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</tr>
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Preface

This book includes information about this release of Oracle Communications Billing and Revenue Management (BRM).

Audience

This document is intended for all BRM users.

Downloading Oracle Communications Documentation

Product documentation is located on Oracle Technology Network:

http://docs.oracle.com

Additional Oracle Communications documentation is available from Oracle E-Delivery:

http://edelivery.oracle.com

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at


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Oracle customers have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.
This chapter includes descriptions of the new and enhanced features introduced in Oracle Communications Billing and Revenue Management (BRM) 7.4.

About BRM Operating System Support

BRM 7.4 is supported on the following software:

- HP-UX IA64 11i version 2.0 and HP-UX IA64 11i 3.0 operating systems.
- Solaris 9 and Solaris 10 operating systems.
- Oracle Enterprise Linux versions 4.5 and 5 and Red Hat Enterprise Linux versions 4.5 and 5 operating systems.
- IBM AIX version 5.3 and IBM AIX version 6.1 operating systems.
- Oracle9i, Oracle10g, Oracle10g RAC, Oracle 11g, and Oracle 11g RAC databases.

For information on other software support, see the discussion about BRM software compatibility in BRM Installation Guide.

Unsupported Components

The following components are no longer supported in BRM 7.4:

- Billing Agility Manager
- Business Objects for reports
- Data Manager (DM) nullable object search feature
- Diameter Balance Manager
- Distributed Nonstop Architecture (DNA)
- Event archiving (SQL Server database)
- HP-UX PA-RISC operating systems
- Microsoft server operating systems
- Microsoft SQL Servers
- Portal System Controller (PSC)
- SAP RMCA Manager
New Features

BRM 7.4 includes the following:

- AAA Gateway Manager
- Accounts Receivable
- Billing
- Collections Manager
- JCA Resource Adapter
- Invoicing
- Payments
- Pricing and Rating
- Reports
- RADIUS Manager
- Services Framework
- Subscription Management
- Synchronization Queue Data Manager
- System Administration

AAA Gateway Manager

This section describes the enhancements to AAA Gateway Manager.

Support for new Diameter messages

The AAA Gateway Manager now supports the following Diameter messages:

- AAA Transport and Capabilities Exchange
- Disconnecting Peer Connections
- Balance Enquiry CCR message
- Service Price Enquiry CCR message

For more information about these Diameter messages, see the discussion about supported diameter messages in BRM AAA Gateway Manager.

Porting numbers in real time through AAA Gateway

Telephone numbers can now be ported from one operator to another in real time through AAA Gateway. In previous releases, number portability was supported only for the batch pipeline. For more information, see the discussion about managing number portability in BRM Configuring Pipeline Rating and Discounting.

Accounts Receivable

This section describes the enhancements to Accounts Receivable.

Managing balance groups

BRM includes a new API that enables custom client applications to:
Transfer a service from one balance group to another within the same account or in a different account.

Transfer a customer’s balance group to a different bill unit in the same account, allowing the balance impacts to appear on a different bill.

For more information, see the discussion about transferring services between balance groups in BRM Managing Accounts Receivable.

**Note:** Only custom client applications can be used to transfer services between balance groups. To implement this functionality in your custom client application, see the discussion about transferring services between balance groups by using custom client applications in BRM Managing Accounts Receivable.

**Billing**

This section describes the enhancements to Billing.

**Checking whether balances crossed credit thresholds**

BRM now checks whether a customer’s balance crossed a credit threshold value during both real-time rating and batch rating. In previous releases, checks were performed during real-time rating only. For more information, see the discussion about changing a customer’s credit threshold in BRM Managing Customers.

Also, Pricing Center now allows you to specify fixed credit threshold values in addition to percentage threshold values.

**Important:** Pricing Center supports fixed threshold values for customers created with BRM 7.4 only. To use fixed threshold values for customers created with prior versions of BRM, use the PCM_OP_BILL_SET_LIMIT_AND_CR opcode. For more information, see the discussion about customizing client applications to modify fixed thresholds in BRM Managing Customers.

**Each bill unit in an account can have a different billing DOM and billing frequency**

Accounts with multiple bill units can now have a different billing day of month (DOM) and a different billing frequency for each bill unit. For example, an account with two bill units can have:

- One bill unit with a billing DOM of 5 and a monthly billing cycle.
- One bill unit with a billing DOM of 15 and a quarterly billing cycle.

**Note:** Child bill units must have the same billing DOM and billing frequency as their parent bill unit.

In previous releases, all bill units in an account were required to use the same billing DOM and billing frequency.

For more information, see the discussion about billing cycles in BRM Configuring and Running Billing.
Collections Manager

This section describes the enhancements to Collections Manager.

**Custom client applications can now manage collections activities**

You can now integrate Collections Manager with a custom client application, such as Siebel CRM, so customer service representatives (CSRs) can track and manage collections activities directly in the custom client application. For more information, see the discussion about integrating Collections Manager with custom client applications in *BRM Collections Manager*.

JCA Resource Adapter

This section describes the enhancements to JCA Resource Adapter.

**JCA Resource Adapter enhancements**

The BRM JCA Resource Adapter includes the following enhancements:

- It now supports global transactions (XA) by using the adapter’s internal connection pooling and connection affinity.
- It now uses internal connection management.
- It now supports Java Unified Logging (JUL), which allows the adapter to use the Oracle Application Server logging library.
- It includes the new BRMAdapterServletClient sample application for testing your custom opcodes and developing customized applications that communicate with the JCA Resource Adapter.

For more information, see the discussion about connecting J2EE-compliant applications to BRM in *BRM JCA Resource Adapter*.

Invoicing

This section describes the enhancements to Invoicing.

**Including Siebel CRM promotion names on invoices**

You can now set up your system to display Siebel CRM promotion names on customer invoices. For more information, see the discussion about adding Siebel CRM promotion names to invoices in *BRM Designing and Generating Invoices*.

**Designing and generating invoices in Oracle Business Intelligence Publisher**

You can now design, generate, and customize BRM invoice documents using Oracle Business Intelligence (BI) Publisher. For more information, see the discussion about designing and generating invoices in Oracle Business Intelligence Publisher in *BRM Designing and Generating Invoices*.

**Invoices can display new details**

You can now set up your invoices to include:

- Additional standard data
- Wireless service data
- Hierarchical account details
- Usage details of accounts with multiple phone numbers
For more information, see the discussion about BRM invoice features in *BRM Designing and Generating Invoices*.

**Payments**

This section describes the enhancements to Payments.

**Allocating account-level payments to multiple bill units**

For accounts having multiple bill units, you can now allocate account-level payments to multiple bill units. For more information, see the discussion about allocating account-level payments to multiple bill units in *BRM Configuring and Collecting Payments*.

**Pricing and Rating**

This section describes the enhancements to Pricing and Rating.

**Exporting a subset of real-time pricing data**

The `loadpricelist` utility has been enhanced to allow you to export and load a subset of real-time pricing data based on the service type and object modification time. For more information, see the discussion about using the XML pricing interface to create a price list in *BRM Designing and Generating Invoices*.

**Transferring pricing data between Pipeline Manager databases**

In previous releases, the `LoadIfwConfig` utility was used primarily to migrate price list data from a legacy database to the Pipeline Manager database. The utility now includes enhancements that allow it to also transfer data from one Pipeline Manager database to another, such as from a test database to a production database.

---

**Caution:** The 7.4 version of the `LoadIfwConfig` utility is not backwards-compatible with previous versions of the utility. Any data exported by a previous version of the utility must also be loaded with that same version. In addition, any custom scripts or procedures that are dependent on the utility’s functionality might need to be modified to work with the 7.4 version.

---

To support transferring data between Pipeline Manager databases, the utility now:

- Exports a subset of pipeline pricing data based on the object modification time.
- Supports regular expressions for field values.
- Retrieves data from dependent tables.
- Loads data from multiple databases into the Pipeline Manager database.
- Includes an option for dumping all pipeline data into an XML file.
- Allows you to specify the number of rows retrieved on each trip to the database.

For more information, see the discussion about transferring data between Pipeline Manager databases in *BRM Configuring Pipeline Rating and Discounting*.
Prepaid credit limit checks for non-duration resources
The FCT_Discount module in the real-time discounting pipeline has been enhanced to support non-duration resources for prepaid credit limit check. For more information, see the discussion about credit limit checks in the real-time discounting pipeline in BRM Telco Integration.

Reports
This section describes the enhancements to Reports.

Reports now on Oracle Business Intelligence Publisher
You can now generate BRM reports in Oracle Business Intelligence Publisher.

RADIUS Manager
RADIUS Manager has been enhanced for partial compliance with the RADIUS RFC 2865 and 2866 accounting protocols.

The following RADIUS RFC 2865 and 2866 features are now supported:

- Interim accounting. For more information, see “Support for interim accounting”.
- Unsigned integer data type for upload and download volumes greater than 2 GB. For more information, see the discussion about managing large volume uploads and downloads in BRM RADIUS Manager.
- New ENUMs defined for Service Type, Login Service, Framed Protocol, Framed Compression, and NAS Port Type. For more information, see “RADIUS dictionary changes”.
- RADIUS extension attributes for accounting, such as Acct-Input-Gigawords and Acct-Output-Gigawords.
- User-Name fields in the input to include Network Access Identifiers.

Support for interim accounting
The RADIUS Manager module mod_pin has been enhanced to support interim accounting. This module now maps the Interim-Update accounting message to the PCM_OP_TERM_IP_DIALUP_UPDATE_ACCOUNTING opcode in the RADIUS Manager FM.

RADIUS dictionary changes
The RADIUS dictionary file has been enhanced to support the unsignedint data type and new fields and attributes for Service Type, Login Service, Framed Protocol, Framed Compression, and NAS Port Type. Table 1–1 lists the new values supported.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>New Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Type</td>
<td>Call Check</td>
</tr>
<tr>
<td></td>
<td>Callback Administrative</td>
</tr>
<tr>
<td>Login Service</td>
<td>X25-PAD</td>
</tr>
<tr>
<td></td>
<td>X25-T3POS</td>
</tr>
<tr>
<td></td>
<td>TCP Clear Quiet (suppresses any NAS-generated connect string)</td>
</tr>
</tbody>
</table>
Services Framework

This section describes the enhancements to Services Framework.

**Services Framework now supports non-telco services**

Services Framework Manager and Services Framework AAA Manager now support non-telco services in addition to telco services. This allows non-telco services to leverage Services Framework’s functionalities, transforming it into a service management framework for any service type.

For more information:

- See the discussion about performing AAA for prepaid services in *BRM Telco Integration*.
- See the discussion about managing prepaid services and extended rating attributes in *BRM Telco Integration*.
- See the discussion about provisioning services in *BRM Telco Integration*.

Subscription Management

This section describes the enhancements to Subscription Management.

**Subscription action backdating**

Subscription Management’s backdating feature is now enhanced to perform validations on the following backdating operations:

- Backdated account creation.
- Backdated account, service, product, and discount status change.
- Backdated product, discount, deal, or plan purchase.

**Table 1–1 (Cont.) New Values for RADIUS Fields**

<table>
<thead>
<tr>
<th>Attribute</th>
<th>New Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Framed Protocol</td>
<td>■ X.75 Synchronous</td>
</tr>
<tr>
<td>Framed Compression</td>
<td>■ Stac-LZS compression</td>
</tr>
<tr>
<td>NAS Port Type</td>
<td>■ PIAFS</td>
</tr>
<tr>
<td></td>
<td>■ HDLC Clear Channel</td>
</tr>
<tr>
<td></td>
<td>■ X.25</td>
</tr>
<tr>
<td></td>
<td>■ X.75</td>
</tr>
<tr>
<td></td>
<td>■ G.3 Fax</td>
</tr>
<tr>
<td></td>
<td>■ SDSL — Symmetric DSL</td>
</tr>
<tr>
<td></td>
<td>■ ADSL-CAP — Asymmetric DSL, Carrierless Amplitude Phase Modulation</td>
</tr>
<tr>
<td></td>
<td>■ ADSL-DMT — Asymmetric DSL, Discrete Multi-Tone</td>
</tr>
<tr>
<td></td>
<td>■ IDSL — ISDN Digital Subscriber Line</td>
</tr>
<tr>
<td></td>
<td>■ Ethernet</td>
</tr>
<tr>
<td></td>
<td>■ xDSL — Digital Subscriber Line of unknown type</td>
</tr>
<tr>
<td></td>
<td>■ Cable</td>
</tr>
<tr>
<td></td>
<td>■ Wireless — Other</td>
</tr>
<tr>
<td></td>
<td>■ Wireless — IEEE 802.11</td>
</tr>
</tbody>
</table>
New Features

- Backdated product, discount, or deal cancellation.
- Backdated product or discount purchase, usage, or cycle end date.

For more information, see the discussion about backdating subscription actions in *BRM Managing Customers*.

**Synchronization Queue Data Manager**

This section describes the enhancements to Synchronization Queue Data Manager.

**Synchronizing sponsorship and discount data with external CRM applications**

In addition to synchronizing product data, you can now synchronize the following with external CRM client applications:

- Real-time discounts with simple pipeline discount models.
- Real-time ChargeShares.

When you start a CRM integration, you can export all of your existing pricing data (discounts, products, and ChargeShares) from BRM to the external CRM application in a batch by using the `pin_export_price` utility. After BRM and the external CRM application are integrated, BRM can send all pricing data changes to the external CRM application in real time.

For more information, see the discussion about understanding the Synchronization Queue Data Manager in *BRM Synchronization Queue Manager*.

**System Administration**

This section describes the enhancements to system administration.

**Oracle In-Memory Database (IMDB) Cache Manager**

Oracle IMDB Cache Manager is a new BRM component that allows you to cache performance-critical subsets of the BRM database for improved response times.

For more information, see the discussion about using Oracle IMDB Cache Manager in *BRM System Administrator’s Guide*.

**Client application security enhancements**

Client applications now include the following security enhancements:

**Changing the password in client applications**: After you log in to a BRM client application, you can change your existing password by using File - Change Password. After you change the password, you can log in to any BRM application with your new password. For more information, see the discussion about changing the password in *BRM System Administrator’s Guide*.

**Automatic logout**: After you log in to a BRM client application and leave it idle for a specified interval, the session expires automatically. To reconnect to the session, you are prompted to enter your password again. For more information, see the discussion about automatic logout in *BRM System Administrator’s Guide*.

**Temporary and expired passwords**: You cannot use a temporary or an expired password to access a BRM client application. You are required to change a temporary password before you can proceed further. For more information, see the discussion about changing the password in *BRM System Administrator’s Guide*.
**Locked accounts**: The number of attempts at entering an incorrect password is limited. If you exceed this limit, your account is locked. To unlock your account, contact your system administrator. For more information, see the discussion about unlocking a locked CSR account in *BRM System Administrator’s Guide*.

**Loading selective types of accounts**
You can now configure your BRM system to load accounts selectively in Pipeline Manager and Oracle IMDB Cache based on the business profiles assigned to the accounts. You can configure any cache residency type data to be loaded in any of the memory caches.

For more information, see the discussion about selective account loading in *BRM System Administrator’s Guide*.

**Loading selective ERA profiles**
You can now configure Pipeline Manager to filter ERA profiles for accounts or profile sharing groups that have a large number of ERA profiles, which improves pipeline rating performance.

For more information, see the discussion about improving pipeline rating performance for events with ERAs in *BRM Setting Up Pricing and Rating*.

**Installing Remote Diagnostic Agent**
Remote Diagnostic Agent (RDA) is now included in the BRM 7.4 Third-Party package. It gets installed automatically when the BRM 7.4 installer is run.

For more information, see the discussion about collecting diagnostic information by using RDA in *BRM System Administrator’s Guide*.

**New Opcodes**
This section describes opcodes introduced in BRM 7.4.

**New Policy Opcodes**
The following tables describe the new policy opcodes in BRM 7.4:

- Activity FM Policy Opcodes
- Collections FM Policy Opcodes
- Payments FM Policy Opcodes
- Services Framework Policy Opcodes

**Activity FM Policy Opcodes**
*Table 1–2* describes the new Activity FM policy opcodes in BRM 7.4.
### New Activity FM Policy Opcodes

<table>
<thead>
<tr>
<th>New Policy Opcode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM_OP_ACT_POL_LOCK_SERVICE</td>
<td>Locks the service account after a specified number of non-valid login attempts. See the discussion about changing the password in <em>BRM System Administrator’s Guide</em>.</td>
</tr>
<tr>
<td>PCM_OP_ACT_POL_LOG_USER_ACTIVITY</td>
<td>Adds details about CSR activities to events before they are logged. See the discussion about logging customer service representative activities in <em>BRM System Administrator’s Guide</em>.</td>
</tr>
<tr>
<td>PCM_OP_ACT_POL_SET_RESOURCE_STATUS</td>
<td>Sets the resource availability status, the scaled delay time, and the balance amount to be reserved during light-weight authorization. See the discussion about overriding the traffic-light status, reservation amount, and scaled delay time in <em>BRM Telco Integration</em>.</td>
</tr>
</tbody>
</table>

### Collections FM Policy Opcodes

*Table 1–3* describes the new Collections FM policy opcodes in BRM 7.4.

<table>
<thead>
<tr>
<th>New Policy Opcode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM_OP_COLLECTIONS_POL_CALC_DUE_DATE</td>
<td>Sets the due date for actions to take when a bill enters the collection process. See the discussion about configuring how Collections Manager determines dates in <em>BRM Collections Manager</em>.</td>
</tr>
<tr>
<td>PCM_OP_COLLECTIONS_POL_PUBLISH_EVENT</td>
<td>Appends information to the /event/audit/collections/action event before it is sent to a custom client application. See the discussion about adding information that is passed to custom client applications in <em>BRM Collections Manager</em>.</td>
</tr>
</tbody>
</table>

### Payments FM Policy Opcodes

*Table 1–4* describes the new Payments FM policy opcodes in BRM 7.4.

<table>
<thead>
<tr>
<th>New Policy Opcode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM_OP_PYMT_POL_MBI_DISTRIBUTE</td>
<td>Contains the default logic for distributing account-level payments to multiple bill units. See the discussion about allocating account-level payments to multiple bill units in <em>BRM Configuring and Collecting Payments</em>.</td>
</tr>
</tbody>
</table>

### Services Framework Policy Opcodes

*Table 1–5* describes the new Services Framework policy opcodes in BRM 7.4.
New Opcodes

1.11

Table 1–5 New Services Framework Policy Opcodes

<table>
<thead>
<tr>
<th>New Policy Opcode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM_OP_TCF_POL_PROV_HANDLE_SVC_ORDER</td>
<td>Performs custom actions to a provisioning service order before it is passed to dm_prov_telco. By default, this policy opcode does nothing, but you can customize it to override the provisioning mode and modify service order event details. See the discussion about customizing the provisioning mode based on service order attributes in BRM Telco Integration.</td>
</tr>
</tbody>
</table>

New Standard Opcodes

The following tables describe the new standard opcodes in BRM 7.4.

- Collections FM Standard Opcodes
- Customer FM Standard Opcodes
- Payments FM Standard Opcodes
- Pricing FM Standard Opcodes
- Subscription FM Standard Opcodes
- Services Framework AAA Manager FM Standard Opcodes
- Voucher Manager FM Standard Opcodes

Collections FM Standard Opcodes

Table 1–6 describes the new Collections FM standard opcodes in BRM 7.4.

Table 1–6 New Collections FM Standard Opcodes

<table>
<thead>
<tr>
<th>New Standard Opcode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM_OP_COLLECTIONS_PUBLISH_EVENT</td>
<td>Enriches the /event/audit/collections/action event by calling the PCM_OP_COLLECTIONS_POL_PUBLISH_EVENT policy opcode and then publishes the event to the Payload Generator EM. See the discussion about passing information to custom client applications in BRM Collections Manager.</td>
</tr>
</tbody>
</table>

Customer FM Standard Opcodes

Table 1–7 describes the new Customer FM standard opcodes in BRM 7.4.
New Opcodes

Table 1–7   New Customer FM Standard Opcodes

<table>
<thead>
<tr>
<th>New Standard Opcode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM.OP_CUST_CREATE_ASSOCIATED_BUS_PROFILE</td>
<td>If BRM-BI Publisher invoice integration is enabled, creates one /associated_bus_profile object for each bill unit in an account.</td>
</tr>
<tr>
<td></td>
<td>See the discussion about associating bill units with a BI Publisher invoice and report in BRM Designing and Generating Invoices.</td>
</tr>
<tr>
<td>PCM.OP_CUST_SET_ASSOCIATED_BUS_PROFILE</td>
<td>Updates /associated_bus_profile objects whenever invoice business profiles are modified in the /config/business_profile object.</td>
</tr>
<tr>
<td></td>
<td>See the discussion about associating bill units with a BI Publisher invoice and report in BRM Designing and Generating Invoices.</td>
</tr>
</tbody>
</table>

Payments FM Standard Opcodes

Table 1–8 describes the new Payments FM standard opcodes in BRM 7.4.

Table 1–8   New Payments FM Standard Opcodes

<table>
<thead>
<tr>
<th>New Standard Opcode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM.OP_PYMT_MBI_DISTRIBUTE</td>
<td>Distributes account-level payments to multiple bill units. See the discussion about allocating account-level payments to multiple bill units in BRM Configuring and Collecting Payments.</td>
</tr>
<tr>
<td>PCM.OP_PYMT_MBI_ITEM_SEARCH</td>
<td>Retrieves the bills or item across multiple bill units of an account. See the discussion about allocating account-level payments to multiple bill units in BRM Configuring and Collecting Payments.</td>
</tr>
</tbody>
</table>

Pricing FM Standard Opcodes

Table 1–9 describes the new Pricing FM standard opcodes in BRM 7.4.

Table 1–9   New Pricing FM Standard Opcodes

<table>
<thead>
<tr>
<th>New Standard Opcode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM.OP_PRICE_GET_DISCOUNT_INFO</td>
<td>Retrieves the details of a real-time discount object along with pipeline model information from the BRM database. See the discussion about retrieving discount data in BRM Setting Up Pricing and Rating.</td>
</tr>
</tbody>
</table>
**New Utilities**

Table 1–10  New Subscription FM Standard Opcodes

<table>
<thead>
<tr>
<th>New Standard Opcode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM_OP_SUBSCRIPTION_SET_BUNDLE</td>
<td>Manages /purchased_bundle objects in the BRM database. Use this opcode to add promotion names and details to BRM invoices. See the discussion about managing promotions with Siebel CRM in BRM Designing and Generating Invoices.</td>
</tr>
<tr>
<td>PCM_OP_SUBSCRIPTION_SERVICE_BALGRP_TRANSFER</td>
<td>A wrapper opcode that performs all the tasks necessary to transfer a service from one balance group to another. See the discussion about transferring services between balance groups by using custom client applications in BRM Managing Accounts Receivable.</td>
</tr>
</tbody>
</table>

**New Utilities**

Table 1–11  New Services Framework AAA Manager FM Standard Opcodes

<table>
<thead>
<tr>
<th>New Standard Opcode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM_OP_TCF_AAA_QUERY_BALANCE</td>
<td>Provides the account balance information. See the discussion about supported Diameter messages in BRM AAA Gateway Manager.</td>
</tr>
<tr>
<td>PCM_OP_TCF_AAA_SERVICE_PRICE_ENQUIRY</td>
<td>Provides the cost information for a specific service. See the discussion about Supported Diameter messages in BRM AAA Gateway Manager.</td>
</tr>
</tbody>
</table>

**New Utilities**

Table 1–12  New Voucher Manager FM Standard Opcodes

<table>
<thead>
<tr>
<th>New Standard Opcode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCM_OP_VOUCHER_EXPIRATION</td>
<td>Changes devices from a New state to an Expired state.</td>
</tr>
</tbody>
</table>

**New Utilities**

Table 1–13  New Utilities

<table>
<thead>
<tr>
<th>New Utility</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>load_pin_service_framework_permitted_service_types</td>
<td>Loads the list of non-telco service types that are supported by Services Framework into the <code>/config/service_framework/permitted_service_types</code> object.</td>
</tr>
</tbody>
</table>
New Storable Classes

Table 1–14 describes the new storable classes in BRM 7.4.

<table>
<thead>
<tr>
<th>New Storable Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/associated_bus_profile</td>
<td>Stores the invoice business profile information, such as the BRM invoice report and display template to use, for a bill unit.</td>
</tr>
<tr>
<td>/config/service_framework</td>
<td>Abstract class that contains the set of configuration objects related to Services Framework.</td>
</tr>
<tr>
<td>/config/service_framework/permitted_service_types</td>
<td>Specifies the set of non-telco services that are supported by Services Framework, along with the configuration type details.</td>
</tr>
<tr>
<td>/event/audit/service_balgrp_transfer</td>
<td>Audit event created when a service is transferred from one balance group to another.</td>
</tr>
<tr>
<td>/event/billing/bundle</td>
<td>Audit trail event to track changes to the /purchased_bundle object.</td>
</tr>
<tr>
<td>/event/billing/bundle/create</td>
<td>Created when a /purchased_bundle object is created.</td>
</tr>
<tr>
<td>/event/billing/bundle/modify</td>
<td>Created when a /purchased_bundle object is modified.</td>
</tr>
<tr>
<td>/event/customer/billinfo/modify</td>
<td>Audit event to track changes to the /billinfo object.</td>
</tr>
<tr>
<td>/invoice_detail</td>
<td>Stores the event details for a large invoice.</td>
</tr>
<tr>
<td>/purchased_bundle</td>
<td>Stores information about Siebel CRM promotions purchased by an account.</td>
</tr>
<tr>
<td>/recycle_suspended_usage</td>
<td>Contains data for the recycled EDRs that were rolled back during the recycling process.</td>
</tr>
<tr>
<td>/tmp_unprocessed_events</td>
<td>Temporarily stores unprocessed events that have been loaded by RE Loader but have not yet impacted their associated items.</td>
</tr>
<tr>
<td>/service/telco/imt</td>
<td>Base class for International Mobile Telecommunications (IMT) services.</td>
</tr>
<tr>
<td>/service/telco/pdc</td>
<td>Base class for Personal Digital Cellular (PDC) services.</td>
</tr>
<tr>
<td>/user_activity</td>
<td>Captures activity events of a user. The activity events are typically non-session events. These events are used for logging user activities.</td>
</tr>
</tbody>
</table>
New Notification Events

Table 1–15 describes the new notification events in BRM 7.4.

<table>
<thead>
<tr>
<th>New Notification Event</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/event/notification/account/pre_delete</td>
<td>Generated at the beginning of the account deletion process.</td>
</tr>
<tr>
<td>/event/notification/price/sponsorships/modify</td>
<td>Generated after a /sponsorship object is created or updated in the BRM database. This event is used to synchronize sponsorship (ChargeShare) data between BRM and external CRM applications.</td>
</tr>
</tbody>
</table>
| /event/notification/service_balgrp_transfer/data | Generated when either of the following occurs:  
- A service is transferred from one balance group to another.  
- A balance group is transferred from one bill unit to another. 
This is used to synchronize balance group transfer data between BRM and Pipeline Manager. |
| /event/notification/service_balgrp_transfer/end | Generated after a service is successfully transferred from one balance group to another. |
| /event/notification/service_balgrp_transfer/start | Generated just prior to a service being transferred from one balance group to another. |

New Pipeline Manager Modules, iScripts, and iRules

Table 1–16 describes the new Pipeline Manager modules, iScripts, and iRules in BRM 7.4.

<table>
<thead>
<tr>
<th>New Module</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISC_MapNetworkOperatorInfo</td>
<td>Maps the DETAIL.SOURCE_NETWORK field to the PIN_FLD_ORIGIN_NETWORK field and the DETAIL.DESTINATION_NETWORK field to the PIN_FLD_DESTINATION_NETWORK field of the opcode input block for the corresponding event.</td>
</tr>
<tr>
<td>ISC_Update_ConnectionMonitor</td>
<td>Identifies the state of the Diameter client.</td>
</tr>
</tbody>
</table>

New iScript Functions

Table 1–17 describes the new iScript functions in BRM 7.4.

<table>
<thead>
<tr>
<th>Function</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>closeClientConnection</td>
<td>Closes the connection to the Diameter client.</td>
</tr>
<tr>
<td>getClientState</td>
<td>Gets the state of a Diameter client.</td>
</tr>
<tr>
<td>startTimer</td>
<td>Starts the timer.</td>
</tr>
</tbody>
</table>

Removed Features

This section describes the removed features.
Indexes Not Available in Localized Help Systems

Help systems for client applications in non-English locales no longer have indexes.

Known Problems

This section describes known issues and workarounds for this release.

Accounts Receivable

This section describes known issues and workarounds for accounts receivable.

Disputes and Settlements

The following scenarios cause problems with disputes and settlements:

- If you perform a dispute on an item that has events with real-time taxes and events with no taxes, the balance due on the account is not calculated correctly. Currently, there is no workaround.

- If you perform a bill-level dispute for a total amount that has real-time taxes, the dispute will fail if you do not specify the total disputed amount.

  You will receive the following message:

  Can't dispute the entire amount.

  To work around this problem, specify the total disputed amount in the PIN_FLD_AMOUNT field in the input flist of PCM_OP_BILL_DISPUTE.

- If you adjust only the tax amount in an event (by calling the PCM_OP_AR_EVENT_ADJUSTMENT opcode with the PIN_EVENT_ADJ_TAX_ONLY flag) and then dispute the item containing the event, the settlement tax is not calculated correctly. Therefore, the total due amount of the item is incorrect. The settlement is calculated correctly only when the denied amount is 0. This occurs with both real-time and deferred taxation. Currently, there is no workaround.

Payments Might Be Misallocated to Written-Off Accounts with Multiple Bill Units

Problems might occur with automatic write-off reversals when a payment is received for a written-off account that contains multiple bill units.

When a payment is received, for an account whose write-off level is set to the default (account), the write-offs on all bill units in the account are reversed. However, when the payment is applied, it is allocated only to the bill unit that contains the default balance group and does not impact the other bill units.

If the payment is not an exact payment, the following occurs with the bill unit that contains the default balance group:

- If the payment is an underpayment, the remaining debit balance is written off again.

- If the payment is an overpayment, the additional amount is left as a credit in the balance.

Important: The reversed write-off balances in the other bill units are not impacted by the payment, nor are they written off again; only the bill unit that contains the default balance group is affected by the payment.
To work around this problem, do any of the following:

- When the payment is received, use Payment Tool to manually divide the payment into the amounts required for each bill unit and manually apply them to the account. For more information on allocating payments with Payment Tool, see Payment Tool Help.

- After the payment has been applied to the account, use Customer Center to perform an adjustment. If necessary, transfer the credit balance from the bill unit that contains the default balance group to the bill units that require payment. Then write off the debit balances for all bill units again. For more information on performing adjustments, see Customer Center Help.

- If you have the Payment Suspense Manager feature, you can customize the PCM_OP_PYMT_VALIDATE_PAYMENT opcode to automatically suspend payments for written-off accounts, and then manually allocate the payments in Payment Center. For more information on configuring Payment Suspense Manager, see the discussion on configuring Payment Suspense Manager in BRM Configuring and Collecting Payments.

Credit Threshold Notifications

This section describes known issues and workarounds for credit threshold notifications.

Notifications Sent to Wrong Account after Rollover Transfers

When customer A transfers his rollover resources to account B, the rolled over amount, such as 30 free minutes, is applied to account B’s balance group. If the rollover causes account B’s resource balance to breach a credit threshold, BRM should send a notification event for Account B. Instead, BRM currently sends a notification event for account A.

For more information:

- See the discussion on transferring rollover resources in BRM Managing Accounts Receivable.
- See the discussion on changing a customer’s credit threshold in BRM Managing Customers.

Discounting

This section describes known issues and workarounds for discounting.

Discount Proration

Discount proration does not work when you perform backdated purchase of a discount and the discount is configured as a sequential discount and the discount purchase and cancel proration are set to either Full Discount or No Discount. Proration works correctly only when both the discount purchase and cancel proration are set to Prorate Discount.

Purchase Fee Discounts

Purchase fee discounts are not applied properly if the discount is not purchased before the purchase fee product.

Workaround: To work around this issue, you must use Siebel CRM discounts, instead of BRM discounts.
Managing Customers

Rating results are inconsistent when the `deal_purchase_for_closed_account` entry is set in the Connection Manager configuration file. When a deal is purchased that has an active product with cycle arrears or cycle forward fees, cycle forward charges are applied at purchase time and only when the `pin_cycle_forward` utility is run as standalone (not from the monthly billing utility). Cycle arrears charges are not applied at all.

Oracle BI Publisher Reports

Oracle Business Intelligence (BI) Publisher reports include the following known issues:

- **BI Publisher Server Port Number**
- **Report Transitions Not Considered**
- **Specifying Multiple Ranges**
- **Specifying Unique Range**
- **Specifying Invalid Ranges**
- **Emailed Reports Contain Incorrect Attachment File Names**
- **Filtering Collection Summary Report**
- **Credit and Debit Card Details Displayed Separately**
- **Limitations**
- **Display Issues**

**BI Publisher Server Port Number**

If Oracle BI Publisher server is installed on a port other than port 9704, you must open the reports and change the port number to the port number where BI Publisher server is installed.

**Report Transitions Not Considered**

While generating reports, the reports do not consider the transition history.

**Specifying Multiple Ranges**

You cannot specify multiple ranges for parameters in BI Publisher.

**Specifying Unique Range**

To generate a report with a unique value, enter the same value for Start of range and End of range parameters.

To maintain consistency, the value will be displayed in the range format (for example, x - x) in BI Publisher.

**Specifying Invalid Ranges**

If you specify invalid ranges for range parameters, a blank report is generated and no error message is displayed.

**Emailed Reports Contain Incorrect Attachment File Names**

When reports are scheduled and sent through email, the attached .pdf and .rtf file names are `Attachment1.pdf` and `Attachment1.rtf` instead of the actual file names.
Filtering Collection Summary Report
The Collection Summary report displays all the data even if you set a filter on any of the parameters.

Credit and Debit Card Details Displayed Separately
All types of credit card and debit card details are displayed separately in the respective columns in the Payments Detail, Payments Summary, Refunds Detail, Refunds Summary, Reversals Detail, and Reversals Summary reports.

Limitations
This section describes the limitations for this release.

Start Date Error
You can enter dates only from 01/01/1970 +0000 (UTC) to 12/12/2037 +0000 (UTC). For example, if you enter the start date as 01/01/1970 +0530 (that is, 31/12/1969 18:30), the following error message is displayed:

ORA-20001: Not a valid year. Supported YEAR Range 01/01/1970 +0000 to 12/31/2037 +0000

Note: This is expected behavior of BI Publisher and is not an issue that will be fixed in a future release.

Parameter Values Not Case Sensitive
Input values for parameters are not case sensitive.

Note: This is expected behavior of BI Publisher and is not an issue that will be fixed in a future release.

Creation Date of the Account
NCMultiplePeriod and NCSinglePeriod reports count the values based on the creation date of the ACCOUNT. Any future dated or back dated account will be counted in the month or week of creation and not in the month or week from which the account is effective.

Display Issues
The following are the display issues in this release:

- The RTF format of the reports do not display the column headers in all the pages.
- The RTF format of the reports display an additional blank page if the report runs to the last line of the last page.
- The labels are not displayed in the NCMultiplePeriods chart. The first bar refers to the sum of New Account and the second bar refers to the sum of Closed Account for each period.
- The reports display an additional 5:30 hours for the start date and end date.
- If you select the value **Undefined** for the Payment Type parameter, a blank report is displayed.
- In the HTML and RTF formats of the ARSummary chart, the text is displayed in bold, but in the PDF format it is displayed in normal font.
Oracle IMDB Cache Manager

Oracle IMDB Cache Manager includes the following known issues:

- The pin_bill_day Script Requires Manual Changes
- Event Duplicate Check
- Customer Center Event Searches May Not Return All Events
- Foreign Key Constraints Can Affect Account Deletion
- Payment Allocation Limitations For Brand Accounts
- pin_bill_day Logging Error
- Cannot Create Sub-brands

The pin_bill_day Script Requires Manual Changes

The pin_bill_day script automatically runs the pin_inv_accts utility. Because pin_inv_accts is not supported in an Oracle IMDB cache-enabled system, you must manually edit the pin_bill_day script before it is run.

To prevent the pin_bill_day script from running pin_inv_accts, remove or comment out the following entry in the BRM_home/bin/pin_bill_day script:

```
pin_inv_accts -pay_type 10001
```

Event Duplicate Check

In an Oracle IMDB cache-enabled system, event objects in the event cache group are deleted from the cache (evicted) using least-recently-used aging policy to the BRM database. This leaves some event objects in the Oracle IMDB Cache and some in the BRM database. However, event search is performed only on the BRM database. Because event objects are not searched across both the Oracle IMDB Cache and the BRM database, the check for duplicate events during replay of stop-accounting requests is not guaranteed.

Customer Center Event Searches May Not Return All Events

In an Oracle IMDB cache-enabled system, event objects in the event cache group are deleted from the cache (evicted) using least-recently-used aging policy to the BRM database. This leaves some event objects in the Oracle IMDB Cache and some in the BRM database. However, event search is performed only on the BRM database. When you use Event Browser to search for events in Customer Center, events in the Oracle IMDB Cache that have not been evicted to the BRM database will not be returned.

Foreign Key Constraints Can Affect Account Deletion

In an Oracle IMDB cache-enabled system, foreign key constraints in the IMDB cache schema require that the record with the primary key be deleted before the record with the foreign key. If you have a foreign key relationship in a resource sharing group, you must delete the owner account before you can delete the member accounts. If you do not want to delete accounts in the order required by the constraint, you can alternatively remove the accounts from the resource sharing group and then delete them in any order.

Payment Allocation Limitations For Brand Accounts

When you use the BRM branding functionality in an Oracle IMDB cache-enabled system and you log in to Payment Tool or Customer Center as a brand account, you
cannot allocate a payment to an account at the bill or item allocation level. You can, however, allocate the payment at the account level.

Only users with root permissions who log in to Payment Tool or Customer Center as the root user can allocate bill-level and item-level payments for a brand.

**pin_bill_day Logging Error**
The following error is reported in the cm.pinlog file when pin_bill_day is run in a BRM system configured for branding.

```
fm_act_session_end_init error <location=PIN_ERRLOC_CM:3 class=PIN_ERRCLASS_SYSTEM DETERMINATE:1 errno=PIN_ERR_NOT_FOUND:3> <field num=0:0,0 recid=0 reserved=0 reserved2=0 time(sec:usec)=0:0> facility=0 msg_id=0 version=0>
```

This error is caused when pin_deferred_act has finished executing and tries to exit. There is no functional loss due to this error.

**Cannot Create Sub-brands**
When using the BRM branding functionality in an Oracle IMDB cache-enabled system, you cannot create sub-brands by logging in to Brand Manager using the brand administrator login name and password. Host administrators who have root access to BRM, however, can create top-level brands.

**System Administration**
This section describes known issues and workarounds for system administration.

**Parent Threads Might Cause Deadlocks on Balance Group Objects**
When the Connection Manager (CM) initiates a new transaction that contains a balance impact, the parent thread may lock the balance group object. Any child context that initiates another transaction that also contains a balance impact will not be able to acquire the lock on the balance object.

**Incorrect pin_ctl Service Timeout Error Message**
When you use the pin_ctl utility to start a service, the utility may log the following error message if the service has not finished the startup process during the configured wait time. This occurs even though the component’s process is running with the specified process ID.

```
service Component MasterProcessID failed to start at TimeStamp
```

**Roaming**
This section describes known issues and workarounds for roaming.

**BRM Roaming Does Not Support NRTRDE**
BRM roaming does not support the NRTRDE procedure, which enables roaming partners to exchange roaming usage events in near real-time.

**Telco Services**
This section describes known issues and workarounds for telco services.
GPRS and GSM Session Objects Not Loaded during Installation

The GPRS AAA Manager and GSM AAA Manager installation scripts automatically run the `load_pin_telco_aaa_params` utility to load default parameters for managing GPRS and GSM session objects. The utility should load the `pin_telco_gprs_aaa_params.xml` file for GPRS AAA Manager and the `pin_telco_gsm_aaa_params.xml` file for GSM AAA Manager. Instead, the utility loads the `pin_telco_aaa_params.xml` file, which provides default parameters for all telco services.

To work around this issue, you must manually load the correct AAA parameters XML file by using the `load_pin_telco_aaa_params` utility:

- To load default parameters for managing GPRS session objects, go to the `BRM_Home/sys/data/config` directory and enter the following command:
  ```
  load_pin_telco_aaa_params -f pin_telco_gprs_aaa_params.xml
  ```

- To load default parameters for managing GSM session objects, go to the `BRM_Home/sys/data/config` directory and enter the following command:
  ```
  load_pin_telco_aaa_params -f pin_telco_gsm_aaa_params.xml
  ```

For more information, see the discussion about how Services Framework AAA manages session objects in BRM Telco Integration.

Taxation Not Included in Prepaid Authorization

Taxation is not included in prepaid authorization. This can result in customers exceeding their credit limits. For example, if a customer has a remaining balance of $1.00 and a rate of $0.10 per minute, they will be authorized for 10 minutes of usage. If a 5% tax applies, however, the final impact of the call will be $1.05, exceeding the customer’s credit limit.