twice. This has been fixed.
3-7999475501	17662775	(Patch Set 7) In the previous releases, the pin_inv_send utility was not honoring the pay_type parameter in its command line. This has been fixed.
3-7993447171	17732221	(Patch Set 7) The PCM_OP_TCF_AAA_UPDATE_AND_REAUTHORIZE opcode was throwing a null pointer error in prep input helper opcode for some cases. This has been fixed.
3-7826832831	17732223	(Patch Set 7) During reauthorization flow, even when the threshold points were breached, the in-session notifications for threshold breach were not generated. This has been fixed.
3-7952251921	17766402	(Patch Set 7) In the previous releases, there were some memory leaks in the fm_subs_utils_handle_system_events function during service creation flow. This has been fixed.
Not applicable	17768658	(Patch Set 7) In the previous releases, with an account in collections, when you tried to schedule payments through Collections Center, it was throwing the "Unable to Invoke Promise to Pay" error. This has been fixed.
3-7965032891	17770280	(Patch Set 7) An incorrect product POID in the input to the PCM_OP_RATE_GET_PRODUCT opcode was causing the CM to crash without returning an appropriate error. This has been fixed.
3-8055649891	17770283	(Patch Set 7) Conversion Manager was creating empty data files for the custom tables where classes other than service_telco_t were extended using mySubstruct. This has been fixed.
3-7859806331	17789366	(Patch Set 7) The performance of PCM_OP_READ_FLDS with two levels of sub-arrays has now been improved.
3-7051155361	17789372	(Patch Set 7) With cm_vas running, the CPU utilization was observed to be very high, affecting performance. This has been fixed.
3-7680101571	17807491	(Patch Set 7) During rerating, deferred taxation was not computed for the resulting delta amount. With this patch, deferred taxation is now enabled with the ApplyDeferredTaxDuringRerating business parameter.

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

SR Number	Bug Number	Description
3-7964127861	17807493	(Patch Set 7) The deferred taxation was not replayed during the rerating workflow and was only taken care of during the next billing operation. With this patch, deferred taxation is calculated and applied during the rerating workflow.
3-7884394191	17819271	(Patch Set 7) The GetResourceBalance interface was not considering first usage sub-balances at the time of returning the result to the caller. This has been fixed.
3-8034642061	17841885	(Patch Set 7) When a subscription service was already deactivated or closed, it was not possible to process the service orders for the member services. This has been fixed.
3-7899039371	17845537	(Patch Set 7) Refund was failing for accounts with multiple bill units and the open item accounting type. This has been fixed.
3-7369981281 3-8101561327	17891994	(Patch Set 7) The connection to the Communications Tax Q (CTQ) schema was being dropped randomly and the tax calculation was failing. In the case of a lost database connection, there were no retries to reconnect and recalculate taxes. This has been fixed.
3-7985294091	17896045	(Patch Set 7) Running pin_rerate -a -n was throwing an error. This has been fixed.
3-7511410011	17932580	(Patch Set 7) While inserting lower or upper functions in the WHERE clause of an SQL statement, the results were not according to those functions. This has been fixed.
3-8148129781	17935805	(Patch Set 7) When a deal was purchased backdated to a date prior to the last bill run date with the end date set in the future, rating was incorrectly performed, creating an extra credit event. This has been fixed.
3-8204924731	17966447	(Patch Set 7) During the pipeline upgrade, it was incorrectly prompting for Portal base database value. This has been fixed.
3-6807250701	16355012	(Patch Set 6) In the previous releases, for a duplicate authorization or re-authorization request, the response did not carry adequate information including appropriate quantity and correct expiration_t . This has been fixed.
3-6829418291	16438180	(Patch Set 6) In the previous releases, Conversion Manager was not supporting the import of data for the PENDING_RECV column of the BILLINFO_T table. This has been fixed.
3-6878209768	16470594	(Patch Set 6) In the previous releases, the PCM_OP_COLLECTIONS_PROCESS_BILLINFO opcode was not considering the overdue amount and the overdue date sent from the PCM_OP_COLLECTIONS_POL_PROCESS_BILLINFO policy opcode during scenario selection. This has been fixed.

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

SR Number	Bug Number	Description
3-635622213	16561347	(Patch Set 6) In the previous releases, Conversion Manager was returning success even though it failed to run sqldr for the .dat files. This has been fixed. Conversion Manager now throws the appropriate error message.
3-6946457174	16594168	(Patch Set 6) In the previous releases, Conversion Manager was able to import data for the PENDING_RECV column of the BILLINFO_T table from the input XML file only for integer values. This has been fixed. Conversion Manager can now import data for decimal values.
3-6708809741	16696700	(Patch Set 6) In the Customer Center Payments tab, there was an option to specify undefined as the payment method. With this patch, customization hooks are provided to customize the payment types, so you can remove unwanted payment types.
3-6947731501	16731016	(Patch Set 6) In the previous releases, Java PCM was not recognizing octal encoded data in the flist. This has been fixed.
3-6854269511	16748630 16836145	(Patch Set 6) When no specific value for END_T was passed to the PCM_OP_CUST_SET_TAXINFO opcode, it was by default considering the current time as END_T for the EXEMPTIONS array. When the opcode was run, the exemption was being dropped during billing because the exemption was showing as ended. This has been fixed.
3-6430427641	16780255	(Patch Set 6) When performing a 100% bill level adjustment in Customer Center, an incorrect G/L ID was being picked up. This has been fixed.
3-7183314521	16816316	(Patch Set 6) When the product end date was the same as the charged-to end date, there was an unnecessary refund given to the customer for the last cycle. This has been fixed.
3-7093022241	16827083	(Patch Set 6) In the previous releases, the sequencer in Roaming Manager was not releasing or reusing database connections. As a result, Roaming Manager was running out of database connections in cases where large numbers of sequencers were configured. This has been fixed.
3-7214108601	16841109	(Patch Set 6) The pin_recover utility in the rfr mode was failing due to the absence of an amount in the input, though the rfr mode did not require the amount as input. This has been fixed.
3-6961723971	16841113	(Patch Set 6) The PCM_OP_TCF_AAA_REFUND opcode was not working on a discounted non-currency resource balance impact. This has been fixed.
3-7086566771	16862104	(Patch Set 6) In the previous releases, during a RAC failover, the messages logged in the dm.pinlog file contained invalid characters. This has been fixed.

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

SR Number	Bug Number	Description
3-7072669711	16865207	(Patch Set 6) In the previous releases, when an underpayment is processed with the PCM_OP_PYMT_COLLECT opcode, the opcode was not working properly when the payment amount was passed in the BILLINFO array. The underpayment was recorded as full payment. This has been fixed.
3-6894023281	16865211	(Patch Set 6) In the previous releases, the discount cancellation was not checking the exact discount amount. It was refunding an amount that was originally requested as the discount amount instead of the applied discount amount. This has been fixed.
3-6648249946	16872618	(Patch Set 6) In the previous releases, the service order was being generated with an IGNORE action while changing the password. This has been fixed. The action is now CHANGE instead of IGNORE.
3-7002247331	16885166	(Patch Set 6) In the previous releases, when a discount is purchased in the middle of a billing cycle, the existing discount was not getting applied. This was due to the incorrect value of flags set in the purchased_discount block by the discount_analysis plug-in. This has been fixed.
3-6961723971	16895605	(Patch Set 6) The PCM_OP_TCF_AAA_REFUND opcode was not working correctly for resources that were impacted with discounts. This has been fixed.
3-7283335571	16898744	(Patch Set 6) When a delayed billing is configured, while billing the parent account in a hierarchy, an object-locking error was thrown by the BRM server. This has been fixed.
3-7220058897	16906745	(Patch Set 6) In the previous releases, the PCM_OP_GROUP_DELETE_MEMBER opcode was not deleting all the specified members. The opcode was being called multiple times to delete all the members in the group. This has been fixed.
3-6930943241	16913433	(Patch Set 6) The execute permissions were not granted for procedures to run in a multischema environment. This has been fixed.
3-7272791181	16933466	(Patch Set 6) When the purchase proration for cycle forward fees was set to do not apply charge for the entire cycle , the subsequent billing triggered through pin_cycle_fees was not charging cycle fees. This has been fixed.
3-7250955071	16934725	(Patch Set 6) If the resource names defined in the pin_beid file contained numeric values, they were not parsed properly by the load_pin_beid utility. This affected the validity for the resources. This has been fixed.
3-7076809871	16934728 16966893	(Patch Set 6) In the previous releases, if the discount is inactivated using the PCM_OP_SUBSCRIPTION_SET_DISCOUNT_STATUS opcode, the discounts were not being applied. This has been fixed.

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

SR Number	Bug Number	Description
3-7184257601	16934758	(Patch Set 6) When accounts were migrated using Conversion Manager, the actual number of balance groups created was not correct. This has been fixed.
3-7015326341	16934767	(Patch Set 6) Conversion Manager was not migrating the /billinfo objects that do not reference the /payinfo objects. This has been fixed.
3-7342201341	16946351 17181678	(Patch Set 6) In the previous releases, the customer registration opcodes were throwing an error if password information was not passed in for a service. The passwords may not be present in all cases. This has been fixed.
3-7239765781	16961321	(Patch Set 6) In the previous releases, a payment of zero currency units was only creating a payment event, but this event was not being linked to an item. Because of this it was not possible to track the payment using the item number, and this payment was not shown in Customer Center. This has been fixed.
3-7290599911	16961325	(Patch Set 6) When invoking the real time pipeline charging functionality, the custom fields populated in the pre-rating policy were getting dropped even before the pipeline functionality is called for rating. This has been fixed
3-7319414481	16966896	(Patch Set 6) In the previous releases, the pin_state_change utility was picking accounts whose service expiration time was on the same day (that is, the end of the day), even when the expiration time was not actually reached. This has been fixed.
3-7478053428	16977278	(Patch Set 6) In the previous releases, discounts with cycle validity flags set to No discount were being considered for discount calculation during the current period. This has been fixed.
3-7320020581	16990087	(Patch Set 6) In the previous releases, semaphore was not updating the parameter value in the iScript plug-in's in-memory. This has been fixed.
3-6914734984	16990333	(Patch Set 6) When a dbUpdate was being done for a service, an intermittent crash was observed during the check for initialization of the service. This has been fixed.
3-6677554101	16996683	(Patch Set 6) The cycle fold balance impact was incorrectly calculated when plan transition and account suspension were carried out on the same day. This has been fixed.
3-7389622561	16997854	(Patch Set 6) In the previous releases, a simple inactivation followed by reactivation of products on the same day was not resulting in net zero currency units of charge or credit to the customer. This has been fixed.

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

SR Number	Bug Number	Description
3-7231970841	17000499	(Patch Set 6) In Collections Manager, it was not possible to update the payment details of the promise-to-pay action if that action was in waiting for dependent status. This has been fixed.
3-7313814311	17000502	(Patch Set 6) In Collections Manager, with collection dependency enabled, it was not possible to add an action when a canceled or completed action exists. This has been fixed.
3-7257949001	17000504	(Patch Set 6) In the previous releases, it was not possible to control milestone action status in the PCM_OP_COLLECTIONS_POL_HANDLE_BREACH_PROMISE_TO_PAY policy opcode. Also, the total payment calculation was not correct during the running of the promise-to-pay action for collections group cases. This has been fixed.
3-7282839891	17010199	(Patch Set 6) In the previous releases, the cycle forward impacts associated with the account-level products and discounts were being applied only for the first cycle; there was no impact from the second cycle onwards. This has been fixed.
3-7418540881	17010871	(Patch Set 6) In the previous releases, Conversion Manager was not allowing migration of accounts with service of /service type. This has been fixed.
3-7327211551	17016872	(Patch Set 6) In the previous releases, running pin_cycle_fees with a purchase option and products having future end dates was returning an error. This has been fixed.
3-7048441791	17023458	(Patch Set 6) In the previous releases, Suspense Manager was not able to recycle suspended CDRs in a multischema environment. This has been fixed.
3-7283727351	17029887	(Patch Set 6) In the previous releases, Bill Now was failing for a bill unit when a service under the bill unit is in an hierarchy. This has been fixed.
3-7316047581	17033120	(Patch Set 6) In the previous releases, the account adjustment opcodes called with the PCM_OPFLG_CALC_ONLY flag were failing to return balances. This has been fixed.
3-7381130861	17043206	(Patch Set 6) A change in the pay type for the parent account was resulting in a change in the billing cycle and accounting cycles left for the subordinate account. This has been fixed.
3-7261992151	17043210	(Patch Set 6) In the previous releases, when Bill Now is run during a delayed billing period, the cycle charges were not calculated correctly. This has been fixed.
3-7375919621	17055806	(Patch Set 6) When using PCM_OP_SUBSCRIPTION_SET_PRODINFO to set cycle_end_t in the future, cycle charges were not applied correctly. This has been fixed.

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

SR Number	Bug Number	Description
3-7426660313	17060629	(Patch Set 6) In the previous releases, Conversion Manager was not properly migrating multiple instances of the purchased bundle. This has been fixed.
3-7407640961	17060634	(Patch Set 6) In the previous releases, Conversion Manager was not properly populating mod_t and effective_t of the /billinfo object. This has been fixed.
3-7469832438	17067041	(Patch Set 6) In the previous releases, Conversion Manager was throwing a NULL pointer exception while creating a balance group for a parent service that has subscription services. This has been fixed.
3-7483386371	17072719	(Patch Set 6) In the previous releases, pin_ctl clear was not working. This has been fixed.
3-7321977301	17079747	(Patch Set 6) In Collections Manager, with the collections_action_dependency parameter enabled, action status was not correctly handled while rescheduling an action. This has been fixed.
3-7340647231	17079750	(Patch Set 6) In Collections Manager, after canceling the waiting for a dependent action, the next action was made pending. This has been fixed.
3-7475044051	17086282	(Patch Set 6) In the previous releases, converting the epoch time to a human-readable date was done incorrectly and was causing errors in the collection dates. This has been fixed.
3-7316813971	17156585	(Patch Set 6) In the case of multi-ratable user metric (RUM) configuration, the rating was encountering an "array out of bounds" error resulting in memory corruption and core dump. This has been fixed.
3-7237739311	17156588 17372813 17372844	(Patch Set 6) In the previous releases, the load_config utility was not supporting load configurations for collection scenarios and collection actions. The load_config utility could not be used for deploying custom configuration objects. This has been fixed.
3-7412207741	17159906	(Patch Set 6) In the previous releases, in a single transaction that had more than one financial transaction with different backdated dates, billing was not getting triggered for all the backdated dates. This has been fixed.
3-6955426771	17159910	(Patch Set 6) In the previous releases, the PCM_OP_BILL_DEBIT opcode was not able to do an adjustment to non-currency a non-currency resource beyond the configured credit_floor value, because the credit floor check was done irrespective of the extra_rate_flags set to no check . This has been fixed.
3-7442223611	17159913	(Patch Set 6) When attempting to run load_localized_strings payment_channel.es , parsing of the input file was failing for Spanish locales. This has been fixed.

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

SR Number	Bug Number	Description
3-7452643191	17170371	(Patch Set 6) The transaction was not rolled back when the PCM_OP_COLLECTIONS_EXEMPT_BILLINFO opcode exited the transaction while attempting to remove exemptions from collections for an account that was not exempted and was already in collections with active scenarios. This has been fixed.
3-6898960621	17175838	(Patch Set 6) The write-off operation was failing when the event had more than one tax balance impact with the same PIN_FLD_QUANTITY and TAX_CODE entries. This has been fixed.
3-7439243501	17183805	(Patch Set 6) The PCM_OP_CUST_CREATE_CUSTOMER opcode was throwing an error when a transaction was closed because the service password was not available. This has been fixed.
3-7434135691	17183813	(Patch Set 6) In Conversion Manager, it was not possible to link multiple bill units of the same account. This has been fixed.
3-5745234151	17190562	(Patch Set 6) When multiple DM contexts were used with transaction handling opcodes, the generated events were not published. This has been fixed.
3-7404688921	17212487	(Patch Set 6) The account write-off was failing when a product was canceled and purchased on the same day, followed by an account adjustment. This has been fixed.
3-7218665021	17219147	(Patch Set 6) When multiple threads were trying to lock the same balance group object, there was a deadlock in pin_crypt_upgrade (which is a multithreaded application.) This has been fixed.
3-7465451901	17219149	(Patch Set 6) The performance of Account Migration Manager while purging is now improved.
3-6295751911	17241784	(Patch Set 6) In the previous releases, the first usage validity was not being set during the authorization and the subsequent reauthorizations were not getting the resources reserved from the correct sub-balances for a resource in the balance group, in case the first usage validity sub-balances exist. This has been fixed.
3-7579664611	17255486	(Patch Set 6) In Collections Manager, while performing rescheduling with slip days specified, the action's statuses were not correctly set. This has been fixed.
3-7543019681	17262278 17266954	(Patch Set 6) When billing a hierarchy of accounts, subordinates were locked for updating the bill objects, affecting the billing performance when the number of subordinates was very large. This was a performance concern because subordinates were getting locked for an extended period of time. This has been fixed.

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

SR Number	Bug Number	Description
3-7461386911	17282792	(Patch Set 6) When a non-currency bundle was purchased with a backdated start date, the bundle was not aligned to the monthly accounting cycle. This has been fixed.
3-7529765281	17293232	(Patch Set 6) The load_price_list utility write operation was failing because PIN_FLD_CODE was not handled properly in case of an event rating map in products. This has been fixed.
3-7606314529	17311877	(Patch Set 6) Conversion Manager was not populating data into VANITY, PERMITTED, ORIG_NETWORK_ID, and RECENT_NETWORK_ID columns in the DEVICE_NUM_T table. This has been fixed.
3-7504743251	17316333	(Patch Set 6) In the previous releases, it was not possible to pay charges for a service belonging to an account by another account in a different hierarchy. This has been fixed.
3-6955426771	17316336	(Patch Set 6) The PCM_OP_BILL_DEBIT opcode was allowing credit_limit to be exceeded. This has been fixed.
3-7529868431	17324537	(Patch Set 6) For scenarios where a plan transition and account suspension were run on the same day, the cycle fold balance impact was incorrectly calculated. This has been fixed.
3-7635299721	17352544	(Patch Set 6) The EVAL function was not identifying the discount model and hence it was not possible to gather any information about the discount being processed. This has been fixed.
3-7583896271	17353851	(Patch Set 6) When there were two or more purchased products of the same rateplan with different priorities, even though rating was done correctly using the highest priority product, the lower priority product of the same rateplan was incorrectly termed to be used for rating in the EDR container. This has been fixed.
3-6978588193	17360596	(Patch Set 6) Due to daylight saving time (DST) changes, the difference between cycle start and cycle end may not result in whole days, resulting in an incorrect scale recalculation. This has been fixed.
3-7761024621	17411295	(Patch Set 6) When the PCM_OP_COLLECTIONS_PROCESS_BILLINFO opcode was called with disable_pcm_mempool set to 1 in the CM's pin.conf file, the opcode was returning PIN_ERR_TRANS_ALREADY_OPEN. This has been fixed.
3-7745151311	17416239	(Patch Set 6) Setting cycle_end_t to 0 using the PCM_OP_SUBSCRIPTION_SET_PRODINFO opcode did not trigger cycling. This has been fixed.

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

SR Number	Bug Number	Description
3-7740495438	17418405	(Patch Set 6) The CYCLE_FEE_START and CYCLE_FEE_END values updated within the PCM_OP_SUBSCRIPTION_POL_SPEC_CYCLE_FEE_INTERVAL policy opcode were not being honored by rating. This has been fixed.
3-7742915251	17426336	(Patch Set 6) When the PCM_OP_SUBSCRIPTION_PURCHASE_DEAL opcode is called in calc-only mode specifying PIN_FLD_CYCLE_END_T in the input, the response omitted the PIN_FLD_TOTAL block. This has been fixed.
3-7792071021	17444822	(Patch Set 6) The purchase fees for products whose deferred time coincides with the billing time were not considered in the current cycle, even though the pin.conf file's purchase_fees_backcharge parameter was enabled. This has been fixed.
3-7264288811	17484683	(Patch Set 6) When a tax engine such as the Vertex DM was down, the tax calculation succeeded with zero tax instead of throwing an error and aborting the transaction. This has been fixed.
3-7644617461	17544947	(Patch Set 6) The PCM_OP_BILL_MAKE_INVOICE opcode was not picking up events generated by trial billing. This has been fixed.
3-3681399471	13513732	(Patch Set 5) In a few database errors, the Oracle DM was throwing the PIN_ERR_NO_MEM error. This has been fixed. Oracle DM now throws the PIN_ERR_STORAGE error instead of the PIN_ERR_NO_MEM error.
3-4991121561	13897894	(Patch Set 5) The ISC_GetResourceBalance.isc iScript was not available in the <i>Pipeline_Home/iScriptLib/iScriptLib_Standard</i> directory. This has been fixed. Also, the updated signature of the getResourceBal() function is used in the ISC_GetResourceBalance.isc iScript.
3-5464675459	13962948	(Patch Set 5) When billing and invoicing were run in the same transaction, invoicing does not pick up the events created by billing. This has been fixed.
3-3848978661	14362830	(Patch Set 5) In the previous releases, the same refund amount was being shown twice: once in the billed-earned report and again in the previous-billed-earned report. This has been fixed.
3-7360443161	14550448	(Patch Set 5) The credit control notifications were not working for grants. This has been fixed.
3-6107699411	14575290	(Patch Set 5) The current_bal information was missing the notification; for a grant, the threshold notification was not generated. These issues have been fixed.

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

SR Number	Bug Number	Description
3-6107699411	14575293	(Patch Set 5) The current_bal information is now positioned appropriately so that the load_notification_event utility does not fail.
3-6161449871	14601829	(Patch Set 5) In the previous releases, for non-currency resources, the pipeline was not updating the credit profile changes from BRM into pipeline. This has been fixed.
3-5586566201	14678167 14678171	(Patch Set 5) In the previous releases, the fixed threshold data was not supporting a value of more than 2 GB for Pipeline Manager. A new optional field, PIN_FLD_AMOUNT , has been introduced to accept a value larger than 2 GB to indicate a fixed threshold in the input for the PCM_OP_BILL_SET_LIMIT_AND_CR opcode.
3-6056883991	14755553	(Patch Set 5) In the previous releases, when the CUG profile was shared, there was an issue where the member usage records were not properly tagged. This has been fixed. The CUG profile sharing now works properly.
3-6166015201	15827570	(Patch Set 5) In the previous releases, BRM was not always honoring the order in which item tags were specified in the config_item_tags.xml configuration file. This has been fixed. Note: This fix may result in an undesired item tag being used if the incorrect order was producing the correct results. In this case, check the order and realign.
3-5578174271	15878487	(Patch Set 5) In the previous releases, Suspense Manager was not displaying the recycle time in the local timezone. This has been fixed. A new entry, display.local.timezone , is introduced in the custom.properties file. When set to true , it will display all times in the local timezone; when set to false , the earlier behavior continues.
3-6256008521	15897284	(Patch Set 5) In the previous releases, CMT was not managing rollovers correctly. This has been fixed. A new element, RollData , is added in the SubBalances array in the CMT_Balances.xsd file. If RollData is populated in the XML, CMT will use the rollover specified in the XML, otherwise CMT will compute its own rolldata value based on UOR and Frequency.
3-5879088531	15903415	(Patch Set 5) In the previous releases, there was an issue of rounding of WHEN_T when a deferred action was scheduled. The schedule time was always rounded to midnight by default. This has been fixed. A new business parameter, UseExactTimeForDeferredAction , is added to prevent the rounding so that the deferred action is considered for running at the specified time.
3-5967291991	15922535	(Patch Set 5) A new billing business parameter, SkipCheckForSubordinatesBilled , has been added that allows you to enable/disable checking that all the children are billed before billing the parent. The default is false , enabling the check.
3-5966987241	16016847	(Patch Set 5) In the previous releases, there was an issue with rounding of tax on the cycle fees when canceled after full-tax-only adjustment. This has been fixed.

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

SR Number	Bug Number	Description
3-6100423051	16029368	(Patch Set 5) With this patch, you can see an improved performance while adding a new member into the discount sharing group having a large number of members using the SHARING_GROUP_MODIFY opcode.
3-5398269781	16102996	(Patch Set 5) With this patch, you can see an improved performance of Rated Event (RE) Loader loading events rated by the batch rating pipeline.
3-6553157811	16191203	(Patch Set 5) In the case of a discount sharing group, when a product is canceled, the shared discount was not refunded. This has been fixed.
3-5363354871	16191192	(Patch Set 5) With this patch, the 30 days proration calculation is correctly applied when the number of days in a month is 28, 29, or 31 days.
3-6557250571	16194478	(Patch Set 5) In the previous releases, while creating an object with subelements in it and an auditable flag is set for the object, the "au_au_* table not found" error may appear. This has been fixed.
3-6706144278	16216595	(Patch Set 5) The upgrade framework now works with encrypted passwords in the pin-setup.values file.
3-5848566207	16216632	(Patch Set 5) With this patch, if custom information is passed into the PCM_OP_RATE_EVENT opcode through the PIN_FLD_CUSTOM_INFO structure, the opcode will retain this structure in the output.
3-5969777971	16226684	(Patch Set 5) When sequential discounting is enabled in combination with in-advance billing, the discount that was purchased in mid cycle was getting incorrectly applied. This has been fixed.
3-3744892821	16233670	(Patch Set 5) In the previous releases, the best pricing deal was not considered for taxation. This has been fixed.
3-6536108181	16273957	(Patch Set 5) In the previous releases, the EDR buffer was not correctly populated for duplicate EDRs by FCT_Suspense. This has been fixed.
3-6558232211	16290243	(Patch Set 5) The pin_inv_accts utility is now thread safe with mutexes to avoid crashes.
3-6597485341	16296942 16481299	(Patch Set 5) You can now perform validations in the PCM_OP_SIM_POL_ORDER_CREATE policy opcode before the order creation opcode is called.
3-6688704381	16308412	(Patch Set 5) If a discount POID is set as NULL to the PCM_OP_SUBSCRIPTION_PURCHASE_DISCOUNT opcode, it was returning an error, without closing the transaction. With this patch, in such cases, the transaction exits.
3-6758615281	16314143	(Patch Set 5) You can now commit a product with multiple events in rate_plan_selector to the database.
3-5937980521	16323158	(Patch Set 5) In the previous releases, there were memory overflow issues in the rerating flow. This has been fixed.
3-6333796831	16323161	(Patch Set 5) In Pricing Center, you can now include a hyphen (-) character in the plan list name.

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

SR Number	Bug Number	Description
3-5316366321	16329173	(Patch Set 5) When canceling a product having in-advance billing configured for the cycle fees without proration, the charge was not correctly returned. This has been fixed.
3-6762112098	16343194	(Patch Set 5) With this patch, the password in the Oracle DM logs is masked.
3-6398560431	16346424	(Patch Set 5) In the previous releases, the item assignment was not correct after subscription transfer. This has been fixed.
3-6770524071	16346427	(Patch Set 5) In a multischema setup, after terminating a transaction if you tried to open a new transaction on the same object type, it was throwing a TRANS_ALREADY_OPEN error. This has been fixed.
3-6736622891	16361907	(Patch Set 5) The PCM_OP_SUBSCRIPTION_SET_PRODUCT_STATUS opcode was dumping core. This has been fixed.
3-6744523841	16361909	(Patch Set 5) In the previous releases, the cycle fees were not applied correctly (both cycle forward and cycle arrears events), when a service is suspended and reconnected on the same day as the service creation date. This has been fixed.
3-6453274901	16361913	(Patch Set 5) With this patch, the audit search for au_rate_plan and au_rate has been modified to improve cancellation and backdating performance.
3-6385736491	16374600	(Patch Set 5) In the previous releases, the batch controller was logging errors after successfully processing a rerate request file. This has been fixed.
3-6825841441	16382143	(Patch Set 5) In the previous releases, adjustment was not happening on the custom delayed events in a pipeline. This has been fixed.
3-6808115451	16426585 16426588	(Patch Set 5) In the previous releases, Collections Center was dropping characters while writing them to the database. This has been fixed.
3-6804436351	16426597	(Patch Set 5) In the previous releases, the suspended payments were under the customer account instead of the suspense account. This has been fixed.
3-6731225751	16431351	(Patch Set 5) In the previous releases, the dummy deal purchase was generating errors when the validate_deal_dependencies parameter is enabled. This has been fixed.
3-6432547211	16446334	(Patch Set 5) With this patch, the pin_crypt_upgrade utility is enhanced to encrypt the unencrypted data when migrating from MD5 to AES encryption.
3-6612054981	16464991	(Patch Set 5) In the previous releases, in rollback_susp_pre_updater_sp , while updating the suspended_usage_t record, the mod_t was not updated. This has been fixed.

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

SR Number	Bug Number	Description
3-5236524741	16469872	(Patch Set 5) In discount sharing group scenarios, where sequential discounting is enabled, updating the discount with an end date was not resulting in a refund for member services. This has been fixed.
3-6715397251	16477213	(Patch Set 5) In the previous releases, the DM stopped when the transaction timed out. This has been fixed.
3-6835556761	16477215	(Patch Set 5) In the previous releases, when migration occurred from a nonpartitioned class to a partitioned class, the pruning condition was not considering PARTITION_MIGRATE. This has been fixed.
3-6204691689	16488502	(Patch Set 5) In Pipeline Manager, while validating the number of fields in the input file, if the number of fields is one less than that defined in the stream description, an incorrect error message was thrown. This has been fixed. A check on the number of fields in the input file has been added, and now the appropriate error message is displayed.
3-6825956161	16502363	(Patch Set 5) In the previous releases, the notification XML from Pipeline Manager was showing an incorrect END_T. This has been fixed.
3-6612054981	16514056	(Patch Set 5) In the previous releases, after billing, mod_t was not getting updated in the bill_t and BILLINFO_T tables. This has been fixed.
3-6688784471	16521353	(Patch Set 5) In the previous releases, the PCM_OP_SEARCH opcode was not returning all the second-level arrays and it was only returning the first second-level array mentioned in PIN_FLD_RESULTS . This has been fixed. The PCM_OP_SEARCH opcode now returns all second-level arrays mentioned in PIN_FLD_RESULTS .
3-6843191961	16528734	(Patch Set 5) In the previous releases, payment was failing with the PCM_OP_PYMT_COLLECT opcode, if the PIN_FLD_BILLINFO array is specified in the input flist without PIN_FLD_AMOUNT under it. This has been fixed.
3-6926130931	16539702	(Patch Set 5) In the previous releases, multiple devices swapping in one request were generating an incorrect service order. This has been fixed.
3-6837530731	16539705	(Patch Set 5) In the previous releases, any item type products purchased without a deal was throwing an error during rerating. This has been fixed.
3-2488529721	16551628	(Patch Set 5) In the previous releases, the cmt_mta_cycle_fees utility was creating balances with valid_to set to the migration date. This has been fixed.
3-6738918671	16565849	(Patch Set 5) In the previous releases, during inactivation or cancellation on the same day as the billing date, fold was considering invalid buckets and was generating incorrect balances. This has been fixed.

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

SR Number	Bug Number	Description
3-6559585011	16572104	(Patch Set 5) During the delayed billing period, if a monthly cycle arrears deal backdated to the previous month is purchased and then the end date of the same deal is updated to the end of the current month, the monthly charges were not calculated correctly. This has been fixed.
3-6802673491	16577401	(Patch Set 5) In the previous releases, when a backdated cycle product is purchased, the cycle charges were not calculated correctly. This has been fixed.
3-6746248491	16577406	(Patch Set 5) In the previous releases, the DM was not allowing creation of the /reservation_list objects with POID_ID greater than 2147483647 (2^32-1). This has been fixed.
3-6878694537	16579282 16579284	(Patch Set 5) In the previous releases, fm_cust_pol was missing the names of some countries, as defined in ISO 3166. With this patch, the fm_cust_pol is now up to date with all country names.
3-4539937001	16579311	(Patch Set 5) In the previous releases, for bill time discounting, the correct sub-balances were not being considered for impact. This has been fixed.
3-6730679201	16600769	(Patch Set 5) When moving accounts under a hierarchy from paying to non-paying type, an error occurred if the paying account being moved is closed. This has been fixed.
3-6521951561	16600772	(Patch Set 5) With this patch, the pin_bill_day utility was optimized to improve the performance of calculating cycle forward fees.
3-6988827201	16607116	(Patch Set 5) In the previous releases, pipeline was freezing when a semaphore was sent prior to the completion of the earlier one. This has been fixed.
3-6780016671	16607120	(Patch Set 5) In the previous releases, when running multiple RE Loader processes, deadlock errors were seen. This has been fixed.
3-6807023828	16626084	(Patch Set 5) The loadpricelist utility supports retrieval of zone maps separately into a file by the parameter -z . But the loadpricelist Help did not mention this option. The Help is now updated to address the missing parameter.
3-6904646871	16629294	(Patch Set 5) In a multischema setup, when calling the PCM_OP_PRICE_COMMIT_PRODUCT opcode to delete a product, it was deleting that product even if the product was purchased by an active account. This has been fixed.
3-2203320611	16660464	(Patch Set 5) In the previous releases, Pipeline Manager had intermittent issues with closing intermediate files. This has been fixed.

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

SR Number	Bug Number	Description
3-7034481951	16661232	(Patch Set 5) In the previous releases, the breakup of tax amounts returned by Vertex DM (Vertex Communications Tax Q Series) was not matching the total tax amount in the event's tax balance impact, due to rounding. This has been fixed.
3-7042543211	16672129	(Patch Set 5) In the previous releases, the pin_cycle_fees utility with purchase option was hanging when there were products with no purchase fee event defined. This has been fixed.
3-6845973891	16672136	(Patch Set 5) In the previous releases, the real-time discounting was invoked irrespective of the availability of resources for discounting. With this patch, the discount data is made available to the prerating policy opcode, so that a decision can be made in the policy opcode to invoke real-time discounting.
3-7007112741	16678351	(Patch Set 5) The usage of entries like 'AND', ' ', 'OR' in the ifw_sync_queuenames file was not clear by the inline comments. A new inline comment section is added in the ifw_sync_queuenames file elaborating the usage so as to filter events based on customer's criteria.
3-6901848941	16686142	(Patch Set 5) Whenever a CDR was processed and filter set rule did not match, the "EDR index creation failed: illegal blocktype" error was logged. This error was being reported because of memory corruption. This has been fixed. The filter set data is now extracted from the global memory pool, thus avoiding any possible memory corruption.
3-7045253131	16686148	(Patch Set 5) In the previous releases, the PCM_OP_PRICE_SET_PRICE_LIST.xml file and the PCM_OP_PRICE_GET_PRICE_LIST.xml file were not published as part of JCA Resource Adapter installation. With this patch, these two files are now published.
3-6924162991	16686152	(Patch Set 5) In the previous releases, you could settle the same event dispute more than once, which is incorrect. With this patch, a check is placed to make sure that once an event dispute is settled, it cannot be resettled.
3-7103041971	16715852	(Patch Set 5) In the previous releases, during the cancellation of products initiated from pin_cycle_fees , the products that were not supposed to be canceled were also being canceled. This has been fixed.
3-6977890801	16715869	(Patch Set 5) In the previous releases, the RE Loader's pre-updater procedure was generating run-time errors while updating related events with the virtual column feature enabled. This has been fixed.
3-6902693201	16715873	(Patch Set 5) In the previous releases, in a multischema environment, it was not possible to remove a suspended payment from a suspense account in schemas other than the primary. This has been fixed.
3-6408914974	16723612	(Patch Set 5) In the previous releases, the multithreaded application (MTA) was crashing with double free corruption error. This has been fixed in the MTA framework.

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

SR Number	Bug Number	Description
3-7023360601	16731009	(Patch Set 5) With the virtual column feature enabled, the RE Loader preprocessor was changing all virtual-column POID type strings in the CDR to their corresponding virtual numbers, affecting the user customizations in non-virtual-column strings. With this patch, the virtual column POID type string substitution is restricted to the data corresponding to the virtual column types.
3-7099004551	16731014	(Patch Set 5) In the previous releases, the scale calculation was incorrectly applied while canceling tailor-made products. This has been fixed.
3-6942065541	16748628	(Patch Set 5) In the previous releases, with a large discount amount and quantity during computation resulted in throwing an exception. This has been fixed.
3-6780016671	16768098	(Patch Set 5) In the previous releases, RE Loader was failing due to deadlock, as data in tmp_unprocessed_events_t was not being deleted. This has been fixed.
3-4199671371	16777978	(Patch Set 5) In the previous releases, when a product with multiple rate plans is purchased in the middle of the cycle and canceled in the same cycle, an error was thrown indicating non-availability of a valid product to rate the event. This has been fixed.
3-7147494481	16797221	(Patch Set 5) In the previous releases, when pin_cycle_fees with purchase option was run, even purchased products for which purchase_start_t is in the future were also being considered. This has been fixed.
3-6967270651	16813503	(Patch Set 5) The opcode input specification for the PCM_OP_ACT_SCHEDULE_DELETE opcode has been updated. The input specification now says that the schedule object will always be deleted even if the status is non-deletable(3) except for the PCM_OP_CUST_SET_STATUS opcode and the PCM_OP_CUST_UPDATE_SERVICES opcode.
3-6924316611	16817660	(Patch Set 5) A new field, TIMEZONE_ID, is introduced in the balance breach notification XML. The XSD file is accordingly updated with this new field.
3-7220058897	16832343	(Patch Set 5) In the previous releases, the PCM_OP_GROUP_DELETE_MEMBER opcode was not deleting all the members in the /group/sponsor object. This has been fixed.
3-7072669711	16936803	(Patch Set 5) In the previous releases, if there was no PIN_FLD_AMOUNT under the billinfo array in the input for the PCM_OP_PYMT_COLLECT opcode, the payment was considered to be in full, irrespective of CHARGES specified in the input. This has been fixed. The amount specified in CHARGES will now be used as the payment amount.
3-6430427641	16937930	(Patch Set 5) In the previous releases, an incorrect G/L ID was being assigned when doing 100% bill-level adjustment. This has been fixed.

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

SR Number	Bug Number	Description
3-7317345921	16940416	(Patch Set 5) In the previous releases, restarting the Oracle DM failed due to socket issues. This has been fixed.
3-6930943241	16941765	(Patch Set 5) In the previous releases, if the virtual columns were generated using pin_virtual_gen , modifying the event or any subclasses of event was throwing an error. This has been fixed.
3-6961723971	16944676	(Patch Set 5) The PCM_OP_TCF_AAA_REFUND opcode was not working on discounted non-currency balance impacts. This has been fixed.
3-5577069681	13959245	(Patch Set 4) The missing C++ header files are now included in the Pipeline PDK.
3-6280850831	14730135	(Patch Set 4) During installation, all the required load utilities are generated to ensure that the installation of optional managers is successful.
3-6484200311	15934302	(Patch Set 4) To improve database schema upgrade performance, the upgrade process queries <code>user_tab_columns</code> to check whether a new column has been added to a table.
3-6597485341	16051864	(Patch Set 4) While creating Subscriber Identity Module (SIM) orders, you can now add custom validations through the PCM_OP_SIM_POL_ORDER_CREATE policy opcode.
3-6608970641	16077034	(Patch Set 4) You can now include a wild card '?' in the Number Administrator search string; for example, if you have created a block A7, you can search for the block using A?.
3-6665458741	16207517	(Patch Set 4) The tax information was not available for the PCM_OP_BILL_POL_BILL_PRE_COMMIT policy opcode in the Bill Now workflow in the delayed period. Changes were made to call the PCM_OP_BILL_POL_BILL_PRE_COMMIT policy opcode after tax computation, so that the tax information is available in the PCM_OP_BILL_POL_BILL_PRE_COMMIT policy opcode.
3-5844217331	14232013	(Patch Set 3) After building the <code>fm_bill_pol_custom</code> library, when you start the CM, the custom library is now loaded successfully.
3-6108849061	14550665	(Patch Set 3) Fixed issues found during BRM upgrade.
3-6314208771	14757302	(Patch Set 3) Pricing Center can now correctly export products with multiple currencies.

Fixed Known Problems

[Table 1–2](#) lists known problems in previous patch sets that are now fixed.

Table 1–2 Known Problems Fixed

SR Number	Bug Number	Resolution
Not applicable	13960159	You can now run RE Loader on an AIX system that contains IMDB Cache Manager.
Not applicable	14526282	You can now use the PCM_OP_COLLECTIONS_GROUP_GET_BILLINFO opcode to retrieve pending receivables for an account that contains multiple bill units.
Not applicable	17644766	You can now use the loadpricelist utility when SSL is enabled in the CM.
Not applicable	19226805	You must install the BRM-BI Publisher invoicing integration package on the system on which BRM Reports is installed. See the discussion about installing BRM-BI Publisher invoicing integration package in <i>BRM Designing and Generating Invoices</i> for more information.
Not applicable	18497218	Documentation about the -v schema_file parameter with pin_wsdl_generator utility was removed because the parameter is obsolete.
Not applicable	18645165	Documentation about setting the environment variables before generating the base64 encoded hash in a Solaris environment is added in the BRM 7.5 patch set installation guide. See the discussion about setting the environment variables before generating the base64 encoded hash in a Solaris environment in <i>BRM Patch Set Installation Guide</i> for more information.
Not applicable	16868738	You can now install the BRM optional managers with any supported version of Java installed on the system on which the BRM server is installed. See the discussion about BRM software compatibility in <i>BRM Installation Guide</i> for the supported JRE version.
Not applicable	19214339	After you run pin_multidb.pl -R all , run the create_procedures_character_set.plb script and the grant_permissions_oracle.plb script, which sets up the schema qualifications for payment processing, where <i>character_set</i> specifies the database character set of either UTF8 or AL32UTF8 .
Not applicable	16519890	You can now install Customer Center SDK on Windows when JDK 1.7 is installed and the JAVA_HOME environment variable is set to the directory in which JDK 1.7 is installed.

New Features

This chapter provides an overview of the feature enhancements introduced in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

New Features in BRM 7.5 Maintenance Patch Set 1

BRM 7.5 Maintenance Patch Set 1 includes enhancements to the following components:

- [BRM Database Enhancements](#)
- [General Ledger Enhancements](#)
- [Support and Certification Enhancements](#)

Account Migration Enhancements

This section describes the enhancements to account migration.

Account Migration Manager Supports IMDB Cache-Enabled Systems (Patch Set 2)

BRM now supports the migration of account objects in Oracle In-Memory Database (IMDB) Cache groups for IMDB Cache-enabled systems. When you migrate the account data stored in the BRM database, BRM migrates the corresponding data in the Oracle IMDB Cache accordingly. BRM does the following:

- When you migrate accounts from a source schema of a BRM database to a destination schema in the same or different BRM database, BRM ensures that it migrates the corresponding data in the source Oracle IMDB Cache grid to the destination Oracle IMDB Cache grid.

BRM has enhanced the **pin_amt** utility to migrate the cached data.

- If you add logical partitions to an Oracle IMDB Cache grid, you can balance the data in that cache grid by redistributing the accounts between the data stores associated with the logical partitions in that cache grid.

BRM provides the new **pin_amt_tt** utility for this purpose.

See the following for information on these enhancements:

- *Migrating accounts in BRM System Administrator's Guide*
- *Account migration utilities in BRM System Administrator's Guide*

Accounts Receivable Enhancements

This section describes the enhancements to accounts receivable.

Collections Manager Now Supports Reversal of Written-Off Bill Units (Patch Set 10)

In the previous releases, Collections Manager allowed write-off reversals only at the account level. When a payment was received for a written-off bill unit of an account, the written-off bill unit could not be reversed, which resulted in an unallocated payment.

Collections Manager now allows you to reverse a written-off bill unit of an account so that payments can be allocated to the bill unit. You can now collect a full payment for a written-off bill unit or collect a partial payment and write off the remaining balance due on the bill unit.

See the discussion about write-off reversals in *BRM Managing Accounts Receivable* for more information.

Billing Enhancements

This section describes the enhancements to billing.

Improving Billing Performance by Using Multiple Item Configurations (Patch Set 12)

By default, BRM uses the same item-tag-to-item-type mapping (*item configuration*) for all bill units in the system. The item configuration is used to assign bill items to events during the rating process; it also specifies which bill items are pre-created at the beginning of each billing cycle. For more information about the item configuration, see the discussion about creating custom bill items in *BRM Configuring and Running Billing*.

Using the same item configuration for all bill units (*/billinfo* objects) can degrade performance by unnecessarily pre-creating bill items for certain types of bill units. For example, the default item configuration might pre-create cycle forward and cycle arrears items, which are normally used to track charges for postpaid bill units but are typically not required for prepaid bill units. Pre-creating such items for prepaid bill units needlessly consumes database storage space and takes more time to process during billing.

To generate fewer bill items, you can now create multiple item configurations in your system and then assign the appropriate item configuration to each bill unit.

For more information, see the discussion about improving performance by using multiple item configurations in *BRM System Administrator's Guide*.

Improving Performance by Skipping Billing-Time Tax Calculation (Patch Set 12)

BRM can calculate taxes during real-time rating, pipeline batch rating, or billing. For more information, see the discussion about choosing when to calculate taxes in *BRM Calculating Taxes*.

Calculating taxes at billing time (also called *deferred taxation*) can be a time-consuming process that involves searching all events and items in a billing cycle. It is triggered by regular billing, Bill Now, Bill on Purchase, and trial billing.

In some cases, such as for prepaid accounts, taxes typically do not need to be calculated at billing time. If your system is configured to calculate billing-time taxes,

you can improve billing performance by skipping billing-time tax calculation for individual bill units (*billinfo* objects) when it is not needed.

For more information, see the discussion about improving performance by skipping billing-time tax calculation in *BRM System Administrator's Guide*.

Additional Flexibility in Creating a Bill Unit Hierarchy (Patch Set 9)

In the previous releases, you could create a bill unit hierarchy only with the bill units whose corresponding accounts were part of an account hierarchy.

With this patch, you can create a bill unit hierarchy with the bill units even if their corresponding accounts are not part of an account hierarchy.

See the discussion about creating hierarchical bill units in *BRM Managing Accounts Receivable* for more information.

Improving Performance for Billing Cycle Fees (Patch Set 5)

A wholesale market customer account can have a large number of services with different balance groups. In the previous releases, the billing operation applied cycle fees sequentially for each of the services. Therefore, billing took a long time to complete.

With this patch, you can now configure BRM to apply cycle fees in parallel for a number of services prior to billing, thereby eliminating the process of applying cycle fees during billing and improving the performance of the billing process.

To apply cycle fees in parallel, your system must meet the following requirements:

- The number of services attached to a single balance group must be less than 10 to get the performance benefit of applying parallel cycle fees.
- No dependency should exist on the order of applying cycle fees for hierarchies (subordinate, charge-sharing, or discount-sharing). This is because the cycle fees are now applied by the **pin_cycle_fees** utility instead of by the billing application, which gives more control on the order of processing accounts in hierarchies.

Also with this patch, BRM now allows the use of a single item at the account level to accumulate the cycle charges for all the services, which reduces the number of items to process and improves overall system performance.

This patch includes the following enhancements:

- Added a new **pin_update_items_journals** utility that allows service-level charges to be aggregated to an account-level item
- Added a new **StagedBillingFeeProcessing** business parameter to specify how BRM applies cycle fees
- Enhanced the **pin_cycle_fees** utility to do the following:
 - Apply cycle fees in parallel across services
 - Include the functionality of the **pin_cycle_forward** utility for charging cycle forward fees
- Updated billing operations to validate that cycle fees are applied prior to billing
- Updated the **pin_bill_day** script to apply parallel cycle fees

See the discussion about applying cycle forward fees in parallel in *BRM Configuring and Running Billing* for more information.

Cycle Fees Can Now Be Applied Based on Product Priority (Patch Set 4)

When multiple products are present in a deal with cycle fees, you can now configure BRM to apply cycle fees in the order of product priority.

Configure the **UsePrioritySubscriptionFees** subscription business parameter to apply cycle fees based on product priority during:

- Purchase or cancellation of a deal, for all the products per deal
- Billing, for all the products in a deal per bill unit (/billinfo object)

Note: This parameter does not prioritize products for cycle fees applied using **pin_cycle_fees -defer_cancel** and does not prioritize products for any customized products.

See the discussion about enabling product priority while applying cycle fees in *BRM Configuring and Running Billing* for more information.

BRM Database Enhancements

This section describes the enhancements to the BRM database.

Enhanced Partitioning and Purging Features (Maintenance Patch Set 1)

This patch includes the following partitioning and purging enhancements:

- In addition to event storable classes, the following storable classes are now partitioned by default when BRM is installed:
 - bill
 - invoice
 - item
 - journal
 - newsfeed
 - sepa
 - user_activity
- In addition to purging event objects, the **partition_utils** utility can now purge the following objects:
 - bill
 - invoice
 - item
 - journal
 - newsfeed
 - sepa
- You can now convert *any* nonpartitioned storable class to a partitioned storable class after installing BRM.

- The item storable classes can now be made purgeable or nonpurgeable. Like nonpurgeable event objects, nonpurgeable item objects are automatically stored in the **partition_historic** partition.

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

Enabling Open Items to Be Purged (Patch Set 12)

BRM purges item objects and their associated event objects only when the item objects are closed. In some accounts, such as prepaid, items are rarely closed because payments are never allocated to them, so their due is always greater than 0. Hence, events associated with the open items also cannot be purged. The unpurgeable items and events take up storage space. To free up storage space, you can make such items purgeable and then purge them.

For more information, see the discussion about enabling events associated with open items to be purged in *BRM System Administrator's Guide*.

BRM Database Support for Virtual-Column Feature in Oracle Database 11g (Patch Set 3)

Oracle Database 11g, by default, supports virtual columns (columns whose values are defined by an expression, are computed when you query the data, and are not physically stored in the database). You can now use virtual columns in the BRM database if you have Oracle Database 11g (or later).

To enable virtual columns in the BRM database, you convert event classes (*/event* and its subclasses) in the BRM schema. The savings in database storage applies to event data that the system creates *after* the virtual columns are generated (not to existing event data). Virtual column functionality is transparent to BRM.

For information about virtual columns, see the Oracle Database documentation.

See the discussion about generating virtual columns on event tables in *BRM System Administrator's Guide* for more information.

See the discussion about creating custom applications in *BRM Developer's Guide* for information on how to make your custom applications support virtual columns.

Collections Center Enhancements

This section describes the enhancements to Collections Center.

Restricting the Number of Tasks Displayed in Collections Center (Patch Set 3)

In the previous releases, when you opened the **Agents Task List** tab in the manager view and the **All Tasks** tab in the agent view for the first time, by default, Collections Center displayed all the tasks in the system, which impacted performance.

With this patch, when you open the **Agents Task List** tab in the manager view and the **All Tasks** tab in the agent view for the first time, you must enter a search criteria. Collections Center displays only those tasks that match the search criteria, thereby resulting in better performance. However, if you want to display all the tasks in the system, there is no improvement in Collections Center performance.

Additionally, the **Threshold** tab in the Preferences dialog box now correctly allows you to set the threshold for the number of tasks that Collections Center displays at a given time.

For information on viewing collections tasks, viewing assigned tasks, and setting threshold values, see the Collections Center Help.

Collections Manager Enhancements

This section describes the enhancements to Collections Manager.

Entering the Field Name to Configure Additional Collections Scenario Parameters (Patch Set 4)

In the previous releases, when configuring additional collections scenario parameters in the **config_collections_scenario_params.xml** file, you entered the column name (for example, `pay_type`) in the `<FIELD_NAME>` element.

With this patch, instead of the column name, enter the field name (for example, `PIN_FLD_PAY_TYPE`) in the `<FIELD_NAME>` element of the **config_collections_scenario_params.xml** file. To enter the field name of a field present under an array or a substruct, use the format `<FIELD_NAME>array.field</FIELD_NAME >`, which includes the parent field of the attribute separated by periods (.). For example: `<FIELD_NAME>PIN_FLD_COLLECTIONS_PARAMS.PIN_FLD_CREDIT_PROFILE</FIELD_NAME >`.

Collections Manager Now Supports Promise-to-Pay Agreements (Patch Set 2)

When a bill unit (**billinfo** object) is in collections, the customer can now request a promise-to-pay agreement. This agreement allows you to defer running the collections actions for a bill unit, allowing the customer to pay the due amount at a date beyond the original payment due date. The customer can now pay the due amount in installments scheduled at regular intervals.

Using Collections Center, you can now add or update a customer's payment method and reschedule payment dates and amounts for **Promise to Pay** and **Collect Payment** actions. See the Collections Center Help for more information.

To use these options in Collections Center, you must set the following permissions through Permissioning Center:

- **/collectionapps/collections/updatepayment:** To allow you to update promise-to-pay payment details in Collections Center
- **/collectionapps/collections/newcard:** To register a new credit card or direct debit account details
- **/collectionapps/collections/maskcarddetails:** To see all the digits of the credit card or the direct debit account

By default, the **Promise to Pay** option is available in the Collections Center **Actions** menu. To disable the **Promise to Pay** option in the Collections Center **Actions** menu, use the **/collectionapps/collections/promisetopay** permission.

See the Permissioning Center Help for more information.

See the discussion about promise-to-pay agreements in *BRM Collections Manager* for more information.

Collections Manager Now Supports Collections Actions Dependency (Patch Set 2)

You can now configure Collections Manager to perform collections actions in a scenario in a specified order by using the `collections_action_dependency` entry in the Connection Manager `pin.conf` file.

When enabled, Collections Manager performs the following additional steps during scenario processing:

- Performs a collections action on its due date only if the scenario's preceding collections action has been completed or canceled.
- After completing or canceling a collections action, reschedules the due dates of any outstanding collections actions in the scenario. Collections Manager calculates the difference in days between the action's completed or canceled date and the action's due date and then moves the due dates of all outstanding actions by the calculated number of days.

For example, assume a collections scenario contains two collections actions:

- Action 1: A manual phone call from an agent 5 days after the bill unit enters collections
- Action 2: Referring the case to an outside collections agency 10 days after the bill unit enters collections

If action 1 does not occur until day 7, Collections Manager changes the due date of action 2 from day 10 to day 12.

After you cancel or complete a collections action, Collections Center allows you to choose whether to reschedule any outstanding collections actions in the scenario. See the Collections Center Help for more information.

See the discussion about collections actions dependencies in *BRM Collections Manager* for more information.

Collections Manager Now Supports Scenario Replacement (Patch Set 2)

When a bill unit meets the entry criteria for a collections scenario, it is assigned to that scenario, enters collections, and proceeds to scenario processing. If there is a change in the criteria, such as the customer making a partial payment, the bill unit may not meet the entry criteria for the collections scenario. Collections Manager now allows you to reevaluate the entry criteria based on additional parameters and replace the assigned collections scenario with a new collections scenario.

When a bill unit is in collections, you can use Collections Center to replace the collections scenario assigned to the bill unit. See the Collections Center Help for more information.

See the discussion about scenario processing in *BRM Collections Manager* for more information.

Collections Manager Now Supports Rule-Based Scenario Assignment (Patch Set 2)

In the previous releases, Collections Manager assigned the collections scenario to the bill unit based only on the overdue balance and the number of days overdue. You can now use the `load_config` utility to load additional parameters to be used for collections scenario assignment. The utility loads the additional parameters into the `/config/collections/scenario_params` object that is used to define an evaluation formula. Each formula is in turn linked to the collections scenario assigned to the bill unit.

Using Collections Configuration Center, you can modify or delete the additional parameters from the scenario definitions. See the Collections Configuration Center Help for more information on how to configure the additional parameters for a collections scenario.

See the discussion about scenario processing in *BRM Collections Manager* for more information.

Enhancements to Assignment to Debt Collections Agencies (Patch Set 2)

In the previous releases, when multiple collections agencies were involved in recovering overdue balances, it was not possible to automate the logic of selecting the proper debt collections agency (DCA). You can now automate the logic of selecting the proper DCA by using the new PCM_OP_COLLECTIONS_POL_ASSIGN_DCA policy opcode. This policy opcode is called whenever a collections action of type **Refer to outside agency** is run.

See the discussion about assigning bill units to a collections agent in *BRM Collections Manager* for more information.

Collections Manager Now Supports Optional Collections Actions (Patch Set 2)

In the previous releases, Collections Manager allowed you to cancel a collections action at any time. During collections processing, Collections Manager automatically canceled all collections actions that were past due and changed the status of all remaining collections actions to mandatory.

Now, Collections Manager allows you to cancel optional collections actions only. During collections processing, Collections Manager automatically changes the status of an optional collections action to canceled or completed on its due date. It does not change the status of any remaining collections actions.

See the discussion about optional collections actions in *BRM Collections Manager* for more information.

Collections Manager Now Supports Collections Sharing Groups (Patch Set 2)

Collections Manager now allows you to organize bill units into collections sharing groups. These collections groups consist of a parent bill unit and one or more child bill units.

Collections Manager assigns a collections scenario to the collections group parent based on:

- The combined overdue balance from all bill units in the collections group
- The oldest due date from all bill units in the collections group

When you define a collections action in Collections Configuration Center, you can specify whether the action applies to the parent bill unit, to all the child bill units, or to the parent and all the child bill units. See the Collections Configuration Center Help for more information.

You can create and manage collections sharing groups by using Customer Center. See the Customer Center Help for more information.

See the discussion about collections groups in *BRM Collections Manager* for more information.

Customer Center Enhancements

This section describes the enhancements to Customer Center.

Hiding the Password Fields in Customer Center to Enhance Security (Patch Set 6)

In the previous releases, customer service representatives (CSRs) entered the password for services in Customer Center (in the **Customize Services** page and the **Services** tab).

With this patch, you can now hide the password fields for services in Customer Center by using the **nonCSRservices.hide.passwordfields** entry in the **Customized.properties** configuration file. When the password fields are hidden, the BRM server generates the password for services. You cannot hide the password fields for the **/service/admin_client** and **/service/pcm_client** service types.

See the discussion about hiding the password fields in Customer Center to enhance security in *BRM Developer's Guide* for more information.

Customer Center Enhancements for Wholesale Customers (Patch Set 5)

In the previous releases, Customer Center added the Service Search dialog box to locate services for wholesale customers. You could access the Service Search dialog box when you clicked **Search** in the following locations:

- In the **Services** tab
- In the **Summary** tab, when you click **Account Status**
- In the Purchase wizard, when adding deals to an existing service for an account
- In the **Non-currency** section of the **Balance** tab

With this patch, you can also access the Service Search dialog box to locate services for wholesale customers when you click **Search** in the following locations:

- In the Account Adjustment dialog box for currency and non-currency resources
- In the Balance Monitor dialog box for the service-level-monitor type
- In the Service Adjustment dialog box for currency and non-currency resources

See the Customer Center Help for more information.

See "[Service Search Enhancements \(Patch Set 5\)](#)" for more information on the Service Search dialog box.

Customer Center now includes the following enhancements for wholesale customers:

- [Additional Criteria for Event Searches](#)
- [Balance Group Search Enhancements](#)
- [Product/Discount Search Enhancements](#)
- [Service Search Enhancements for Non-Currency Resources](#)

Additional Criteria for Event Searches

Customer Center has added the following criteria to event searches for wholesale customers. Customer Center now allows you to:

- Narrow your filters for event searches by providing more search criteria in the Event Search dialog box. See "[Enhancements to the Event Search Dialog Box](#)".

- Customize the case sensitivity of the searches for events. See the discussion about customizing the case sensitivity of event searches in *BRM Developer's Guide*.
- Customize event searches by adding custom settings for the following search components:
 - Service type. See the discussion about customizing the selections for service type in event searches in *BRM Developer's Guide*.
 - Service status. See the discussion about customizing the selections for service status in event searches in *BRM Developer's Guide*.
 - Device type. See the discussion about customizing the selections for device type in event searches in *BRM Developer's Guide*.

Enhancements to the Event Search Dialog Box

The Event Search dialog box has been expanded to contain the following fields to provide more search criteria:

- Service ID
- Service Type; and optionally, include its sub-services
- Purchase period for the service
- Device ID
- Device Type; and optionally, include its sub-devices
- Balance group name
- Bill Unit name
- Search across the items

See the Customer Center Help for more information.

Balance Group Search Enhancements

Customer Center contains balance group search enhancements for wholesale customers. Customer Center now allows you to:

- Quickly locate a balance group by using the new Balance Group Search dialog box. See "[Locating a Balance Group Using the New Balance Group Search Dialog Box](#)".
- Set the threshold for the number of available balance groups to display in Customer Center. See "[Setting the Threshold Value for Displaying Available Balance Groups](#)".
- Customize the case sensitivity of searches for balance groups. See the discussion about customizing the case sensitivity of balance group searches in *BRM Developer's Guide*.
- Customize searches for balance groups by adding custom settings for the following search components:
 - Service type. See the discussion about customizing the selections for service type in balance group searches in *BRM Developer's Guide*.
 - Service status. See the discussion about customizing the selections for service status in balance group searches in *BRM Developer's Guide*.
 - Device type. See the discussion about customizing the selections for device type in balance group searches in *BRM Developer's Guide*.

Locating a Balance Group Using the New Balance Group Search Dialog Box

You can now locate a balance group by using the new Balance Group Search dialog box to narrow your search criteria.

This dialog box opens when you click **Search** in the following locations:

- In the **Currency Credit Limit** banner of the Credit Limit dialog box
- In either column of the Multiple Bill Unit Options dialog box

See the Customer Center Help for more information.

Setting the Threshold Value for Displaying Available Balance Groups

Customer service representatives (CSRs) can now set the threshold for the number of balance groups that Customer Center displays at a given time by using the new **Threshold** field in the **Balance Group Search** section of the **Thresholds** tab of the **Preferences** dialog box.

Customer Center uses the threshold to limit the number of services to display in the following locations:

- In the **Currency Credit Limit** banner of the Credit Limit dialog box
- In the corresponding column of the Multiple Bill Unit Options dialog box

The default threshold is NULL, and the display shows an empty field. When the **Threshold** field is empty, Customer Center retrieves all the balance groups associated with the selected bill unit. See the Customer Center Help for more information.

Product/Discount Search Enhancements

Customer Center contains product/discount search enhancements for wholesale customers. Customer Center now allows you to:

- Locate a product/discount by using the new Product/Discount Search dialog box. See ["Locating Products/Discounts Using the New Product/Discount Search Dialog Box"](#).
- Set the number of available products/discounts to display in Customer Center. See ["Setting the Maximum Number of Available Products/Discounts to Display"](#).
- Customize the case sensitivity of the searches for products/discounts. See the discussion about customizing the case sensitivity of product/discount searches in *BRM Developer's Guide*.
- Customize searches for products/discounts by adding custom settings for the following search components:
 - Service type. See the discussion about customizing the selections for service type in product/discount searches in *BRM Developer's Guide*.
 - Service status. See the discussion about customizing the selections for service status in product/discount searches in *BRM Developer's Guide*.
 - Device type. See the discussion about customizing the selections for device type in product/discount searches in *BRM Developer's Guide*.

Locating Products/Discounts Using the New Product/Discount Search Dialog Box

You can now locate a product/discount by using the new Product/Discount Search dialog box to narrow your search criteria.

This dialog box opens when you click **Search** in the **Plans** tab.

See the Customer Center Help for more information.

Setting the Maximum Number of Available Products/Discounts to Display

CSRs can now set the threshold for the number of products/discounts that Customer Center displays at a given time in the **Plans** tab for any account by using the new **Threshold** field in the **Product/Discount Search** section of the **Thresholds** tab of the **Preferences** dialog box.

The default threshold is NULL, and the display shows an empty field. When the **Threshold** field is empty, Customer Center retrieves all the products/discounts associated with the selected account. See the Customer Center Help for more information.

Service Search Enhancements for Non-Currency Resources

You can now use searches to locate services that use non-currency resources for wholesale customers. The Service Search dialog box can now be accessed when you click **Search** in the **Non-currency** banner of the **Balance** tab.

See "[Service Search Enhancements \(Patch Set 5\)](#)" for more information on the Service Search dialog box.

Change to Other Services Accessing These Resources Display Location

The other services associated with a selected resource are now displayed outside of the **Non-currency** section of the **Balance** tab. To view the other services associated with a non-currency resource, click the **Other Services Accessing These Resources** link in the **Non-currency** section of the **Balance** tab.

See the Customer Center Help for more information.

Service Search Enhancements (Patch Set 5)

Customer Center contains service search enhancements for wholesale customers. Customer Center now allows you to:

- Quickly locate a service by using the new Service Search dialog box. See "[Locating a Service Using the New Service Search Dialog Box](#)".
- Set the threshold for the number of available services to display in Customer Center. See "[Setting the Threshold Value for Displaying Available Services](#)".
- Customize the case sensitivity of searches for services. See the discussion about customizing the case sensitivity of service searches in *BRM Developer's Guide*.
- Set the step size for the searches. See the discussion about customizing the step search size in *BRM Developer's Guide*.
- Customize service searches by adding custom settings for the following search components:
 - Service type. See the discussion about customizing the selections for service type in service searches in *BRM Developer's Guide*.
 - Service status. See the discussion about customizing the selections for service status in service searches in *BRM Developer's Guide*.
 - Device type. See the discussion about customizing the selections for device type in service searches in *BRM Developer's Guide*.

Locating a Service Using the New Service Search Dialog Box

You can now locate a service by using the new Service Search dialog box to narrow your search criteria.

This dialog box opens when you click **Search** in the following locations:

- In the **Services** tab
- In the **Summary** tab, when you click **Account Status**
- In the Purchase wizard, when adding deals to an existing service for an account

See the Customer Center Help for more information.

Setting the Threshold Value for Displaying Available Services

CSRs can now set the threshold for the number of services that Customer Center displays at a given time by using the new **Threshold** input field.

Customer Center uses the threshold to limit the number of services to display in the following locations:

- In the table displayed in the **Services** tab.
- In the **Service** list in the Purchase wizard (when adding deals to an existing service for an account).
- In the **Account/service** list in the **Change Account Service Status** page of the **Summary** tab.
- In the Search Results table of the new Service Search dialog box.

The default threshold is NULL and the display shows an empty field. When the **Threshold** field is empty, Customer Center retrieves all the services associated with the selected account. See the Customer Center Help for more information.

Payment Allocations Improved for Multiple Bill Unit Scenarios (Patch Set 5)

To better manage payment allocations for accounts with multiple bill units, the following enhancements have been introduced:

- CSRs can now allocate negative balances to bills with a positive balance using a new dialog box.

A new Transfer Negative Balance dialog box has been added to allow CSRs with customercenter/allocatepayment/negative permissions to transfer credit amounts to bills with a positive balance. By default, CSRs have this permission. See the Permissioning Center Help for more information on how to deny this permission.

- Ability to disable or enable automatic allocation of amounts has been added in the **General** tab of the **Preferences** dialog box.
- Ability to view bill units when allocating payments.

The Allocate Payment dialog box includes a new **Bill Unit** column and the ability to sort all columns in ascending or descending order.

- CSRs can now review payments for a specific bill unit using the **Bill Unit** list added on the **Payments** tab.
- Ability to copy content to other applications from:
 - Customer account number and account name on the UI header

- **Check Number**, **Transaction ID**, and **Amount** fields in the **Payment Details** tab of the **Payments** menu
- All fields that do not contain a link in the Event Details dialog box

See the Customer Center Help for more information.

Customer's Collections Profiles Can Be Created at the Time of Customer Account Creation (Patch Set 4)

You can now use the `PCM_OP_CUST_COMMIT_CUSTOMER` opcode to pass the collections profile data at the time of customer account creation. The `/profile/collections_params` object is created when the customer account is created. The `/profile/collections_params` object contains the customer's collections profile information.

See the discussion about creating customer's collections profiles at the time of customer account creation in *BRM Managing Customers* for more information.

Customers Can Now Purchase Plans with Options Containing Services Not Associated with a Deal (Patch Set 3)

Customer Center now enables customers to purchase a plan with options that contains services not associated with deals.

When such plans are purchased during account creation, **<No Deal>** appears in the following places in the Account Creation wizard for each service in the plan that is not associated with a deal:

- The **Deal** column of the Details table in the **Plan** page
- The **Deal/Product** column of the table in the **Plan Options** page
- The **Deal** column of the table at the top of the **Customize Services** page

For standard plans, **<No Deal>** appears in the following places in the Account Creation wizard for any service that is not associated with a deal:

- The **Deal** column of the Details table in the **Plan** page
- The **Deal** column of the table at the top of the **Customize Services** page

When an existing account purchases a plan with options, **<No Deal>** appears in the **Deal** column of the Details table in the **Purchase** page of the Purchase wizard for each service that is not associated with a deal.

Purchasing Optional Services and Transitioning to Different Plans

To enable customers to purchase optional services from plans that contain services not associated with deals or to transition from such plans to other plans, services not associated with deals must meet the following guidelines:

- They must be part of a subscription group.
- If the subscription service is *not* associated with a deal, at least one required member service must be associated with a deal.
- If the subscription service is associated with a deal, none of the member services needs to be associated with a deal.

Caution: When the Change Plan Option feature is available, it is possible to purchase multiple instances of each optional service not associated with a deal in a plan with options. Do not do that. Instead, you should purchase only *one* instance of each optional service in a plan with options.

When the Transition to New Plan feature is available, to transition from a plan with options that contains services not associated with a deal, you must reenter the login ID and password for each corresponding service in the new plan. You do not have to reenter login information for services that were associated with a deal in the original plan.

For information about creating a plan with options that contains services not associated with deals, see ["Plan with Options Can Contain Services Not Associated with a Deal \(Patch Set 3\)"](#).

Setting Subscriber Preferences in Customer Center (Patch Set 1)

Customer Center now allows you to configure how a customer's service or account receives notifications in real time in response to authentication, authorization, and accounting requests for prepaid services. For example, you can configure a customer account to receive a notification about a threshold breach by SMS. The customer can use this notification to take necessary action in real time to address the situation. For information on how to configure the customer preferences to receive notifications in real time, see the Customer Center Help.

Customer Management Enhancements

This section describes the enhancements in customer management.

Storing a Summary of Activities Performed on an Account (Patch Set 12)

With this patch, you can now store a summary of activities performed on an account as News Feed.

News Feed is a summary of activities performed on an account, which are stored in the BRM database. To store a summary of activities performed on an account, enable News Feed for each event you want a summary of.

For more information, see the discussion about storing a summary of activities performed on an account in *BRM Managing Customers* for more information.

Limiting Search Results by Using the PIN_FLD_MIN_ROW and PIN_FLD_MAX_ROW Fields (Patch Set 12)

With this patch, you use the optional PIN_FLD_MIN_ROW and PIN_FLD_MAX_ROW fields in the input flist of the PCM_OP_SEARCH opcode to retrieve the records from the search result set using the start row and end row numbers.

See the discussion about limiting search results by using the PIN_FLD_MIN_ROW and PIN_FLD_MAX_ROW fields in *BRM Developer's Guide* for more information.

Logging External Customer Service Representative Information (Patch Set 12)

In the previous releases, when using an external customer relationship management (CRM) application to connect to BRM, BRM logged only the external customer service representative (CSR) user activity in the `/user_activity` storable class for each event. BRM did not log the external CSR's user ID in the `/user_activity` storable class.

With this patch, BRM can now log the external CSR's user ID along with the user activity in the `/user_activity` storable class. You can use the external CSR ID during auditing to trace any actions performed by the external CSR in BRM. The `/user_activity` storable class now includes additional fields to log the external CSR user ID along with the user activity for each operation instead of each event. If the external CRM application does not send the external CSR user ID to BRM, BRM logs NULL values in the `/user_activity` storable class.

For more information, see the discussion about logging CSR activities in *BRM System Administrator's Guide*.

General Ledger Enhancements

This section describes the enhancements to general ledger.

Segregate Unbilled Revenue by General Ledger Cycle within a Billing Cycle (Maintenance Patch Set 1)

You can now segregate unbilled revenue for the same item across multiple general ledger (G/L) cycles by creating a separate journal entry for each of the G/L cycles for the item by enabling the `SegregateJournalsByGLPeriod` business parameter. When you enable `SegregateJournalsByGLPeriod`, you must manually create a new `/config/gl_calendar` object.

See the discussion about segregating unbilled revenue by G/L cycle within a billing cycle in *BRM Collecting General Ledger Data* for more information.

New Controls for Handling Non-Currency Journal Creation (Patch Set 6)

You can now control the creation of journals for non-currency resources by setting the new `NonCurrencyResourceJournaling` business parameter. Creating fewer journals improves system performance.

See the discussion about enabling and disabling `/journal` objects for non-currency resources in *BRM Collecting General Ledger Data* for more information.

Invoicing Enhancements

This section describes the enhancements to invoicing.

Displaying Large Invoices More Efficiently (Patch Set 10)

With this patch, you can use the new hyperlinked invoice template, which displays invoices for large bill unit hierarchies, to manage memory more efficiently. With this new hyperlinked invoice template, the customer can more easily navigate the invoice using a hyperlinked table of contents.

See the discussion about configuring hyperlinked invoice templates based on business profiles in *BRM Designing and Generating Invoices* for more information.

Faster Hierarchical Account Invoice Generation with Oracle Business Intelligence Publisher 11g (Patch Set 9)

With this patch, generating trial and regular invoices for hierarchical accounts is faster due to the new processing improvements in the bill and invoice objects when using Oracle Business Intelligence (BI) Publisher 11g.

Note: The BI Publisher bursting query has been changed to support collation of subordinate invoices in the parent invoice.

See the discussion about generating invoices for hierarchical accounts with BI Publisher in *BRM Designing and Generating Invoices* for more information.

Invoices Can Be Designed and Generated in Oracle Business Intelligence Publisher 11g (Patch Set 4)

You can now use BI Publisher 11g to design, generate, and customize BRM invoice documents and reports. BRM Reports continue to be supported in BI Publisher 11g. See the discussion about designing and generating invoices in BI Publisher 11g in *BRM Designing and Generating Invoices*.

You can still use BI Publisher 10g with BRM. See the discussion about designing and generating invoices in BI Publisher 10g in *BRM Designing and Generating Invoices*.

The BRM-BI Publisher Invoicing Integration Now Supports Multischema Systems (Patch Set 2)

The BRM-BI Publisher invoicing integration now supports multischema systems.

To add multischema support for the BRM-BI Publisher 10g invoicing integration, the following changes have been made:

- The following entries in the **Infranet.properties** file of **pin_inv_doc_gen** (*BIP_Home/oc4j_bi/j2ee/home/applications/pin_inv_doc_gen/Infranet.properties*, where *BIP_Home* is the directory in which BI Publisher is installed) have been removed:
 - infranet.db.host
 - infranet.db.host.1
 - infranet.db.host.2
 - infranet.db.name
 - infranet.db.oci.url
 - infranet.db.ons.config
 - infranet.db.password
 - infranet.db.port
 - infranet.db.port.1
 - infranet.db.port.2
 - infranet.db.protocol.1
 - infranet.db.protocol.2
 - infranet.db.rac.enabled

- infranet.db.rac.loadbalance
- infranet.bip.schdbusername
- infranet.bip.schdbpassword
- infranet.bip.schdbhost
- infranet.bip.schdbport
- infranet.bip.schdbSID
- infranet.db.servicename
- infranet.db.thin.url
- infranet.db.userid
- The following entries in the **Infranet.properties** file of the PublicBRMfetchInvoiceXMLService Web service (*BIP_Home/oc4j_bi/j2ee/home/applications/PublicBRMfetchInvoiceXMLService/PublicBRMfetchInvoiceXMLService/WEB-INF/classes*) have been removed:
 - infranet.db.host
 - infranet.db.host.1
 - infranet.db.host.2
 - infranet.db.name
 - infranet.db.oci.url
 - infranet.db.ons.config
 - infranet.db.password
 - infranet.db.port
 - infranet.db.port.1
 - infranet.db.port.2
 - infranet.db.protocol.1
 - infranet.db.protocol.2
 - infranet.db.rac.enabled
 - infranet.db.rac.loadbalance
 - infranet.db.servicename
 - infranet.db.thin.url
 - infranet.db.userid

See the discussion about configuring the BRM-BI Publisher invoicing integration to support multischema systems in *BRM Designing and Generating Invoices* for more information.

Integration Enhancements

This section describes the enhancements to BRM when integrated with external applications.

BRM Contains a Pre-Built Integration with Elastic Charging Engine (ECE) (Patch Set 3)

ECE is a charging application that rates usage events for offline charging, online charging, or both.

For information on how ECE is pre-integrated with BRM, refer to the ECE documentation (especially the discussion about connectivity with external applications in *ECE Concepts*).

Integrating Real-Time Collections Actions (Patch Set 3)

To integrate collections actions in real time with your external application using Oracle Application Integration Architecture (Oracle AIA), BRM now uses Oracle Advance Queuing (AQ).

When a collections job is run in BRM, Collections Manager adds the changes to an AQ queue using a **CollectionsInfoChange** business event. Upon receipt, the AQ queue informs the AIA service of the changes. The AIA service then initiates the process to extract the new or changed collections actions data from BRM.

See the discussion about integrating collections with your external CRM application in *BRM Concepts* for more information.

Integrating Account Migrations in a Multischema Environment (Patch Set 3)

To integrate Account Migration Manager with your external application using Oracle AIA in a multischema environment, BRM now adds an interface table that contains the batch ID and the old and the new POID values of all the objects that have been successfully migrated during the migration process.

After a group of accounts has been migrated from one schema to another, BRM generates and sends business events to the Enterprise Application Integration Data Manager (EAI DM) using a notification event message. The EAI DM publishes the events to an AQ queue. The AIA service retrieves the events from the AQ queue and updates the AIA cross-reference table using the BRM interface table data.

See the discussion about integrating account migrations with your external application in a multischema environment in *BRM Concepts* for more information.

Integrating Collections in a Multischema Environment (Patch Set 3)

To integrate collections with your external application using Oracle AIA in a multischema environment, BRM populates the custom views in BRM collections tables with the `/collection_actions` POID schema number, hard-coded as 0.0.0.1 regardless of the schema where the account resides. For `/account` and `/billinfo` objects, the external application reads the schema where the account is residing, whether it is a single-schema or a multischema environment.

See the discussion about integrating collections with your external application in a multischema environment in *BRM Concepts* for more information.

BRM Now Supports Synchronizing Products with Multiple Rate Plans (Patch Set 3)

In the previous releases, BRM supported synchronizing products with only a single rate plan into the AQ_SYNC database queue when integrated with external applications using Oracle AIA.

BRM now supports synchronizing a product with multiple rate plans configured using the rate plan selector in Pricing Center when integrated with external applications using Oracle AIA.

Additionally, the BRM customer, subscription, and rating components are enhanced to allow Oracle AIA order management to specify the price list name in the BRM product offerings that are used during the BRM rating process.

IP Address Administration Center Enhancements

This section describes the enhancements to IP Address Administration Center.

Support for IPv6 Addresses Added (Patch Set 4)

BRM now adds support for Internet Protocol Version 6 (IPv6) addressing.

When entering an IPv6 address in the IP address fields of the BRM client applications, enter the normalized form of the IPv6 address; for example, 2607:f0d0:1002:0051:0000:0001:0000:00ff.

Note: BRM still supports IPv4 addresses.

Item Assignment Enhancements

This section describes the enhancements to item assignment.

Balance Impacts of an Event Can Now Be Tracked in Individual Items (Patch Set 4)

You can now customize item types to track charges in individual balance impacts of an event. For example, even though only one BRM event is recorded for a service, if you charge for both connection time and the number of bytes transferred during a session, the two charges can be tracked separately.

See the discussion about assigning bill items to event balance impacts in *BRM Configuring and Running Billing* for more information.

Individual Member Charges of a Charge Sharing Account Can Now Be Tracked (Patch Set 4)

You can now track individual member charges using a new **SplitSponsorItemByMember** business parameter. Additionally, when the business parameter is enabled, you can use custom item types for sponsored charges.

See the discussion about creating custom sponsored bill items in *BRM Configuring and Running Billing* for more information.

JCA Resource Adapter Enhancements

This section describes the enhancements to JCA Resource Adapter.

JCA Resource Adapter XA Transaction Support Enhanced (Patch Set 8)

All J2EE-compliant external applications that need extended architecture (XA) transaction support must connect to BRM through JCA Resource Adapter.

With this patch, JCA Resource Adapter now supports the following:

- Calls to all the methods in the J2EE standard XA API (`javax.transaction.xa.XAResource`)
- The XA (global) transaction manager's recovery process

In addition, the installer now deploys JCA Resource Adapter in XA Transaction mode.

See the discussion about JCA Resource Adapter transaction management in *BRM JCA Resource Adapter* for more information.

Payments Enhancements

This section describes the enhancements to payments.

BRM Now Supports Credit Card Tokenization (Patch Set 10)

In the previous releases, credit and debit card numbers were stored in the BRM database and used for any BRM-initiated payments.

With this patch, BRM also supports credit card tokenization, which is a secure method of storing credit and debit card data. When enabled, credit card tokenization replaces the credit or debit card number with a token (a random identifier) that is returned by Paymentech. This token, instead of the actual card number, is stored in the BRM database and used for any BRM-initiated payments. The actual card number and its mapping to the token is securely stored in Paymentech.

To support credit card tokenization, the following enhancements have been introduced:

- The new `cc_token_enabled` entry has been added to the Paymentech Data Manager (`dm_fusa`) configuration file to enable credit card tokenization.
- The payment processing flow in BRM has been modified to support tokens when credit card tokenization is enabled.
- The new `pin_cc_migrate` utility has been introduced to migrate the credit and debit card numbers into unique tokens.
- The new `CARD_TYPE` column has been added to the `PAYINFO_CC_T`, `EVENT_BILLING_CHARGE_CC_T`, and `EVENT_BILLING_VALID_CC_T` tables to store the card type.
- The new `<CrdTyp>` element has been added to the sample Conversion Manager XML file for account data to migrate the card type and the token from a legacy database into the BRM database. See the discussion about creating XML files in *BRM Managing Customers* for more information.
- Customer Center now displays the card type and the token instead of the card number in the **Payment Method** list when credit card tokenization is enabled.

See the discussion about credit card tokenization and the `pin_cc_migrate` utility in *BRM Configuring and Collecting Payments* for more information.

BRM Now Supports SEPA Direct Debit and SEPA Credit Transfer Payment Processing (Patch Set 9)

To support SEPA Direct Debit and SEPA Credit Transfer payment processing, the following enhancements were made:

- Customer Center now supports the SEPA payment method.

- The payment processing flow in BRM has been modified to support SEPA Direct Debit and Credit Transfer payment processing.
- A new utility, **pin_sepa**, has been created to generate the request XML files for SEPA Direct Debit and SEPA Credit Transfer and to process the SEPA response files.

See the discussion about SEPA payment processing in *BRM Configuring and Collecting Payments* for more information.

Payment Tool Now Supports Secure Communication on the Windows 7 Operating System (Patch Set 7)

With this patch, Payment Tool now supports Secure Sockets Layer (SSL) for secure communication with the CM on the Windows 7 operating system.

See the discussion about enabling SSL for Payment Tool in *BRM System Administrator's Guide* for more information.

Payment Allocations Improved for Multiple Bill Unit Scenarios (Patch Set 5)

To better manage payment allocations for accounts with multiple bill units, the following enhancements have been introduced in Payment Tool:

- Ability to search for specific bill units using Bill Unit as search criteria.
- Ability to view bill units when allocating payments.

The Allocation dialog box includes a new **Bill Unit** column.

See the Payment Tool Help for more information.

Payment Center and Payment Tool Support Multischema Environments (Patch Set 4)

In the previous releases, Payment Center and Payment Tool were not supported in a multischema environment.

In Payment Center, you could recycle payments from a payment suspense account and post it to the correct customer accounts residing in the same schema. Recycling of payments to accounts residing in different schemas was not supported. For example, if you were connected to schema 1, you could use Payment Center to recycle payments from the payment suspense account to customer accounts residing only in schema 1.

With this patch, you can now use Payment Center and Payment Tool in a multischema environment.

Payment Center now allows you to recycle payments from a payment suspense account to customer accounts residing in multiple schemas. For example, if you are connected to schema 1, you can now use Payment Center to recycle payments from the payment suspense account set up for schema 1 to customer accounts residing in different schemas.

See the discussion about adding multischema support in payment processing in *BRM Configuring and Collecting Payments* for more information.

Improved Performance of Searches for Payment Events in Payment Center (Patch Set 2)

By default, Payment Center retrieves five payment events for each step of a search. You can improve Payment Center's performance of payment event searches by configuring the **paymentsearch.stepsize** entry in the **paymentcenter.properties** configuration file.

See the discussion about improved performance of searches for payment events in Payment Center in *BRM Configuring and Collecting Payments* for more information.

Permissioning Center Enhancements

This section describes the enhancements to Permissioning Center.

CSRs Can Now Transfer Credits to Positive Bills (Patch Set 5)

CSRs can now allocate credit amounts to bills with a positive balance in Customer Center. A new customercenter/allocatepayment/negative permission type has been added to Permissioning Center for this action.

See the Permissioning Center Help for more information on how to hide this permission.

Pipeline Manager Enhancements

This section describes the enhancements to Pipeline Manager.

Pipeline Manager Enhancements for Roaming Partner Management (Patch Set 7)

The following enhancements improve roaming partner management:

- [Pipeline Manager Can Now Rate Calls by CAMEL Destination Number](#)
- [Pipeline Configuration Center Now Supports Configuring the Number of Decimal Places for Outgoing Charges for Each Roaming Partner](#)
- [Pipeline Configuration Center Now Supports Specifying Country Codes for Roaming Partners](#)
- [Pipeline Configuration Center Now Supports Specifying whether the HUR Report or the NRTRDE Files Should Be Generated for a Roaming Partner](#)

Pipeline Manager Can Now Rate Calls by CAMEL Destination Number

In the previous releases, when configuring a roaming partner, you could not indicate that Pipeline Manager should consider a call as a CAMEL call and rate it by CAMEL destination number. As a result, Pipeline Manager rated the calls by call destination.

With this patch, you can now enable Pipeline Configuration Center to consider a call as a CAMEL call and rate it by CAMEL destination number by setting the **Camel ISUP Active** field for a roaming partner in Pipeline Configuration Center.

See the Pipeline Configuration Center Help and the discussion about the `ISC_GetCamelFlag` iScript in *BRM Configuring Pipeline Rating and Discounting* for more information.

Pipeline Configuration Center Now Supports Configuring the Number of Decimal Places for Outgoing Charges for Each Roaming Partner

In the previous releases, you could not configure the number of decimal places for outgoing charges for each roaming operator. The decimal places for outgoing charges specified in the roaming registry file was applied to all the roaming partners.

With this patch, you can now specify the number of decimal places for outgoing charges for each roaming partner by using the **Decimal Places** field in Pipeline

Configuration Center. Pipeline Manager generates outgoing (outcollect) charges based on the decimal places configured in Pipeline Configuration Center.

See the Pipeline Configuration Center Help for more information.

Pipeline Configuration Center Now Supports Specifying Country Codes for Roaming Partners

In the previous releases, you could not specify country codes for roaming partners, which indicate that a roaming partner is located in a specific country.

With this patch, you can now specify country codes for roaming partners by using the **Country Code** field in Pipeline Configuration Center to specify that a roaming partner is located in a specific country.

See the Pipeline Configuration Center Help for more information.

Pipeline Configuration Center Now Supports Specifying whether the HUR Report or the NRTRDE Files Should Be Generated for a Roaming Partner

In the previous releases, you could not specify whether to generate the High Usage Reports (HUR) report or the Near Real-Time Roaming Data Exchange (NRTRDE) files for a roaming partner.

With this patch, you can now specify whether to generate the HUR report or the NRTRDE files for a roaming partner by setting the **Generate NRTRDE** field in Pipeline Configuration Center.

When the **Generate NRTRDE** field is selected for a roaming partner in Pipeline Configuration Center, Pipeline Manager generates the NRTRDE files for the roaming partner. When this field is not selected, Pipeline Manager generates the HUR report for the roaming partner.

See the Pipeline Configuration Center Help for more information.

Pipeline Manager Startup Performance Improved (Patch Set 3)

The following enhancements improve Pipeline Manager startup performance:

- [Improving DAT_AccountBatch and DAT_BalanceBatch Loading Performance](#)
- [Improving Pipeline Manager Startup by Specifying the Non-Currency Sub-Balances to Load](#)

Improving DAT_AccountBatch and DAT_BalanceBatch Loading Performance

In the previous releases, at Pipeline Manager startup, the DAT_AccountBatch and DAT_BalanceBatch data modules assigned a pre-allocated number of accounts and balances to each thread. Because account sizes and balances vary, some threads finish before others; because accounts and balances are pre-allocated, threads that finish stay idle while other threads finish loading, thus leading to increased startup times.

To balance the workload for each thread and improve Pipeline Manager startup performance, DAT_AccountBatch and DAT_BalanceBatch now group the accounts and balances into batches (or jobs). Multiple worker threads run in parallel to process the batches, which improves thread load balancing and Pipeline Manager startup performance.

New registry parameters have been created for DAT_AccountBatch and DAT_BalanceBatch to define the number of batches per thread.

See the discussion about optimizing Pipeline Manager performance in *BRM System Administrator's Guide* for more information.

Improving Pipeline Manager Startup by Specifying the Non-Currency Sub-Balances to Load

Previously, the DAT_BalanceBatch data module retrieved all non-currency sub-balances from the BRM database, including sub-balances that are expired. When the BRM database contains a large number of non-currency sub-balances, loading them leads to increased Pipeline Manager startup times.

To improve Pipeline Manager startup performance, you can now specify the non-currency sub-balances to load. See the discussion about specifying which non-currency sub-balances to load on startup in *BRM Setting Up Pricing and Rating* for more information.

Increasing Pipeline Manager Throughput When an EDR Is Associated with Multiple Output Streams (Patch Set 2)

You can now increase Pipeline Manager throughput by configuring multithreading in the Output Controller. This allows Pipeline Manager to write multiple event data records (EDRs) into multiple streams. See the discussions about the following:

- Increasing throughput when an EDR is associated with multiple output streams in *BRM System Administrator's Guide*
- The Output Controller registry entries in *BRM Configuring Pipeline Rating and Discounting*

Important: Enable multithreading in the Output Controller only if the EDRs are associated with multiple output streams.

Pricing Center Enhancements

This section describes the enhancements to Pricing Center.

Increase in the Fixed Credit Threshold Value Limit in Pricing Center (Patch Set 11)

In the previous releases, when configuring a fixed credit threshold for a resource in a plan, you could specify an integer value up to only 2000000.

With this patch, you can now enter a decimal number greater than 2000000 when entering a fixed credit threshold value in the **Enter Threshold** field under **Fixed Threshold Settings** of the Credit Limit dialog box in Pricing Center.

Plan with Options Can Contain Services Not Associated with a Deal (Patch Set 3)

In Pricing Center, you can now create a plan with options that contains services not associated with a deal.

To enable customers to purchase optional services from plans that contain services not associated with deals or to transition from such plans to other plans, services not associated with deals must meet the following guidelines:

- They must be part of a subscription group.
- If the subscription service is *not* associated with a deal, at least one required member service must be associated with a deal.

- If the subscription service is associated with a deal, none of the member services needs to be associated with a deal.

See the Pricing Center Help for more information about creating a plan with options.

Rated Event Loader Enhancements

This section describes the enhancements to Rated Event (RE) Loader.

Loading Preprocessed Rated Events from ECE (Patch Set 12)

In the previous releases, the events rated by ECE had to be preprocessed by RE Loader before loading the rated events into the BRM database.

With this patch, RE Loader now receives preprocessed rated events from ECE. RE Loader loads these preprocessed rated events directly into the BRM database without any modifications in the data files.

See the discussion about setting up RE Loader to load preprocessed rated events from ECE into BRM in *BRM Configuring Pipeline Rating and Discounting* for more information.

Running the RE Loader Daemon to Load Pipeline-Rated Events (Patch Set 1)

You can now run the RE Loader daemon to load pipeline-rated events into the BRM database. See the discussion about the RE Loader daemon in *BRM Configuring Pipeline Rating and Discounting* for more information.

Rating Enhancements

This section describes the enhancements for rating.

Rerating Events by Using the Rates Applied when the Rating Conditions Change During the Session (Patch Set 12)

With this patch, BRM can rerate events based on any changes in the rating conditions during the session. BRM rerates these events in order of event start time.

See the discussion about enabling rerating when the rating conditions change during the session in *BRM Setting Up Pricing and Rating* for more information.

Rerating Events That Include Conditional Balance Impacts (Patch Set 12)

With this patch, BRM processes events rerated by ECE that include conditional balance impacts.

See the discussion about conditional balance impacts in the ECE documentation.

BRM Can Now Calculate Deferred Taxes During Rerating (Patch Set 11)

You can now calculate tax on any deferred taxable amount in rerated events during the rerating process by enabling the new **ApplyDeferredTaxDuringRerating** business parameter. Calculating taxes during rerating using the **ApplyDeferredTaxDuringRerating** business parameter enables corrected invoices to show the correct tax amount. By default, with the **ApplyDeferredTaxDuringRerating** business parameter disabled, BRM calculates taxes on any deferred taxable amount in the rerated events during the subsequent bill run.

See the discussion about applying deferred taxes during rerating in *BRM Setting Up Pricing and Rating* for more information.

New Rating Engine for Handling Rerating Functionality (Patch Set 5)

You can now include ECE as your charging engine for handling rerating functionality by enabling the new `ece_rating` parameter.

See the discussion about enabling ECE rating in *BRM Setting Up Pricing and Rating* for more information.

Service Enhancements

This section describes the enhancements to services.

BRM Now Supports Custom Service Life Cycles (Patch Set 1)

In the previous releases, all service types had the same life cycle, which contained the Active, Inactive, and Closed states. You could not customize any element of the life cycle.

You can now create custom life cycles for any service type. Custom service life cycles can contain any number of states and state transitions. For each state, you can specify the following:

- A descriptive name
- An expiration time
- Rules to validate requests received in the state
- The states to which the state can transition
- The actions that occur before and after a state transition takes place

A sample life cycle for prepaid services is provided with this feature. It contains the Preactive, Active, Recharge Only, Credit Expired, Fraud Investigated, Dormant, Suspended, and Closed states.

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

Services Framework Enhancements

This section describes the enhancements to Services Framework Manager.

BRM Supports Policy-Driven Charging Sessions (Patch Set 3)

You can now configure BRM pricing to support policy-driven service provisioning. For example, you can use BRM rating to track a customer's service usage, and, based on that usage, allow a policy controller on the network to change the customer's quality of service.

For more information on configuring and using BRM to support policy-driven service provisioning, see the discussions about the following:

- Policy-driven charging in *BRM Setting Up Pricing and Rating*
- How BRM supports policy-driven service provisioning in *BRM Telco Integration*

Services Framework Manager Now Supports In-Session Notifications (Patch Set 1)

BRM can now provide in-session notifications in its responses to authentication, authorization, and accounting (AAA) requests from network connectivity applications. Network connectivity applications use this information to make pre-session and mid-session notifications tailored to the subscriber's preferences.

For example, a subscriber makes a request to download a video. The network receiving the video download request forwards the request to the network connectivity application, which then sends the request to BRM. BRM processes the request and adds information on the subscriber's streaming usage threshold in its response to the network application. The network informs the subscriber that the streaming usage threshold is reaching its limit.

Note: BRM 7.5 Patch Set 1 supports Oracle Communications Service Broker Online Mediation Controller. See *Online Mediation Controller Implementation Guide* for more information.

See the discussion about in-session notifications for network connectivity applications in *BRM Telco Integration* for more information.

Services Framework AAA Manager Now Supports Custom Service Life Cycles (Patch Set 1)

You use Services Framework to collect data about customers, manage and provision services, and process AAA requests.

In the previous releases, Services Framework performed those functions only for services that use the default life cycle. Services Framework now supports services that use a custom life cycle.

This enhancement affects AAA. To support custom service life cycles, Services Framework AAA Manager includes the following changes:

- The AAA opcode map (`/config/opcodemap/tcf` object) now includes the `VALIDATE_LIFECYCLE` processing stage. During this stage, the `PCM_OP_TCF_AAA_VALIDATE_LIFECYCLE` helper opcode is called to validate a telco service request against the business rules configured for the current state of a service using a custom service life cycle.
- In the `VALIDATE_LIFECYCLE` stage, the following opcodes are called:
 - **PCM_OP_TCF_AAA_VALIDATE_LIFECYCLE:** During authorization of a request for a telco service that uses a custom service life cycle, this helper opcode applies the business rules in the `/config/lifecycle_states` object associated with the service to validate the request.

If validation is successful and the current state is Preactive or Dormant, this helper opcode triggers the system to change the state to Active.
 - **PCM_OP_TCF_AAA_POL_VALIDATE_LIFECYCLE:** During authorization of a mobile-originated (MO) or mobile-terminated (MT) call, this policy opcode validates the request against any custom business rules configured in the policy opcode for the current life cycle state of a specified `/service` object.

If the `REQ_ALLOWED` rule validation performed by the calling opcode is successful, this policy opcode uses the `MO_ENABLED` and `MT_ENABLED` rules (which specify whether mobile-originated and mobile-terminated calls are allowed) to further validate the request before applying any custom rules.

Note: For each service life cycle state, you can configure business rules to validate the actions that subscribers try to perform in the state. The `MO_ENABLED` and `MT_ENABLED` business rules are included with the new sample prepaid service life cycle.

This policy opcode is called by the `PCM_OP_TCF_AAA_VALIDATE_LIFECYCLE` helper opcode, whose results it can override.

These new opcodes are used only if the **SubscriberLifeCycle** business parameter is associated with the service's bill unit and is enabled.

For more information, see the discussions about the following:

- Performing AAA for prepaid services in *BRM Telco Integration*
- Managing service life cycles in *BRM Managing Customers*

Subscription Management Enhancements

This section describes the enhancements to subscription management.

Subscription Services Can Now Be Transferred from an Account in a Schema to Another Account in a Different Schema (Patch Set 6)

In the previous releases, transferring subscription services from one account in a schema to another account in a different schema required migrating the account in the source schema to the target schema using Account Migration Manager (AMM).

With this patch, the new **RecreateDuringSubscriptionTransfer** business parameter transfers subscription services from one account in a schema to another account in a different schema without needing to migrate the accounts to the same schema.

See the discussion about transferring subscription services in *BRM Managing Customers* for more information.

Including Event Adjustments in Product Cancellation Refunds (Patch Set 1)

You can now specify whether to include event adjustments when calculating product cancellation refunds by using the new **EventAdjustmentsDuringCancellation** business parameter.

See the discussion about canceling products in *BRM Managing Customers* for more information.

Support and Certification Enhancements

This section describes the enhancements to support and certification.

BRM Is Now Certified with Oracle Java Runtime Environment 1.8 Update 45 (Maintenance Patch Set 1)

With this patch, BRM is now certified with Oracle Java JRE 1.8 update 45 (1.8.0_45) or later.

The following BRM components are not certified with JRE 1.8:

- Web Services Manager

- Pipeline Configuration Center
- Pricing Center using Java Web Start

Note: Running reports and generating invoices using BI Publisher 11g with JRE 1.8 is not supported.

JCA Resource Adapter Is Now Also Certified on Oracle WebLogic Server 12c (Maintenance Patch Set 1)

With this patch, JCA Resource Adapter is now also certified on Oracle WebLogic Server 12c Enterprise Edition 12.1.1.

Web Services Manager Is Now Certified on Apache Tomcat 7.0.59 (Patch Set 12)

Currently, Web Services Manager is certified on Apache Tomcat version 5.5.27, Apache Tomcat version 6.0.18, Apache Tomcat version 7.0.30, Apache Tomcat version 7.0.42, and Apache Tomcat version 7.0.54. With this patch, Web Services Manager is now certified on Apache Tomcat version 7.0.59.

BRM 7.5 Now Supports Oracle Database 12.1.0.2 (Patch Set 12)

With this patch, BRM 7.5 now supports Oracle Database 12.1.0.2.

BRM Is Now Certified on Oracle GlassFish Server 3.1.2.2 (Patch Set 12)

Currently, BRM is certified on Oracle GlassFish Server 3.1. With this patch, BRM is now certified on Oracle GlassFish Server 3.1.2.2.

BRM Is Now Certified with Apache HttpComponents HttpClient 4.4 (Patch Set 12)

With this patch, BRM is now certified with Apache HttpComponents HttpClient 4.4.

Pipeline Configuration Center Is Now Certified with Oracle Java Development Kit 1.7 Update 51 (Patch Set 11)

Currently, Pipeline Configuration Center is certified with Oracle Java Development Kit (JDK) 1.6 update 33 (1.6.0_33) or later.

With this patch, Pipeline Configuration Center is now certified with Oracle Java JDK 1.7 update 51 (1.7.0_51) or later.

Pipeline Configuration Center Is Now Certified with Oracle Fusion Middleware Application Development Framework 11.1.1.6.0 (Patch Set 11)

Currently, Pipeline Configuration Center is certified with Oracle Fusion Middleware 11g Application Development Framework 11.1.1.4.0 (with Patch 9941133).

With this patch, Pipeline Configuration Center is now certified with Oracle Fusion Middleware 11g Application Development Framework 11.1.1.6.0.

Pipeline Configuration Center Is Now Certified on Oracle WebLogic Server 10.3.6 (Patch Set 11)

Currently, Pipeline Configuration Center is certified on Oracle WebLogic Server 11g Enterprise Edition 10.3.4.

With this patch, Pipeline Configuration Center is now certified on Oracle WebLogic Server 11g Enterprise Edition 10.3.6.

BRM 7.5 Is Now Certified on Windows 8.1 (Patch Set 10)

With this patch, BRM 7.5 is now certified on Windows 8.1.

OpenSSL Software No Longer Part of BRM Patch Set Installation Package (Patch Set 10)

In the previous releases, a supported version of the OpenSSL software was bundled with the BRM patch set installation package.

With this patch, the OpenSSL software is no longer part of the BRM patch set installation package. For BRM, Oracle recommends that you use the OpenSSL software bundled with the host operating system.

Note: Ensure that the latest version of the OpenSSL software is installed for your operating system.

BRM 7.5 Is Now Certified with Perl 5.18.2 on AIX and HP-UX IA64 (Patch Set 9)

With this patch, BRM 7.5 is now certified with Perl 5.18.2 on AIX and HP-UX IA64.

BRM 7.5 Is Now Certified with Remote Diagnostic Agent 8.03 on AIX and HP-UX IA64 (Patch Set 9)

With this patch, BRM 7.5 is now certified with Remote Diagnostic Agent (RDA) 8.03 on AIX and HP-UX IA64.

BRM 7.5 Is Now Certified with Apache Xalan-C++ 1.11 (Patch Set 9)

Currently, BRM 7.5 is certified with Apache Xalan-C++ 1.10. With this patch, BRM 7.5 is now certified with Apache Xalan-C++ 1.11.

BRM 7.5 Is Now Certified with Apache Xerces-C++ 3.1.1 (Patch Set 9)

Currently, BRM 7.5 is certified with Apache Xerces-C++ 2.7.0. With this patch, BRM 7.5 is now certified with Apache Xerces-C++ 3.1.1.

BRM 7.5 Is Now Certified with Apache Xerces-J (Java) 2.11.0 (Patch Set 9)

Currently, BRM 7.5 is certified with Apache Xerces-J (Java) 2.6.2 and Apache Xerces-J (Java) 2.9.1. With this patch, BRM 7.5 is now certified with Apache Xerces-J (Java) 2.11.0.

BRM 7.5 Now Supports RADIUS Manager (Patch Set 9)

With this patch, BRM 7.5 now supports RADIUS Manager.

Web Services Manager Is Now Certified on Apache Tomcat 7.0.54 (Patch Set 9)

Currently, Web Services Manager is certified on Apache Tomcat version 5.5.27, Apache Tomcat version 6.0.18, Apache Tomcat version 7.0.30, and Apache Tomcat version 7.0.42. With this patch, Web Services Manager is now certified on Apache Tomcat version 7.0.54.

BRM 7.5 Is Now Certified on Oracle Enterprise Linux 6 Update 3 and Red Hat Enterprise Linux 6 Update 3 (Patch Set 8)

With this patch, BRM 7.5 is now certified on Oracle Linux 6 update 3 and Red Hat Enterprise Linux 6 update 3 with critical patch updates.

BRM 7.5 Is Now Certified with OpenSSL 1.0.1g (Patch Set 8)

Currently, BRM 7.5 is certified with OpenSSL 1.0.0a. With this patch, BRM 7.5 is now certified with OpenSSL 1.0.1g.

BRM 7.5 Is Now Certified with Remote Diagnostic Agent 8.03 (Patch Set 8)

Currently, BRM 7.5 is certified with RDA 4.24. With this patch, BRM 7.5 is now certified with RDA 8.03 (Linux and Solaris only).

BRM 7.5 Is Now Certified with Perl 5.18.2 (Patch Set 8)

Currently, BRM 7.5 is certified with Perl 5.8.0. With this patch, BRM 7.5 is now certified with Perl 5.18.2 (Linux and Solaris only).

Web Services Manager Is Now Certified on Apache Axis2/Java 1.6.2 (Patch Set 8)

With this patch, Web Services Manager is now certified on Apache Axis2/Java 1.6.2.

Web Services Manager and Self-Care Manager Are Now Certified on Apache Tomcat 7.0.42 (Patch Set 7)

Currently, Web Services Manager and Self-Care Manager are certified on Apache Tomcat version 5.5.27, Apache Tomcat version 6.0.18, and Apache Tomcat version 7.0.30. With this patch, Web Services Manager and Self-Care Manager are now certified on Apache Tomcat version 7.0.42.

BRM 7.5 Now Supports Oracle Database 12c Release 1 (Patch Set 6)

With this patch, BRM 7.5 now supports Oracle Database 12c Release 1 (Oracle 12.1.0.1.0).

Web Services Manager and Self-Care Manager Are Now Certified on Apache Tomcat 7.0.30 (Patch Set 3)

Currently, Web Services Manager and Self-Care Manager are certified on Apache Tomcat version 5.5.27 and Apache Tomcat version 6.0.18. With this patch, Web Services Manager and Self-Care Manager are now certified on Apache Tomcat version 7.0.30.

System Administration Enhancements

This section describes the enhancements to system administration.

Secure Communication between BRM Components (Patch Set 12)

In the previous releases, BRM supported Secure Sockets Layer (SSL) to provide secure communication only between the Portal Communications Module (PCM) clients and the Connection Manager (CM).

With this patch, BRM now supports Transport Layer Security (TLS) to provide secure communication between:

- The CM and Data Managers (DMs)
- The CM and External Modules (EMs)

Note: Currently, secure communication using SSL/TLS is not supported between CMs and NET_EM.

- PCM clients and the CM
- PCM clients and the CM when using Connection Manager Master Processes (CMMPs)
- BRM server and BRM database

Important: With this patch, BRM no longer supports Secure Sockets Layer 3.0. For BRM, Oracle recommends that you use TLS protocol for secure communication.

See the discussion about enabling secure communication between PCM components in *BRM System Administrator's Guide* for more information.

BRM Supports Sensitive Data Masking in Transaction Responses and Logging (Patch Set 9)

BRM now supports configurable masking of sensitive data fields, including payment information and passwords, within CM responses and logging. Fields stored in the string format can be completely or partially masked in transactional responses that BRM provides to client applications, including Customer Center and Web Services Manager. Included fields in logs are also masked.

See the discussion about configuring sensitive data masking in *BRM Managing Customers* for more information.

BRM Supports Secure Communication between PCM Clients and the Connection Manager (Patch Set 6)

BRM now supports SSL to give you secure communication between Portal Communications Module (PCM) clients and the CM.

See the discussion about enabling secure communication between PCM clients and the CM in *BRM System Administrator's Guide* for more information on how to enable SSL.

New Encryption Protection and Password Restriction Controls for Internet Transactions (Patch Set 6)

BRM now supports a new Oracle-approved encryption algorithm, for encrypting fields that contain sensitive customer information, such as credit card numbers.

You can now restrict service passwords using the new **EnablePasswordRestriction** business parameter.

See the discussion about configuring the DM for Oracle ZT PKI encryption in *BRM Developer's Guide* for more information.

TAP Roaming Manager Enhancements

This section describes the enhancements to TAP Roaming Manager.

TAP Roaming Manager Supports TAP 3.12 GSM TD57 Version 32.1 (Patch Set 8)

TAP Roaming Manager now supports TAP 3.12 Roaming Standard TD57 version 32.1.

To support the TAP 3.12 Roaming Standard TD57 version 32.1, TAP Roaming Manager includes the following changes:

- The TAP InGrammar and TAP OutGrammar have been enhanced.
- The following iScripts have been modified:
 - ISC_TAP_0312_Include
 - ISC_TAP_0312_Validations

See "[Module and iScript Changes](#)" for more information on these iScripts.

In the previous releases, operator-specific messages for severe errors were not supported in RAP OutGrammar because it was an optional block in RAP.

In RAP 1.6 TD32 version 6.11, which BRM 7.5 is now certified on, all rejected error records related to Inter Operator Tariff (IOT) must contain operator-specific messages.

With this patch, RAP OutGrammar provides operator-specific messages in cases of severe errors raised through ERR_TAP3_RET during TAP validations.

You associate an operator-specific message with an error by replacing the parameter (""") in the `edrAddError` function with the actual message. You can pass multiple operator-specific messages by using the semicolon (;) as a separator.

See the description of the ERR_TAP3_RET pipeline framework error message in *BRM System Administrator's Guide* for more information.

TAP Roaming Manager Supports RAP 1.6 TD32 Version 6.11 (Patch Set 8)

TAP Roaming Manager now supports RAP 1.6 TD32 version 6.11.

To support RAP 1.6 TD32 version 6.11, the ISC_TAP_0312_Validations iScript and the RAP OutGrammar have been modified.

See "[Module and iScript Changes](#)" for more information on these iScripts.

Configuring Multiple Instances of Sequencers, Output Streams, or System Brands (Patch Set 4)

In the previous releases, for multiple roaming partners, you had to manually configure multiple sequencers, output streams, and system brands in the roaming registry file (for example, *Pipeline_Home/conf/roaming.reg*).

With this patch, you can now use the new Instances module to configure multiple sequencers, output streams, or system brands for multiple roaming partners.

For more information, see the discussions about the following:

- Configuring the outcollect rating pipeline for output processing in *BRM Configuring Roaming in Pipeline Manager*
- The Instances module and the **RoamingConfigGen64** utility in *BRM Configuring Pipeline Rating and Discounting*
- Configuring multiple instances of sequencers, output streams, or system brands in *BRM System Administrator's Guide*

TAP Roaming Manager Supports TAP 3.12 GSM TD57 Version 30.1 (Patch Set 3)

TAP Roaming Manager supports, by default, TAP 3.12 GSM (Global System for Mobile Communications) TD57 version 30.1.

To continue processing roaming usage events based on TAP 3.11 GSM TD57 version 28, you need to configure a single registry file that includes separate pipelines configured for TAP 3.11 and TAP 3.12 files.

For more information, see the discussions about the following:

- Backing up TAP 3.11 files in *BRM 7.5 Patch Set Installation Guide*
- Setting up TAP Roaming Manager to support TAP 3.11 in *BRM Configuring Roaming in Pipeline Manager*

The enhancements to TAP Roaming Manager are:

- Support for the following new event types:
 - **Mobile Session**, for voice calls over LTE (Long Term Evolution) networks
 - **Messaging Event**, for SMS events made over LTE
- Support for all the recording entity codes

TAP Roaming Manager Supports RAP 1.5 Standard (Patch Set 2)

TAP Roaming Manager now supports the Returned Account Procedure (RAP) 1.5 standard.

To support the RAP 1.5 standard, TAP Roaming Manager includes the following changes:

- The RAP processing pipeline has been enhanced to process RAP 1.5 files with the inclusion of the new `ISC_RAP_0105_InMap` iScript.
- The following iScripts have been enhanced to process RAP 1.5 files:
 - `ISC_DupRAPRecords`
 - `ISC_OverrideSuspenseParams`
 - `ISC_TAP_0311_Include`

See "[Module and iScript Changes](#)" for more information on these iScripts.

Additionally, TAP Roaming Manager now allows Home Public Mobile Network (HPMN) operators to send Stop Return RAP files to alert and notify Visited Public Mobile Network (VPMN) operators who have not provided a Transferred Account Procedure (TAP) file in seven days.

To support the generation of Stop Return RAP files, TAP Roaming Manager includes the following changes:

- The new `UpdateTapInfo_StopRapout` iScript and **StopRapGen** utility have been added to the Stop RAP Generator pipeline.

- The new UpdateTapInfo_Tapin iScript has been added to the validation pipeline.
- The new IFW_TAPINFO table has been added to the database. This table stores the information on incoming TAP files.

See "[Module and iScript Changes](#)" and "[Schema and Index Changes \(Patch Set 2\)](#)" for more information.

See the discussion about configuring the Stop RAP Generator pipeline and generating Stop Return RAP files in *BRM Configuring Roaming in Pipeline Manager* for more information.

Tax Packages Enhancements

This section describes the enhancements to the third-party tax software packages that you can use with BRM.

Mapping of Some Vertex CTQ Jurisdiction Codes to Internal BRM Jurisdiction Codes Is Now Changed (Patch Set 6)

With this patch, some Vertex CTQ 2.00.05 (and later) jurisdiction codes map to different internal BRM jurisdiction codes. [Table 2–1](#) lists the old and new mapping of the Vertex CTQ jurisdiction codes to the internal BRM jurisdiction codes.

Table 2–1 Mapping of Vertex CTQ Jurisdiction Codes to Internal BRM Jurisdiction Codes

Vertex Code	Old BRM Code	New BRM Code
CTQ Other Municipality 6	6	12
CTQ County District 7	7	10
CTQ City District 9	9	11

The `update_new_ctq2_jurisdiction_codes.source` script updates the `/account` and `/event` objects to reflect the new BRM jurisdiction codes (12, 10, and 11). See the discussion about updating BRM jurisdiction codes for Vertex CTQ in *BRM 7.5 Maintenance Patch Set 1 Installation Guide* for more information.

Important: You must use the new BRM jurisdiction codes (12, 10, and 11) while specifying the account's tax exemptions and also while interpreting the jurisdiction codes in the `/event` object.

Web Services Manager Enhancements

This section describes the enhancements to Web Services Manager.

Web Services Manager Now Supports Calling More BRM Opcodes Through SOAP Web Services (Patch Set 10)

With this patch, Web Services Manager can now call the following BRM opcodes by using SOAP Web services:

- PCM_OP_BILL_REVERSE
- PCM_OP_CUST_SET_STATUS

- PCM_OP_CUST_POL_GET_DEALS
- PCM_OP_CUST_POL_GET_PRODUCTS
- PCM_OP_CUST_POL_READ_PLAN

In the previous releases, these BRM opcodes were not exposed as operations through Web services. For a list of opcodes included in the Web Services Manager package, see *BRM Web Services Manager*.

Web Services Manager Now Supports Standards-Compliant SOAP Development Tools to Generate Industry-Standard Client Application Code (Patch Set 8)

In the previous releases, BRM Web services accepted only string-formatted XML input flists for calling BRM opcodes. BRM Web services did not support payload as an XML element data type.

With this patch, BRM Web services now support payload as an XML element data type. Web Services Manager now supports standards-compliant SOAP development tools to generate industry-standard client application code for integration with BRM Web services.

BRM Web services support payload as XML element and string data types.

See *BRM Web Services Manager* for more information.

Web Services Manager Now Supports Calling Additional Opcodes Through SOAP Web Services (Patch Set 8)

With this patch, Web Services Manager now includes new Web services that you can use to call some BRM opcodes by using SOAP Web services. These opcodes could not be called in the previous releases. For a list of standard opcodes included, by default, in the BRM Web Services Manager package, see *BRM Web Services Manager*.

Web Services Manager Is Now Secured with Oracle WebLogic Server (Patch Set 8)

In the previous releases, Web Services Manager did not require authentication and authorization for calling the Web services. Any user who had access to the SOAP URL endpoint could call the Web services.

With this patch, Web services are now secured by security policies in Oracle WebLogic Server. Only authenticated and authorized users can now call Web services.

See the discussion about configuring Web Services Manager security in *BRM Web Services Manager* for more information.

Opcode Changes

This chapter provides an overview of the opcode changes introduced in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

New Opcodes

This section describes the standard and policy opcodes introduced in BRM 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

New Helper Opcodes

This section describes the helper opcodes introduced in BRM 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

Services Framework AAA Manager FM Helper Opcodes

[Table 3–1](#) lists the new Services Framework AAA Manager FM helper opcodes.

Table 3–1 *New Services Framework AAA Manager FM Helper Opcodes*

New Helper Opcode	Description
PCM_OP_TCF_AAA_VALIDATE_LIFECYCLE	<p>(Patch Set 1) During authorization of a request for a service that uses a custom service life cycle, applies business rules in the <code>/config/lifecycle_states</code> object associated with the service to validate the request.</p> <p>This helper opcode is called by Services Framework AAA Manager FM standard opcodes during the <code>VALIDATE_LIFECYCLE</code> stage.</p>

New Policy Opcodes

This section describes the policy opcodes introduced in BRM 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

Note: These policy opcodes do not include source files.

Activity FM Policy Opcodes

[Table 3–3](#) lists the new Activity FM policy opcodes.

Table 3–2 New Activity FM Policy Opcodes

New Policy Opcode	Description
PCM_OP_ACT_POL_PROCESS_EVENTS	(Patch Set 12) Processes events and updates the database with information related to News Feed.

Balance FM Policy Opcodes

Table 3–3 lists the new Balance FM policy opcodes.

Table 3–3 New Balance FM Policy Opcodes

New Policy Opcode	Description
PCM_OP_BAL_POL_APPLY_MULTI_BAL_IMPACTS	(Patch Set 3) Creates the offer profile threshold notification for both in-session and out-of-session charging. This policy opcode is called by the PCM_OP_BAL_APPLY_MULTI_BAL_IMPACTS opcode and the PCM_OP_RESERVE_EXTEND opcode.
PCM_OP_BAL_POL_CHECK_LIFECYCLE_STATE	(Patch Set 1) After a balance is adjusted for a service that uses a custom life cycle, triggers any required service state change and updates the state expiration date in the /service object. This policy opcode is called by the PCM_OP_BAL_APPLY_MULTI_BAL_IMPACTS opcode.

Collections Manager FM Policy Opcodes

Table 3–4 lists the new Collections Manager FM policy opcodes.

Table 3–4 New Collections Manager FM Policy Opcodes

New Policy Opcode	Description
PCM_OP_COLLECTIONS_POL_ASSIGN_DCA	(Patch Set 2) When multiple collections agencies are configured, enables automation of the logic to select a debt collections agency (DCA). This policy opcode is called when a system collections action of type Refer to outside agency is run. This is an empty policy hook.
PCM_OP_COLLECTIONS_POL_GET_GROUP_TARGET_ACTIONS	(Patch Set 2) Overwrites the target bill units for an action that is configured during the creation of an action. This is a policy hook.
PCM_OP_COLLECTIONS_POL_GET_VALID_SCENARIOS	(Patch Set 2) Takes the collections scenario as input, reads the /config/collections/scenario_params object for additional parameters, and validates whether the scenario is valid for the bill unit in collections. This policy opcode is called by the PCM_OP_COLLECTIONS_GET_VALID_SCENARIOS opcode.

Table 3–4 (Cont.) New Collections Manager FM Policy Opcodes

New Policy Opcode	Description
PCM_OP_COLLECTIONS_POL_HANDLE_BREACH_PROMISE_TO_PAY	<p>(Patch Set 2) When the payment milestone is not met, this policy opcode does the following:</p> <ul style="list-style-type: none"> ■ Sets the current action status to Completed. ■ Calls PCM_OP_COLLECTIONS_REVOKE_PROMISE_TO_PAY, which cancels all the outstanding payment milestones and reschedules the collections scenario actions to start from the following day and updates the scenario object.
PCM_OP_COLLECTIONS_POL_INITIATE_PAYMENT	<p>(Patch Set 2) When the collections action type is promise_to_pay or collect_payment and the action is set to initiate payment, this policy opcode supports payment for credit card or debit card accounts.</p> <p>This policy opcode is called by the PCM_OP_COLLECTIONS_TAKE_ACTION opcode.</p>
PCM_OP_COLLECTIONS_POL_INVOKE_PROMISE_TO_PAY	<p>(Patch Set 2) Provides additional validation checks before the promise-to-pay action is called for a bill unit (/billinfo object).</p> <p>This is an empty policy hook. This policy opcode is called by the PCM_OP_COLLECTIONS_INVOKE_PROMISE_TO_PAY opcode.</p>

RADIUS Manager FM Policy Opcodes

[Table 3–5](#) lists the new RADIUS Manager FM policy opcodes.

Table 3–5 New RADIUS Manager FM Policy Opcodes

New Policy Opcode	Description
PCM_OP_TERM_POL_ACCOUNTING	(Patch Set 9) Facilitates arbitrary storing of incoming RADIUS attributes.
PCM_OP_TERM_POL_AUTHORIZE	(Patch Set 9) Merges attributes from the NAS and a user's account into a list to be returned to the NAS.
PCM_OP_TERM_POL_REVERSE_IP	(Patch Set 9) Maps the IP address to the relevant account and service objects.

Services Framework AAA Manager FM Policy Opcodes

[Table 3–6](#) lists the new Services Framework AAA Manager FM policy opcodes.

Table 3–6 New Services Framework AAA Manager FM Policy Opcodes

New Policy Opcode	Description
PCM_OP_TCF_AAA_POL_GET_SUBSCRIBER_PROFILE	(Patch Set 3) Allows customizations when deploying BRM. This policy opcode is called by the PCM_OP_TCF_AAA_GET_SUBSCRIBER_PROFILE opcode.
PCM_OP_TCF_AAA_POL_POST_PROCESS	(Patch Set 1) Creates in-session notifications for credit threshold breaches, service expirations, streaming usage threshold summaries, tariff change indications, and subscriber preferences. This policy opcode is called by <ul style="list-style-type: none"> ▪ PCM_OP_TCF_AAA_AUTHORIZE ▪ PCM_OP_TCF_AAA_REAUTHORIZE ▪ PCM_OP_TCF_AAA_UPDATE_AND_REAUTHORIZE ▪ PCM_OP_TCF_AAA_STOP_ACCOUNTING
PCM_OP_TCF_AAA_POL_VALIDATE_LIFECYCLE	(Patch Set 1) During authorization of a request for a service that uses a custom life cycle, validates the request against the new MO_ENABLED, MT_ENABLED, and custom business rules configured for the current service state. Note: For each service life cycle state, you can configure business rules to validate the actions that subscribers try to perform in the state. The new sample prepaid service life cycle includes the MO_ENABLED and MT_ENABLED business rules, which specify whether mobile-originated and mobile-terminated calls are allowed. This policy opcode is called by the PCM_OP_TCF_AAA_VALIDATE_LIFECYCLE helper opcode.

New Standard Opcodes

This section describes the standard opcodes introduced in BRM 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

Accounts Receivable FM Standard Opcodes

Table 3–7 lists the new Accounts Receivable FM standard opcodes.

Table 3–7 New Accounts Receivable FM Standard Opcodes

New Standard Opcode	Description
PCM_OP_AR_REVERSE_REFUND	(Patch Set 9) Reverses a SEPA Credit Transfer refund that was previously recorded in BRM.
PCM_OP_AR_BILL_CREDIT_TRANSFER	(Patch Set 5) Transfers the amount from a bill that has a negative balance to one or more bills that have a positive balance.

Collections Manager FM Standard Opcodes

Table 3–8 lists the new Collections Manager FM standard opcodes.

Table 3–8 New Collections Manager FM Standard Opcodes

New Standard Opcode	Description
PCM_OP_COLLECTIONS_GET_VALID_SCENARIOS	(Patch Set 2) Evaluates all the collections scenarios for the bill unit using the default entry criteria (entry_amount and entry_days), the severity attribute, and additional configurable parameters and lists the valid scenarios for the bill unit. This opcode calls the PCM_OP_COLLECTIONS_POL_GET_VALID_SCENARIOS policy opcode.
PCM_OP_COLLECTIONS_GROUP_ADD_MEMBER	(Patch Set 2) Adds members to the collections group. Validations are performed to check if the newly added member is a subordinate account. The subordinate accounts cannot be added as members of a collections group. If the new member is already in the collections group, it is ignored.
PCM_OP_COLLECTIONS_GROUP_CREATE	(Patch Set 2) Creates the collections group.
PCM_OP_COLLECTIONS_GROUP_DELETE	(Patch Set 2) Deletes the collections group.
PCM_OP_COLLECTIONS_GROUP_DELETE_MEMBER	(Patch Set 2) Deletes members from the collections group.
PCM_OP_COLLECTIONS_GROUP_GET_BILLINFO	(Patch Set 2) Verifies whether a bill unit (/billinfo object) belongs to a collections group or not. It also provides information about the pending receivables for each bill unit. If the bill unit is a parent of a collections group, it provides the name of the group and its members.
PCM_OP_COLLECTIONS_GROUP_MODIFY	(Patch Set 2) Modifies the member name or the parent in a collections group.
PCM_OP_COLLECTIONS_GROUP_SET_PARENT	(Patch Set 2) Sets the parent for a collections group. Validation is performed to verify if the bill unit is already a parent of another collections group. A bill unit can be the owner or parent of only one collections group.
PCM_OP_COLLECTIONS_INVOKE_PROMISE_TO_PAY	(Patch Set 2) For a bill unit that is already in collections, calls the promise-to-pay agreement.
PCM_OP_COLLECTIONS_REPLACE_SCENARIO	(Patch Set 2) Replaces the existing collections scenario for a bill unit with a new collections scenario. If a new collections scenario object is not specified, this opcode calls the PCM_OP_COLLECTIONS_GET_VALID_SCENARIOS opcode to get the most eligible collections scenario applicable for the bill unit based on the severity.
PCM_OP_COLLECTIONS_REVOKE_PROMISE_TO_PAY	(Patch Set 2) Cancels the promise-to-pay agreement by canceling the outstanding payment milestones, deleting the corresponding schedule objects, rescheduling the scenario actions to start from the next day, and updating the scenario objects.
PCM_OP_COLLECTIONS_UPDATE_ACTION_PAYMENT_DETAILS	(Patch Set 2) Updates the amount and payment mode details for Promise to Pay and Collect Payment actions.

Customer FM Standard Opcodes

Table 3–9 lists the new Customer FM standard opcodes.

Table 3–9 New Customer FM Standard Opcodes

New Standard Opcode	Description
PCM_OP_CUST_GET_NEWSFEED	(Patch Set 12) Retrieves and returns News Feed information.
PCM_OP_CUST_AMEND_CREDITOR_INFO	(Patch Set 9) Updates the creditor details in the /config/creditor object and applies the creditor update to the /payinfo/sepa objects that are impacted by the amendment of the creditor information.
PCM_OP_CUST_AMEND_MANDATE	(Patch Set 9) Updates the mandate fields, except for the creditor information, in the /payinfo/sepa object.
PCM_OP_CUST_CANCEL_MANDATE	(Patch Set 9) Cancels a mandate by setting the mandate status in /payinfo/sepa to canceled .
PCM_OP_CUST_GET_NOTE	(Patch Set 8) Returns notes and note exchanges based on the note type, the note sub type, an item, an event, a service, or bill info.
PCM_OP_CUST_SET_NOTE	(Patch Set 8) Creates a new /note object or modifies an existing one. If the input POID is type-only, a new /note object is created. Otherwise, the /note object is modified. As part of creating or modifying the /note object, a new event is created: <ul style="list-style-type: none"> ■ /event/customer/note/create ■ /event/customer/note/modify
PCM_OP_CUST_GET_LIFECYCLE_STATES	(Patch Set 1) Gets information from the life-cycle states configuration object (/config/lifecycle_states) associated with a specified service type or gets the configuration object itself. This opcode is called by the following components: <ul style="list-style-type: none"> ■ PCM_OP_TCF_AAA_VALIDATE_LIFECYCLE helper opcode ■ PCM_OP_BAL_POL_CHECK_LIFECYCLE_STATE policy opcode ■ PCM_OP_CUST_SET_STATUS opcode ■ PCM_OP_CUST_UPDATE_SERVICES opcode ■ pin_state_change utility ■ Customer Center
PCM_OP_CUST_GET_SUBSCRIBER_PREFERENCES	(Patch Set 1) Gets specific subscriber preferences (if indicated in the input list) or all the preferences for a subscriber. This opcode is called by the PCM_OP_TCF_AAA_POL_POST_PROCESS policy opcode.
PCM_OP_CUST_SET_SUBSCRIBER_PREFERENCES	(Patch Set 1) Stores specific subscriber preferences (if indicated in the input list) or all the preferences for a subscriber. This opcode is called by the PCM_OP_TCF_AAA_POL_POST_PROCESS policy opcode.

Customer Care FM Standard Opcodes

Table 3–10 lists the new Customer Care FM standard opcodes.

Table 3–10 New Customer Care FM Standard Opcodes

New Standard Opcode	Description
PCM_OP_CUSTCARE_MOVE_ACCT	(Patch Set 12) Moves an account into or out of an account hierarchy.

Offer Profile FM Standard Opcodes

Table 3–11 lists the new Offer Profile FM standard opcodes.

Table 3–11 New Offer Profile FM Standard Opcodes

New Standard Opcode	Description
PCM_OP_OFFER_PROFILE_CHECK_POLICY_THRESHOLD	(Patch Set 3) Based on the offer profile passed in the input flist, gets the dynamic information for a service POID and the resource ID.
PCM_OP_OFFER_PROFILE_SET_OFFER_PROFILE	(Patch Set 3) Creates, modifies, or deletes the offer profile (/offer_profile object).

RADIUS Manager FM Standard Opcodes

Table 3–12 lists the new RADIUS Manager FM standard opcodes.

Table 3–12 New RADIUS Manager FM Standard Opcodes

New Standard Opcode	Description
PCM_OP_TERM_IP_DIALUP_ACCOUNTING_OFF	(Patch Set 9) Records the end of accounting.
PCM_OP_TERM_IP_DIALUP_ACCOUNTING_ON	(Patch Set 9) Enables RADIUS Manager to tell BRM that it is ready for service.
PCM_OP_TERM_IP_DIALUP_AUTHENTICATE	(Patch Set 9) Authenticates a user.
PCM_OP_TERM_IP_DIALUP_AUTHORIZE	(Patch Set 9) Assembles information from the NAS and a user's account.
PCM_OP_TERM_IP_DIALUP_START_ACCOUNTING	(Patch Set 9) Records the start of a previously authenticated IP dialup session.
PCM_OP_TERM_IP_DIALUP_STOP_ACCOUNTING	(Patch Set 9) Closes a previously started IP dialup session.
PCM_OP_TERM_IP_DIALUP_UPDATE_ACCOUNTING	(Patch Set 9) Updates a previously started IP dialup session.

Services Framework AAA Manager FM Standard Opcodes

Table 3–13 lists the new Services Framework AAA Manager FM standard opcodes.

Table 3–13 New Services Framework AAA Manager FM Standard Opcodes

New Standard Opcode	Description
PCM_OP_TCF_AAA_GET_SUBSCRIBER_PROFILE	(Patch Set 3) Returns the static information or dynamic information (or both) for all the services associated with the service. If the service POID is not passed in the input flist, this opcode calls the PCM_OP_ACT_FIND opcode to get all the services associated with the subscriber's mobile station ID (MSID) passed in the input flist.

Changed Opcodes

This section describes the standard and policy opcodes changed in BRM 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

Changed Policy Opcodes

Table 3–14 lists the changed policy opcodes.

Table 3–14 *Changed Policy Opcodes*

Changed Policy Opcode	Description
PCM_OP_GL_POL_PRE_UPDATE_JOURNAL	(Maintenance Patch Set 1) Modified to include the PIN_FLD_EFFECTIVE_T field in the input and output flist, which indicates the general ledger (G/L) cycle the journal entry belongs to. Note: This field is available in the input flist only if the SegregateJournalsByGLPeriod business parameter is enabled.
PCM_OP_PYMT_POL_COLLECT	(Patch Set 10) Modified to determine whether a write-off reversal should be performed for a written-off account or a written-off bill unit.
PCM_OP_PYMT_POL_VALIDATE_PAYMENT	(Patch Set 10) Modified to support and validate bill unit write-off reversals.
PCM_OP_CUST_POL_PRE_COMMIT	(Patch Set 9) The following field was added to the input flist: <ul style="list-style-type: none"> SEPA_INFO array: Includes SEPA payment information.
PCM_OP_CUST_POL_PREP_PAYINFO	(Patch Set 9) Modified to prepare the flist with the payment details required for the SEPA payment method. As part of the flist preparation, the following field was added to the input and output flist: <ul style="list-style-type: none"> SEPA_INFO array: Includes SEPA payment information.
PCM_OP_CUST_POL_VALID_BILLINFO	(Patch Set 9) Modified to remove the validation mandating that the corresponding accounts of the bill units in a bill unit hierarchy should be part of an account hierarchy.
PCM_OP_CUST_POL_VALID_PAYINFO	(Patch Set 9) Modified to validate that the payment details in the flist that are specific to the SEPA payment method. This opcode validates that the International Bank Account Number (IBAN) and Business Identifier Code (BIC) formats comply with the standards in the SEPA Rulebook. As part of the flist validation, the following field was added to the input flist: <ul style="list-style-type: none"> SEPA_INFO array: Includes SEPA payment information.
PCM_OP_INV_POL_PREP_INVOICE	(Patch Set 9) Modified with new field settings for trial billing.
PCM_OP_BILL_POL_GET_ITEM_TAG	(Patch Set 4) Modified to include an optional PIN_FLD_ITEM_TAGS array in the output flist. This array can be used to assign custom item types for individual balance impacts.

Table 3–14 (Cont.) Changed Policy Opcodes

Changed Policy Opcode	Description
PCM_OP_RATE_POL_PROCESS_ERAS	(Patch Set 3) Modified to set the value of the <code>/event.USAGE_TYPE</code> field for the purchase, cycle, and cancel events to the price list name in the product offering.
PCM_OP_COLLECTIONS_POL_PROCESS_BILLINFO	(Patch Set 2) Modified to identify if the API is being called while entering into or exiting out of collections. This is an empty policy hook. This policy opcode is called by the PCM_OP_COLLECTIONS_PROCESS_BILLINFO opcode.
PCM_OP_CUST_POL_VALID_PROFILE	(Patch Set 2) Modified to validate if the <code>/service</code> object is passed when a service-level profile is created using the PCM_OP_CUST_CREATE_PROFILE opcode.

Changed Base Opcodes

Table 3–15 lists the changed base opcodes.

Table 3–15 Changed Base Opcodes

Changed Base Opcode	Description
PCM_OP_TRANS_ABORT	(Patch Set 8) The following field was added to the input flist: <ul style="list-style-type: none"> ▪ PIN_FLD_TRANS_ID: Reserved for internal use.
PCM_OP_TRANS_COMMIT	(Patch Set 8) The following fields were added to the input flist: <ul style="list-style-type: none"> ▪ PIN_FLD_TRANS_ID: Reserved for internal use. ▪ PIN_FLD_FLAGS: Reserved for internal use.
PCM_OP_TRANS_OPEN	(Patch Set 8) The following fields were added to the input flist: <ul style="list-style-type: none"> ▪ PIN_FLD_TRANS_ID: Reserved for internal use. ▪ PIN_FLD_TRANS_TIMEOUT_IN_SECS: Reserved for internal use. ▪ PIN_FLD_FLAGS: Reserved for internal use.
PCM_OP_BULK_CREATE_OBJ	(Patch Set 3) Modified to modify the <code>field_name_type_id</code> support columns of virtual columns.
PCM_OP_BULK_WRITE_FLDS	(Patch Set 3) Modified to modify the <code>field_name_type_id</code> support columns of virtual columns.
PCM_OP_CREATE_OBJ	(Patch Set 3) Modified to modify the <code>field_name_type_id</code> support columns of virtual columns.
PCM_OP_GET_DD	(Patch Set 3) Modified to do the following: <ul style="list-style-type: none"> ▪ Obtain the VIRTUAL_FLAG column property of a storable class as part of the output flist (the PIN_FLD_VIRTUAL_FLAG field can be returned). ▪ Obtain information about non-standard types stored in the DD_TYPES_T table.

Table 3–15 (Cont.) Changed Base Opcodes

Changed Base Opcode	Description
PCM_OP_INC_FLDS	(Patch Set 3) Modified to modify the <i>field_name_type_id</i> support columns of virtual columns.
PCM_OP_SET_DD	<p>(Patch Set 3) Modified to do the following:</p> <ul style="list-style-type: none"> ■ For base classes that are already virtual-column enabled, create subclasses that support the creation of tables with virtual columns. ■ For POID custom type names of custom storable class types, add, modify, or delete non-standard type values in the DD_TYPES_T table of the data dictionary. To run this opcode, set the following entry in the Oracle DM pin.conf file (<i>BRM_Home/sys/dm_oracle/pin.conf</i>): <ul style="list-style-type: none"> - dm dd_write_enable_types 1 <p>Note: The pin_virtual_gen utility can be used to create custom types in the DD_TYPES_T table. This entry is required in the Oracle DM pin.conf file only if you use PCM_OP_SET_DD to create the custom types.</p>
PCM_OP_WRITE_FLDS	(Patch Set 3) Modified to modify the <i>field_name_type_id</i> support columns of virtual columns.

Changed Standard Opcodes

Table 3–16 lists the changed standard opcodes.

Table 3–16 Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_AR_GET_ACCT_ACTION_ITEMS	<p>(Patch Set 12) Modified the following:</p> <ul style="list-style-type: none"> ■ Includes the PIN_FLD_WRITEOFF_TYPE field in the PIN_FLD_RESULTS array in the output flist, which indicates the level of writeoff, such as account-level, bill-level, billinfo-level, and item-level. ■ Added 2 PIN_DISPUTE_BILL_LEVEL in the PIN_FLD_DISPUTE_TYPE field in the output flist, which indicates the bill-level disputes. ■ Added 2 PIN_ADJUSTMENT_BILL_LEVEL in the PIN_FLD_ADJUSTMENT_TYPE field in the output flist, which indicates the bill-level adjustments. ■ Added 2 PIN_SETTLEMENT_BILL_LEVEL in the PIN_FLD_SETTLEMENT_TYPE field in the output flist, which indicates the bill-level settlements.
PCM_OP_AR_GET_ACTION_ITEMS	<p>(Patch Set 12) Modified the following:</p> <ul style="list-style-type: none"> ■ Includes the PIN_FLD_WRITEOFF_TYPE field in the PIN_FLD_RESULTS array in the output flist, which indicates the level of writeoff, such as account-level, bill-level, billinfo-level, and item-level. ■ Added 2 PIN_DISPUTE_BILL_LEVEL in the PIN_FLD_DISPUTE_TYPE field in the output flist, which indicates the bill-level disputes. ■ Added 2 PIN_ADJUSTMENT_BILL_LEVEL in the PIN_FLD_ADJUSTMENT_TYPE field in the output flist, which indicates the bill-level adjustments. ■ Added 2 PIN_SETTLEMENT_BILL_LEVEL in the PIN_FLD_SETTLEMENT_TYPE field in the output flist, which indicates the bill-level settlements.
PCM_OP_AR_GET_ITEM_DETAIL	<p>(Patch Set 12) Modified the following:</p> <ul style="list-style-type: none"> ■ Includes the PIN_FLD_WRITEOFF_TYPE field in the PIN_FLD_RESULTS array in the output flist, which indicates the level of writeoff, such as account-level, bill-level, billinfo-level, and item-level. ■ Added 2 PIN_DISPUTE_BILL_LEVEL in the PIN_FLD_DISPUTE_TYPE field in the output flist, which indicates the bill-level disputes. ■ Added 2 PIN_ADJUSTMENT_BILL_LEVEL in the PIN_FLD_ADJUSTMENT_TYPE field in the output flist, which indicates the bill-level adjustments. ■ Added 2 PIN_SETTLEMENT_BILL_LEVEL in the PIN_FLD_SETTLEMENT_TYPE field in the output flist, which indicates the bill-level settlements.
PCM_OP_SEARCH	<p>(Patch Set 12) Modified to include the PIN_FLD_MIN_ROW and PIN_FLD_MAX_ROW fields, which indicate the start row and the end row of the search result to be retrieved from the search result set.</p>
PCM_OP_AR_BILL_ADJUSTMENT	<p>(Patch Set 11) Modified to generate an event with no balance impact during bill adjustment. This event is used to identify the type of action that was performed.</p>
PCM_OP_AR_BILL_DISPUTE	<p>(Patch Set 11) Modified to generate an event with no balance impact during bill dispute. This event is used to identify the type of action that was performed.</p>

Table 3–16 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_BILL_SET_LIMIT_AND_CR	(Patch Set 11) Modified to include the PIN_FLD_AMOUNT field in the PIN_FLD_THRESHOLDS array in the PIN_FLD_LIMIT array in the input flist and the PIN_FLD_AMOUNT field in the PIN_FLD_THRESHOLDS array in the PIN_FLD_LIMIT array in the PIN_FLD_RESULTS array in the output flist. The PIN_FLD_AMOUNT fields are used to store the decimal fixed credit threshold values.
PCM_OP_PRICE_COMMIT_PLAN	(Patch Set 11) Modified to include the PIN_FLD_AMOUNT field in the PIN_FLD_THRESHOLDS array in the PIN_FLD_LIMIT array in the PIN_FLD_PLAN array in the input flist. The PIN_FLD_AMOUNT field is used to store the decimal fixed credit threshold values.
PCM_OP_PRICE_GET_PRICE_LIST	(Patch Set 11) Modified to include the PIN_FLD_AMOUNT field in the PIN_FLD_THRESHOLDS array in the PIN_FLD_LIMIT array in the PIN_FLD_PLAN array in the output flist. The PIN_FLD_AMOUNT field is used to store the decimal fixed credit threshold values.
PCM_OP_PRICE_SET_PRICE_LIST	(Patch Set 11) Modified to include the PIN_FLD_AMOUNT field in the PIN_FLD_THRESHOLDS array in the PIN_FLD_LIMIT array in the PIN_FLD_PLAN array in the input flist. The PIN_FLD_AMOUNT field is used to store the decimal fixed credit threshold values.
PCM_OP_AR_REVERSE_WRITEOFF	(Patch Set 10) Modified to support bill unit write-off reversals.
PCM_OP_PYMT_COLLECT	(Patch Set 10) Modified to support bill unit write-off reversals.
PCM_OP_BILL_MAKE_BILL	(Patch Set 9) Modified to calculate the bill totals of subordinates during trial billing of a parent account.
PCM_OP_BILL_MAKE_TRIAL_BILL	(Patch Set 9) Modified to process trial billing separately for parent and subordinate accounts depending on the -paytype payment method ID value.
PCM_OP_BILL_REVERSE	(Patch Set 9) Modified to reverse SEPA Direct Debit payments. This opcode reverses the balance impact for a SEPA Direct Debit payment that was previously recorded as paid.
PCM_OP_CUST_COMMIT_CUSTOMER	(Patch Set 9) The following field was added to the input and output flist: <ul style="list-style-type: none"> ■ SEPA_INFO array: Includes SEPA payment information.
PCM_OP_CUST_CREATE_ACCT	(Patch Set 9) The following field was added to the input and output flist: <ul style="list-style-type: none"> ■ SEPA_INFO array: Includes SEPA payment information.
PCM_OP_CUST_CREATE_CUSTOMER	(Patch Set 9) The following field was added to the input and output flist: <ul style="list-style-type: none"> ■ SEPA_INFO array: Includes SEPA payment information.
PCM_OP_CUST_CREATE_PAYINFO	(Patch Set 9) Modified to create a /payinfo/sepa object. As part of the /payinfo/sepa creation, the following field was added to the input flist: <ul style="list-style-type: none"> ■ SEPA_INFO array: Includes SEPA payment information.

Table 3–16 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_CUST_DELETE_ACCT	<p>(Patch Set 9) Modified to ensure that you cannot delete an account that contains a bill unit that is an accounts receivable (A/R) bill unit of another existing account.</p> <p>Also, modified to delete all /sepa objects associated with an account when the account is deleted.</p>
PCM_OP_CUST_DELETE_PAYINFO	<p>(Patch Set 9) Modified to delete a /payinfo/sepa object.</p>
PCM_OP_CUST_MODIFY_PAYINFO	<p>(Patch Set 9) Modified to update a /payinfo/sepa object.</p> <p>As part of the /payinfo/sepa update, the following field was added to the input flist:</p> <ul style="list-style-type: none"> ■ SEPA_INFO array: Includes SEPA payment information.
PCM_OP_CUST_PREP_CUSTOMER	<p>(Patch Set 9) The following field was added to the input and output flist:</p> <ul style="list-style-type: none"> ■ SEPA_INFO array: Includes SEPA payment information.
PCM_OP_CUST_SET_BILLINFO	<p>(Patch Set 9) Modified to ensure that the bill units forming the bill unit hierarchy belong to the same brand.</p>
PCM_OP_CUST_SET_PAYINFO	<p>(Patch Set 9) The following field was added to the input flist:</p> <ul style="list-style-type: none"> ■ SEPA_INFO array: Includes SEPA payment information.
PCM_OP_CUST_UPDATE_CUSTOMER	<p>(Patch Set 9) The following field was added to the input and output flist:</p> <ul style="list-style-type: none"> ■ SEPA_INFO array: Includes SEPA payment information.
PCM_OP_CUST_VALIDATE_CUSTOMER	<p>(Patch Set 9) The following field was added to the input flist:</p> <ul style="list-style-type: none"> ■ SEPA_INFO array: Includes SEPA payment information.
PCM_OP_PYMT_COLLECT	<p>(Patch Set 9) Modified to process SEPA payments.</p> <p>Changes include:</p> <ul style="list-style-type: none"> ■ Creates SEPA Direct Debit payment requests ■ Generates /event/billing/payment/sepa events to record the payments.
PCM_OP_CUST_COMMIT_CUSTOMER	<p>(Patch Set 8) When JCA Resource Adapter is in XA Transaction mode and receives a request to call this opcode, one of the following occurs:</p> <ul style="list-style-type: none"> ■ If the input flist contains the PIN_FLD_TXN_FLAGS field set to 2, the adapter calls the opcode in the usual manner. ■ If the PIN_FLD_TXN_FLAGS field is missing, the adapter adds the field to the flist and sets it to 2 and then calls the opcode. ■ If the PIN_FLD_TXN_FLAGS field is set to any value other than 2, the adapter rejects the opcode with the PIN_ERR_BAD_VALUE error for the PIN_FLD_TXN_FLAGS field. <p>Note: To enable this opcode to support transactions opened by a global transaction manager, the PIN_FLD_TXN_FLAGS field must be set to 2.</p>
PCM_OP_CUST_DELETE_ACCT	<p>(Patch Set 8) Modified to delete all /note objects associated with an account if the account is deleted.</p>

Table 3–16 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_AR_GET_ACCT_ACTION_ITEMS	(Patch Set 7) Modified to include the PIN_FLD_NAMEINFO array in the output flist. This array is used to retrieve the primary contact information, such as company, first name, last name, middle name, and salutation for the account.
PCM_OP_AR_GET_ACTION_ITEMS	(Patch Set 7) Modified to include the PIN_FLD_NAMEINFO array in the output flist. This array is used to retrieve the primary contact information, such as company, first name, last name, middle name, and salutation for the account.
PCM_OP_AR_GET_BILL_ITEMS	(Patch Set 7) Modified to do the following: <ul style="list-style-type: none"> ■ Include the PIN_FLD_SERVICE_ID parameter in the input flist. When you specify a service device ID, or phone number, or login name as SERVICE_ID, the SERVICE_OBJ for all the services with matching ALIAS or LOGIN_NAME are retrieved. SERVICE_OBJ is used to retrieve the associated bill items. ■ Include the new PIN_INCLUDE_CHILDREN_ONLY value for the PIN_FLD_INCLUDE_CHILDREN parameter in the input flist. When you set the value of PIN_FLD_INCLUDE_CHILDREN to 2 (PIN_INCLUDE_CHILDREN_ONLY), only the subordinate bill item details are retrieved. <p>Note: When the PIN_FLD_INCLUDE_CHILDREN parameter is set to 2 (PIN_INCLUDE_CHILDREN_ONLY), both AR_BILLINFO_OBJ and BILLINFO_OBJ (or ACCOUNT_OBJ) are mandatory in the input flist.</p>
PCM_OP_SUBSCRIPTION_SERVICE_BALGRP_TRANSFER	(Patch Set 6) Modified to support transferring a subscription service from a balance group of one account in a schema to a different balance group of another account in a different schema without migrating the accounts to the same schema.
PCM_OP_SUBSCRIPTION_TRANSFER_SUBSCRIPTION	(Patch Set 6) Modified to support transferring a subscription service between accounts stored in different schemas without migrating the accounts to the same schema.
PCM_OP_BILL_DEBIT	(Patch Set 4) Modified to support debit or credit of multiple balance groups and multiple resources per balance group. This opcode also allows validity extension of a resource. For non-currency resources, validity extension is possible only if there is one valid balance bucket.
PCM_OP_COLLECTIONS_INVOKE_PROMISE_TO_PAY	(Patch Set 4) Modified to include an optional PIN_FLD_AMOUNT parameter in the input flist. When the promise amount is specified in the input flist, the total promise amount is taken as the specified amount instead of the total overdue amount at that point.
PCM_OP_CUST_COMMIT_CUSTOMER	(Patch Set 4) Modified to include the collections bill unit profile-related data in the input list. Based on the input data, the opcode then creates the /profile/collections_params object, which includes the /billinfo POID in the profile object.
PCM_OP_CUST_MODIFY_CUSTOMER	(Patch Set 4) The description of the PIN_FLD_ALIAS_LIST field is modified because the deletion of an alias list is not supported during the creation of new services.
PCM_OP_IP_DEVICE_CREATE	(Patch Set 4) Modified to support creating IPv6 devices.

Table 3–16 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_ACT_FIND	(Patch Set 3) Modified to allow customer login without specifying a service type in the input flist. In this case, this opcode returns the list of services for the customer login.
PCM_OP_ACT_REAUTHORIZE	(Patch Set 3) Modified to ensure that the input flist contains the consumed quota from networks.
PCM_OP_BAL_GET_BALANCES	(Patch Set 3) Modified to retrieve the PIN_FLD_CONSUMED_RESERVED_AMOUNT field in the PIN_FLD_BALANCES array in the /balance_group object.
PCM_OP_BAL_GET_PREPAID_BALANCES	(Patch Set 3) Modified to return the current balances for a resource.
PCM_OP_CUST_COMMIT_CUSTOMER	(Patch Set 3) Modified to specify the pricelist name in a product offering. The pricelist in the product offering is passed to the subscription and rating components to create the offering. The pricelist is also used to rate one-time or recurring events.
PCM_OP_CUST_CREATE_CUSTOMER	(Patch Set 3) Modified to specify the pricelist name in a product offering. The pricelist in the product offering is passed to the subscription and rating components to create the offering. The pricelist is also used to rate one-time or recurring events.
PCM_OP_CUST_MODIFY_CUSTOMER	(Patch Set 3) Modified to specify the pricelist name in a product offering. The pricelist in the product offering is passed to the subscription and rating components to create the offering. The pricelist is also used to rate one-time or recurring events.
PCM_OP_CUST_PREP_CUSTOMER	(Patch Set 3) Modified to specify the pricelist name in a product offering. The pricelist in the product offering is passed to the subscription and rating components to create the offering. The pricelist is also used to rate one-time or recurring events.
PCM_OP_PRICE_GET_PRICE_LIST	(Patch Set 3) Modified to return the offer profile information.
PCM_OP_PRICE_SET_PRICE_LIST	(Patch Set 3) Modified to create, modify, or delete the offer profile.
PCM_OP_RESERVE_EXTEND	(Patch Set 3) Modified to update the consumed amount in the /reservation object and the /balance_group object.
PCM_OP_RESERVE_RELEASE	(Patch Set 3) Modified to delete the consumed amount of the corresponding /balance_group object.
PCM_OP_SUBSCRIPTION_PURCHASE_DEAL	(Patch Set 3) Modified to specify the pricelist name in a product offering. The pricelist is used to create the product offering. The pricelist is also used to rate one-time or recurring events.
PCM_OP_SUBSCRIPTION_PURCHASE_PRODUCT	(Patch Set 3) Modified to specify the pricelist name in a product offering. The pricelist is used to create the product offering. The pricelist is also used to rate one-time or recurring events.
PCM_OP_SUBSCRIPTION_SERVICE_BALGRP_TRANSFER	(Patch Set 3) Modified to specify the pricelist name in a product offering in the input flist.

Table 3–16 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_SUBSCRIPTION_SET_PRODINFO	(Patch Set 3) Modified to edit or set a pricelist name in a product offering.
PCM_OP_BILL_GROUP_MOVE_MEMBER	(Patch Set 2) Modified to check that the member can be deleted from the collections group, when a member of a collections group is moved into the hierarchy as a subordinate. When the deletion is confirmed, this opcode calls the PCM_OP_COLLECTIONS_DELETE_GROUP_MEMBER opcode to remove the member from the group and resets SCENARIO_OBJ to NULL.
PCM_OP_COLLECTIONS_ADD_ACTION	(Patch Set 2) Modified to do the following: <ul style="list-style-type: none"> ■ If the collections action is Collect Payment and the credit card or debit card details are specified, it creates a <code>/collections_action/collect_payment</code> object. ■ If the collections action is Promise to Pay, it performs validations on whether the promise-to-pay agreement is called for the bill unit. On successful validation, creates a <code>/collections_action/promise_to_pay</code> object.
PCM_OP_COLLECTIONS_PROCESS_BILLINFO	(Patch Set 2) Modified to call the PCM_OP_COLLECTIONS_POL_PROCESS_BILLINFO policy opcode before exiting collections, so that the exit decision is taken based on the newly returned value from the policy opcode.
PCM_OP_COLLECTIONS_RESCHEDULE_ACTION	(Patch Set 2) Modified to reschedule a promise-to-pay action.
PCM_OP_COLLECTIONS_SET_ACTION_STATUS	(Patch Set 2) Modified to set the status of a promise-to-pay action.
PCM_OP_COLLECTIONS_TAKE_ACTION	(Patch Set 2) Modified to handle: <ul style="list-style-type: none"> ■ Promise-to-pay actions ■ New Waiting for dependent action status when the <code>collections_action_dependency</code> parameter is enabled in the CM <code>pin.conf</code> file.
PCM_OP_CUST_CREATE_PROFILE	(Patch Set 2) Modified to ensure that the SERVICE_OBJ field is mandatory for the creation of a service-level profile.
PCM_OP_CUST_SET_STATUS	(Patch Set 2) Modified to propagate the status to all members or some members if the bill unit is the owner of the collections group.
PCM_OP_ASM_UPDATE_ACTIVE_SESSION	(Patch Set 1) Modified to update the credit threshold information in the <code>/active_session</code> object if the input flist contains that information in the PIN_FLD_CREDIT_THRESHOLDS array.
PCM_OP_ACT_AUTHORIZE	(Patch Set 1) Modified to check for and return threshold breach verification information for both amount-based and quantity-based reservations.
PCM_OP_ACT_REAUTHORIZE	(Patch Set 1) Modified to check for and return threshold breach verification information for both amount-based and quantity-based reservations.
PCM_OP_ACT_USAGE	(Patch Set 1) Modified to check for and return threshold breach verification information for both amount-based and quantity-based reservations.

Table 3–16 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_CUST_COMMIT_CUSTOMER	<p>(Patch Set 1) For a service that uses a custom life cycle, modified to set the PIN_FLD_LIFECYCLE_STATE and PIN_FLD_EXPIRATION_T values in the /service object according to the configuration in the /config/lifecycle_states object associated with the service through its business profile.</p> <p>See the discussion about associating services with custom life cycles in <i>BRM Managing Customers</i> for more information.</p>
PCM_OP_CUST_CREATE_ACCT	<p>(Patch Set 1) For a service that uses a custom life cycle, modified to pass a bill unit (/billinfo object) associated with the service to the PCM_OP_CUST_SET_STATUS opcode to update the PIN_FLD_LIFECYCLE_STATE, PIN_FLD_EXPIRATION_T, and PIN_FLD_STATUS values in the /service object according to the configuration in the associated /config/lifecycle_states and /config/service_state_map objects.</p> <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>
PCM_OP_CUST_CREATE_CUSTOMER	<p>(Patch Set 1) For a service that uses a custom life cycle, modified to set the PIN_FLD_LIFECYCLE_STATE and PIN_FLD_EXPIRATION_T values in the /service object according to the configuration in the /config/lifecycle_states object associated with the service through its business profile.</p> <p>See the discussion about associating services with custom life cycles in <i>BRM Managing Customers</i> for more information.</p>
PCM_OP_CUST_CREATE_SERVICE	<p>(Patch Set 1) For a service that uses a custom life cycle, modified to set the PIN_FLD_LIFECYCLE_STATE and PIN_FLD_EXPIRATION_T values in the /service object according to the configuration in the /config/lifecycle_states object associated with the service through its business profile.</p> <p>See the discussion about associating services with custom life cycles in <i>BRM Managing Customers</i> for more information.</p>
PCM_OP_CUST_MODIFY_CUSTOMER	<p>(Patch Set 1) For a service that uses a custom life cycle, modified to set the PIN_FLD_LIFECYCLE_STATE and PIN_FLD_EXPIRATION_T values in the /service object according to the configuration in the /config/lifecycle_states object associated with the service through its business profile.</p> <p>See the discussion about associating services with custom life cycles in <i>BRM Managing Customers</i> for more information.</p>
PCM_OP_CUST_SET_STATUS	<p>(Patch Set 1) For a service that uses a custom life cycle, modified to get the PIN_FLD_LIFECYCLE_STATE and PIN_FLD_EXPIRATION_T input values and to update those values and the PIN_FLD_STATUS value in the /service object according to the configuration in the associated /config/lifecycle_states and /config/service_state_map objects.</p> <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>

Table 3–16 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_CUST_UPDATE_SERVICES	<p>(Patch Set 1) For a service that uses a custom life cycle, modified to get the PIN_FLD_LIFECYCLE_STATE and PIN_FLD_EXPIRATION_T input values and to call the PCM_OP_CUST_SET_STATUS opcode to update those values and the PIN_FLD_STATUS value in the /service object according to the configuration in the associated /config/lifecycle_states and /config/service_state_map objects.</p> <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>
PCM_OP_RESERVE_CREATE	<p>(Patch Set 1) Modified to check for and return threshold breach verification information for both amount-based and quantity-based reservations.</p>
PCM_OP_RESERVE_EXTEND	<p>(Patch Set 1) Modified to check for and return threshold breach verification information for both amount-based and quantity-based reservations.</p>
PCM_OP_TCF_AAA_ACCOUNTING	<p>(Patch Set 1) Modified to return the following new value in the REASON output flist field:</p> <p>7—Life cycle state validation failed</p> <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>
PCM_OP_TCF_AAA_AUTHORIZE	<p>(Patch Set 1) Modified to do the following:</p> <ul style="list-style-type: none"> ■ Return in-session notifications for credit threshold breaches, service expirations, streaming usage threshold summaries, tariff change indications, and subscriber preferences. ■ Return the following new value in the REASON output flist field: <ul style="list-style-type: none"> 7—Life cycle state validation failed <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>
PCM_OP_TCF_AAA_CANCEL_AUTHORIZATION	<p>(Patch Set 1) Modified to return the following new value in the REASON output flist field:</p> <p>7—Life cycle state validation failed</p> <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>

Table 3–16 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_TCF_AAA_REAUTHORIZE	<p>(Patch Set 1) Modified to do the following:</p> <ul style="list-style-type: none"> ■ Return additional in-session notifications for credit threshold breaches, service expirations, streaming usage threshold summaries, tariff change indications, and subscriber preferences. ■ Return the following new value in the REASON output flist field: 7—Life cycle state validation failed <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>
PCM_OP_TCF_AAA_STOP_ACCOUNTING	<p>(Patch Set 1) Modified to do the following:</p> <ul style="list-style-type: none"> ■ Return additional in-session notifications for credit threshold breaches, service expirations, streaming usage threshold summaries, tariff change indications, and subscriber preferences. ■ Return the following new value in the REASON output flist field: 7—Life cycle state validation failed <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>
PCM_OP_TCF_AAA_UPDATE_AND_REAUTHORIZE	<p>(Patch Set 1) Modified to do the following:</p> <ul style="list-style-type: none"> ■ Return additional in-session notifications for credit threshold breaches, service expirations, call denials, streaming usage threshold summaries, tariff change indications, and subscriber preferences. ■ Return the following new value in the REASON output flist field: 7—Life cycle state validation failed <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>

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 1 through BRM 7.5 Maintenance Patch Set 1.

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
<code>/config/gl_calendar</code>	(Maintenance Patch Set 1) Stores information about the general ledger (G/L) reporting calendar, which is used to determine the G/L cycle a journal entry belongs to.
<code>/event/billing/adjustment/bill</code>	(Patch Set 12) Stores information about the bill-level adjustments.
<code>/event/billing/dispute/bill</code>	(Patch Set 12) Stores information about the bill-level disputes.
<code>/event/billing/settlement/bill</code>	(Patch Set 12) Stores information about the bill-level settlements.
<code>/newsfeed</code>	(Patch Set 12) Stores all the data required for News Feed for different events.
<code>/config/creditor</code>	(Patch Set 9) Stores information about a creditor, such as name, address, and creditor ID. For each unique creditor ID, the creditor information is stored in the <code>PIN_FLD_CREDITOR_INFO</code> array.
<code>/data/trial_bill_sequence</code>	(Patch Set 9) Monitors the amount of times a subordinate account has been run with trial billing.
<code>/event/activity/sepa</code>	(Patch Set 9) Records activity related to the SEPA payment method.

Table 4–1 (Cont.) New Storable Classes

New Storable Class	Description
/event/activity/sepa/mandate_amendment	(Patch Set 9) Records an amendment to a mandate. This event is created if any of the following information is changed in a mandate. <ul style="list-style-type: none"> ■ IBAN: International Bank Account Number ■ BIC: Business Identifier Code ■ UMR: Unique mandate reference ■ Creditor ID ■ Creditor name
/event/audit/customer/payinfo/sepa	(Patch Set 9) Audit event to record changes to the SEPA payment method.
/event/billing/charge/sepa	(Patch Set 9) Records the payment request information for SEPA Direct Debit and SEPA Credit Transfer.
/event/billing/payment/sepa	(Patch Set 9) Records a SEPA Direct Debit payment. This event is created when a SEPA Direct Debit payment is completed.
/event/billing/refund/sepa	(Patch Set 9) Records a SEPA Credit Transfer payment. This event is created when a SEPA Credit Transfer payment is completed.
/event/billing/reversal/sepa	(Patch Set 9) Records a SEPA Direct Debit payment reversal. This event is created when a SEPA Direct Debit payment reversal is completed.
/payinfo/sepa	(Patch Set 9) Extended /payinfo class. Stores the SEPA payment information including the mandate information for SEPA Direct Debit.
/sepa	(Patch Set 9) Generic class to store SEPA payment request information.
/sepa/ct	(Patch Set 9) Stores information about the SEPA Credit Transfer payment request.
/sepa/dd	(Patch Set 9) Stores information about the SEPA Direct Debit payment request.
/sepa/dd/reversal	(Patch Set 9) Stores information about the SEPA Direct Debit payment reversal. This object is created when a SEPA Direct Debit payment reversal is initiated to reverse a duplicate payment that was collected.
/config/note_status	(Patch Set 8) Stores information about the status of a /note object so that notes can be retrieved by that criteria.
/config/note_type	(Patch Set 8) Stores information about the type and subtype of a /note object so that notes can be retrieved by that criteria.
/event/customer/note	(Patch Set 8) The parent class for classes that contain information (audit trail) regarding creating and modifying a /note object.

Table 4–1 (Cont.) New Storable Classes

New Storable Class	Description
<code>/event/customer/note/create</code>	(Patch Set 8) Stores information about the creation of a /note object.
<code>/event/customer/note/modify</code>	(Patch Set 8) Stores information about the modification of a /note object.
<code>/profile/collections_params</code>	(Patch Set 4) Stores the customer's collections profile information. The /profile/collections_params object is created when the customer's account is created using the PCM_OP_CUST_COMMIT_CUSTOMER opcode. See the discussion about creating customer's collections profiles at the time of customer account creation in <i>BRM Managing Customers</i> for more information.
<code>/offer_profile</code>	(Patch Set 3) Stores the static information associated with services in policy labels. An /offer_profile object is an optional element in a price list and is associated with a /product object or a /discount object. /offer_profile objects are created and managed using the loadpricelist utility and the price list opcodes (PCM_OP_SET_PRICE_LIST and PCM_OP_GET_PRICE_LIST). See the discussion about managing offer profiles in <i>BRM Managing Customers</i> for more information.
<code>/collections_action/collect_payment</code>	(Patch Set 2) Stores information about the amount to be paid and a link to the /payinfo object for a Collect Payment action. See the discussion about collecting payments in <i>BRM Collections Manager</i> for more information.
<code>/collections_action/promise_to_pay</code>	(Patch Set 2) Stores information about the promise-to-pay milestones. See the discussion about promise-to-pay in <i>BRM Collections Manager</i> for more information.
<code>/config/collections/scenario_params</code>	(Patch Set 2) Stores additional parameters for scenario assignment or replacement. See the discussion about collections scenario replacement in <i>BRM Collections Manager</i> for more information.
<code>/event/activity/collections</code>	(Patch Set 2) Stores information about the collections for promise-to-pay and scenario replacement activities. See the discussion about promise-to-pay agreements and collections scenario replacement in <i>BRM Collections Manager</i> for more information.
<code>/event/activity/collections/promise_to_pay</code>	(Patch Set 2) Stores the parameter information while entering into the promise-to-pay agreement. See the discussion about promise-to-pay events in <i>BRM Collections Manager</i> for more information.
<code>/event/activity/collections/replace_scenario</code>	(Patch Set 2) Stores the parameter information while replacing a bill unit's existing scenario with a new scenario. See the discussion about collections scenario replacement in <i>BRM Collections Manager</i> for more information.

Table 4–1 (Cont.) New Storable Classes

New Storable Class	Description
/event/group/collections_targets	(Patch Set 2) Stores the information about the collections group.
/group/collections_targets	(Patch Set 2) Stores the information about several bill units under a single group entering or exiting collections and processes the collections actions.
/config/lifecycle_states	(Patch Set 1) Stores configuration information about the states, rules, and transitions in a custom service life cycle. A separate instance of this class is created for each custom service life cycle in your system. See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.
/config/service_state_map	(Patch Set 1) Stores mapping between custom service life cycle states (PIN_FLD_LIFECYCLE_STATE field in /service objects) and default service life cycle statuses (PIN_FLD_STATUS field in /service objects). All state-to-status mapping in your system is stored in a single instance of this class. The instance can contain mapping for multiple service life cycles. See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.
/config/subscriber_preferences_map	(Patch Set 1) Stores the possible configurations for subscriber preferences. See the discussion about in-session notifications in <i>BRM Telco Integration</i> for more information.
/profile/subscriber_preferences	(Patch Set 1) Stores the preferences associated with a subscriber’s profile. See the discussion about in-session notifications in <i>BRM Telco Integration</i> for more information.

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
/journal	(Maintenance Patch Set 1) Now includes the PIN_FLD_EFFECTIVE_T field, which indicates the G/L cycle the journal entry belongs to.
/tmp_journals_to_process	(Maintenance Patch Set 1) Now includes the PIN_FLD_EFFECTIVE_T field, which indicates the G/L cycle the journal entry belongs to.
/event	(Patch Set 12) Now includes the PIN_FLD_NETWORK_SESSION_ID field, which stores the network session ID received from Elastic Charging Engine (ECE) that indicates ECE-related events with conditional balance impacts.
/event/customer/billinfo/create	(Patch Set 12) Now includes the PIN_FLD_ACTG_TYPE field in the PIN_FLD_BILLINFO array to store the accounting type for the /billinfo object.

Table 4–2 (Cont.) Changed Storable Classes

Changed Storable Class	Description
/event/customer/billinfo/modify	(Patch Set 12) Now includes the PIN_FLD_ACTG_TYPE field in the PIN_FLD_BILLINFO array to store the accounting type for the /billinfo object.
/user_activity	<p>(Patch Set 12) Modified to store information such as external customer service representative (CSR) ID and correlation ID sent by the customer relations management (CRM) applications:</p> <ul style="list-style-type: none"> ■ Added the PIN_FLD_EVENTS array, which now contains the PIN_FLD_EVENT_OBJ field. ■ Added the PIN_FLD_EXTERNAL_USER field. ■ Added the PIN_FLD_CORRELATION_ID field. ■ Added the PIN_FLD_API_USER field <p>Note: If the CRM application does not send the external CSR ID, correlation ID, and API user to BRM, BRM logs NULL values for these fields in the /user_activity storable class.</p>
/config/payment	(Patch Set 9) Now includes the PIN_FLD_PAY_TYPER array for storing SEPA payment method configurations.
/invoice	<p>(Patch Set 9) Modified for trial invoicing to include the following:</p> <ul style="list-style-type: none"> ■ Added a new PIN_FLD_BILLS array, which contains the following fields: PIN_FLD_START_T PIN_FLD_END_T PIN_FLD_AR_BILLINFO_OBJ PIN_FLD_DUE PIN_FLD_ADJUSTED PIN_FLD_WRITEOFF PIN_FLD_DISPUTED PIN_FLD_RECVD ■ Added the PIN_FLD_CHECK_SPLIT_FLAGS field to the /invoice object.

Table 4–2 (Cont.) Changed Storable Classes

Changed Storable Class	Description
/note	<p>(Patch Set 8) Now includes numerous new fields to support:</p> <ul style="list-style-type: none"> ▪ Editing notes ▪ Replying to or following up on notes ▪ Retrieving notes by ID, the owning account, the associated object (for example, adjustment or dispute), the type and subtype, or by date range ▪ Drilling down to the original event <p>The following fields have been added:</p> <ul style="list-style-type: none"> ▪ PIN_FLD_HEADER_STR: The conversation header ▪ PIN_FLD_EFFECTIVE_T: The effective date ▪ PIN_FLD_CLOSED_T: The time of resolution ▪ PIN_FLD_REASON_DOMAIN_ID: The reason domain ID; for example, A/R ▪ PIN_FLD_AMOUNT: The associated amount ▪ PIN_FLD_REASON_ID: The reason ID associated with the action ▪ PIN_FLD_ITEM_OBJ: The POID of the item associated with the note; for example, if the note is created for an item adjustment ▪ PIN_FLD_SERVICE_OBJ: The POID of the service associated with the note; for example, if the note is created for a service adjustment ▪ PIN_FLD_BILLINFO_OBJ: The POID of billinfo associated with the note; for example, if the note is created for the adjustment of a bill ▪ PIN_FLD_NOTE_TYPE: The category of note, for example, balance, A/R activity, and so on: used for enquiry (Required field) ▪ PIN_FLD_NOTE_SUB_TYPE: The category subtype: used for enquiry (Required field) ▪ PIN_FLD_STATUS: The status: Not Set, Resolved, Unresolved (Required field) ▪ PIN_FLD_COUNT: The number of notes in the conversation ▪ PIN_FLD_DATA_ARRAY: The note details that follow ▪ PIN_FLD_ENTRY_T: The creation time ▪ PIN_FLD_CSR_ACCOUNT_OBJ: The CSR making the entry ▪ PIN_FLD_TRACKING_ID: The external system identifier ▪ PIN_FLD_NOTE_STR: The actual description <p>The following field has been removed:</p> <ul style="list-style-type: none"> ▪ PIN_FLD_TYPE
/event/audit/service_balgrp_transfer	<p>(Patch Set 6) Now includes the PIN_FLD_TO_SERVICE_OBJ field in the PIN_FLD_SERVICES array to store details about the new service after the transfer.</p>

Table 4–2 (Cont.) Changed Storable Classes

Changed Storable Class	Description
/event/audit/subscription	(Patch Set 6) Now includes the PIN_FLD_TO_SERVICE_OBJ field in the PIN_FLD_SERVICES array to store details about the new service after the transfer.
/event/audit/subscription/transfer	(Patch Set 6) Now includes the following fields: <ul style="list-style-type: none"> ■ PIN_FLD_TO_BAL_GRP_OBJ in the PIN_FLD_BALANCE_GROUPS array to store details about the new balance group after the transfer ■ PIN_FLD_TO_PROFILE_OBJ in the PIN_FLD_PROFILES array to store details about the new profile after the transfer ■ PIN_FLD_TO_SERVICE_OBJ in the PIN_FLD_PROFILES array to store details about the new service after the transfer ■ PIN_FLD_TO_SERVICE_OBJ in the PIN_FLD_DEVICES array to store details about the new devices after the transfer
/billinfo	(Patch Set 5) Now enhances the PIN_FLD_BILLING_STATUS_FLAGS field to include the following values to indicate error conditions: <ul style="list-style-type: none"> ■ For regular cycle fee: PIN_BILL_FLAGS_CF_ERROR (bit value 0x100) ■ For deferred cycle fee: PIN_BILL_FLAGS_DEF_CF_ERROR (bit value 0x200) ■ For deferred purchase cycle fee: PIN_BILL_FLAGS_DEF_PURCHASE_ERROR (bit value 0x400) ■ For deferred cancel cycle fee: PIN_BILL_FLAGS_DEF_CANCEL_ERROR (bit value 0x800) ■ For billing validation: PIN_BILL_FLAGS_CF_NOT_APPLIED (bit value 0x1000) ■ For updating journal objects: PIN_BILL_FLAGS_UPDATE_JOURNALS_ERROR (bit value 0x2000) ■ For updating item objects: PIN_BILL_FLAGS_UPDATE_ITEMS_ERROR (bit value 0x4000)
/balance_group	(Patch Set 3) Now includes the PIN_FLD_CONSUMED_RESERVED_AMOUNT field in the PIN_FLD_BALANCES array to store the consumed reserved amount for the resource.
/config/reserve	(Patch Set 3) Now includes the PIN_FLD_RESOURCE_ID field, which stores the resource counter corresponding to the PIN_FLD_REQ_MODE field passed in the input flist.
/event/billing/product/action	(Patch Set 3) Now includes the PIN_FLD_PRICE_LIST_NAME field, which stores information about the price list name associated with the purchased products.
/purchased_product	(Patch Set 3) Now includes the PIN_FLD_PRICE_LIST_NAME field, which stores information about the price list name associated with the purchased products.

Table 4–2 (Cont.) Changed Storable Classes

Changed Storable Class	Description
/reservation	(Patch Set 3) Now includes the PIN_FLD_CONSUMED_RESERVED_AMOUNT field in the PIN_FLD_BALANCES array to store the input (from the network) about the used quantities and the consumed reserved amount for the resource.
/reservation_list	(Patch Set 3) Now includes the PIN_FLD_CONSUMED_RESERVED_AMOUNT field in the PIN_FLD_BALANCES array to store the consumed reserved amount for the resource.
/collections_scenario	(Patch Set 2) Now includes the PIN_FLD_PROMISE_TO_PAY array that stores the date and time the promise-to-pay agreement is effective for a bill unit, the total promised amount, and the link to the /event/activity/collections/promise_to_pay object. See the discussion about promise-to-pay in <i>BRM Collections Manager</i> for more information.
/config/collections/action	(Patch Set 2) Now includes the PIN_FLD_TARGET_ACTION field to determine which bill units the action should target.
/config/collections/scenario	(Patch Set 2) Now includes the following parameters: <ul style="list-style-type: none"> ■ PIN_FLD_SEVERITY: Stores the scenario severity information. This parameter is added in the PIN_FLD_SCENARIO_INFO substruct. ■ PIN_FLD_PROFILE_DATA_ARRAY: Stores the additional configurable parameters that are used to evaluate assignment or replacement of a scenario. The array elements form the evaluation formula associated with the collections scenario. See the discussion about collections scenario replacement in <i>BRM Collections Manager</i> for more information.
/event/audit	(Patch Set 2) Now includes the PIN_FLD_EVENT_AUDIT array to store the pending receivables of the child and the effective_t field for auditing when a parent goes into collections because a group member has gone into collections.
/active_session	(Patch Set 1) Now includes the list of all thresholds breached during the current session. See the discussion about in-session notifications in <i>BRM Telco Integration</i> for more information.
/config/aaa	(Patch Set 1) Now includes the maximum scaled delay time MaxScaledDelayTime configured for each resource ID. Used in calculating scaled delay time for tariff change indications in in-session notifications. See the discussion about in-session notifications in <i>BRM Telco Integration</i> for more information.

Table 4–2 (Cont.) Changed Storable Classes

Changed Storable Class	Description
/config/business_params	<p>(Patch Set 1) Now includes the following parameters:</p> <ul style="list-style-type: none"> ■ SubscriberLifeCycle This parameter enables BRM to support custom service life cycles. By default, it is set to disabled. See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information. ■ Piggyback This parameter enables BRM to support in-session notifications. By default, it is set to disabled. See the discussion about providing in-session notifications in <i>BRM Telco Integration</i> for more information.
/config/opcodemap/tcf	<p>(Patch Set 1) Now includes the VALIDATE_LIFECYCLE processing stage.</p> <p>During this stage, the PCM_OP_TCF_AAA_VALIDATE_LIFECYCLE helper opcode is called to validate a service request against the business rules configured for the current state of a service that uses a custom service life cycle.</p> <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>
/config/template	<p>(Patch Set 1) Now supports the following key-value pair:</p> <ul style="list-style-type: none"> ■ Key: lifecycle_obj ■ Value: Name of the custom service life cycle <p>This key-value pair enables users to associate a /config/lifecycle_states object with a particular /service object.</p> <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>
/event/customer/status	<p>(Patch Set 1) Now includes the following fields:</p> <ul style="list-style-type: none"> ■ PIN_FLD_LIFECYCLE_STATE: Stores the numeric ID of a custom service life cycle state. ■ PIN_FLD_SERVICE_STATE_EXPIRATION_T: Stores the expiration day and time (time stamp) of the custom service life cycle state. <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>
/service	<p>(Patch Set 1) Now includes the following fields:</p> <ul style="list-style-type: none"> ■ PIN_FLD_LIFECYCLE_STATE: Stores the numeric ID of the service’s current custom life cycle state. ■ PIN_FLD_SERVICE_STATE_EXPIRATION_T: Stores the day and time (time stamp) the current state of the service expires and the transition to the next state in the service life cycle occurs. This field can contain a value only when the PIN_FLD_LIFECYCLE_STATE field contains a value. <p>See the discussion about managing service life cycles in <i>BRM Managing Customers</i> for more information.</p>

New Notification Events

Table 4–3 lists the notification events introduced in the BRM 7.5 patch sets. The new notification events are grouped by the respective patch sets.

Table 4–3 New Notification Events

New Notification Event	Description
/event/notification/refund/create	(Patch Set 12) Generated when a new refund item is created.
/event/notification/offer_profile/create	(Patch Set 3) Generated when a new offer profile is created.
/event/notification/offer_profile/delete	(Patch Set 3) Generated when an offer profile is deleted.
/event/notification/offer_profile/ThresholdBreach	(Patch Set 3) Generated when the sum of the current balance and the consumed reservation is equal to or greater than the nearest threshold configured in the offer profile for a service and resource ID.
/event/notification/offer_profile/update	(Patch Set 3) Generated when an existing offer profile is modified.

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 1 through BRM 7.5 Maintenance Patch Set 1.

Schema and Index Changes (Maintenance Patch Set 1)

BRM 7.5 Maintenance Patch Set 1 included the following schema and index changes:

- The following table was added:
 - CONFIG_GL_CALENDAR_T
- The following column was added in the JOURNAL_T table:
 - EFFECTIVE_T
- The following column was added in the TMP_JOURNALS_TO_PROCESS_T table:
 - EFFECTIVE_T
- The size of the RECORD_TYPE column in the SUSPENDED_USAGE_T table was changed to VARCHAR2(10).
- The following indexes were modified:
 - I_ITEM_AR_BILL_OBJ__ID
 - I_ITEM_BILL_OBJ__ID
- The following indexes were added:
 - I_ACTIVE_SESSION_T_AMT__ID
 - I_ADMIN_ACTION_T_AMT__ID
 - I_ASSOCIATED_BUS_T_AMT__ID
 - I_AU_BILLINFO_T_AMT__ID
 - I_AU_DEVICE_SERV_T_AMT__ID
 - I_AU_DEVICE_T_AMT__ID
 - I_AU_GROUP_T_AMT__ID
 - I_AU_ORDERED_BAL_T_AMT__ID
 - I_AU_PAYINFO_T_AMT__ID
 - I_BATCH_T_AMT__ID
 - I_BEST_PRICING_T_AMT__ID

- I_BULKACCT_T_AMT__ID
- I_COLLECTIONS_T_AMT__ID
- I_DATA_T_AMT__ID
- I_DEVICE_T_AMT__ID
- I_FILTER_SET_T_AMT__ID
- I_HISTORY_BILLS_T_AMT__ID
- I_INVOICE_DETAIL_T_AMT__ID
- I_INVOICE_T_AMT__ID
- I_JOB_AMT_T_AMT__ID
- I_JOB_BATCH_AMT_T_AMT__ID
- I_LEDGER_REPORT_T_AMT__ID
- I_MONITOR_QUEUE_T_AMT__ID
- I_OFFER_PROFILE_T_AMT__ID
- I_ORDER_T_AMT__ID
- I_PROC_AUD_T_AMT__ID
- I_PURCHASED_BUNDLE_T_AMT__ID
- I_RA_THRESHOLD_T_AMT__ID
- I_REL_EVENT_T_AMT__ID
- I_REMIT_INFO_T_AMT__ID
- I_RERATE_SESSION_T_AMT__ID
- I_RESERVATION_LIST_T_AMT__ID
- I_SMS_SETTLE_RPT_T_AMT__ID
- I_SUSPENDED_BATCH_T_AMT__ID
- I_TMP_UNPROCESSED_T_AMT__ID
- I_USER_ACTIVITY_T_AMT__ID

Schema and Index Changes (Patch Set 12)

BRM 7.5 Patch Set 12 included the following schema and index changes:

- The following columns were added in the EVENT_CUSTOMER_BILLINFO_T table:
 - BUSINESS_PROFILE_OBJ_DB
 - BUSINESS_PROFILE_OBJ_ID0
 - BUSINESS_PROFILE_OBJ_REV
 - BUSINESS_PROFILE_OBJ_TYPE
- The following columns were added in the USER_ACTIVITY_T table:
 - API_USER_ID
 - CORRELATION_ID

- EXTERNAL_USER_ID
- The following columns were added in the USER_ACTIVITY_EVENT_LIST_T table:
 - EVENT_OBJ_DB
 - EVENT_OBJ_ID0
 - EVENT_OBJ_REV
 - EVENT_OBJ_TYPE
- The following columns were removed in the USER_ACTIVITY_T table:
 - EVENT_OBJ_DB
 - EVENT_OBJ_ID0
 - EVENT_OBJ_REV
 - EVENT_OBJ_TYPE
- The following indexes were added:
 - I_CMT_REFERENCE_T
 - I_PURCHASED_BUNDLE_T

Schema and Index Changes (Patch Set 11)

BRM 7.5 Patch Set 11 included the following schema and index changes:

- The following column was added in the EVENT_CUSTOMER_BILLINFO_T table:
 - ACTG_TYPE
- The following indexes were added in the NEWSFEED_T table:
 - I_NEWSFEED_ACCOUNT_OBJ_ID
 - I_NEWSFEED_BILLINFO_OBJ_ID
 - I_NEWSFEED_ID

Schema and Index Changes (Patch Set 10)

BRM 7.5 Patch Set 10 included the following schema and index changes:

- The following table was added:
 - NEWSFEED_T
- The following column was added in the EVENT_BILLING_CHARGE_CC_T table:
 - CARD_TYPE
- The following column was added in the EVENT_BILLING_VALID_CC_T table:
 - CARD_TYPE
- The following column was added in the PAYINFO_CC_T table:
 - CARD_TYPE
- There were no index changes in this release.

Schema and Index Changes (Patch Set 9)

BRM 7.5 Patch Set 9 included the following schema and index changes:

- The following tables were added:
 - CONFIG_CREDITOR_T
 - DEBTOR_INFO_T
 - EVENT_ACT_SEPA_MAND_AMEND_T
 - EVENT_BILLING_CHARGE_SEPA_T
 - EVENT_BILLING_PAYMENT_SEPA_T
 - EVENT_BILLING_REFUND_SEPA_T
 - EVENT_BILLING_REVERSAL_SEPA_T
 - INVOICE_BILLS_T
 - PAYINFO_SEPA_T
 - SEPA_DD_REVERSAL_T
 - SEPA_T
- The following columns were added in the EVENT_T table:
 - LINK_OBJ_DB
 - LINK_OBJ_ID0
 - LINK_OBJ_REV
 - LINK_OBJ_TYPE
- The following column was added in the INVOICE_T table:
 - CHECK_SPLIT_FLAGS
- There were no index changes in this release.

Schema and Index Changes (Patch Set 8)

BRM 7.5 Patch Set 8 included the following schema and index changes:

- The following tables were added:
 - CONFIG_NOTE_STATUS_T
 - CONFIG_NOTE_SUB_TYPES_T
 - CONFIG_NOTE_TYPES_T
 - EVENT_CUSTOMER_NOTE_DATA_T
 - EVENT_CUSTOMER_NOTE_T
 - NOTE_DATA_T
- The following columns were added in the ACCOUNT_NAMEINFO_T table:
 - GEOCODE
 - TAXPKG_TYPE
- The following column was added in the BILL_T table:
 - CLOSED_T

- The following column was added in the HISTORY_BILLS_T table:
 - CLOSED_T
- The following columns were added in the CONFIG_TAXS_T table:
 - GEOCODE
 - TAXPKG_TYPE
- The following columns were added in the EVENT_CUSTOMER_NAMEINFO_T table:
 - GEOCODE
 - TAXPKG_TYPE
- The following columns were added in the NOTE_T table:
 - AMOUNT
 - BILLINFO_OBJ_DB
 - BILLINFO_OBJ_ID0
 - BILLINFO_OBJ_REV
 - BILLINFO_OBJ_TYPE
 - CLOSED_T
 - COUNT
 - EFFECTIVE_T
 - HEADER_STR
 - ITEM_OBJ_DB
 - ITEM_OBJ_ID0
 - ITEM_OBJ_REV
 - ITEM_OBJ_TYPE
 - NOTE_SUB_TYPE
 - NOTE_TYPE
 - REASON_DOMAIN_ID
 - REASON_ID
 - SERVICE_OBJ_DB
 - SERVICE_OBJ_ID0
 - SERVICE_OBJ_REV
 - SERVICE_OBJ_TYPE
 - STATUS
- The following columns were removed in the NOTE_T table:
 - CSR_ACCOUNT_OBJ_DB
 - CSR_ACCOUNT_OBJ_ID0
 - CSR_ACCOUNT_OBJ_REV
 - CSR_ACCOUNT_OBJ_TYP

- NOTE
- TYPE

Schema and Index Changes (Patch Set 7)

BRM 7.5 Patch Set 7 included the following schema and index changes:

- The following columns were added in the IFW_NETWORKOPER table:
 - CAMELFLAG
 - COUNTRYCODE
 - DECIMAL_PLACES
 - NRTRDEFLAG
- The following column was added in the EVENT_BILLING_DISC_ACTION_T table:
 - STR_VAL
- The following column was added in the PURCHASED_DISCOUNT_T table:
 - STR_VAL
- The permission value for the following fields in the PROC_AUD_BILL_ERR_ACCT_T table was set to 2 (optional):
 - BILL_OBJ_DB
 - BILL_OBJ_ID0
 - BILL_OBJ_REV
 - BILL_OBJ_TYPE
- The following index was added:
 - I_BATCH_REL_INPUT_FNAME_ID in BATCH_REL_T

Schema and Index Changes (Patch Set 6)

BRM 7.5 Patch Set 6 included the following schema and index changes:

- By default, the PASSWD column is encrypted in the SERVICE_T table.
- By default, the DEBIT_NUM column is encrypted in the following tables:
 - AU_PAYINFO_CC_T
 - AU_PAYINFO_DD_T
 - EVENT_BILLING_CHARGE_CC_T
 - EVENT_BILLING_CHARGE_DD_T
 - EVENT_BILLING_REVERSAL_CC_T
 - EVENT_BILLING_REVERSAL_DD_T
 - EVENT_BILLING_VALID_CC_T
 - EVENT_BILLING_VALID_DD_T
 - PAYINFO_CC_T
 - PAYINFO_DD_T

- The following columns were added in the EVENT_AUDIT_SERVICES_T table:
 - TARGET_SERVICE_OBJ_DB
 - TARGET_SERVICE_OBJ_ID0
 - TARGET_SERVICE_OBJ_REV
 - TARGET_SERVICE_OBJ_TYPE
- The following columns were added in the EVENT_AUDIT_BALGRPS_T table:
 - TARGET_BAL_GRP_OBJ_DB
 - TARGET_BAL_GRP_OBJ_ID0
 - TARGET_BAL_GRP_OBJ_REV
 - TARGET_BAL_GRP_OBJ_TYPE
- The following columns were added in the EVENT_AUDIT_PROFILES_T table:
 - TARGET_PROFILE_OBJ_DB
 - TARGET_PROFILE_OBJ_ID0
 - TARGET_PROFILE_OBJ_REV
 - TARGET_PROFILE_OBJ_TYPE
 - TARGET_SERVICE_OBJ_DB
 - TARGET_SERVICE_OBJ_ID0
 - TARGET_SERVICE_OBJ_REV
 - TARGET_SERVICE_OBJ_TYPE
- The following columns were added in the EVENT_AUDIT_DEVICES_T table:
 - TARGET_SERVICE_OBJ_DB
 - TARGET_SERVICE_OBJ_ID0
 - TARGET_SERVICE_OBJ_REV
 - TARGET_SERVICE_OBJ_TYPE
- The following columns were added in the EVENT_AUDIT_SVC_BG_TRANSFER_T table:
 - TARGET_SERVICE_OBJ_DB
 - TARGET_SERVICE_OBJ_ID0
 - TARGET_SERVICE_OBJ_REV
 - TARGET_SERVICE_OBJ_TYPE
- The following indexes were added:
 - I_EVENT_AUDIT__ID in EVENT_AUDIT_T
 - I_EVENT_BILLING_PROD_OBJ__ID in EVENT_BILLING_PRODUCT_T
 - I_EVENT_CUST_LGN_ALS__ID in EVENT_CUSTOMER_LOGIN_ALIAS_T
 - I_EVENT_RUM_MAP__ID in EVENT_RUM_MAP_T

Schema and Index Changes (Patch Set 5)

BRM 7.5 Patch Set 5 included the following schema and index changes:

- The following tables were added:
 - TMP_EVENTS_TO_PROCESS_T
 - TMP_JOURNALS_TO_PROCESS_T
- The following indexes were added:
 - i_au_bal_grp_acct__id in AU_BAL_GRP_T
 - i_au_billinfo_parent__id in AU_BILLINFO_T
 - i_au_group_sharing_prof__id in AU_GROUP_SHARING_PROFILES_T
 - i_au_ordered_balgroup_poid_rev in AU_ORDERED_BALGROUP_T
 - i_au_ordered_balgroup_serv__id in AU_ORDERED_BALGROUP_T
 - i_au_profile_account_obj_id in AU_PROFILE_T
 - i_au_profile_au_parent_obj_id in AU_PROFILE_T
 - i_au_profile_poid_acc_obj__id in AU_PROFILE_T
 - i_au_profile_service_obj_id in AU_PROFILE_T
 - i_au_profile_srv_era_da__id in AU_PROFILE_SERV_EXTRATING_DA_T
 - i_au_profile_acct_era_da__id in AU_PROFILE_ACCT_EXTRATING_DA_T
 - i_au_profile_serv_era__id in AU_PROFILE_SERV_EXTRATING_T
 - i_au_service_alias_list__name in AU_SERVICE_ALIAS_LIST_T
 - i_au_uniqueness__login in AU_UNIQUENESS_T
 - i_tmp_events_to_process__id in TMP_EVENTS_TO_PROCESS_T
 - i_tmp_events_to_process__ac in TMP_EVENTS_TO_PROCESS_T
 - i_tmp_journals_to_process__id in TMP_JOURNALS_TO_PROCESS_T
 - i_tmp_journals_to_process__ac in TMP_JOURNALS_TO_PROCESS_T
 - i_unpr_events_st_end__id in TMP_UNPROCESSED_EVENTS_T
- The following indexes were dropped:
 - i_unpr_events_start__id
 - i_unpr_events_end__id

Schema and Index Changes (Patch Set 4)

BRM 7.5 Patch Set 4 included the following schema and index changes:

- The following table was added:
 - PROFILE_COLLECTIONS_PARAMS_T
- The following column was added in the COLL_SCEN_PROMISETOPAY_T table:
 - AMOUNT
- The following columns were added in the EVENT_ACT_COLL_PRMSTOPAY_T table:

- AMOUNT
- OVERDUE_AMOUNT
- The size of the ipaddr column in the following tables was changed to RAW (160):
 - AU_SERVICE_IP_T
 - AU_SERVICE_VPDN_T
 - EVENT_SESSION_DIALUP_T
 - SERVICE_IP_T
 - SERVICE_VPDN_T
- The size of the provider_ipaddr column in the EVENT_T table was changed to VARCHAR2 (160).
- The size of the cli_ipaddr column in the following tables was changed to VARCHAR2 (80):
 - EVENT_T
 - USER_ACTIVITY_T
- The size of the mail_server_id column in the following tables was changed to RAW(160):
 - AU_SERVICE_EMAIL_T
 - SERVICE_EMAIL_T
- The size of the server_ip column in the EVENT_BROADBAND_T table was changed to VARCHAR2 (80).
- The size of the client_ip column in the EVENT_BROADBAND_T table was changed to VARCHAR2 (80).
- The following index was added:
 - I_DD_TYPES__NAME

Schema and Index Changes (Patch Set 3)

BRM 7.5 Patch Set 3 included the following schema and index changes:

- The following tables were added:
 - BATCH_CMT_T
 - CMT_REFERENCE_T
 - DD_TYPES_T
 - OFFER_PROFILE_POLICY_LABELS_T
 - OFFER_PROFILE_T
 - OFFER_PROFILE_TIERS_T
 - TM_EVENT_ACT_CONTENT_T
 - TM_EVENT_ACTIVITY_SETTLEMENT_T
 - TM_EVENT_ACTIVITY_TLCS_T
 - TM_EVENT_ACTV_TLCS_SVC_CODES_T
 - TM_EVENT_SESS_TLCS_SVC_CODES_T

- TM_EVENT_SESSION_TELCO_GPRS_T
- TM_EVENT_SESSION_TLCO_GSM_T
- TM_EVENT_SESSION_TLCS_T
- The size of the NAME column in the EVENT_AUDIT_COLL_GDTLS_T table was changed from VARCHAR2 (60) to VARCHAR2 (255).
- The CONSUMED_RESERVED_AMOUNT column was dropped from the AU_BAL_GRP_BALS_T table.
- The following column was added in the CONFIG_RESERVE_T table:
 - resource_id
- The following column was added in the EVENT_BILLING_PRODUCT_ACTION_T table:
 - price_list_name
- The following column was added in the PURCHASED_PRODUCT_T table:
 - price_list_name
- The following column was added in the RESERVED_BALANCES_T table:
 - CONSUMED_RESERVED_AMOUNT
- The following column was added in the RESERVATION_BALANCES_T table:
 - CONSUMED_RESERVED_AMOUNT
- The following column was added in the BAL_GRP_BALS_T table:
 - CONSUMED_RESERVED_AMOUNT
- The following column was added in the DD_OBJECTS_T table:
 - VIRTUAL_FLAG
- The following views were added:
 - COLL_ACTION_IF_VIEW
 - COLL_SCENARIO_IF_VIEW
 - VW_EVENT_ACT_CONTENT_T
 - VW_EVENT_ACTIVITY_SETTLEMENT_T
 - VW_EVENT_ACTIVITY_TLCS_T
 - VW_EVENT_ACTV_TLCS_SVC_CODES_T
 - VW_EVENT_SESS_TLCS_SVC_CODES_T
 - VW_EVENT_SESSION_TELCO_GPRS_T
 - VW_EVENT_SESSION_TLCO_GSM_T
 - VW_EVENT_SESSION_TLCS_T
- The following indexes were added:
 - I_AU_COLL_ACTION_CREATED__ID
 - I_AU_GROUP_SHARING_PROF__ID
 - I_AU_PROFILE_SERV_ERA__ID
 - I_COLL_SCENARIO_CREATED__ID

- I_COLL_SCENARIO_MOD_ID
- I_INPUT_ID_N_OBJ_TYPE
- I_POID_ID0_N_OBJ_TYPE
- I_STAGE_ID
- I_SYNC_ID
- NRTRDE_FILES_PK1
- NRTRDE_SEQUENCES_PK1

Schema and Index Changes (Patch Set 2)

BRM 7.5 Patch Set 2 included the following schema and index changes:

- The following tables were added:
 - COLL_SCEN_PROMISETOPAY_T
 - COLLECTIONS_COLLECT_PAYMENT_T
 - COLLECTIONS_PROMISE_TO_PAY_T
 - CONF_COLL_SCEN_PROFILE_DATA_T
 - CONFIG_COLL_SCENARIO_PARAMS_T
 - EVENT_ACT_COLL_PRMSTOPAY_T
 - EVENT_ACT_COLL_REPL_SCEN_T
 - EVENT_AUDIT_COLL_GDTLS_MEMS_T
 - EVENT_AUDIT_COLL_GDTLS_T
 - EVENT_GROUP_COLL_TARGETS_MEM_T
 - GROUP_COLLECTIONS_TARGETS_T
 - IFW_TAPINFO
- The following column was added in the CONFIG_COLLECTIONS_SCENARIO_T table:
 - scenario_severity
- The following column was added in the COLLECTIONS_ACTION_T table:
 - target_action
- The following column was added in the CONFIG_BEID_BALANCES_T table:
 - VALIDITY_IN_DAYS NUMBER(38)
- The **deferred initially deferred** constraint was added to the IFW_SERVICE table.
- The **FK_IFW_UMM_FUOM** foreign key constraint was dropped from the FROM_UOM column of the IFW_UOM_MAP table.
- The size of the RUMGROUP column in the following tables was changed from VARCHAR2 (10) to VARCHAR2 (255):
 - IFW_RUMGROUP
 - IFW_RUMGROUP_LNK
 - IFW_SERVICE

- The size of the SYMBOL column in the IFW_RESOURCE table was changed from VARCHAR2 (10) to VARCHAR2 (255).
- The size of the TAXCODE column in the IFW_NOPRODUCT table was changed from VARCHAR2 (10) to VARCHAR2 (255).
- There were no index changes in this release.

Schema and Index Changes (Patch Set 1)

BRM 7.5 Patch Set 1 included the following schema and index changes:

- The following tables were removed:
 - CONFIG_LCM_STATES_ARRAY_T
 - CONFIG_LCM_STATES_PERM_SRVC_T
 - CONFIG_LCM_STATES_RULES_T
 - CONFIG_LCM_STATES_TRANS_T
 - CONFIG_LIFECYCLE_STATES_T
 - PREFERENCE_VALUES_T
 - SUBSCRIBER_PREFS_T
- The following tables were added:
 - AU_PROFILE_SUBSCRIBER_PREFS_T
 - CONFIG_LIFECYCLE_PERM_SRVC_T
 - CONFIG_LIFECYCLE_RULES_T
 - CONFIG_LIFECYCLE_STATES_T
 - CONFIG_LIFECYCLE_TRANS_T
 - CONFIG_PREFERENCE_VALUES_T
 - CONFIG_SERVICE_STATE_MAP_T
 - PROFILE_SUBSCRIBER_PREFS_T
- The following columns were added in the EVENT_CUSTOMER_STATUSES_T table:
 - LIFECYCLE_STATE NUMBER(38)
 - STATE_EXPIRATION_T NUMBER(38)
- The size of the TAX_CODE column in the Pipeline Manager IFW_DSCBALIMPACT table was changed from VARCHAR2 (5) to VARCHAR2 (255).
- The size of the DATA column in the Pipeline Manager IFW_DUPLICATECHECK table was changed from VARCHAR2 (255) to VARCHAR2 (4000).
- There were no index changes in this release.

Utility Changes

This chapter provides an overview of the utility changes introduced in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

New Utilities

[Table 6–1](#) lists the utilities introduced in BRM 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

Table 6–1 *New Utilities*

New Utility	Description
pin_close_items	(Patch Set 12) Closes open item objects processed in past billing cycles. See the discussion about closing open item objects processed in past billing cycles in <i>BRM System Administrator's Guide</i> .
pin_cc_migrate	(Patch Set 10) Migrates the credit and debit card numbers into unique tokens and stores the tokens in the BRM database. See the discussion about the pin_cc_migrate utility in <i>BRM Configuring and Collecting Payments</i> for more information.
pin_sepa	(Patch Set 9) Generates request XML files for SEPA Direct Debit payments, SEPA Credit Transfer payments, and SEPA Direct Debit reversals. Also, processes the response XML files for SEPA Direct Debit transactions and SEPA Credit Transfer transactions. See the discussion about SEPA payment processing in <i>BRM Configuring and Collecting Payments</i> .
load_edr_field_mapping	(Patch Set 8) Loads the suspense EDR field mapping into the /config/suspense_edr_fld_map object in the BRM database. See the discussion about the load_edr_field_mapping utility in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.
pin_opspec_to_schema_v2	(Patch Set 8) Generates the opcode schema (XSD files) for Web services that take payload as an XML element data type. See the discussion about the pin_opspec_to_schema_v2 utility in <i>BRM JCA Resource Adapter</i> for more information.
RoamingConfigGen64	(Patch Set 4) Retrieves the roaming partner information in the Pipeline Manager database and creates the roaming configuration data file that is used by the Instances module to instantiate roaming registry sections or entries. See the discussion about the RoamingConfigGen64 utility in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.

Table 6–1 (Cont.) New Utilities

New Utility	Description
pin_virtual_gen	(Patch Set 3) Generates virtual columns on various tables in the EVENT_T table of the BRM database. See the discussion about enabling virtual columns in the BRM database in <i>BRM System Administrator's Guide</i> .
pin_amt_tt	(Patch Set 2) Migrates accounts from one data store to another data store located within the <i>same</i> Oracle In-Memory Database (IMDB) Cache grid. See the discussion about migrating accounts within an Oracle IMDB cache grid in <i>BRM System Administrator's Guide</i> .
StopRapGen	(Patch Set 2) Searches the database to collect information required by the Stop RAP Generator pipeline to create Stop Return RAP files. See the discussion about the StopRapGen utility in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.
load_config	(Patch Set 1) Loads the contents of XML configuration files into configuration (/config/*) objects in the BRM database.
pin_state_change	(Patch Set 1) Performs bulk service state transitions based on the state expiration time (PIN_FLD_SERVICE_STATE_EXPIRATION_T) in /service objects. See the discussion about managing service life cycles in <i>BRM Managing Customers</i> .

Changed Utilities

Table 6–2 lists the utilities that were changed in BRM 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

Table 6–2 Changed Utilities

Changed Utility	Description
loadpricelist	(Patch Set 11) Modified to load decimal values for fixed credit threshold from the input pricelist XML file.
load_config	(Patch Set 9) Modified to load and retrieve creditor information from the BRM database. This utility reads creditor information from the XML input file, validates the content using the XSD, and loads the data into the /config/creditor object. This utility retrieves creditor information from the /config/creditor object and generates an XML output file. See the discussion about loading creditor information in <i>BRM Configuring and Collecting Payments</i> .
partition_utils	(Patch Set 9) Modified the -purge parameter to remove data from /invoice/trial objects that contain partitioning. See the discussion about removing older trial invoices in <i>BRM Designing and Generating Invoices</i> .
pin_collect	(Patch Set 9) Modified to support the SEPA payment method. This utility calls opcodes to create the SEPA Direct Debit payment requests and apply the payments to the account balances. See the discussion about SEPA payments processing in <i>BRM Configuring and Collecting Payments</i> .

Table 6–2 (Cont.) Changed Utilities

Changed Utility	Description
pin_collections_process	(Patch Set 9) Modified to support the SEPA payment method. This utility retrieves the bill units (/billinfo objects) whose payment type is SEPA.
pin_inv_export	(Patch Set 9) Modified to add the prefix SUBORD_ to the file names of subordinate trial invoices. See the discussion about the pin_inv_export utility in <i>BRM Designing and Generating Invoices</i> .
pin_mass_refund	(Patch Set 9) Modified to support the SEPA payment method. This utility calls opcodes to create refund items for accounts eligible for a SEPA Credit Transfer refund.
pin_refund	(Patch Set 9) Modified to support the SEPA payments method. This utility retrieves the refund items for a SEPA Credit Transfer.
pin_trial_bill_accts	(Patch Set 9) Modified by adding parameters that generate trial invoices with Oracle Business Intelligence Publisher (BI Publisher) 11g: <ul style="list-style-type: none"> ▪ -pay_type, which generates trial invoices separately for parent and subordinate accounts depending on the -pay_type payment method ID value. ▪ -retry, which runs billing on accounts that contained errors during the last trial billing run. See the discussion about the pin_trial_bill_accts utility in <i>BRM Configuring and Running Billing</i> .
pin_wsdl_generator	(Patch Set 8) Modified to generate the opcode schema (XSD files) for Web services that take payload as an XML element data type. See the discussion about the pin_wsdl_generator utility in <i>BRM JCA Resource Adapter</i> for more information.
RoamingConfigGen64	(Patch Set 7) Modified to include decimal places and country codes for both TAP and NRTRDE while creating the roaming configuration data file that is used by the Instances module to instantiate roaming registry sections or entries. See the discussion about the RoamingConfigGen64 utility in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.
pin_crypt_app	(Patch Set 6) Modified to support the new Oracle ZT PKI encryption algorithm options. See <i>BRM Developer's Guide</i> for more information on the new parameters.
pin_inv_doc_gen	(Patch Set 4) Modified to generate invoice documents and reports by integrating BRM with BI Publisher 11g. The changes that accompany the BI Publisher 11g integration are the following: <ul style="list-style-type: none"> ▪ The pin_inv_doc_gen utility is now installed when you install BRM; it is no longer a part of the BI Publisher invoicing integration package. The pin_inv_doc_gen utility uses Oracle WebLogic Server instead of the OC4J application server. ▪ The docgen.sh script has replaced BipEnv.bat as the file that runs pin_inv_doc_gen. The pin_inv_doc_gen utility is still supported with BI Publisher 10g. The pin_inv_doc_gen utility is installed with the BI Publisher 10g invoicing integration package, and it uses the OC4J application server. See the discussion about generating BI Publisher invoice documents in <i>BRM Designing and Generating Invoices</i> .

Table 6–2 (Cont.) Changed Utilities

Changed Utility	Description
pin_amt	<p>(Patch Set 3) Modified to publish the AccountInfoChange business event to the Oracle Advanced Queue (AQ) database queue by configuring the publish_migrated_objects entry in the <i>BRM_Home/sys/amt/Infranet.properties</i> file.</p> <p>See the discussion about integrating account migrations with your external application in a multischema environment in <i>BRM Concepts</i>.</p>
pin_collections_process	<p>(Patch Set 3) Modified to publish the CollectionsInfoChange business event to the AQ queue.</p> <p>See the discussion about creating CollectionsInfoChange business events in <i>BRM Collections Manager</i>.</p>
load_config	<p>(Patch Set 2) Modified to load the collections parameter information from the input XML file into the <i>/config/collections/scenario_params</i> object in the BRM database.</p> <p>See the discussion about collections scenarios in <i>BRM Collections Manager</i>.</p>
pin_amt	<p>(Patch Set 2) When this utility migrates accounts from a source BRM database schema to a destination BRM database schema, it now also migrates those account objects from the source Oracle IMDB Cache grid (associated with the source BRM database schema) to the destination Oracle IMDB Cache grid (associated with the destination BRM database schema).</p> <p>See the discussion about understanding Account Migration Manager in <i>BRM System Administrator's Guide</i>.</p>
pin_collections_process	<p>(Patch Set 2) Modified to support collections sharing groups.</p> <p>In addition, the utility now allows you to run collections for a specified bill unit by using the utility's new -billinfo <i>BillInfoPOID</i> parameter.</p> <p>See the discussion about collections scenarios in <i>BRM Collections Manager</i>.</p>

Module and iScript Changes

This chapter provides an overview of the module and iScript changes introduced in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

New Modules

[Table 7-1](#) describes the modules introduced in BRM 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

Table 7-1 *New Modules*

New Module	Description
Instances	(Patch Set 4) Instantiates multiple roaming registry sections or entries using the template registry sections or entries in the roaming registry file based on the roaming partner information in the data file generated by the RoamingConfigGen64 utility. This module is optional. See the discussion about the Instances module in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.

New iScripts

[Table 7-2](#) describes the iScripts introduced in BRM 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

Table 7–2 New iScripts

New iScript Name	Description
ISC_GetCamelFlag	<p>(Patch Set 7) Retrieves the CAMEL flag information for a roaming partner in the roaming outcollect processing. The CAMEL flag information is used during EDR processing.</p> <p>See the discussion about the ISC_GetCamelFlag iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>
ISC_OverrideRateTag	<p>(Patch Set 7) Populates the RATE_TAG field with the NRTRDE flag value of the roaming partner in the balance impact.</p> <p>The High-Usage report uses the RATE_TAG value to filter out NRTRDE operator data from the report.</p> <p>See the discussion about the ISC_OverrideRateTag iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>
ISC_TAP_0312_InMap	<p>(Patch Set 3) Maps Transferred Account Procedure (TAP) 3.12 data from staging fields to the business fields in the event data record (EDR) container.</p> <p>See the discussion about the ISC_TAP_0312_InMap iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>
ISC_TAP_0312_Include	<p>(Patch Set 3) Copies TAP 3.12 data from staging fields to the business fields in the EDR container.</p> <p>See the discussion about the ISC_TAP_0312_Include iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>
ISC_TAP_0312_Validations	<p>(Patch Set 3) Validates the TAP 3.12 input data.</p> <p>This iScript is added to the validation pipeline to process TAP 3.12 files.</p> <p>See the discussion about the ISC_TAP_0312_Validations iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>
ISC_RAP_0105_InMap	<p>(Patch Set 2) Copies TAP3 data from staging fields in the EDR container to business fields in the EDR container.</p> <p>This iScript has been added to the RAP processing pipeline to process RAP 1.5 files. This iScript is used during roaming outcollect processing.</p> <p>See the discussion about the ISC_RAP_0105_InMap iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>
UpdateTapInfo_StopRapout	<p>(Patch Set 2) Updates the database with information on Stop Return RAP files.</p> <p>This iScript has been added to the new Stop RAP Generator pipeline.</p> <p>See the discussion about the UpdateTapInfo_StopRapout iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>
UpdateTapInfo_Tapin	<p>(Patch Set 2) Stores information about incoming TAP files in the new IFW_TAPINFO table used by the StopRapGen utility.</p> <p>This iScript has been added to the validation pipeline to collect information on incoming TAP files.</p> <p>See the discussion about the UpdateTapInfo_Tapin iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>

Changed iScripts

Table 7–3 describes the iScripts changed in BRM 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

Table 7–3 *Changed iScripts*

Changed iScript Name	Description
ISC_TAP_0312_Include	<p>(Patch Set 8) Modified to include the Requested Destination group that contains the original destination to which the customer requested to be connected.</p> <p>The Requested Destination group contains the following TAP fields that this iScript maps to the EDR container fields:</p> <ul style="list-style-type: none"> ■ Requested Number ■ Requested Public User ID <p>See the discussion about TAP-to-EDR mapping in <i>BRM Configuring Roaming in Pipeline Manager</i>.</p> <p>This iScript copies TAP 3.12 TD57 version 32.1 data from the staging fields in the EDR container to the business fields in the EDR container.</p> <p>See the discussion about the ISC_TAP_0312_Include iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>
ISC_TAP_0312_Validations	<p>(Patch Set 8) Modified to include new validations and the provision to send operator-specific information for ERR_TAP3_RET error messages.</p> <p>This iScript validates TAP 3.12 TD57 version 32.1 input data.</p> <p>See the discussion about the ISC_TAP_0312_Validations iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>
ISC_NRTRDE_EventSplit	<p>(Patch Set 7) Modified to duplicate and route EDRs automatically to the corresponding roaming partner NRTRDE output streams based on the NRTRDE field of the roaming partner.</p> <p>See the discussion about the ISC_NRTRDE_EventSplit iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>
ISC_DupRAPRecords	<p>(Patch Set 2) Modified to process RAP 1.5 files.</p> <p>This iScript duplicates severe and fatal TAP3 records so that the records can be routed to multiple output streams.</p> <p>See the discussion about the ISC_DupRAPRecords iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>
ISC_OverrideSuspenseParams	<p>(Patch Set 2) Modified to process RAP 1.5 files.</p> <p>This iScript overrides some fields in the Suspense Extension block of the EDR container that is set by Suspense Manager.</p> <p>See the discussion about the ISC_OverrideSuspenseParams iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>
ISC_TAP_0311_Include	<p>(Patch Set 2) Modified to process RAP 1.5 files.</p> <p>This iScript copies TAP3 data from staging fields in the EDR container to business fields in the EDR container.</p> <p>See the discussion about the ISC_TAP_0311_Include iScript in <i>BRM Configuring Pipeline Rating and Discounting</i> for more information.</p>

Removed Features

This chapter provides an overview of the removed features in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

Removed Features in Patch Set 12

This section describes the removed features in BRM 7.5 Patch Set 12.

The **UseActualBilledTimeForGLReport** Business Parameter Is Obsolete

In the previous releases, the **UseActualBilledTimeForGLReport** business parameter was used to generate general ledger reports based on the actual billing date.

The **UseActualBilledTimeForGLReport** business parameter is now obsolete and no longer supported. With this patch, to generate general ledger reports based on the actual billing date, see the discussion about generating general ledger reports based on the actual billing date in *BRM 7.5 Maintenance Patch Set 1 Installation Guide* for more information.

Information about the **UseActualBilledTimeForGLReport** business parameter is removed from *BRM 7.5 Maintenance Patch Set 1 Installation Guide*, *BRM System Administrator's Guide*, and *BRM Collecting General Ledger Data*.

Documentation Updates

This chapter provides an overview of the documentation updates introduced in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

Documentation Updates in Maintenance Patch Set 1

This section describes the documentation updates in BRM 7.5 Maintenance Patch Set 1.

Taxware Information Removed

BRM no longer supports an integration with Taxware. Therefore, the Taxware information in all BRM 7.5 documents was removed.

BRM CDR Format Renamed

The phrase “BRM CDR format” in BRM documentation has been replaced by the phrase “Oracle CDR format”.

Documentation Updates in Patch Set 12

This section describes the documentation updates in BRM 7.5 Patch Set 12.

Updates to BRM 7.5 Developer’s Reference

Information about the PCM_OP_ACT_LOG_USER_ACTIVITY opcode is now added in *BRM Developer’s Reference*.

Documentation Updates in Patch Set 5

This section describes the documentation updates in BRM 7.5 Patch Set 5.

Updates to Account Synchronization Multidatabase and Multischema Information

Oracle no longer supports BRM multidatabase systems. Instead, it recommends using BRM multischema systems based on an Oracle Real Application Clusters (Oracle RAC) system.

Therefore, the multidatabase information in the account synchronization chapters in *BRM Installation Guide* was replaced with multischema information.

Documentation Updates in Patch Set 4

This section describes the documentation updates in BRM 7.5 Patch Set 4.

Updates to Multidatabase and Multischema Information

Oracle no longer supports BRM multidatabase systems. Instead, it recommends using BRM multischema systems based on an Oracle RAC system.

Therefore, the multidatabase information in all BRM 7.5 documents except *BRM Upgrade Guide* and the account synchronization chapters in *BRM Installation Guide* was replaced with multischema information. In particular, the following have been updated to support multischema systems:

- "Installing a Multischema System" in *BRM Installation Guide*
- "Managing a Multischema System" in *BRM System Administrator's Guide*

Documentation Updates in Patch Set 3

This section describes the documentation updates in BRM 7.5 Patch Set 3.

Updates to BRM 7.5 Changing Service Status Documentation

In the BRM 7.5 documentation, the discussions about changing service status in *BRM Managing Customers* and the Customer Center Help do not include the following information:

Before changing the status of a service that uses the default life cycle in a *plan with options*, note the following:

- For standalone services:
 - Closing a required service closes all the services in the plan.
 - Inactivating a required service inactivates only that service.
 - Closing or inactivating an optional service closes or inactivates only that service.
- For services in subscription groups:
 - Closing a required subscription or member service closes all the services in the plan.
 - Inactivating a required subscription service inactivates all its member services.
 - Inactivating a required member service inactivates only that member service.
 - Closing or inactivating an optional member service closes or inactivates only that member service.

Note: The effects of changing the status of a service in a *standard* plan have not changed. See *BRM Managing Customers* and the Customer Center Help for more information.

Updates to BRM 7.5 Custom Field ID Information

BRM Developer's Guide and the Storable Class Editor Help include incorrect information about custom field IDs.

Table 9–1 lists the field ID ranges for Oracle-only use and for customer use:

Table 9–1 BRM Field ID Restrictions

Field ID Range	Reserved For
0 through 9999	Oracle use only
10,000 through 999,999	Customer use
1,000,000 through 9,999,999	Oracle use only
Over 10,000,000	Customer use

Updates to Information about Installing 32-Bit Client Libraries

Starting with Oracle Database 11g Release 2 (11.2), Oracle does not include any 32-bit client binaries in its 64-bit client software. If you use utilities (such as `pin_rel`) that require `lib32` in their library paths, you must explicitly install the Oracle 32-bit client software and configure the Oracle libraries for Rated Event (RE) Loader accordingly.

See the discussion about configuring Oracle libraries for RE Loader in *BRM Configuring Pipeline Rating and Discounting* for information about configuring the Oracle 32-bit client for RE Loader.

Known Problems

This chapter provides an overview of the known problems in Oracle Communications Billing and Revenue Management (BRM) 7.5 Patch Set 1 through BRM 7.5 Maintenance Patch Set 1.

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, in the opcode's .c file, define all the functions as static, except the entry point for the opcode.

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 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 later, the uninstaller does not work.

To work around this problem, you must 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 fix 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` parameter 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 12c Client Connected to an Oracle Database 12c Server

SR number: Not applicable

BugDB number: 18803069

If you use an Oracle Database 12c client connected to an Oracle Database 12c 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 11g client connected to an Oracle Database 12c server.

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

SR number: Not applicable

BugDB number: 17461628

When you run the `pin_setup` script with BRM running on Oracle Database 12c 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 their 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.

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.

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.

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, to enable the sample prepaid service life cycle to support the provisioning of telco services, add 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.