Oracle® Communications Billing and Revenue Management

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About This Content

This guide includes information about changes to Oracle Communications Billing and Revenue Management (BRM) for this release.

Audience

This guide is intended for all BRM users.

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1

New Cloud Native Features

Learn about the new features in the Oracle Communications Billing and Revenue Management (BRM) cloud native deployment option.

Topics in this document:

- New Features in Cloud Native 16.26.0

New Features in Cloud Native 16.26.0

BRM cloud native 16.26.0 includes the following enhancements:

- Simplified Persistent Storage Requirements for ECE Cloud Native
- Pod-Local Wallet Storage for ECE
- Enhanced TLS Wallet Management in BRM Cloud Native
- Enhanced Oracle RAC Configuration for BRM Cloud Native
- Direct Loading of Rated Events
- ECE Cloud Native Can Now Refresh Runtime Persistence Database Passwords
- ECE Cloud Native Now Refreshes Kafka and JMS Connections After Credential Rotation
- Upgrade Consideration for Existing REF JDBC Configurations

Simplified Persistent Storage Requirements for ECE Cloud Native

ECE cloud native reduces its dependency on ReadWriteMany (RWX) persistent storage and uses storage based on the requirements of each workload.

ECE cloud native includes the following changes:

- **Persistent storage for logs is optional.** To use persistent storage for ECE logs, configure **pvc.logs.name**. If you do not configure a logs PVC, ECE component logs are written to the console instead. You can also view these logs by using the **kubectl logs** command. Some utilities and logging features continue to write files to the logs directory. These include **query.sh**, subscriber tracing, GC logging, **CreateJmsNotificationQueue.sh**, and **SyCacheMigration.sh**. These logs are not available from the console. When a logs PVC is not configured, the files are stored in pod-local storage and are not persistent. They are lost if the pod crashes or restarts.

  Configure a logs PVC if you need to retain file-based logs.
- **brmconfig-pvc uses ReadWriteOncePod storage.** ECE uses this volume to store the **payloadconfig_ece_sync_*.xml** files generated by Pricing Updater. These files are retained if the pod restarts.
- **ECE no longer uses sdk-pvc.** The ECE SDK remains available at **/home/charging/opt/ECE/ocecesdk**, but the directory is no longer backed by a dedicated persistent volume. SDK-generated class files, logs, and other runtime files are pod-local by default. If you need to preserve SDK-generated files, copy them to the logs location on **logs-pvc**.

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- **ECE no longer uses external-pvc.** The **/home/charging/ext** directory remains available for supported non-SSL custom files, but it is no longer backed by a persistent volume. Add these files to your ECE container image by using image layering. Configure SSL wallets and keystores by using the supported Kubernetes secret-based configuration.
- **cdrformatter-pvc continues to require RWX storage.** CDR Formatter output requires a shared writable location, so its persistent storage requirement is unchanged.

These changes reduce the need for shared RWX storage and provide greater flexibility when deploying ECE in Kubernetes environments where RWX storage is not available for every workload.

For more information, see "About Elastic Charging Engine Volume Mounts" in *BRM Cloud Native Deployment Guide*.

Pod-Local Wallet Storage for ECE

ECE no longer uses **ece-wallet-pvc** for wallet storage. Instead, ECE stores wallets in pod-local **emptyDir** storage. When a wallet-using pod starts, ECE creates the wallet under **/home/charging/wallet** by using the credentials from the mounted Kubernetes secrets. If Kubernetes re-creates the pod, ECE re-creates the wallet from the current secret values.

For long-running wallet-using pods, the **wallet-watcher** sidecar container monitors the mounted secrets for credential changes. When you update a secret, **wallet-watcher** updates the corresponding wallet in the pod. ECE then detects the updated wallet credentials and refreshes or re-creates the affected connection objects so that they use the new credentials without requiring a routine pod restart.

Removing **ece-wallet-pvc** eliminates the requirement for shared persistent wallet storage. Wallets are created from Kubernetes secrets when pods start and are updated when the corresponding secret credentials change, enabling ECE to use updated credentials without routine pod restarts during credential rotation.

For more information, see "About Elastic Charging Engine Volume Mounts" in *BRM Cloud Native Deployment Guide*.

Enhanced TLS Wallet Management in BRM Cloud Native

BRM cloud native now provides enhanced management of TLS wallets and certificates. BRM container images no longer include populated TLS wallets, private keys, or sample certificate authority (CA) certificates. When you enable TLS, you provide certificates and trust material that your organization approves. You manage these items throughout their life cycle.

You can provide TLS wallets by using external Kubernetes Secrets or by adding the wallet files to the BRM cloud native Helm chart. BRM supports component-specific wallet secrets and a shared wallet secret. When multiple wallet sources are available, a component-specific wallet takes precedence over the shared wallet sources. When you enable TLS, you must provide a supported wallet source. Otherwise, the Helm chart installation fails.

This release also includes the following TLS wallet enhancements:

- You can configure one-way or two-way TLS by using the **ocbrm.sslMode** key.
- You can use **extUserSSLWalletSecret** to provide a component-specific TLS wallet and **ocbrm.extCustomSSLWalletSecret** to provide a shared TLS wallet.
- BRM stores the root-key wallet in the database instead of including it in container images or pods.
- BRM no longer supports the **ocbrm.customSSLWallet** key.

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For more information, see "Managing Wallet and KeyStore Certificates" in *BRM Cloud Native Deployment Guide*. Also see "Using External Kubernetes Secrets for Certificates and Wallets" in *BRM Cloud Native System Administrator's Guide*.

Enhanced Oracle RAC Configuration for BRM Cloud Native

BRM cloud native now provides enhanced configuration support for Oracle Real Application Clusters (Oracle RAC) databases. You can configure Oracle RAC database connection details in the Helm chart values without modifying the BRM cloud native Helm chart templates.

This release includes the following Oracle RAC configuration enhancements:

- You can use **ocbrm.db.tnsAdmin.connectionDescriptor** to provide a custom Oracle Net connection descriptor for the primary BRM schema. For multischema deployments, you can use **ocbrm.db.multiSchemas.secondaryN.tnsAdmin.connectionDescriptor** to provide a connection descriptor for each secondary schema.
- You can use **ocbrm.db.tnsAdmin.sqlnet** to override the generated **sqlnet.ora** configuration when your database configuration requires custom Oracle Net settings.
- BRM uses the configured database service name in the DM Oracle and DM Invoice configurations. In multischema deployments, each secondary DM Oracle configuration uses the service that you configure for its corresponding schema.
- Rated Event Manager (REM) uses the same primary and secondary connection descriptors to construct its JDBC connection URLs. You do not need to configure separate Oracle RAC-specific JDBC URL overrides for REM.
- If you do not configure the new connection descriptor or SQLnet values, BRM continues to generate the existing TCP or TCPS database connection configuration. Existing deployments do not need to add the new configuration values.

These enhancements give you greater flexibility when you configure BRM cloud native deployments with Oracle RAC, including RAC address lists and schema-specific database services, while BRM preserves the existing database configuration behavior when you do not use the new overrides.

For more information, see "Configuring the BRM Server" in *BRM Cloud Native Deployment Guide*.

Direct Loading of Rated Events

ECE cloud native now configures Rated Event Formatter (REF) to use the ECE Rated Event Manager (REM) plug-in in DIRECT mode by default. This enables ECE to load rated events directly into the BRM database.

To use direct loading, set the **REFPluginConfiguration.jdbcConfigurations.connectionURL** property in **override-values.yaml** or **values.yaml** to a valid BRM database URL.

For more information, see "Configuring Direct Loading Using the ECE RE Manager Plug-in" in *BRM Cloud Native Deployment Guide*.

ECE Cloud Native Can Now Refresh Runtime Persistence Database Passwords

In ECE cloud native deployments, you can now rotate persistence database passwords at runtime without restarting ECE pods.

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When you update a persistence database password in a Kubernetes secret, the ECE wallet sidecar updates the credential in the pod-local ECE wallet. If there is a database connection failure with the previous password, ECE reads the current password from the wallet, updates the connection pool, and retries the connection once.

Persistence upgrade jobs do not use the runtime password-refresh mechanism. They use the schema-specific database credentials that are available to the job when it starts.

For more information, see "Rotating Persistence Database Passwords" in *BRM Cloud Native System Administrator's Guide*.

ECE Cloud Native Now Refreshes Kafka and JMS Connections After Credential Rotation

In ECE cloud native deployments, ECE can refresh Kafka and JMS connections after credential rotation without requiring routine ECE pod restarts.

When updated credentials propagate to the ECE wallet and an existing Kafka or JMS connection fails because its credentials are stale, ECE refreshes or re-creates the affected connection resources using the current wallet credentials.

- For Kafka, ECE refreshes the affected producer and retries the failed operation once. For Kafka consumers, ECE re-creates the affected consumer after a polling failure and retries the poll once.
- JMS reconnects according to the configured connection retry count and retry interval.

No new configuration is required. Existing Kubernetes secret, wallet-watcher, Kafka, JMS, and connection retry configurations continue to apply.

This enhancement reduces operational disruption during credential rotation and enables ECE to recover from stale Kafka and JMS credentials without requiring a routine pod restart.

For more information, see "Rotating Kafka and JMS Credentials at Runtime" in *BRM Cloud Native System Administrator's Guide*.

Upgrade Consideration for Existing REF JDBC Configurations

If you upgrade an existing ECE cloud native deployment that uses Rated Event Formatter (REF) direct loading, update your REF JDBC configuration. Use the **REFPluginConfiguration.jdbcConfigurations** key in your **override-values.yaml** file. Configure one JDBC connection entry for each BRM database schema.

For information about updating your configuration during an upgrade, see "Upgrading Your ECE Cloud Native Services" in *BRM Cloud Native Deployment Guide*.

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New Features in BRM

Learn about the new features in Oracle Communications Billing and Revenue Management (BRM).

Topics in this document:

- New Features in BRM 16.26.0

New Features in BRM 16.26.0

BRM 16.26.0 includes the following enhancements:

- Support for Shared Oracle Wallet Credentials for Custom DM
- BRM Now Supports Agreements for Customer-Specific Commercial Terms
- Web Services Manager Can No Longer Be Deployed on Web Servers
- 64-Bit Support for Package IDs
- BRM No Longer Includes Sample TLS Wallets and Certificates
- BRM Now Supports OAuth 2.0 Authentication for Kafka Connections
- Loading Externally Rated Events into BRM from Kafka
- Loading ECE-Rated Events from Kafka in JSON Format
- Discount Evaluation Using Rule Manager
- BRM Now Supports Billing Simulation
- BRM REST Services Manager Now Supports External Identifiers for TMF APIs
- BRM REST Services Manager API Supports Special Rating and Sharing Groups
- Enhanced TMF 635 Usage Management API
- Enhanced TMF 654 Prepay Balance Management API Support
- Enhanced TMF 666 Account Management API Support
- Enhanced TMF 670 Payment Method Management
- AI-Based Classification with Multiple Outputs
- AI-Based Anomaly Detection for Operational Metrics

Support for Shared Oracle Wallet Credentials for Custom DM

You can now configure multiple custom Oracle Data Manager (DM) instances to use different database users while storing their credentials in a shared Oracle wallet.

For a custom DM that connects to the database using a different database user, you can configure a unique **dm_process_name**. BRM uses the process name to distinguish the corresponding **sm_id** and **sm_pw** credentials. If **dm_process_name** is not configured, BRM continues to use the default **sm_id** and **sm_pw** keys.

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This enhancement enables multiple custom DMs to securely use separate database accounts without requiring a separate Oracle wallet for each DM.

For more information, see "Configuring Your Custom DM" in *BRM Developer's Guide*.

BRM Now Supports Agreements for Customer-Specific Commercial Terms

BRM now supports *agreements* for defining and managing customer-specific commercial terms that differ from the standard terms in the product catalog. For example, you can use an agreement to specify negotiated pricing, product characteristics, payment terms, and other supported information used during product purchase, rating, billing, and invoicing.

Agreements are managed independently of customer accounts. You can create an agreement and then associate it with one or more accounts, with validity dates determining when the agreement and its account associations apply.

BRM also supports applying agreements in account hierarchies. An agreement associated with an account can apply to descendant accounts in the hierarchy. A directly associated agreement takes precedence over an inherited agreement, and BRM can use configured agreement ordering when multiple eligible agreements exist at the same account level.

Agreements are separate from BRM subscription terms. Subscription terms govern commitment, cancellation, and renewal terms for purchased offers and bundles, whereas agreements provide supported commercial overrides without changing the lifecycle of the underlying offers.

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

Web Services Manager Can No Longer Be Deployed on Web Servers

Starting in BRM 16.26.0, Web Services Manager can no longer be deployed into an external web server, such as Oracle WebLogic Server or Tomcat Server.

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

64-Bit Support for Package IDs

You can now use 64-bit values in the PIN_FLD_PACKAGE_ID field in all storable classes that contain this field. This enhancement enables BRM to process and store package IDs that exceed the signed 32-bit integer limit.

If you are upgrading to BRM 16.26.0, update any custom code that retrieves or sets PIN_FLD_PACKAGE_ID in a storable class to use a 64-bit data type.

For more information, see “Updating Custom Code for PIN_FLD_PACKAGE_ID” in *BRM Installation Guide*.

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BRM No Longer Includes Sample TLS Wallets and Certificates

Starting with the 16.26.0 release, BRM no longer includes sample wallets containing sample TLS certificates. You are responsible for managing the life cycles of the BRM server, client, and config wallets and must use customer-approved certificate authorities (CAs) and certificates for SSL/TLS.

BRM uses separate wallets for TLS and configuration data. The server wallet stores the TLS server certificate, the client wallet stores the trusted CA certificate used for TLS, and the config wallet stores configuration data such as passwords and the BRM root encryption key.

During a fresh installation, you provide the required server and client wallet locations and a password for the config wallet. During an upgrade, you provide information about the existing client wallet and the config wallet, along with the server wallet location when SSL/TLS is enabled.

For more information, see "Using Oracle Wallet" in *BRM System Administrator's Guide*.

BRM Now Supports OAuth 2.0 Authentication for Kafka Connections

BRM now supports OAuth 2.0 authentication for connections to Kafka brokers. BRM components that produce or consume Kafka messages, including dm_kafka, Event Stream Processor, and REST Services Manager, can use the SASL/OAUTHBEARER mechanism to authenticate with Kafka by using short-lived access tokens from a configured OAuth/OIDC identity provider.

OAuth 2.0 authentication is optional, allowing you to use token-based authentication for Kafka connections while retaining existing authentication options.

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

Loading Externally Rated Events into BRM from Kafka

You can load externally rated events into BRM from Kafka. The BRM Event Stream Processor consumes rated event records from configured Kafka topics and transforms incoming payloads into the BRM event format by using configurable mappings.

For externally rated events, the Event Stream Processor enriches the mapped events with BRM-specific information required for processing, such as item type, tax code, general ledger ID (G/L ID), service and account information, sub-balance information, and invoice data. You can configure the enrichment sequence and add custom enrichment modules to populate additional BRM-specific information required by your implementation. The enrichment flow is configurable, ordered, and extensible.

After mapping and enrichment, the Event Stream Processor commits the events to the BRM database for processing by Rated Event Manager. The Event Stream Processor supports configurable Kafka topics and consumer settings and includes deployment configuration for cloud native and on-premises environments.

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For more information, see "Processing Rated Events for Loading Using Kafka" in *BRM Loading Rated Events*.

Loading ECE-Rated Events from Kafka in JSON Format

You can now load ECE-rated events into BRM from Kafka in JSON format. The BRM Event Stream Processor consumes rated event records from configured Kafka topics, transforms the incoming payload into the BRM event format using a configurable mapper, and commits the mapped events to the BRM database for processing by Rated Event Manager.

This functionality provides a Kafka-based integration path for processing ECE-rated events. The Event Stream Processor supports configurable Kafka topics and consumer settings, and the solution includes deployment configuration for both cloud native and on-premises environments.

For more information, see *BRM Loading Rated Events*.

Discount Evaluation Using Rule Manager

BRM now supports rule-based discount evaluation when multiple discounts are candidates for the same customer during overlapping validity periods. Rule Manager uses configurable business rules to evaluate candidate discounts, identify qualifying discounts, and determine their corresponding balance impacts.

The discount evaluation framework supports discount-combination matrix processing, multistage overlap determination, priority rules, prerequisite validation, and configurable evaluation and application sequences. Depending on the configured rules, Rule Manager can qualify multiple discounts or select a single winning discount. In a multistep evaluation, each step filters the candidate discounts and passes the remaining discounts to the next step. When an amount-based comparison is required, Rule Manager can use discount balance impacts to identify the winning discounts.

When the **RuleManagerDiscounting** business parameter is enabled, BRM calls the PCM_OP_SUBSCRIPTION_RULE_MANAGER wrapper opcode during discount event rating. The wrapper opcode calls Rule Manager, which uses PCM_OP_RULE_MANAGER_EVALUATE_RULES to evaluate the candidate discounts. Rule Manager then returns the balance impacts for the qualifying discounts to BRM.

When **RuleManagerDiscounting** is not enabled, BRM uses the existing discount evaluation flow.

You can modify discount decision logic and the sequences for evaluating and applying discounts by updating configuration and rule definitions without changing the core rule-execution framework.

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

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BRM Now Supports Billing Simulation

BRM 16.26.0 introduces billing simulation for recalculating customer charges using alternative rate plans and discounts without changing the original billed data. Before running a simulation, you can evaluate whether an account and billing period are eligible for simulation based on configured business rules.

BRM supports both synchronous simulations for immediate processing and asynchronous simulations that you can register for background processing. Simulations can provide summary-level billing results or detailed event-level results, depending on the requested simulation mode. BRM stores simulation requests and calculated results for use by billing-analysis and adjustment workflows.

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

BRM REST Services Manager Now Supports External Identifiers for TMF APIs

BRM REST Services Manager now supports external identifiers for supported TM Forum (TMF) APIs. For supported requests, you can use identifiers assigned by external systems instead of BRM POIDs. This enhancement simplifies integrations when an external system assigns identifiers to accounts and related entities.

This enhancement applies to the following TMF APIs:

- TMF 635
- TMF 637
- TMF 654
- TMF 666
- TMF 670

For more information, see *REST Services Manager API for Billing and Revenue Management*.

BRM REST Services Manager API Supports Special Rating and Sharing Groups

BRM REST Services Manager extends TMF 637 Product Inventory Management to support BRM-specific special rating and sharing group scenarios that the TMF 637 specification does not define.

You can use TMF 637 extensions to manage special rating scenarios such as Friends and Family and closed user groups (CUGs). In BRM, special rating lists, also known as Extended Rating Attributes (ERAs), associate customer-specific rating information with products and use that information during rating.

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The TMF 637 extensions also support discount sharing. You can define the resources that a sharing group shares and manage the products or services that participate in the group.

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

Enhanced TMF 635 Usage Management API

BRM REST Services Manager enhances support for the TMF 635 Usage Management API. You can retrieve billed and unbilled usage for a service and retrieve or search billed and unbilled usage events for billing profiles and services.

The API provides usage event details such as charges, discounts, and noncurrency resource impacts. You can also search for usage events by criteria such as event information, date ranges, and charge amount ranges.

These enhancements help external care applications retrieve and analyze detailed billed and unbilled usage information through the TMF 635 Usage Management API.

For more information, see *REST API Reference for Billing and Revenue Management*.

Enhanced TMF 654 Prepay Balance Management API Support

BRM REST Services Manager now provides enhanced support for the TMF 654 Prepay Balance Management API. The enhancements improve integration with customer care and other external applications that use their own identifiers instead of BRM POIDs.

BRM REST Services Manager now supports external identifiers for selected account, bill structure, and service references in the TMF 654 API. A new **billStructure.id** query parameter lets you use a bill structure external identifier with supported Prepay Balance Management operations. BRM continues to support **billingCycleSpecification.id** for backward compatibility.

BRM REST Services Manager also provides selected adjustment information, including the adjustment number, tax treatment, and bill and bill item references. This support reduces the need for BRM REST Services Manager SDK extensions.

For more information, see *REST API Reference for Billing and Revenue Management*.

Enhanced TMF 666 Account Management API Support

BRM 16.26.0 extends the TMF 666 Account Management functionality introduced in BRM 15.2. The BRM REST Services Manager API provides additional support for creating and updating billing accounts, account hierarchies, billing information, profiles, tax information, balances, and credit limits.

The API supports profile information during account creation and lets you establish parent-child relationships from the parent account in account hierarchy scenarios. PATCH operations update supported header-level attributes and billing profile or bill unit information without requiring the default, primary, or service bill unit to appear at a fixed position.

Account and billing hierarchy processing distinguishes the appropriate parent bill information from accounts-receivable (AR) bill information when maintaining hierarchy relationships. TMF

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666 account operations also support VAT certificate information during account creation and update, the TMF account balance attribute, and 0th-level credit limit information.

For more information, see *REST API Reference for Billing and Revenue Management*.

Enhanced TMF 670 Payment Method Management

BRM REST Services Manager expands its existing TMF 670 Payment Method Management support. You can create additional payment-method types, including credit card, tokenized card, direct debit, invoice, check, and cash, and partially update existing payment methods.

BRM also provides expanded payment-method lifecycle information and search capabilities, generates notifications when payment methods change, and tracks payment-method events that external master systems send.

For more information, see *REST API Reference for Billing and Revenue Management*.

AI-Based Classification with Multiple Outputs

You can use AI-based classification in Oracle Monetization Suite to generate multiple related predictions that require multiple classification results. The release 16.26.0 sample demonstrates next best offer (NBO) recommendations using BRM and Siebel data.

In the sample workflow, BRM data services collect and prepare customer and purchase data from Siebel and usage data from BRM. Training services use the collected data to train multi-head Deep Neural Network (DNN) models. Prediction services generate multiple related predictions, such as a recommended charge or product offer and a discount offer.

Oracle Monetization Suite provides a Model Context Protocol (MCP) server that runs alongside the BRM REST service. AI agents that support MCP can use the server to request predictions from the prediction service. You can add tools to the MCP server to extend its capabilities.

For more information, see "Configuring Multiple Data Sources" in *BRM AI Deployment and Integration Guide*.

AI-Based Anomaly Detection for Operational Metrics

You can now use AI-based anomaly detection in Oracle Monetization Suite to identify anomalies in operational metrics across systems. These metrics include ECS task backlog, BRM opcode errors, and BRS latency. The machine learning workflow collects historical Prometheus metrics and trains an XGBoost model to classify system states. When you request a prediction, the service retrieves metrics for the specified time window and returns the predicted system state and class probabilities. You can configure the metrics that the service analyzes to detect growing ECS task backlogs, increased errors, and latency degradation. The service can also identify patterns that may indicate an outage.

For more information, see "Collecting Metrics for Anomaly Detection" in *BRM AI Deployment and Integration Guide*.

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New Features in ECE

Learn about the new features in Oracle Communications Elastic Charging Engine (ECE).

Topics in this document:

- New Features in ECE 16.26.0

New Features in ECE 16.26.0

ECE 16.26.0 includes the following enhancements:

- Diameter Gateway Now Supports 3GPP Release 17
- Support for Dual-Stack IPv4 and IPv6 PDP Address Mapping in nCHF Requests
- ECE Can Now Determine Discount Sharing Group Owners Based on Usage Effective Time
- ECE Now Supports OAuth 2.0 Authentication with Kafka Brokers
- ECE Now Supports Impact-Based Candidate Selection
- Support for Rule-Based Candidate Selection in Custom DSL Extensions

Diameter Gateway Now Supports 3GPP Release 17

Diameter Gateway now supports the 3GPP Release 17 (R17) Diameter dictionary or specification updates for supported Diameter interfaces. This update adds optional R17 AVP definitions and command grammar additions while preserving R16-compatible message validation. No new configuration is required.

For more information, see "Diameter Gateway Support for 3GPP Release 17 Diameter Dictionary Additions" in *ECE Diameter Gateway Protocol Implementation Conformance Statement*.

Support for Dual-Stack IPv4 and IPv6 PDP Address Mapping in nCHF Requests

HTTP Gateway now supports mapping IPv4-only, IPv6-only, and dual-stack Protocol Data Unit (PDU) address information from incoming nCHF charging requests into ECE payload attributes. This enhancement enables ECE to preserve IPv4 and IPv6 PDP address information independently for downstream processing, including rating and CDR generation. It also maintains backward compatibility with existing implementations by continuing to populate the legacy PDP_ADDRESS payload attribute with the IPv4 address when it is present.

For more information, see "Mapping nCHF Request Fields to ECE Payload Attributes" in *ECE Implementing Charging*.

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ECE Can Now Determine Discount Sharing Group Owners Based on Usage Effective Time

You can configure ECE to determine the discount sharing group owner for rating based on the effective time of the usage event. When you enable this behavior, ECE rates usage after a group owner change based on the new owner. For usage that occurred before the change, including delayed or backdated usage, ECE uses the owner that was effective when the usage occurred.

For more information, see "Determining the Discount Sharing Group Owner for Rating" in *ECE Implementing Charging*.

ECE Now Supports OAuth 2.0 Authentication with Kafka Brokers

ECE now supports OAuth 2.0 authentication for connections between ECE Kafka clients and compatible Kafka brokers. When you enable OAuth 2.0 authentication, ECE obtains short-lived access tokens from a configured Identity Provider and uses the Kafka SASL/OAUTHBEARER mechanism to authenticate producer and consumer connections.

This enhancement provides token-based authentication for ECE components that publish messages to or consume messages from Kafka. Existing Kafka connection behavior remains available when OAuth 2.0 authentication is disabled.

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

ECE Now Supports Impact-Based Candidate Selection

ECE now supports impact-based candidate selection for charge selectors and generic selectors. When multiple candidates match during rating, you can configure ECE to evaluate all matching candidates. ECE then selects the candidate with the lowest or highest signed immediate impact for a specified currency or noncurrency balance element. This enables candidate selection based on the actual rating outcome, including when rating consumes noncurrency balances, crosses pricing tiers, or produces multiple balance impacts.

You can configure the following candidate selection modes:

- **FIRST_MATCH** selects the first matching candidate in the configured order. This is the default.
- **MIN_IMPACT** evaluates all matching candidates and selects the candidate with the lowest signed immediate impact for the configured balance element.
- **MAX_IMPACT** evaluates all matching candidates and selects the candidate with the highest signed immediate impact for the configured balance element.

You configure the candidate selection mode and balance element in PDC. Existing selectors that do not specify a candidate selection mode continue to use **FIRST_MATCH**, which preserves existing rating behavior.

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For more information, see "How Impact-Based Candidate Selection Works" in *ECE Implementing Charging*.

Support for Rule-Based Candidate Selection in Custom DSL Extensions

ECE now supports rule-based candidate selection in custom DSL selector extensions. The enhanced **CustomDslExtension.execute** method includes a new **getAll** parameter that enables extensions to return all matching Charge Selector results for MIN_IMPACT and MAX_IMPACT selection modes. ECE evaluates the matching candidates, compares their impacts, and selects the appropriate result based on the configured selection mode.

The existing three-argument method remains supported for backward compatibility, preserving FIRST_MATCH behavior. To enable rule-based selection, customize the extension to return all matching result IDs in evaluation order.

For more information, see "Customizing a DSL Selector Extension for Impact-Based Selection" in *ECE Implementing Charging*.

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New Features in PDC

Learn about the new features in Oracle Communications Pricing Design Center (PDC).

Topics in this document:

- New Features in PDC 16.26.0

New Features in PDC 16.26.0

PDC 16.26.0 includes the following enhancements:

- PDC Now Provides Change Set Status
- PDC Now Supports Configuring Rule-Based Candidate Selection
- PDC Now Provides Enhanced Observability Metrics

PDC Now Provides Change Set Status

PDC now provides end-to-end status information for change sets created during configuration and pricing imports. You can determine whether the applicable downstream rating engines successfully processed imported changes and view change-set and transformation status for real-time rating engine (RRE), batch rating engine (BRE), and Elastic Charging Engine (ECE). You can check status by using **ImportExportPricing** or the PDC REST APIs.

For more information, see:

- "How PDC Tracks and Publishes Component Changes" in *PDC Creating Product Offerings*
- "Checking the Status of an Import Operation" in *PDC Creating Product Offerings*
- *REST API Reference for Pricing Design Center*

PDC Now Supports Configuring Rule-Based Candidate Selection

PDC now enables you to configure rule-based candidate selection for charge selectors and generic selectors used for ECE rating. You can specify how ECE selects a candidate when multiple selector rules or result branches match. You can also identify the currency or noncurrency balance element whose rating impact is used for the comparison.

You configure candidate selection by specifying **Candidate Selection Mode** for the charge selector or generic selector. The following modes are available:

- **First Match** (**FIRST_MATCH**) selects the first matching charge selector rule or generic selector result branch in the configured order.
- **Lowest Value** (**MIN_IMPACT**) evaluates all matching candidates and selects the candidate with the lowest signed immediate impact for the configured balance element.
- **Highest Value (MAX_IMPACT)** evaluates all matching candidates and selects the candidate with the highest signed immediate impact for the configured balance element.

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You specify the **Candidate Selection Balance Element Code** when using a rule-based selection mode. You can configure these settings in the PDC UI or by using **ImportExportPricing**.

FIRST_MATCH remains the default, so existing selectors that do not use rule-based candidate selection retain their existing first-match behavior. ECE uses the new configuration for rating.

For more information, see "Impact-Based Candidate Selection" in *PDC Creating Product Offerings*.

PDC Now Provides Enhanced Observability Metrics

PDC now provides enhanced observability metrics that help you monitor system health and API performance. You can monitor system-level metrics such as CPU utilization, memory usage, disk usage and I/O, and network activity for the PDC environment.

PDC also provides API performance metrics for the PDC REST API and PDC REST Services Manager. These metrics provide visibility into request volume, throughput, response latency, and successful and failed requests. PDC REST API metrics are available for the Pricing and Config APIs through the existing metrics endpoint.

You can collect the metrics with Prometheus and visualize them in Grafana dashboards.

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

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5

New Features in Billing Care

Learn about the new features in Oracle Communications Billing Care.

Topics in this document:

- New Features in Billing Care 16.26.0

New Features in Billing Care 16.26.0

Billing Care 16.26.0 includes the following enhancements:

- Billing Care Now Uses the Helidon Runtime
- Billing Care Now Supports External Application Configuration
- Promotion Management in Billing Care
- Tie Discount Offers to Specific Charge Offers in Billing Care UI
- Billing Care Now Localizes Currency and Number Formats
- Event Browser Now in Billing Care
- Enhancements to Payment Browser in Billing Care
- AI Agent and MCP Support for Bill Explanations in Billing Care
- Billing Care Now Supports Bill History Searches
- Billing Care Now Uses Oracle JET for UI String Localization
- Billing Care Now Supports Agreements
- Billing Care REST API Now Supports Promotion Profile Management
- Billing Care REST API Now Supports Billing Simulation

Billing Care Now Uses the Helidon Runtime

Billing Care now uses Helidon as its primary application runtime. This runtime replaces the deployment model based on WebLogic Server and Fusion Middleware. The Helidon-based architecture removes dependencies on WebLogic-specific platform services and provides a lightweight runtime for Billing Care.

Billing Care uses Contexts and Dependency Injection (CDI) to manage dependencies across its REST resource, module, and worker layers. CDI provides container-managed dependency injection and lifecycle management. These capabilities improve modularity and simplify application maintenance. To customize APIs, use the CDI **@Specializes** annotation to override standard Billing Care implementations. This approach replaces the previous customization mechanism based on the **customModule.properties** file. If you have existing API customizations, review them and update your implementations to use the CDI-based extension model.

Billing Care replaces the Java logging API (**java.util.logging**) with SLF4J and Log4j2. By default, the new logging framework uses asynchronous logging. Security and audit events use synchronous logging. In on-premises deployments, you can separate logs into functional,

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access, security, audit, and performance log files. In cloud native deployments, Billing Care writes logs to standard output (STDOUT) for collection by the platform's logging infrastructure.

The new deployment model supports both on-premises and cloud native environments. In cloud native environments, the deployment model supports containerized application artifacts and deployment on Kubernetes.

Billing Care functionality and BRM integration interfaces are designed to remain compatible with the previous deployment model. The Helidon-based security architecture supports OAuth 2.0 and OpenID Connect and can integrate with customer identity providers for single sign-on.

The Billing Care REST API also includes the new operation listed in Table 5-1 to support the Helidon-based architecture.

Table 5-1 New Helidon-Based Operation

Operation	Method	Path
Get Permitted Routes	GET	**/authorization**

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

Billing Care Now Supports External Application Configuration

Starting with Billing Care 16.26.0, you can modify supported product configuration settings by using external application configuration. You do not need to rebuild or redeploy a custom Billing Care JAR file.

Previously, customers typically managed custom configuration settings in the **CustomConfigurations.xml** file as part of an SDK customization. Billing Care now uses the Helidon configuration framework. The **configurations.yaml** file defines the default product settings. To override supported product settings, provide an external **configurations.yaml** file that contains only the values you need to change.

External application configuration supports both on-premises and cloud native deployments. It also simplifies configuration maintenance and upgrades.

If you upgrade from an earlier release, you must convert your existing settings in the **CustomConfigurations.xml** file to the YAML-based configuration model. Billing Care provides migration utilities to help convert configuration settings and update customization code.

You can also define customer-specific configuration settings under **billingcare.configuration.ext**.

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

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Promotion Management in Billing Care

Billing Care now supports managing promotions for accounts and services. Customer service representatives (CSRs) can use the new Profiles work area to view, create, edit, and delete account-level and service-level promotion profiles for an account.

Promotions can grant discounts, special rates, or free resources. Promotions can be triggered by BRM events or actions, such as purchases and top-ups, or by date-based profile values, such as special dates.

Billing Care lists the promotion profiles associated with an account and its services, including active, future-dated, expired, and canceled profiles when they are available in BRM. Access to promotion actions is controlled by Billing Care role configuration.

For more information, see "Subscriber Preferences and Promotions" in *Billing Care Online Help*.

Tie Discount Offers to Specific Charge Offers in Billing Care UI

Billing Care now supports associating discount offers with specific charge offers directly in the Billing Care UI. You can set the association when creating an account, purchasing a new service, adding a bundle to an existing service, transitioning packages, or customizing rates for purchased offers.

When configuring products and discounts, you can select or enter an offer association ID (tie ID) for eligible product and discount offers. Billing Care can reuse IDs entered during the current purchase flow, IDs already persisted on subscribed offers, and IDs from discounts shared by a sharing owner. You can also view, set, change, or clear an offer association ID in the UI.

> **Note**
>
> If a discount offer is not configured as tieable in PDC, the association field is unavailable.

For more information, see "Creating an Account", "Purchasing New Products and Services", "Purchasing Add-On Products", "Transitioning Bundles and Packages", "Customizing an Offer's Rate" in *Billing Care Online Help*.

Billing Care Now Localizes Currency and Number Formats

Billing Care now uses Oracle JET number converters to standardize the formatting of currency amounts, percentages, and quantities. Currency formatting follows the selected locale's standard accounting rules, so the placement of currency symbols and the presentation of negative values can vary by language. For example, negative values may use parentheses in some locales and a minus sign in others.

See "About Currency and Number Formats" in *Billing Care Online Help*.

In addition, the following public JavaScript methods have been deprecated. If they are used in your Billing Care custom code, you must plan to migrate it to use the new **NumberUtil** functions.

- **formatNumber**

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- **convertAmountPositiveToNegative**
- **convertAmountNegativeToPositive**
- **formatAmount**
- **unformatAmount**
- **formatAmountWithAbbr**
- **formatAmountWithoutSymbol**
- **performAmountFormatting**
- **reverseSignAndFormatAmount**
- **unformatPaymentAmount**
- **reformatAmountAndReverseSign**
- **parseAmountBasedOnLocale**
- **unformatLocaleAmountToFloat**
- **amountComparator**

See "Migrating Number and Currency Formatting Customizations" in *Billing Care SDK Guide*.

Event Browser Now in Billing Care

Billing Care now includes Event Browser, which lets CSRs search for and investigate BRM events directly in Billing Care. In previous releases, the Event Browser was in Customer Center.

CSRs can search for events by using account, bill, service, and event information, such as customer name and status, bill or item number, service ID and type, event type, and event creation or effective time. Event Browser displays matching events and provides detailed event information and related account, service, bill, item, and accounts receivable (A/R) information.

CSRs can also perform A/R actions while investigating an event.

The Billing Care REST API now also includes the **Get Item Details** and **Get Event Types** operations and enhances the **Get Events** operation to support flexible event searches and selective result fields.

For more information, see "Event Browser" in *Billing Care Online Help* and *REST API Reference for Billing Care*.

Enhancements to Payment Browser in Billing Care

Billing Care now includes Payment Center functionality for searching and managing payments in Payment Browser, previously known as Payment Suspense. You can find and manage suspended, fully recycled; suspended, partially recycled; suspended; and active payments without navigating into individual customer accounts. Billing Care also includes enhancements for allocating and undoing payment allocations, moving eligible payments to suspense, reversing payments, and permanently removing unallocated payment amounts.

For more information, see "Payment Browser" in *Billing Care Online Help*.

The Billing Care REST API also includes the new operations listed in Table 5-2 to support the payment browser functionality.

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Table 5-2 New Payment Browser-Based Operations

Category	Operation	Method	Endpoint Path
Batch Payments	Get Automatic Batch Payments Status	GET	**/batchpayments/autoprocess**
Payments	Get Payment Records	GET	**/payments**

For more information, see *REST API Reference for Billing Care*.

AI Agent and MCP Support for Bill Explanations in Billing Care

You can now use the BRM Billing Agent to ask questions about an account's bills through a chat interface. The Billing Care Model Context Protocol (MCP) server gives the agent approved access to account, bill, bill item, and accounts receivable information. The agent uses that information to answer questions about recent bills and charges. You can configure the AI agent endpoint that Billing Care uses.

For more information, see *BRM AI Services Framework Overview*.

The Billing Care REST API also includes the new operation listed in Table 5-3 to support the AI agent and MCP server.

Table 5-3 New Operation in Billing Care REST API

Operation	Method	Path
Access MCP Tools and Resources	POST	**/bcws/webresources/v1.0/mcp**

For more information, see *REST API Reference for Billing Care*.

Billing Care Now Supports Bill History Searches

In Billing Care, you can now search bill history by using **Bill Search**. Previously, **Bill Search** searched only current bills. After a corrective bill was generated, you could not find the corrected bill by searching for the original bill number.

To include bill history in a search, select the **Include Original Bill** option. Billing Care searches both current bills and bill history. If the search matches an original bill or an earlier corrective bill, Billing Care returns the latest corrected bill.

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

Billing Care Now Uses Oracle JET for UI String Localization

Starting with Billing Care 16.26.0, Billing Care uses the Oracle JavaScript Extension Toolkit (Oracle JET) localization framework for UI strings. The new framework replaces the previous Oracle i18n (**orai18n**) localization framework.

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Billing Care uses Oracle JET translation bundles to manage localized UI labels and messages. The localization framework provides the **l10n.getLocalizedValue()** utility to retrieve translated strings. This utility replaces the previous approach of accessing generated JavaScript resource objects.

If you have customized Billing Care UI localization, you must convert your existing XLF-based custom translation resources to Oracle JET translation bundles. You must also update your custom JavaScript code to use the **l10n.getLocalizedValue()** utility.

Billing Care provides the **localization-code** migration utility to help update legacy localization references in custom code. The utility does not generate Oracle JET translation bundles. You must convert your custom translation resources separately.

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

Billing Care Now Supports Agreements

In the Billing Care UI, you can now create agreements and associate them with customer accounts. Agreements let you define customer-specific commercial terms, such as negotiated prices and overrides of product characteristics.

When you create an agreement, you can search for bundles or packages and add charge and discount offers. You can also configure the available price tags and product characteristics for those offers.

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

The Billing Care REST API also includes the new operations listed in Table 5-4 to support agreements.

Table 5-4 New Agreements-Based Operations

Endpoint Name	Method	Path
Create Agreement	POST	**/agreements**
Get Agreement	GET	**/agreements/{id}**
Get Agreement State Map	GET	**/agreements/lifecyclestates**
Get Agreements Associated with an Account	GET	**/agreements/association/account/{id}**
Search Agreements	GET	**/agreements**
Update Agreement	PATCH	**/agreements/{agreementId}**
Get Agreement Offer Details	GET	**/subscriptions/agreement/offer/{id}**

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Table 5-4 (Cont.) New Agreements-Based Operations

Endpoint Name	Method	Path
Get Offers for Purchase	GET	**/subscriptions/offers**

For more information, see *REST API Reference for Billing Care*.

Billing Care REST API Now Supports Promotion Profile Management

The Billing Care REST API has been enhanced to support promotion profile management. You can use the profile APIs to view, create, update, and delete **/profile/acct_extrating** and **/profile/serv_extrating** profile objects for promotions.

Table 5-5 shows the new promotion profile management operation in the Billing Care REST API.

Table 5-5 New Promotion Profile Management Operation

Operation	Method	Path
Get Promotion Type (ERA) Strings	GET	**/profiles/promotiontypes/{id}**

The **{id}** path parameter identifies the profile owner type, such as an account or a service type. Use this endpoint to retrieve the promotion profile types available for that owner type. Use the optional locale query parameter to retrieve localized promotion profile type names and descriptions when the corresponding localized strings are configured in BRM.

For more information, see *REST API Reference for Billing Care*.

Billing Care REST API Now Supports Billing Simulation

The Billing Care REST API now supports billing simulation, enabling you to evaluate the potential billing impact of subscription and pricing changes before implementing them.

You can use the Billing Care REST API to check whether an account is eligible for billing simulation, register simulation requests for one or more accounts, and execute synchronous billing simulations. You can register simulation requests for a specific bill or billing period and specify alternative offers for simulation.

> **Note**
>
> Detailed documentation for this feature is not yet available and will be published in a subsequent documentation update. For additional information or assistance, please contact Oracle Support.

The Billing Care REST API also includes the new operations listed in Table 5-6 to support billing simulation.

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Table 5-6 New Billing Simulation Operations

Operation	Method	Path
Evaluate Bill Simulation Eligibility	POST	**/bills/simulation/evaluate**
Register Bill Simulations	POST	**/bills/simulation/register**
Simulate a Bill	POST	**/bills/simulation/simulate**

The Billing Care REST API uses the existing authentication and authorization framework to control access to these operations. Billing calculations are performed by BRM.

For more information, see *REST API Reference for Billing Care*.

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New Features in Business Operations Center

Learn about the new features in Oracle Communications Business Operations Center.

Topics in this document:

- New Features in Business Operations Center 16.26.0

New Features in Business Operations Center 16.26.0

Business Operations Center contains no new features or enhancements in Release 16.26.0.

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7

Support and Certification Changes

Learn about the support and certification changes in Oracle Communications Billing and Revenue Management (BRM).

Topics in this document:

- Support and Certification Changes in 16.26.0

Support and Certification Changes in 16.26.0

Starting in 16.26.0, the Billing and Revenue Management Suite now supports the following software:

- Oracle Database 26ai
- Support for Oracle Advanced Security Transparent Data Encryption (TDE) continues
- Oracle Analytics Publisher 2026
- Vertex Sales Tax Q Series 11.1
- WebLogic Kubernetes Operator 4.3.15

See *BRM Compatibility Matrix* for information on other software support.

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8

Opcode Changes

Learn about new and modified opcodes in Oracle Communications Billing and Revenue Management (BRM).

Topics in this document:

- New Standard Opcodes
- New Policy Opcodes
- Changed Standard Opcodes
- Changed Policy Opcodes
- Removed Standard Opcodes
- Removed Policy Opcodes

New Standard Opcodes

Table 8-1 lists the standard opcodes that have been introduced in BRM.

Table 8-1 New FM Standard Opcodes

New Standard Opcode	Description
PCM_OP_ACC_MGMT_PROFILE_DELETE	Deletes an account management profile.
PCM_OP_ACC_MGMT_PROFILE_GET	Retrieves an account management profile.
PCM_OP_ACC_MGMT_PROFILE_PATCH	Partially updates an account management profile.
PCM_OP_ACC_MGMT_PROFILE_POST	Creates an account management profile.
PCM_OP_AGREEMENT_GET	Retrieves an agreement. Results can include agreement items, associated profiles, associations, and agreement characteristics.
PCM_OP_AGREEMENT_GET_AGREEMENT_ORDER	Retrieves all agreements associated with an account (direct or inherited) in sorted order.
PCM_OP_AGREEMENT_GET_PROD_AND_DISC_INFO	Retrieves product and discount information associated with an agreement.
PCM_OP_AGREEMENT_PATCH	Partially updates an agreement. Top-level agreement fields are patched directly. Agreement associations, agreement items, profiles, and agreement characteristics are patched through JSON patch style PIN_FLD_ACTIONS.
PCM_OP_AGREEMENT_POST	Creates an agreement, agreement item references, profiles, offer overrides, associations, and agreement characteristics.
PCM_OP_BILL_EVALUATE_SIMULATION	Evaluates the eligibility of a subscriber for a fee simulation request.
PCM_OP_BILL_REGISTER_SIMULATION	Generates a fee simulation registration request for the specified bill object.
PCM_OP_BILL_SIMULATE_BILL	Simulates billing for the specified bill object.
PCM_OP_CUSTOMER_BILL_GET	Retrieves all of the **/bill** objects associated with the specified **/billinfo** object.
PCM_OP_PYMT_METHOD_DELETE	Deletes a payment method entity.
PCM_OP_PYMT_METHOD_GET	Retrieves one or more payment method entities.

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Table 8-1 (Cont.) New FM Standard Opcodes

New Standard Opcode	Description
PCM_OP_PYMT_METHOD_PATCH	Partially updates a payment method entity.
PCM_OP_PYMT_METHOD_POST	Creates a payment method entity.
PCM_OP_RULE_MANAGER_EVALUATE_RULES	Runs the Drools rule engine to evaluate the appropriate rules.
PCM_OP_RULE_MANAGER_RULE_DELETE	Deletes a **/rule** object.
PCM_OP_RULE_MANAGER_RULE_GET	Retrieves a **/rule** object using the PIN_FLD_PACKAGE_NAME and PIN_FLD_NAME input flist fields.
PCM_OP_RULE_MANAGER_RULE_PATCH	Partially updates a **/rule** object.
PCM_OP_RULE_MANAGER_RULE_POST	Creates a **/rule** object for a rule manager rule. The PIN_FLD_PACKAGE_NAME and PIN_FLD_NAME input flist fields identify the rule.
PCM_OP_SUBSCRIPTION_RULE_MANAGER	Routes a discount-event request to Rule Manager for discount evaluation.
PCM_OP_USAGE_MANAGEMENT_GET	Retrieves billed and unbilled usage for a specified account, service, event, and billing profile context.

New Policy Opcodes

Table 8-2 lists the policy opcodes that have been introduced in BRM.

Table 8-2 New FM Policy Opcodes

New Policy Opcode	Description
PCM_OP_ACC_MGMT_POL_POST_PROFILE_DELETE	Allows you to customize post-processing after an account management profile is deleted.
PCM_OP_ACC_MGMT_POL_POST_PROFILE_GET	Allows you to customize the account management profile result after it is retrieved.
PCM_OP_ACC_MGMT_POL_POST_PROFILE_PATCH	Allows you to customize the account management profile update request after the profile is updated.
PCM_OP_ACC_MGMT_POL_POST_PROFILE_POST	Allows you to customize post-processing after an account management profile is created.
PCM_OP_ACC_MGMT_POL_PRE_PROFILE_DELETE	Allows you to customize preprocessing before an account management profile is deleted.
PCM_OP_ACC_MGMT_POL_PRE_PROFILE_PATCH	Allows you to customize the account management profile update request before the profile is updated.
PCM_OP_ACC_MGMT_POL_PRE_PROFILE_POST	Allows you to customize preprocessing before an account management profile is created.
PCM_OP_AGREEMENT_POL_POST_PATCH	Allows you to customize the completed agreement result flist after PCM_OP_AGREEMENT_PATCH is called.
PCM_OP_AGREEMENT_POL_POST_POST	Allows you to customize the completed agreement result flist after PCM_OP_AGREEMENT_POST is called.
PCM_OP_AGREEMENT_POL_PRE_PATCH	Allows you to customize the agreement patch request flist, including JSON patch actions, before PCM_OP_AGREEMENT_PATCH is called.
PCM_OP_AGREEMENT_POL_PRE_POST	Allows you to validate or customize the agreement creation request flist before PCM_OP_AGREEMENT_POST is called.
PCM_OP_BILL_POL_EVALUATE_SIMULATION	Enables you to specify customer-specific exclusion attributes for determining billing simulation eligibility.

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Table 8-2 (Cont.) New FM Policy Opcodes

New Policy Opcode	Description
PCM_OP_BILL_POL_POST_MAKE_TRIAL_BILL	Enables you to customize the policy processing after creating a trial bill.
PCM_OP_BILL_POL_POST_SIMULATE_BILL	Allows you to customize events after the bill simulation period.
PCM_OP_BILL_POL_PREP_REGISTER_SIMULATION	Allows you to customize the process for generating a fee simulation registration request for the specified bill object.
PCM_OP_BILL_POL_PRE_MAKE_TRIAL_BILL	Enables you to customize policy processing before creating a trial bill.
PCM_OP_BILL_POL_PRE_SIMULATE_BILL	Allows you to customize events prior to the bill simulation period.
PCM_OP_CUSTOMER_BILL_POL_POST_GET	Allows you to customize post-processing after PCM_OP_CUSTOMER_BILL_GET is called.
PCM_OP_PYMT_METHOD_POL_POST	Allows you to customize post-processing for payment method operations.
PCM_OP_PYMT_METHOD_POL_POST_DELETE	Allows you to customize the deleted payment method and generated events before they are returned.
PCM_OP_PYMT_METHOD_POL_POST_GET	Allows you to customize the payment method result after PCM_OP_PYMT_METHOD_GET is called.
PCM_OP_PYMT_METHOD_POL_POST_PATCH	Allows you to customize the payment method result after PCM_OP_PYMT_METHOD_PATCH is called.
PCM_OP_PYMT_METHOD_POL_PRE_DELETE	Allows you to customize preprocessing before a payment method is deleted.
PCM_OP_PYMT_METHOD_POL_PRE_PATCH	Allows you to customize preprocessing before a payment method is updated.
PCM_OP_PYMT_METHOD_POL_PRE_POST	Allows you to customize preprocessing before a payment method is created.
PCM_OP_RATE_POL_PRE_RATE_ECE_EVENT	Allows you to customize the input used for rating usage events in ECE.
PCM_OP_SUBSCRIPTION_POL_POST_RULE_MANAGER	Allows you to customize the Rule Manager evaluation result returned by the subscription wrapper after PCM_OP_RULE_MANAGER_EVALUATE_RULES is called.
PCM_OP_SUBSCRIPTION_POL_PRE_RULE_MANAGER	Allows you to customize the Rule Manager request before PCM_OP_RULE_MANAGER_EVALUATE_RULES is called.
PCM_OP_USAGE_MANAGEMENT_POL_POST_GET	Allows you to customize post-processing after PCM_OP_USAGE_MANAGEMENT_GET is called.

Changed Standard Opcodes

Table 8-3 lists the standard opcodes that have been modified in BRM.

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Table 8-3 Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_ACC_MGMT_BILL_CYCLE_SPECIFICATION_DELETE	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation.
PCM_OP_ACC_MGMT_BILL_CYCLE_SPECIFICATION_GET	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation.
PCM_OP_ACC_MGMT_BILL_CYCLE_SPECIFICATION_PATCH	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation.
PCM_OP_ACC_MGMT_BILL_CYCLE_SPECIFICATION_POST	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_ACC_MGMT_BILL_FORMAT_DELETE	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation.
PCM_OP_ACC_MGMT_BILL_FORMAT_GET	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation.
PCM_OP_ACC_MGMT_BILL_FORMAT_PATCH	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation.
PCM_OP_ACC_MGMT_BILL_FORMAT_POST	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation. Modified the input flist field requirements as follows: • PIN_FLD_IDENTIFICATION_CODE: Changed from optional to required. • PIN_FLD_NAME: Changed from required to optional.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_ACC_MGMT_BILL_PRESENTATION_MEDIA_DELETE	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation.
PCM_OP_ACC_MGMT_BILL_PRESENTATION_MEDIA_GET	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation.
PCM_OP_ACC_MGMT_BILL_PRESENTATION_MEDIA_PATCH	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation.
PCM_OP_ACC_MGMT_BILL_PRESENTATION_MEDIA_POST	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_ACC_MGMT_DELETE	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_ACC_MGMT_GET	Modified the input flist to make PIN_FLD_BILL_STRUCTURE required under PIN_FLD_ARGS.PIN_FLD_ACCOUNT_RELATIONSHIP.PIN_FLD_ACCOUNT. Modified the input flist to rename PIN_FLD_ARGS.PIN_FLD_BILL_STRUCTURE to the PIN_FLD_BILL_STRUCTURE_INFO array. Modified the PIN_FLD_ARGS.PIN_FLD_EXEMPTIONS and PIN_FLD_ARGS.PIN_FLD_NAMEINFO input flist structures to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation. Modified the PIN_FLD_ARGS.PIN_FLD_NAMEINFO.PIN_FLD_DATA_ARRAY input flist to include the following new field: • PIN_FLD_GEOCODE: Specifies the geographic code. Modified the requirements of the following input flist fields from required to optional: • PIN_FLD_ARGS.PIN_FLD_EXEMPTIONS.PIN_FLD_IDENTIFICATION_CODE • PIN_FLD_ARGS.PIN_FLD_EXEMPTIONS.PIN_FLD_TAX_DEFINITION.PIN_FLD_TYPE • PIN_FLD_ARGS.PIN_FLD_RELATED_PARTY.PIN_FLD_ROLE_STR Modified the input flist to include the following new field: • PIN_FLD_FLAGS: Controls GET processing. PIN_GET_ALL_SERVICES_FOR_BALANCE_GROUP (0x00000001) returns all services associated with a balance group. PIN_FLG_IGNORE_AR_RELATION (0x00000002) ignores account relations of type AR. Combine flags by using bitwise OR. Modified the input PIN_FLD_RESULTS array to allow ELEMID_ANY and a maximum of one element. Modified PIN_FLD_POID in the output flist so that its typeonly mode is no longer specified. Modified the PIN_FLD_RESULTS.PIN_FLD_ACCOUNT_RELATIONSHIP output flist structure to require the following fields, which were previously optional: • PIN_FLD_ACCOUNT.PIN_FLD_ACCOUNT_NO: Specifies the related account number. • PIN_FLD_ACCOUNT.PIN_FLD_BILL_STRUCTURE: Specifies the bill structure of the related account.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
	• PIN_FLD_ACCOUNT.PIN_FLD_BILL_STRUCTURE.PIN_FLD_IDENTIFICATION_CODE: Specifies the bill structure identification code. • PIN_FLD_ACCOUNT.PIN_FLD_BILL_STRUCTURE.PIN_FLD_NAME: Specifies the bill structure name. • PIN_FLD_ACCOUNT.PIN_FLD_BILL_STRUCTURE.PIN_FLD_POID: Specifies the bill structure object POID. • PIN_FLD_ACCOUNT.PIN_FLD_IDENTIFICATION_CODE: Specifies the related account identification code. • PIN_FLD_ACCOUNT.PIN_FLD_POID: Specifies the related account POID. • PIN_FLD_BILL_STRUCTURE: Specifies the account relationship bill structure. • PIN_FLD_BILL_STRUCTURE.PIN_FLD_IDENTIFICATION_CODE: Specifies the account relationship bill structure identification code. • PIN_FLD_BILL_STRUCTURE.PIN_FLD_NAME: Specifies the account relationship bill structure name. Modified the PIN_FLD_RESULTS.PIN_FLD_ACCOUNT_RELATIONSHIP output flist structure to include the following new fields: • PIN_FLD_ACCOUNT.PIN_FLD_BILL_STRUCTURE.PIN_FLD_BILLINFO_OBJ: Specifies the **/billinfo** object associated with the related account bill structure. • PIN_FLD_BILL_STRUCTURE.PIN_FLD_BILLINFO_OBJ: Specifies the **/billinfo** object associated with the current account bill structure. Modified the PIN_FLD_RESULTS input and output flists to include the new PIN_FLD_BALANCES array. The output array includes: • PIN_FLD_CURRENT_BAL: Specifies the current balance. • PIN_FLD_IDENTIFICATION_CODE: Specifies the combined POID object ID and record identifiers (poid_id0 + rec_id + rec_id2). • PIN_FLD_SUBTYPE: Specifies the sub-balance subtype. • PIN_FLD_UNIT_STR: Specifies the unit of measure for the balance element. • PIN_FLD_VALID_FROM: Specifies the beginning of the sub-balance validity period. • PIN_FLD_VALID_TO: Specifies the end of the sub-balance validity period. Modified the output flist to rename PIN_FLD_RESULTS.PIN_FLD_BILL_STRUCTURE to the PIN_FLD_BILL_STRUCTURE_INFO array. Modified the output flist to remove the following fields from the former PIN_FLD_RESULTS.PIN_FLD_BILL_STRUCTURE.PIN_FLD_BALANCE_GROUPS.PIN_FLD_LIMIT structure: • PIN_FLD_AVAILABLE_LOAN_BALANCE • PIN_FLD_CONSUMED_RESERVED_AMOUNT • PIN_FLD_CONSUMPTION_RULE

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
	• PIN_FLD_CREDIT_LIMIT • PIN_FLD_CREDIT_PROFILE • PIN_FLD_CURRENT_BAL • PIN_FLD_CURRENT_TOTAL • PIN_FLD_DELTA_CREDIT_LIMIT • PIN_FLD_GRANTED_BAL • PIN_FLD_NEXT_BAL • PIN_FLD_OUTSTANDING_AMOUNT • PIN_FLD_RESERVED_AMOUNT Modified PIN_FLD_RESULTS.PIN_FLD_BILL_STRUCTURE_INFO.PIN_FLD_BALANCE_GROUPS to include the new PIN_FLD_BALANCES output array with the following fields: • PIN_FLD_AVAILABLE_LOAN_BALANCE: Specifies the available loan balance. • PIN_FLD_CONSUMED_RESERVED_AMOUNT: Specifies the consumed reserved amount. • PIN_FLD_CREDIT_PROFILE: Specifies the credit profile identifier. • PIN_FLD_CURRENT_BAL: Specifies the current balance. • PIN_FLD_CURRENT_TOTAL: Specifies the current total amount. • PIN_FLD_DELTA_CREDIT_LIMIT: Specifies the credit limit adjustment. • PIN_FLD_GRANTED_BAL: Specifies the granted balance. • PIN_FLD_NEXT_BAL: Specifies the next balance value. • PIN_FLD_OUTSTANDING_AMOUNT: Specifies the outstanding amount. • PIN_FLD_RESERVED_AMOUNT: Specifies the reserved balance amount. Modified the new PIN_FLD_BALANCES output array to include the PIN_FLD_SUB_BALANCES array with the following fields: • PIN_FLD_CONTRIBUTOR_STR: Specifies the contributor. • PIN_FLD_CURRENT_BAL: Specifies the current sub-balance. • PIN_FLD_DELAYED_BAL: Tracks balance used by delayed batch events during the billing delay period. • PIN_FLD_GRANTED_BAL: Specifies the original granted balance. • PIN_FLD_GRANTOR_OBJ: Specifies the **/purchase_product**, **/purchase_discount**, or **/product** object that granted the balance. • PIN_FLD_IDENTIFICATION_CODE: Specifies the sub-balance identification code. • PIN_FLD_NEXT_BAL: Tracks balance used by new-cycle events during the billing delay period. • PIN_FLD_ROLLOVER_DATA: Specifies rollover type and rollover date information.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
	• PIN_FLD_SUBTYPE: Specifies the sub-balance type. • PIN_FLD_VALID_FROM: Specifies when the sub-balance becomes valid. • PIN_FLD_VALID_FROM_DETAILS: Specifies the validity start mode, offset, and unit. • PIN_FLD_VALID_TO: Specifies when the sub-balance validity ends. • PIN_FLD_VALID_TO_DETAILS: Specifies the validity end mode, offset, and unit. Modified PIN_FLD_RESULTS.PIN_FLD_BILL_STRUCTURE_INFO.PIN_FLD_BALANCE_GROUPS to include the following additional output fields and structures: • PIN_FLD_UNIT_STR: Specifies the unit of measure for the balance element. • PIN_FLD_LIMIT.PIN_FLD_AMOUNT: Specifies the maximum credit limit. • PIN_FLD_LIMIT.PIN_FLD_THRESHOLDS: An array of threshold definitions containing PIN_FLD_AMOUNT (threshold amount) and PIN_FLD_THRESHOLD (threshold value). • PIN_FLD_RULES: An array of consumption rules containing PIN_FLD_CONSUMPTION_RULE (the rule to apply) and PIN_FLD_UNIT_STR (the balance element's unit of measure). • PIN_FLD_SERVICES: An array of services associated with the balance group when PIN_GET_ALL_SERVICES_FOR_BALANCE_GROUP is set. It contains PIN_FLD_IDENTIFICATION_CODE (service ID), PIN_FLD_LOGIN (service login), and PIN_FLD_POID (service POID). • PIN_FLD_SERVICES.PIN_FLD_ALIAS_LIST: An array of service aliases containing PIN_FLD_NAME (alias) and PIN_FLD_TYPE_STR (alias type). • PIN_FLD_TEMP_LIMIT.PIN_FLD_GRANTOR_OBJ: Specifies the object that granted the temporary credit limit. Modified PIN_FLD_RESULTS to include the following new output fields: • PIN_FLD_CREATED_T: Specifies the account creation timestamp. • PIN_FLD_EFFECTIVE_T: Specifies when the account modification takes effect on an external system. Modified PIN_FLD_RESULTS to include the new PIN_FLD_LIMIT array in the input and output flists. The output array contains: • PIN_FLD_AMOUNT: Specifies the credit limit for a currency balance element of the default balance group. • PIN_FLD_UNIT_STR: Specifies the unit of measure for the balance element. Modified the PIN_FLD_RESULTS.PIN_FLD_POID field to accept an account POID in the input flist and to be required, rather than optional, in the output flist.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
	Modified the PIN_FLD_RESULTS input and output flists to include the new PIN_FLD_PROFILES array. The output array contains: • PIN_FLD_IDENTIFICATION_CODE: Specifies the profile identification code. • PIN_FLD_NAME: Specifies the profile name. • PIN_FLD_POID: Specifies the profile object POID. Modified PIN_FLD_RESULTS.PIN_FLD_RELATED_PARTY.PIN_FLD_ROLE_STR in the output flist from required to optional.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_ACC_MGMT_PATCH	Modified the input flist to include the following new fields and structures: • PIN_FLD_ACCTINFO: An array of extended account information passed to the PCM_OP_CUST_UPDATE_CUSTOMER opcode. • PIN_FLD_BILL_STRUCTURE.PIN_FLD_BALANCE_GROUPS.PIN_FLD_LIMIT.PIN_FLD_AMOUNT: Specifies the credit limit value. • PIN_FLD_BILL_STRUCTURE.PIN_FLD_BALANCE_GROUPS.PIN_FLD_POID: Specifies the balance group POID. • PIN_FLD_BILL_STRUCTURE.PIN_FLD_BILLINFO: An array of extended **/billinfo** information passed to the PCM_OP_CUST_UPDATE_CUSTOMER opcode. Modified the input flist to include the new PIN_FLD_RULES array under PIN_FLD_ACTIONS.PIN_FLD_ACTION_INFO.PIN_FLD_BILL_STRUCTURE_INFO.PIN_FLD_BALANCE_GROUPS and PIN_FLD_BILL_STRUCTURE.PIN_FLD_BALANCE_GROUPS, with the following fields: • PIN_FLD_CONSUMPTION_RULE: Specifies the consumption rule to apply to a balance element. • PIN_FLD_UNIT_STR: Specifies the unit of measure for the balance element associated with the consumption rule. Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation. Modified the input flist to include the following new field: • PIN_FLD_FLAGS: Specifies PATCH processing flags. PIN_FLG_IGNORE_AR_RELATION (0x00000002) ignores account relations of type AR. Flags can be combined by using bitwise OR. Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_ACC_MGMT_POST	Modified the input flist to include the following new fields and structures: • PIN_FLD_ACCTINFO: An array of extended account information passed to the PCM_OP_CUST_CREATE_CUSTOMER opcode. • PIN_FLD_BILL_STRUCTURE.PIN_FLD_BILLINFO: An array of extended **/billinfo** information passed to the PCM_OP_CUST_CREATE_CUSTOMER opcode. • PIN_FLD_FLAGS: Specifies POST processing flags. PIN_FLG_IGNORE_AR_RELATION (0x00000002) ignores account relations of type AR. Flags can be combined by using bitwise OR. Changed the data type of PIN_FLD_CONSUMPTION_RULE from decimal to enum under PIN_FLD_BILL_STRUCTURE.PIN_FLD_BALANCE_GROUPS.PIN_FLD_RULES in the input and output flists. Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation. Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.
PCM_OP_AR_GET_ACTION_ITEMS	Modified the PIN_FLD_RESULTS.PIN_FLD_EVENTS output flist array to include the following new fields: • PIN_FLD_BAL_IMPACTS: An array containing the balance impacts for the A/R event. • PIN_FLD_BAL_IMPACTS.PIN_FLD_AMOUNT: Specifies the balance impact amount. • PIN_FLD_BAL_IMPACTS.PIN_FLD_RESOURCE_ID: Identifies the affected balance element. • PIN_FLD_SESSION_OBJ: Specifies the POID of the related event. For adjustments and disputes, this field identifies the adjusted or disputed event. For settlements, it identifies the dispute event being settled.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_AR_GET_ITEMS	Modified the PIN_FLD_RESULTS.PIN_FLD_TRANSFERS_INTO.PIN_FLD_EVENTS output flist array to include the following new fields: • PIN_FLD_BAL_IMPACTS: An array containing the balance impacts for the A/R event. • PIN_FLD_BAL_IMPACTS.PIN_FLD_AMOUNT: Specifies the balance impact amount. • PIN_FLD_BAL_IMPACTS.PIN_FLD_RESOURCE_ID: Identifies the affected balance element. • PIN_FLD_SESSION_OBJ: Specifies the POID of the related event. For adjustments and disputes, this field identifies the adjusted or disputed event. For settlements, it identifies the dispute event being settled.
PCM_OP_AR_GET_ITEM_DETAIL	Modified the PIN_FLD_RESULTS.PIN_FLD_EVENTS and PIN_FLD_RESULTS.PIN_FLD_TRANSFERS_INTO.PIN_FLD_EVENTS output flist arrays to include the following new fields in each location: • PIN_FLD_BAL_IMPACTS: An array containing the balance impacts for the A/R event. • PIN_FLD_BAL_IMPACTS.PIN_FLD_AMOUNT: Specifies the balance impact amount. • PIN_FLD_BAL_IMPACTS.PIN_FLD_RESOURCE_ID: Identifies the affected balance element. • PIN_FLD_SESSION_OBJ: Specifies the POID of the related event. For adjustments and disputes, this field identifies the adjusted or disputed event. For settlements, it identifies the dispute event being settled.
PCM_OP_AR_RESOURCE_AGGREGATION	Modified the PIN_FLD_RESULTS output flist array to include the following new fields, returned when invoked by the PCM_OP_USAGE_MANAGEMENT_GET opcode: • PIN_FLD_AMOUNT_TAX_EXCLUSIVE: Specifies the amount excluding tax after the discount impact is applied. • PIN_FLD_AMOUNT_TAX_INCLUSIVE: Specifies the amount including tax after the discount impact is applied. • PIN_FLD_TAX: Specifies the tax amount. • PIN_FLD_TAXES: An array containing tax details, including PIN_FLD_AMOUNT (tax amount), PIN_FLD_PERCENT (tax percentage), and PIN_FLD_TAX_CODE (tax code).

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_BILL_GET_ITEM_EVENT_CHARGE_DISCOUNT	Modified the input flist to include the following new event-filter fields: • PIN_FLD_ACCOUNT_OBJ: Specifies the account POID used to filter events. • PIN_FLD_BILLINFO_OBJ: Specifies the POID of the **/billinfo** object used to filter events. • PIN_FLD_SERVICE_OBJ: Specifies the service POID used to filter events. • PIN_FLD_MIN_ROW: Specifies the first result row to return. • PIN_FLD_MAX_ROW: Specifies the last result row to return. Modified the input flist to include the new PIN_FLD_ARGS array for searching fields of the **/event** storable class or its subclasses. The array contains the following new fields: • PIN_FLD_AMOUNT_TAX_EXCLUSIVE: Filters events by the sum of non-tax balance impacts for the specified balance element. • PIN_FLD_AMOUNT_TAX_INCLUSIVE: Filters events by the sum of all balance impacts, including tax, for the specified balance element. • PIN_FLD_OPERATOR_STR: Specifies the comparison operator. Generic filters support =, !=, <, <=, >, >=, and like. Tax-amount filters do not support like. • PIN_FLD_ORDERED_BY: Specifies **ASC** or **DESC** sorting for the event field. Modified event filtering so that top-level event fields appear directly under PIN_FLD_ARGS, while nested fields retain their event array or substruct hierarchy. Usage Management requests can use PIN_FLD_RESOURCE_ID or PIN_FLD_UNIT_STR for tax-amount filters; PIN_FLD_UNIT_STR is resolved to PIN_FLD_RESOURCE_ID. If PIN_FLD_OPERATOR_STR is omitted, the equality operator is used. PIN_FLD_AMOUNT_TAX_EXCLUSIVE and PIN_FLD_AMOUNT_TAX_INCLUSIVE cannot be supplied together. Modified the input PIN_FLD_POID field to support both **/account** and **/event** storable classes instead of only **/account**. Modified the input flist to include the PIN_FLD_RESULTS array for selecting event fields returned when invoked by the PCM_OP_USAGE_MANAGEMENT_GET opcode. If omitted, all event fields are returned. A positive array element ID also specifies the event search batch size. Nested fields retain their event hierarchy. Modified the PIN_FLD_RESULTS output array to permit zero elements instead of requiring one, and to allow recursive results. Modified the following output flist fields from required to optional: • PIN_FLD_POID • PIN_FLD_RESULTS.PIN_FLD_DESCR

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
	• PIN_FLD_RESULTS.PIN_FLD_RESULT
PCM_OP_CONTRACT_CANCEL_CONTRACT	Modified the PIN_FLD_EVENT.PIN_FLD_CONTRACT output flist structure to remove PIN_FLD_PACKAGE_ID.
PCM_OP_CONTRACT_CREATE_CONTRACT	Modified the output flist to remove PIN_FLD_PACKAGE_ID.
PCM_OP_CUST_ASSOCIATE_ROLE	Modified the input PIN_FLD_CONFIG_ROLE field from an array to a substruct. Modified the PIN_FLD_CONFIG_ROLE input substruct to include the following new field: • PIN_FLD_CONFIG_PROFILE_OBJ: Specifies the POID of the associated **/config/role** object. Modified the PIN_FLD_CONFIG_ROLE input substruct to remove PIN_FLD_POID.
PCM_OP_CUST_COMMIT_CUSTOMER	Modified the output flist to remove PIN_FLD_PACKAGE_ID from the following structures: • PIN_FLD_ACCTINFO.PIN_FLD_DEAL_INFO.PIN_FLD_DISCOUNTS • PIN_FLD_ACCTINFO.PIN_FLD_DEAL_INFO.PIN_FLD_PRODUCTS Modified the input and output flists to remove PIN_FLD_PACKAGE_ID from the following structures: • PIN_FLD_SERVICES.PIN_FLD_DEALS.PIN_FLD_DISCOUNTS • PIN_FLD_SERVICES.PIN_FLD_DEALS.PIN_FLD_PRODUCTS • PIN_FLD_SERVICES.PIN_FLD_DEAL_INFO.PIN_FLD_DISCOUNTS • PIN_FLD_SERVICES.PIN_FLD_DEAL_INFO.PIN_FLD_PRODUCTS
PCM_OP_CUST_CREATE_CUSTOMER	Modified the output flist to remove PIN_FLD_PACKAGE_ID from the following structures: • PIN_FLD_ACCTINFO.PIN_FLD_DEAL_INFO.PIN_FLD_DISCOUNTS • PIN_FLD_ACCTINFO.PIN_FLD_DEAL_INFO.PIN_FLD_PRODUCTS • PIN_FLD_SERVICES.PIN_FLD_DEALS.PIN_FLD_DEAL_INFO.PIN_FLD_DISCOUNTS • PIN_FLD_SERVICES.PIN_FLD_DEALS.PIN_FLD_DEAL_INFO.PIN_FLD_PRODUCTS • PIN_FLD_SERVICES.PIN_FLD_DEAL_INFO.PIN_FLD_DISCOUNTS • PIN_FLD_SERVICES.PIN_FLD_DEAL_INFO.PIN_FLD_PRODUCTS
PCM_OP_CUST_CREATE_PROFILE	Modified the input flist to include the following new fields: • PIN_FLD_AGREEMENT_OBJ: Specifies the POID of the agreement to which the profile is attached. • PIN_FLD_IDENTIFICATION_CODE: Specifies the identification code of the profile object.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_CUST_MODIFY_CUSTOMER	Modified the output flist to remove PIN_FLD_PACKAGE_ID from the following structures: • PIN_FLD_ACCTINFO.PIN_FLD_DEAL_INFO.PIN_FLD_DISCOUNTS • PIN_FLD_ACCTINFO.PIN_FLD_DEAL_INFO.PIN_FLD_PRODUCTS • PIN_FLD_SERVICES.PIN_FLD_DEALS.PIN_FLD_DEAL_INFO.PIN_FLD_DISCOUNTS • PIN_FLD_SERVICES.PIN_FLD_DEALS.PIN_FLD_DEAL_INFO.PIN_FLD_PRODUCTS • PIN_FLD_SERVICES.PIN_FLD_DEAL_INFO.PIN_FLD_DISCOUNTS • PIN_FLD_SERVICES.PIN_FLD_DEAL_INFO.PIN_FLD_PRODUCTS
PCM_OP_CUST_PREP_CUSTOMER	Modified the output flist to remove PIN_FLD_PACKAGE_ID from the following structures: • PIN_FLD_ACCTINFO.PIN_FLD_DEAL_INFO.PIN_FLD_DISCOUNTS • PIN_FLD_ACCTINFO.PIN_FLD_DEAL_INFO.PIN_FLD_PRODUCTS • PIN_FLD_SERVICES.PIN_FLD_DEALS.PIN_FLD_DEAL_INFO.PIN_FLD_DISCOUNTS • PIN_FLD_SERVICES.PIN_FLD_DEALS.PIN_FLD_DEAL_INFO.PIN_FLD_PRODUCTS • PIN_FLD_SERVICES.PIN_FLD_DEAL_INFO.PIN_FLD_DISCOUNTS • PIN_FLD_SERVICES.PIN_FLD_DEAL_INFO.PIN_FLD_PRODUCTS
PCM_OP_CUST_UPDATE_SERVICES	Modified the PIN_FLD_SERVICES input flist array to include the following new field: • PIN_FLD_LIFECYCLE_STATUS: Specifies the lifecycle status passed to product or discount cancellation when initiated by the PCM_OP_PRODUCT_INVENTORY_MODIFY_OFFERINGS opcode.
PCM_OP_PRODUCT_INVENTORY_DELETE	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation. Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_PRODUCT_INVENTORY_GET	Modified the PIN_FLD_ARGS input flist array to include the new PIN_FLD_EXTRATING substruct for filtering extended rating attributes. All fields are available as filters, including: • PIN_FLD_DATA_ARRAY: Contains extended rating attribute name-value pairs, including PIN_FLD_NAME (attribute name), PIN_FLD_VALUE (attribute value), PIN_FLD_VALID_FROM (validity start), and PIN_FLD_VALID_TO (validity end). • PIN_FLD_EXTRATING: A nested substruct for service profiles containing PIN_FLD_LABEL (ERA label), PIN_FLD_REFERENCE_COUNT (ERA reference count), and PIN_FLD_STATUS (ERA provisioning status). • PIN_FLD_IDENTIFICATION_CODE: Specifies the unique identification code of the extended rating attributes profile. • PIN_FLD_NAME: Specifies the extended rating attributes profile name. • PIN_FLD_OBJECT_CACHE_TYPE: Specifies the cache residency type of the profile object. • PIN_FLD_POID: Specifies the POID of the **/profile/serv_extrating** or **/profile/acct_extrating** object. Modified the PIN_FLD_ARGS input flist array to include the following new field: • PIN_FLD_ORDERED_BY: Specifies **ASC** or **DESC** sorting for the corresponding argument field. Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation. Modified the input flist to include the following new fields: • PIN_FLD_FLAGS: Controls GET processing. PIN_FLG_EXCLUDE_BUNDLES_PROD_REL (0x00000001) excludes bundle product relationships from the output. PIN_FLG_SEARCH_SPECIFIC_PROD_CHAR (0x00000004) searches for and appends the VALUES/DATA-type product characteristic at level 0. This flag is used for internal PATCH processing. Combine flags by using bitwise OR. • PIN_FLD_MIN_ROW: Specifies the starting search-result row. • PIN_FLD_MAX_ROW: Specifies the last search-result row to retrieve. Modified the output flist to include the following new field:

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
	• PIN_FLD_POID: Specifies a dummy POID. Modified PIN_FLD_RESULTS and PIN_FLD_RESULTS.PIN_FLD_PRODUCTS in the input flist to include a new PIN_FLD_EXTRATING substruct for selecting extended rating attributes to return. Modified PIN_FLD_RESULTS and PIN_FLD_RESULTS.PIN_FLD_PRODUCTS in the output flist to include the new PIN_FLD_EXTRATING substruct with the following fields: • PIN_FLD_DATA_ARRAY: Contains extended rating attribute name-value pairs, including PIN_FLD_NAME (attribute name), PIN_FLD_VALUE (attribute value), PIN_FLD_VALID_FROM (validity start), and PIN_FLD_VALID_TO (validity end). • PIN_FLD_EXTRATING: A nested substruct for service profiles containing PIN_FLD_LABEL (ERA label), PIN_FLD_REFERENCE_COUNT (ERA reference count), and PIN_FLD_STATUS (ERA provisioning status). • PIN_FLD_IDENTIFICATION_CODE: Specifies the unique identification code of the extended rating attributes profile. • PIN_FLD_NAME: Specifies the extended rating attributes profile name. • PIN_FLD_OBJECT_CACHE_TYPE: Specifies the cache residency type of the profile object. • PIN_FLD_POID: Specifies the POID of the **/profile/serv_extrating** or **/profile/acct_extrating** object. Modified PIN_FLD_OFFSET_VALUE from string (maximum length 128) to integer in the following output flist substructs, both under PIN_FLD_RESULTS and under PIN_FLD_RESULTS.PIN_FLD_PRODUCTS: • PIN_FLD_CYCLE_END_INFO • PIN_FLD_CYCLE_START_INFO • PIN_FLD_GRACE_PERIOD_INFO • PIN_FLD_PURCHASE_END_INFO • PIN_FLD_PURCHASE_START_INFO • PIN_FLD_USAGE_END_INFO • PIN_FLD_USAGE_START_INFO Modified PIN_FLD_PRICING_INFO from an array to a substruct under PIN_FLD_PRODUCT_PRICE.PIN_FLD_VALUES in the output flist, both under PIN_FLD_RESULTS and under PIN_FLD_RESULTS.PIN_FLD_PRODUCTS.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_PRODUCT_INVENTORY_MODIFY_OFFERINGS	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation. Modified the input flist to include the following new fields: • PIN_FLD_INDICATOR: Specifies purchased-product indicators. PIN_PURCHASED_PRODUCT_IS_MOVED (0x04) indicates cancellation as part of a move-asset operation. • PIN_FLD_TXN_FLAGS: Specifies transaction flags returned by the PCM_OP_PRODUCT_INVENTORY_POL_PRE_PATCH policy opcode and passed to the subscription cancellation opcode.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_PRODUCT_INVENTORY_PATCH	Modified PIN_FLD_ACTIONS.PIN_FLD_ACTION_INFO in the input flist to include the new PIN_FLD_EXTRATING substruct containing the PIN_FLD_DATA_ARRAY array with the following fields: • PIN_FLD_NAME: Specifies the name of the extended rating attribute. • PIN_FLD_VALUE: Specifies the extended rating attribute value. • PIN_FLD_VALID_FROM: Specifies the start of the attribute validity period. • PIN_FLD_VALID_TO: Specifies the end of the attribute validity period. Modified the input flist to change PIN_FLD_PRICING_INFO under PIN_FLD_ACTIONS.PIN_FLD_ACTION_INFO.PIN_FLD_PRODUCT_PRICE.PIN_FLD_VALUES from an array to a substruct. Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation. Modified the input and output flists to include the new top-level PIN_FLD_EXTRATING substruct with the following fields: • PIN_FLD_DATA_ARRAY: Contains extended rating attribute name-value pairs, including PIN_FLD_NAME (attribute name), PIN_FLD_VALUE (attribute value), PIN_FLD_VALID_FROM (validity start), and PIN_FLD_VALID_TO (validity end). • PIN_FLD_EXTRATING: A nested substruct for service profiles containing PIN_FLD_LABEL (ERA label), PIN_FLD_REFERENCE_COUNT (ERA reference count), and PIN_FLD_STATUS (ERA provisioning status). • PIN_FLD_IDENTIFICATION_CODE: Specifies the unique identification code of the extended rating attributes profile. • PIN_FLD_NAME: Specifies the extended rating attributes profile name. • PIN_FLD_POID: Specifies the POID of the **/profile/serv_extrating** or **/profile/acct_extrating** object. Modified PIN_FLD_OFFSET_VALUE from string (maximum length 128) to integer in the following input and output flist substructs: • PIN_FLD_CYCLE_END_INFO

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
	• PIN_FLD_PURCHASE_END_INFO • PIN_FLD_USAGE_END_INFO Modified PIN_FLD_PRICING_INFO under PIN_FLD_PRODUCT_PRICE.PIN_FLD_VALUES from an array to a substruct in the input and output flists. Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_PRODUCT_INVENTORY_POST	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation. Modified the input and output flists to include the new PIN_FLD_EXTRATING substruct both at the top level and under the PIN_FLD_PRODUCTS array, with the following fields: • PIN_FLD_DATA_ARRAY: Contains extended rating attribute name-value pairs, including PIN_FLD_NAME (attribute name), PIN_FLD_VALUE (attribute value), PIN_FLD_VALID_FROM (validity start), and PIN_FLD_VALID_TO (validity end). • PIN_FLD_EXTRATING: A nested substruct for service profiles containing PIN_FLD_LABEL (ERA label), PIN_FLD_REFERENCE_COUNT (ERA reference count), and PIN_FLD_STATUS (ERA provisioning status). • PIN_FLD_IDENTIFICATION_CODE: Specifies the unique identification code of the extended rating attributes profile. • PIN_FLD_NAME: Specifies the extended rating attributes profile name. Modified the output flist to include PIN_FLD_POID under PIN_FLD_EXTRATING both at the top level and within PIN_FLD_PRODUCTS. This field specifies the POID of the **/profile/serv_extrating** or **/profile/acct_extrating** object. Modified PIN_FLD_OFFSET_VALUE from string (maximum length 128) to integer in the following input and output flist substructs, both at the top level and within PIN_FLD_PRODUCTS: • PIN_FLD_CYCLE_END_INFO • PIN_FLD_CYCLE_START_INFO • PIN_FLD_GRACE_PERIOD_INFO • PIN_FLD_PURCHASE_END_INFO • PIN_FLD_PURCHASE_START_INFO • PIN_FLD_USAGE_END_INFO • PIN_FLD_USAGE_START_INFO Modified PIN_FLD_PRODUCTS.PIN_FLD_ACCOUNT in the input flist from required to optional. Modified PIN_FLD_PRICING_INFO under PIN_FLD_PRODUCT_PRICE.PIN_FLD_VALUES, both at the top level and within PIN_FLD_PRODUCTS, from an array to a substruct in the input and output flists.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
	Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.
PCM_OP_RATE_GET_PRODLIST	Modified the PIN_FLD_PRODUCTS output flist array to remove PIN_FLD_PACKAGE_ID.
PCM_OP_SUBSCRIPTION_CANCEL_DEAL	Modified the PIN_FLD_DEAL_INFO input flist structure to remove PIN_FLD_PACKAGE_ID.
PCM_OP_SUBSCRIPTION_CANCEL_DISCOUNT	Modified the PIN_FLD_DISCOUNTS input flist array to include the following new field: • PIN_FLD_LIFECYCLE_STATUS: Specifies the lifecycle status to set on the purchased discount during cancellation.
PCM_OP_SUBSCRIPTION_CANCEL_PRODUCT	Modified the PIN_FLD_PRODUCTS input flist array to include the following new fields: • PIN_FLD_INDICATOR: Specifies purchased-product indicators. PIN_PURCHASED_PRODUCT_IS_MOVED (0x04) identifies cancellation as part of a move-asset operation and waives cancellation fees. • PIN_FLD_LIFECYCLE_STATUS: Specifies the lifecycle status to set on the purchased product during cancellation. Modified the input flist to include the following new field: • PIN_FLD_TXN_FLAGS: Specifies the transaction flags to assign to PIN_FLD_FLAGS in the named transition flist during a move-asset cancellation.
PCM_OP_SUBSCRIPTION_CHANGE_OPTIONS	Modified the PIN_FLD_SERVICES.PIN_FLD_DEALS input flist structure to remove PIN_FLD_PACKAGE_ID.
PCM_OP_SUBSCRIPTION_CRUD_OFFER_OVERRIDE	Modified the input and output flists to include the following new fields: • PIN_FLD_AGREEMENT_OBJ: Specifies the POID of the agreement object. • PIN_FLD_PRODUCT_OBJ: Specifies the POID of the product or discount associated with agreement overrides. Modified PIN_FLD_POID in the input and output flists to support **/offering_override_values** and **/agreement_override_values** storable classes instead of only **/offering_override_values**.
PCM_OP_SUBSCRIPTION_GET_HISTORY	Modified the input and output flists to remove PIN_FLD_PACKAGE_ID.
PCM_OP_SUBSCRIPTION_GET_PURCHASED_OFFERINGS	Modified the input flist to remove PIN_FLD_PACKAGE_ID.
PCM_OP_SUBSCRIPTION_PURCHASE_DEAL	Modified the PIN_FLD_DEAL_INFO input flist structure to remove PIN_FLD_PACKAGE_ID. Modified the output flist to remove PIN_FLD_PACKAGE_ID from the following arrays: • PIN_FLD_DISCOUNTS • PIN_FLD_PRODUCTS
PCM_OP_SUBSCRIPTION_PURCHASE_DISCOUNT	Modified the PIN_FLD_DISCOUNTS array in the input and output flists to remove PIN_FLD_PACKAGE_ID.

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Table 8-3 (Cont.) Changed Standard Opcodes

Changed Standard Opcode	Description
PCM_OP_SUBSCRIPTION_PURCHASE_PRODUCT	Modified the input flist to include the following new fields: • PIN_FLD_FLAGS: Specifies opcode processing flags. • PIN_FLD_TXN_FLAGS: Specifies the transaction flags to assign to PIN_FLD_FLAGS in the named transition flist during a move-asset purchase. Modified the PIN_FLD_PRODUCTS input flist array to include the following new field: • PIN_FLD_INDICATOR: Specifies indicators persisted on the purchased product. PIN_PURCHASED_PRODUCT_IS_MOVED (0x04) identifies a purchase as part of a move-asset operation and waives purchase fees. Modified the PIN_FLD_PRODUCTS input flist array to remove PIN_FLD_PACKAGE_ID.
PCM_OP_SUBSCRIPTION_READ_ACCT_PRODUCTS	Modified the output flist to remove PIN_FLD_PACKAGE_ID from the following arrays: • PIN_FLD_DEALS • PIN_FLD_SERVICES.PIN_FLD_DEALS
PCM_OP_SUBSCRIPTION_SERVICE_BALGRP_TRANSFER	Modified the output flist to remove PIN_FLD_PACKAGE_ID from the following arrays: • PIN_FLD_RESULTS.PIN_FLD_DEALS.PIN_FLD_DISCOUNTS • PIN_FLD_RESULTS.PIN_FLD_DEALS.PIN_FLD_PRODUCTS
PCM_OP_SUBSCRIPTION_TRANSITION_DEAL	Modified the PIN_FLD_FROM_DEAL_INFO input flist structure to remove PIN_FLD_PACKAGE_ID.
PCM_OP_SUBSCRIPTION_TRANSITION_PLAN	Modified the input flist to remove PIN_FLD_PACKAGE_ID from the following structures: • PIN_FLD_DEAL_INFO • PIN_FLD_SERVICES.PIN_FLD_FROM_SERVICE.PIN_FLD_DEALS
PCM_OP_TCF_SVC_LISTENER	Modified the output flist to remove PIN_FLD_PACKAGE_ID from PIN_FLD_DEAL_INFO. Modified the input and output flists to remove PIN_FLD_PACKAGE_ID from the following arrays: • PIN_FLD_DISCOUNTS • PIN_FLD_PRODUCTS

Changed Policy Opcodes

Table 8-4 lists the policy opcodes that have been modified in BRM.

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Table 8-4 Changed Policy Opcodes

Changed Policy Opcode	Description
PCM_OP_ACC_MGMT_POL_POST	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection invoking the BRM operation. Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.
PCM_OP_ACC_MGMT_POL_POST_DELETE	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection.
PCM_OP_ACC_MGMT_POL_POST_GET	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection.
PCM_OP_ACC_MGMT_POL_POST_PATCH	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection.

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Table 8-4 (Cont.) Changed Policy Opcodes

Changed Policy Opcode	Description
PCM_OP_ACC_MGMT_POL_PRE_DELETE	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection.
PCM_OP_ACC_MGMT_POL_PRE_PATCH	Modified the PIN_FLD_BALANCE_GROUPS structure under PIN_FLD_ACTIONS.PIN_FLD_ACTION_INFO.PIN_FLD_BILL_STRUCTURE and PIN_FLD_BILL_STRUCTURE to include the new PIN_FLD_RULES array in the input and output flists. The array contains the following fields: • PIN_FLD_CONSUMPTION_RULE: Specifies the consumption rule to apply to a balance element. • PIN_FLD_UNIT_STR: Specifies the unit of measure for the balance element associated with the consumption rule. Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection. Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.
PCM_OP_ACC_MGMT_POL_PRE_POST	Changed the data type of PIN_FLD_CONSUMPTION_RULE from decimal to enum under PIN_FLD_BILL_STRUCTURE.PIN_FLD_BALANCE_GROUPS.PIN_FLD_RULES in the input and output flists. Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection.
PCM_OP_CONTRACT_POL_POST_CREATE_CONTRACT	Modified the input and output flists to remove the PIN_FLD_PACKAGE_ID field.

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Table 8-4 (Cont.) Changed Policy Opcodes

Changed Policy Opcode	Description
PCM_OP_CONTRACT_POL_PREP_CONTRACT	Modified the input and output flists to remove the PIN_FLD_PACKAGE_ID field.
PCM_OP_CONTRACT_POL_VALID_CONTRACT	Modified the input and output flists to remove the PIN_FLD_PACKAGE_ID field.
PCM_OP_CUST_POL_GET_SUBSCRIBED_PLANS	Modified the PIN_FLD_PLAN output flist structure to remove the PIN_FLD_PACKAGE_ID field.

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Table 8-4 (Cont.) Changed Policy Opcodes

Changed Policy Opcode	Description
PCM_OP_PRODUCT_INVENTORY_POL_POST	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection. Modified the input flist to include the new PIN_FLD_EXTRATING substruct at the top level and under the PIN_FLD_PRODUCTS array. Each substruct contains: • PIN_FLD_DATA_ARRAY: Contains extended rating attribute name-value pairs, including PIN_FLD_NAME, PIN_FLD_VALUE, PIN_FLD_VALID_FROM, and PIN_FLD_VALID_TO. • PIN_FLD_EXTRATING: A nested substruct containing PIN_FLD_LABEL (ERA label), PIN_FLD_REFERENCE_COUNT (ERA reference count, updated during purchase and cancellation), and PIN_FLD_STATUS (ERA provisioning status). • PIN_FLD_IDENTIFICATION_CODE: Specifies the unique identification code of the extended rating attributes profile. • PIN_FLD_NAME: Specifies the extended rating attributes profile name. • PIN_FLD_POID: Specifies the POID of the **/profile/serv_extrating** or **/profile/acct_extrating** object. Modified PIN_FLD_OFFSET_VALUE from string (maximum length 128) to integer in the following input and output flist substructs, both at the top level and within PIN_FLD_PRODUCTS: • PIN_FLD_CYCLE_START_INFO • PIN_FLD_CYCLE_END_INFO • PIN_FLD_GRACE_PERIOD_INFO • PIN_FLD_PURCHASE_START_INFO • PIN_FLD_PURCHASE_END_INFO • PIN_FLD_USAGE_START_INFO • PIN_FLD_USAGE_END_INFO Modified PIN_FLD_PRICING_INFO under PIN_FLD_PRODUCT_PRICE.PIN_FLD_VALUES, both at the top level and within PIN_FLD_PRODUCTS, from an array to a substruct in the input and output flists. Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.

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Table 8-4 (Cont.) Changed Policy Opcodes

Changed Policy Opcode	Description
PCM_OP_PRODUCT_INVENTORY_POL_POST_DELETE	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection. Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.

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Table 8-4 (Cont.) Changed Policy Opcodes

Changed Policy Opcode	Description
PCM_OP_PRODUCT_INVENTORY_POL_POST_GET	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection. Added the PIN_FLD_POID field to the input and output flists: • Input flist: Specifies a dummy POID. • Output flist: Specifies the search object POID. Modified the PIN_FLD_RESULTS structure and its nested PIN_FLD_PRODUCTS structure to include the new PIN_FLD_EXTRATING substruct in the input and output flists. The substruct contains: • PIN_FLD_DATA_ARRAY: Contains extended rating attribute name-value pairs, including PIN_FLD_NAME, PIN_FLD_VALUE, PIN_FLD_VALID_FROM, and PIN_FLD_VALID_TO. • PIN_FLD_EXTRATING: A nested substruct containing PIN_FLD_LABEL (ERA label), PIN_FLD_REFERENCE_COUNT (ERA reference count), and PIN_FLD_STATUS (ERA provisioning status). • PIN_FLD_IDENTIFICATION_CODE: Specifies the unique identification code of the extended rating attributes profile. • PIN_FLD_NAME: Specifies the extended rating attributes profile name. • PIN_FLD_OBJECT_CACHE_TYPE: Specifies the cache residency type of the profile object. • PIN_FLD_POID: Specifies the POID of the **/profile/serv_extrating** or **/profile/acct_extrating** object. Modified PIN_FLD_OFFSET_VALUE from string (maximum length 128) to integer under the following input and output flist substructs, both within PIN_FLD_RESULTS and within PIN_FLD_RESULTS.PIN_FLD_PRODUCTS: • PIN_FLD_CYCLE_START_INFO • PIN_FLD_CYCLE_END_INFO • PIN_FLD_GRACE_PERIOD_INFO • PIN_FLD_PURCHASE_START_INFO • PIN_FLD_PURCHASE_END_INFO • PIN_FLD_USAGE_START_INFO • PIN_FLD_USAGE_END_INFO Modified PIN_FLD_PRICING_INFO under PIN_FLD_PRODUCT_PRICE.PIN_FLD_VALUES, both within PIN_FLD_RESULTS and PIN_FLD_RESULTS.PIN_FLD_PRODUCTS, from an array to a substruct in the input and output flists.

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Table 8-4 (Cont.) Changed Policy Opcodes

Changed Policy Opcode	Description
PCM_OP_PRODUCT_INVENTORY_POL_POST_PATCH	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection. Modified the input and output flists to include the new PIN_FLD_EXTRATING substruct. Modified PIN_FLD_OFFSET_VALUE from string (maximum length 128) to integer under PIN_FLD_CYCLE_END_INFO, PIN_FLD_PURCHASE_END_INFO, and PIN_FLD_USAGE_END_INFO in the input and output flists. Modified PIN_FLD_PRICING_INFO under PIN_FLD_PRODUCT_PRICE.PIN_FLD_VALUES from an array to a substruct in the input and output flists. Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.
PCM_OP_PRODUCT_INVENTORY_POL_PRE_DELETE	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection. Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.

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Table 8-4 (Cont.) Changed Policy Opcodes

Changed Policy Opcode	Description
PCM_OP_PRODUCT_INVENTORY_POL_PRE_PATCH	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection. Modified the input and output flists to include the new PIN_FLD_EXTRATING substruct with the following fields: • PIN_FLD_DATA_ARRAY: Contains extended rating attribute name-value pairs, including PIN_FLD_NAME, PIN_FLD_VALUE, PIN_FLD_VALID_FROM, and PIN_FLD_VALID_TO. • PIN_FLD_EXTRATING: A nested substruct containing PIN_FLD_LABEL (ERA label), PIN_FLD_REFERENCE_COUNT (ERA reference count), and PIN_FLD_STATUS (ERA provisioning status). • PIN_FLD_IDENTIFICATION_CODE: Specifies the unique identification code of the extended rating attributes profile. • PIN_FLD_NAME: Specifies the extended rating attributes profile name. • PIN_FLD_POID: Specifies the POID of the extended rating attributes profile object. Modified the input flist to include the following new fields: • PIN_FLD_CUSTOM_INFO: Contains custom fields in a substruct. • PIN_FLD_INDICATOR: Specifies purchased-product indicators. The PIN_PURCHASED_PRODUCT_IS_MOVED (0x04) value indicates cancellation as part of a move-asset operation. • PIN_FLD_TXN_FLAGS: Specifies transaction flags for a product move. The default is PIN_TRANS_FORCE_PRO_NORMAL. The policy opcode can override this value. Modified the output flist to include the following new fields: • PIN_FLD_INDICATOR: Returns purchased-product indicators to the PCM_OP_PRODUCT_INVENTORY_PATCH opcode. • PIN_FLD_TXN_FLAGS: Specifies the transaction flags to assign to PIN_FLD_FLAGS in the named transition flist during product move cancellation. Modified PIN_FLD_OFFSET_VALUE from string (maximum length 128) to integer under PIN_FLD_CYCLE_END_INFO, PIN_FLD_PURCHASE_END_INFO, and PIN_FLD_USAGE_END_INFO in the input and output flists. Modified PIN_FLD_PRICING_INFO from an array to a substruct under PIN_FLD_PRODUCT_PRICE.PIN_FLD_VALUES and PIN_FLD_ACTIONS.PIN_FLD_ACTION_INFO.PIN_FLD_PR

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Table 8-4 (Cont.) Changed Policy Opcodes

Changed Policy Opcode	Description
	ODUCT_PRICE.PIN_FLD_VALUES in the input and output flists. Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.

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Table 8-4 (Cont.) Changed Policy Opcodes

Changed Policy Opcode	Description
PCM_OP_PRODUCT_INVENTORY_POL_PRE_POST	Modified the input and output flists to include the new PIN_FLD_CONTEXT_INFO substruct with the following fields: • PIN_FLD_API_USER: Specifies the API user or client invoking the BRM operation. • PIN_FLD_CORRELATION_ID: Specifies the correlation ID passed to BRM by an external system. • PIN_FLD_EXTERNAL_USER: Specifies the user of an external system connecting to BRM. • PIN_FLD_NAP_IP_ADDRESS: Specifies the IP address of the client or NAP connection. Modified the input flist to include the new PIN_FLD_EXTRATING substruct at the top level and under the PIN_FLD_PRODUCTS array. Each substruct contains: • PIN_FLD_DATA_ARRAY: Contains extended rating attribute name-value pairs, including PIN_FLD_NAME, PIN_FLD_VALUE, PIN_FLD_VALID_FROM, and PIN_FLD_VALID_TO. • PIN_FLD_EXTRATING: A nested substruct containing PIN_FLD_LABEL (ERA label), PIN_FLD_REFERENCE_COUNT (ERA reference count), and PIN_FLD_STATUS (ERA provisioning status). • PIN_FLD_IDENTIFICATION_CODE: Specifies the unique identification code of the extended rating attributes profile. • PIN_FLD_NAME: Specifies the extended rating attributes profile name. Modified the input flist to include the following new fields: • PIN_FLD_CUSTOM_INFO: Contains custom fields in a substruct. • PIN_FLD_INDICATOR: Specifies purchased-product indicators. The PIN_PURCHASED_PRODUCT_IS_MOVED (0x04) value indicates a purchase as part of a move-asset operation. • PIN_FLD_TXN_FLAGS: Specifies transaction flags for a product move. The default is PIN_TRANS_FORCE_PRO_NORMAL. The policy opcode can override this value. Modified the output flist to include the following new fields: • PIN_FLD_INDICATOR: Returns purchased-product indicators to the PCM_OP_PRODUCT_INVENTORY_POST opcode. • PIN_FLD_TXN_FLAGS: Specifies the transaction flags to assign to PIN_FLD_FLAGS in the named transition flist during product move purchase. Modified PIN_FLD_OFFSET_VALUE from string (maximum length 128) to integer under the following input and output flist substructs, both at the top level and under PIN_FLD_PRODUCTS: • PIN_FLD_CYCLE_START_INFO • PIN_FLD_CYCLE_END_INFO • PIN_FLD_GRACE_PERIOD_INFO • PIN_FLD_PURCHASE_START_INFO

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Table 8-4 (Cont.) Changed Policy Opcodes

Changed Policy Opcode	Description
	• PIN_FLD_PURCHASE_END_INFO • PIN_FLD_USAGE_START_INFO • PIN_FLD_USAGE_END_INFO Modified PIN_FLD_PRICING_INFO under PIN_FLD_PRODUCT_PRICE.PIN_FLD_VALUES, both at the top level and under PIN_FLD_PRODUCTS, from an array to a substruct in the input and output flists. Modified the output flist to replace the PIN_FLD_EVENT_INFO substruct with the PIN_FLD_EVENTS array.
PCM_OP_SUBSCRIPTION_POL_CANCEL_ON_FAILURE	Modified the PIN_FLD_DEAL_INFO input flist structure to remove the PIN_FLD_PACKAGE_ID field.
PCM_OP_SUBSCRIPTION_POL_CRUD_OFFER_OVERRIDE	Modified the input and output flists to include the following new fields: • PIN_FLD_AGREEMENT_OBJ: Specifies the POID of the agreement object. • PIN_FLD_PRODUCT_OBJ: Specifies the POID of the product or discount associated with agreement overrides. Modified the PIN_FLD_POID field in the input and output flists to support both **/offering_override_values** and **/agreement_override_values** storable classes, instead of only **/offering_override_values**.
PCM_OP_SUBSCRIPTION_POL_PREP_OFFERING	Modified the input and output flists to remove the PIN_FLD_PACKAGE_ID field from the following structures: • PIN_FLD_DEAL_INFO • PIN_FLD_DISCOUNTS • PIN_FLD_PRODUCTS
PCM_OP_SUBSCRIPTION_POL_PRE_TRANSITION_DEAL	Modified the PIN_FLD_FROM_DEAL_INFO input and output flist structure to remove the PIN_FLD_PACKAGE_ID field.
PCM_OP_SUBSCRIPTION_POL_PRE_TRANSITION_PLAN	Modified the input and output flists to remove the PIN_FLD_PACKAGE_ID field from the following structures: • PIN_FLD_DEAL_INFO • PIN_FLD_SERVICES.PIN_FLD_FROM_SERVICE.PIN_FLD_DEALS
PCM_OP_SUBSCRIPTION_POL_PURCHASE_PRODUCT	Renamed this policy opcode to PCM_OP_SUBSCRIPTION_POL_PURCHASE_OFFER.
PCM_OP_SUBSCRIPTION_POL_VALIDATE_OFFERING	Modified the input and output flists to remove the PIN_FLD_PACKAGE_ID field from the following structures: • PIN_FLD_DEAL_INFO • PIN_FLD_DISCOUNTS • PIN_FLD_PRODUCTS

Removed Standard Opcodes

The following standard opcodes have been removed in the BRM 16.26.0 release.

- PCM_OP_RESERVE_ASSOCIATE
- PCM_OP_RESERVE_CREATE

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- PCM_OP_RESERVE_EXTEND
- PCM_OP_RESERVE_FIND_OBJ
- PCM_OP_RESERVE_RELEASE
- PCM_OP_RESERVE_RENEW

Removed Policy Opcodes

The following policy opcodes have been removed from the BRM 16.26.0 release.

- PCM_OP_RESERVE_POL_POST_DISPUTE
- PCM_OP_RESERVE_POL_POST_SETTLEMENT
- PCM_OP_RESERVE_POL_PRE_RELEASE
- PCM_OP_RESERVE_POL_PREP_CREATE
- PCM_OP_RESERVE_POL_PREP_EXTEND

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9

Storable Class Changes

Learn about new and modified storable classes in Oracle Communications Billing and Revenue Management (BRM).

Topics in this document:

- New Storable Classes
- Changed Storable Classes

New Storable Classes

Table 9-1 lists the storable classes that have been introduced in BRM.

Table 9-1 New Storable Classes

New Storable Class	Description
/acc_mgmt	Generic class to allow customers to augment the account with information easily without extending the account object. There may be many profile objects associated with each account.
/acc_mgmt/profile	Generic class to allow customers to augment the account with arbitrary information easily without extending the account object. There may be many profile objects associated with each account.
/agreement	Stores the agreements associated with accounts.
/agreement_association	Stores the agreement associated with an account.
/agreement_characteristic	Stores the key-value pairs linked with an agreement.
/agreement_override_values	Stores the overrides for agreement charge values for a certain period of time.
/billing_simulation	Stores simulated bill data, including bill information, item charges, the total amount, the simulated bill object, and the offer object used to simulate the new charges.
/config/agreement_state_map	Stores agreement status and lifecycle status mapping.
/event/agreement	Stores agreement-related events.
/event/agreement/association	Stores details about agreement associations.
/event/agreement/attribute_change	Generated when an agreement resource changes in the database.
/event/agreement/post	Generated when an agreement is created.
/event/agreement/state_change	Stores details about agreement state changes.
/event/audit/customer/payinfo/cash	Categorizes all changes to a customer's cash information.
/event/audit/customer/payinfo/check	Categorizes all changes to a customer's check information.
/external_event/payment_method	Stores event-tracking information for TMF 670 payment-method operations received from an external master system.
/external_event/profile	Stores event-tracking information for profiles received from an external master system.

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Table 9-1 (Cont.) New Storable Classes

New Storable Class	Description
/external_event/sharing_group	Stores event-tracking information for sharing group data received from an external master system.
/job/simulation	Stores information about a billing simulation job.
/payinfo/cash	Stores cash payment-method information.
/payinfo/check	Stores check payment-method information.
/payment_method	Stores information about payment methods.
/payment_method/resources	Stores array and substruct data types for the **/payment_method** class.
/price_tag	Stores serialized price-tag metadata for a product or discount usage map.
/rule	Stores the content of Drools rules.
/simulated_event	Stores data about the events that are generated as part of the simulation.

Changed Storable Classes

Table 9-2 lists the storable classes that have been modified in BRM.

Table 9-2 Changed Storable Classes

Changed Storable Class	Description
/event/billing/deal **/event/billing/discount/action** **/event/billing/product/action** **/event/customer/contract** **/event/notification/plan/transition/post_deal_cancel** **/history_subscriber_contract** **/purchased_discount** **/purchased_product** **/revenue_distribution** **/revenue_product** **/subscriber_contract**	The PIN_FLD_PACKAGE_ID field changed from an integer to a 64-bit integer data type: • PIN_FLD_PACKAGE_ID identifies the package associated with the listed storable classes.
/config/product_state_map	Contains the following new field: • PIN_FLD_DELETE_STATUS: Specifies whether deletion is allowed for this lifecycle status. Valid values are **0** (not allowed) and **1** (allowed).
/discount	Contains the following new field: • PIN_FLD_PRICE_TAG_OBJ: Specifies the POID of the **/price_tag** object for this usage map.

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Table 9-2 (Cont.) Changed Storable Classes

Changed Storable Class	Description
/event/billing/charge/cc	Contains the following new fields: • PIN_FLD_CARD_BRAND_TYPE: Specifies the card brand type. Values are Visa (**1**), Mastercard (**2**), American Express (**3**), Optima (**4**), Discover Card (**5**), Diners Club (**6**), Carte Blanche (**7**), JCB (**8**), Switch (**9**), China UnionPay (**10**), and Unknown type (**11**). • PIN_FLD_BANK_CARD_TYPE: Specifies the bank card type. Values are credit (**1**), debit (**2**), and unknown type (**3**). • PIN_FLD_TOKEN_TYPE: Specifies the token type. • PIN_FLD_ISSUER: Specifies the card issuer. • PIN_FLD_LAST_FOUR_DIGITS: Specifies the last four digits of the card. • PIN_FLD_BANK_NAME: Specifies the bank name.
/event/billing/charge/dd	Contains the following new field: • PIN_FLD_BANK_NAME: Specifies the bank name.
/event/billing/payment	Contains the following new field: • PIN_FLD_PAYINFO_OBJ: Specifies the **/payinfo** object associated with this payment.
/event/billing/product/action	Contains the following new fields: • PIN_FLD_INDICATOR: Identifies the purchased product type using the PIN_PURCHASED_PRODUCT_TYPE_ERA (**0x1**) and PIN_PURCHASED_PRODUCT_TYPE_SERVICE_BUNDLE (**0x2**) flags. • PIN_FLD_PAYINFO_OBJ: Specifies the payment method **/payinfo** object associated with this payment.
/event/billing/validate/cc	Contains the following new fields: • PIN_FLD_CARD_BRAND_TYPE: Specifies the card brand type. Values are Visa (**1**), Mastercard (**2**), American Express (**3**), Optima (**4**), Discover Card (**5**), Diners Club (**6**), Carte Blanche (**7**), JCB (**8**), Switch (**9**), China UnionPay (**10**), and Unknown type (**11**). • PIN_FLD_BANK_CARD_TYPE: Specifies the bank card type. Values are credit (**1**), debit (**2**), and unknown type (**3**). • PIN_FLD_TOKEN_TYPE: Specifies the token type. • PIN_FLD_ISSUER: Specifies the card issuer. • PIN_FLD_LAST_FOUR_DIGITS: Specifies the last four digits of the card. • PIN_FLD_BANK_NAME: Specifies the bank name.
/event/billing/validate/dd	Contains the following new field: • PIN_FLD_BANK_NAME: Specifies the bank name.
/event/group/sharing/charges	Contains the following new field: • PIN_FLD_CODE: Specifies the unique identification code for the sponsor object.
/event/group/sharing/discounts	Contains the following new field: • PIN_FLD_IDENTIFICATION_CODE: References a discount object.
/event/group/sharing/products	Contains the following new field: • PIN_FLD_IDENTIFICATION_CODE: References a product object.
/event/group/sharing/profiles	Contains the following new field: • PIN_FLD_IDENTIFICATION_CODE: References a profile object.

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Table 9-2 (Cont.) Changed Storable Classes

Changed Storable Class	Description
/group	Contains the following new field: • PIN_FLD_IDENTIFICATION_CODE: References a group object.
/group/sharing/charges	Contains the following new field: • PIN_FLD_CODE: Specifies the unique identification code for the sponsor object.
/group/sharing/discounts	Contains the following new field: • PIN_FLD_IDENTIFICATION_CODE: References a discount object.
/group/sharing/products	Contains the following new field: • PIN_FLD_IDENTIFICATION_CODE: Provides a link to one profile object.
/group/sharing/profiles	Contains the following new field: • PIN_FLD_IDENTIFICATION_CODE: References a profile object.
/offering_override_values	The following field was modified: • PIN_FLD_OFFERING_OBJ: Changed from required to optional when creating the object.
/payinfo	Contains the following new fields: • PIN_FLD_DESCR: Specifies the description of the **/payinfo** object. • PIN_FLD_IDENTIFICATION_CODE: Provides a link to one profile object. • PIN_FLD_IS_PREFERRED: Specifies whether this **/payinfo** object is preferred. Valid values are PIN_BOOLEAN_FALSE (**0**) and PIN_BOOLEAN_TRUE (**1**). • PIN_FLD_STATUS: Specifies the status of the payment information: inactive (**0**) or active (**1**). • PIN_FLD_STATUS_DATE: Specifies the date when the payment information status was set. • PIN_FLD_VALID_FROM: Specifies the start date of the payment information's validity period. • PIN_FLD_VALID_TO: Specifies the end date of the payment information's validity period. The following field was removed: • PIN_FLD_AUTH_CODE
/payinfo/cc	Contains the following new fields: • PIN_FLD_CARD_BRAND_TYPE: Specifies the card brand type. Values are Visa (**1**), Mastercard (**2**), American Express (**3**), Optima (**4**), Discover Card (**5**), Diners Club (**6**), Carte Blanche (**7**), JCB (**8**), Switch (**9**), China UnionPay (**10**), and Unknown type (**11**). • PIN_FLD_BANK_CARD_TYPE: Specifies the bank card type. Values are credit (**1**), debit (**2**), and unknown type (**3**). • PIN_FLD_TOKEN_TYPE: Specifies the token type. • PIN_FLD_ISSUER: Specifies the card issuer. • PIN_FLD_LAST_FOUR_DIGITS: Specifies the last four digits of the card. • PIN_FLD_BANK_NAME: Specifies the bank name.
/payinfo/dd	Contains the following new field: • PIN_FLD_BANK_NAME: Specifies the bank name.

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Table 9-2 (Cont.) Changed Storable Classes

Changed Storable Class	Description
/product	Contains the following new field: • PIN_FLD_PRICE_TAG_OBJ: Specifies the POID of the **/price_tag** object for this usage map.
/product_inventory	Contains the following new fields: • PIN_FLD_CYCLE_START_T: Specifies the date to start charging cycle fees for the product. • PIN_FLD_CYCLE_END_T: Specifies the date to stop charging cycle fees for the product. • PIN_FLD_PURCHASE_START_T: Specifies the date when the product is valid for use. • PIN_FLD_PURCHASE_END_T: Specifies the date when the product is no longer valid. • PIN_FLD_USAGE_START_T: Specifies the date when usage event rating starts for this product. • PIN_FLD_USAGE_END_T: Specifies the date when usage event rating stops for this product.
/profile	Contains the following new fields: • PIN_FLD_AGREEMENT_OBJ: References the associated agreement object. • PIN_FLD_IDENTIFICATION_CODE: References a profile object. • PIN_FLD_OFFERING_OBJ: References the **/purchased_product** object associated with this profile. • PIN_FLD_PRODUCT_OBJ: References the associated product or discount object.
/purchased_product	Contains the following new field: • PIN_FLD_INDICATOR: Indicates the type of purchased product using the PIN_PURCHASED_PRODUCT_TYPE_ERA (**0x1**) and PIN_PURCHASED_PRODUCT_TYPE_SERVICE_BUNDLE (**0x2**) flags.
/rate_change	Contains the following new field: • PIN_FLD_AGREEMENT_OBJ: References the associated agreement object.
/service	Contains the following new field: • PIN_FLD_OFFERING_OBJ: References the **/purchased_product** object associated with the creation of this service.

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10

Event Notification Changes

Learn about new and modified event notifications in Oracle Communications Billing and Revenue Management (BRM).

Topics in this document:

- New Event Notifications
- Changed Event Notifications

New Event Notifications

Table 10-1 lists the event notifications that have been introduced in BRM.

Table 10-1 New Event Notifications

New Event Notification	Description
/event/notification/account/lineage	Generated when an account's lineage is updated by group management.
/event/notification/agreement/ attribute_change_end	Generated at the completion of the agreement attribute change process.
/event/notification/agreement/ attribute_change_start	Generated when there are modifications to an agreement's attributes.
/event/notification/agreement/create	Generated when a new agreement has been created.
/event/notification/agreement/end	Generated at the completion of the agreement creation process.

Changed Event Notifications

Table 10-2 lists the event notifications that have been modified in BRM.

Table 10-2 Modified Event Notifications

Modified Notification Event	Description
/event/notification/offering_override/create	Contains the following new fields: • PIN_FLD_AGREEMENT_OBJ: Contains a link to the **/agreement** object. • PIN_FLD_PRODUCT_OBJ: Contains a link to the **/ purchased_product** or **/purchased_discount** object. In addition, the PIN_FLD_OFFERING_OBJ field has changed from required to optional.

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Table 10-2 (Cont.) Modified Event Notifications

Modified Notification Event	Description
/event/notification/offering_override/delete	Contains the following new fields: • PIN_FLD_AGREEMENT_OBJ: Contains a link to the **/agreement** object. • PIN_FLD_PRODUCT_OBJ: Contains a link to the **/product** or **/discount** object. In addition, the PIN_FLD_OFFERING_OBJ field has changed from required to optional.
/event/notification/offering_override/modify	Contains the following new fields: • PIN_FLD_AGREEMENT_OBJ: Contains a link to the **/agreement** object. • PIN_FLD_PRODUCT_OBJ: Contains a link to the **/product** or **/discount** object. In addition, the PIN_FLD_OFFERING_OBJ field has changed from required to optional.
/event/notification/plan/transition/post_deal_cancel	The PIN_FLD_PACKAGE_ID field has changed from INT to INT64.

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11

Business Parameter Changes

Learn about new business parameters in Oracle Communications Billing and Revenue Management (BRM).

Topics in this document:

- New Business Parameters for 16.26.0

New Business Parameters for 16.26.0

The following tables list the new business parameters for BRM 16.26.0.

Table 11-1 lists the new billing business parameters.

Table 11-1 New Entries in bus_params_billing.xml

Business Parameter	Description
AggregateSubscriptionUsageSponsorCharges	Specifies whether BRM consolidates subscription and usage charges that a sharing group owner pays into a single account-level item. The default is **0** (disabled).

Table 11-2 lists the new rating business parameters.

Table 11-2 New Entries in bus_params_rating.xml

Business Parameter	Description
TaxOnZeroAmountEvents	Controls whether BRM calls the taxation engine for events with a zero taxable amount or a zero charge. BRM supports this feature only for event-time taxation. The default is **disabled**.

Table 11-3 lists the new rerate business parameters.

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Table 11-3 New Entries in bus_params_rerate.xml

Business Parameter	Description
ReratingOfTiedProducts	Controls which product-to-discount association BRM uses when rerating events for products with tied discounts. • **disabled**: BRM uses the current PIN_FLD_TIE_ID of the purchased product and the current purchased-discount information. As a result, changes to a product's tie ID or discount association after the original event can affect the rerated result. This is the default value. • **enabled**: BRM uses the purchased-product and purchased-discount audit records that are effective at the time of the original event. BRM matches tied discounts using the product's historical tie ID, so changes to the tie ID or discount association after the original event do not affect the association used for rerating. When you enable this parameter, ensure that the required **/au_purchased_product** and **/au_purchased_discount** audit records are available.

Table 11-4 lists the new subscription business parameters.

Table 11-4 New Entries in bus_params_subscription.xml

Business Parameter	Description
AgreementProductPriority	Controls which agreement BRM selects when multiple agreements overlap for a product: • **EarliestStartDate**: The agreement with the earliest start date takes precedence. • **LatestStartDate**: The agreement with the latest start date takes precedence. • **Disabled**: The agreement functionality is disabled. This is the default.
RuleManagerDiscounting	Specifies whether BRM enables rule-based discount evaluation during event rating. The default is **disabled**.
SkipProductBundleValidation	Specifies whether BRM skips validation of a product's effective date against its parent bundle's effective-date range. The default is **disabled**.

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12

Schema and Index Changes

Learn about new and changed schemas and indexes in Oracle Communications Billing and Revenue Management (BRM) Suite.

- Schema and Index Changes in 16.26.0

Schema and Index Changes in 16.26.0

For information about the schema and index changes between BRM 15.2 and BRM 16.26.0, see BRM Schema and Index Changes.

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13

Utility Changes

Learn about new and modified utilities in Oracle Communications Billing and Revenue Management (BRM).

There are no new, changed, or removed utilities in the BRM Suite 16.26.0 release.

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14

Known Issues in This Release

Learn about known issues in Oracle Communications Billing and Revenue Management (BRM) Suite and the appropriate workarounds.

BRM Suite includes the following known issues:

- REFPlugin Structured-Mode CloudEvents Fail During BRM Event Stream Processor Deserialization

REFPlugin Structured-Mode CloudEvents Fail During BRM Event Stream Processor Deserialization

In BRM 16.26.0, the Rated Event Formatter Plugin (REFPlugin) successfully publishes rated events to Kafka using the **CLOUDEVENTS** schema. However, BRM Event Stream Processor cannot deserialize these messages.

Workaround

Configure REFPlugin to publish rated events as uncompressed JSON in the Kafka message body without a structured CloudEvents envelope.

1. Open the *ECE_home***/oceceserver/config/REM.properties** file in a text editor.
2. Configure REFPlugin to publish rated-event JSON by setting the following entries:

   ```
   ref.event_stream.format = JSONFILE
   ref.event_stream.schema = NONE
   ref.event_stream.compression = NONE
   ref.event_stream.producer.value.serializer =
   org.apache.kafka.common.serialization.ByteArraySerializer
   ```

   Setting **ref.event_stream.schema** to **NONE** prevents REFPlugin from adding a structured CloudEvents envelope around the event data.
3. Configure REFPlugin to send Kafka headers for CloudEvents binary content mode by setting the following entries:

   ```
   ref.event_stream.schemas.none.headers.content-type = application/json
   ref.event_stream.schemas.none.headers.ce_specversion = 1.0
   ref.event_stream.schemas.none.headers.ce_type = eventType
   ref.event_stream.schemas.none.headers.ce_source = eventSource
   ref.event_stream.schemas.none.headers.ce_id = eventID

   # Optional CloudEvents extension attributes
   ref.event_stream.schemas.none.headers.ce_extension1 = value
   ref.event_stream.schemas.none.headers.ce_extension2 = value
   ```

   where:

   - *eventType*: Specifies the type of event that is being sent. REFPlugin includes this value in the **ce_type** Kafka header. For example, use **com.oracle.brm.event**.

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- *eventSource*: Specifies the component that is sending the event. REFPlugin includes this value in the **ce_source** Kafka header. For example, use **com.oracle.ece**.
- *eventID*: Specifies the CloudEvents event ID. REFPlugin includes this value in the **ce_id** Kafka header. For example, use **3817dc3e-8a1c-4f93-8543-7bbcc7867b80**.

4. Save and close the file.
5. For the **ece-rated-events** topic, configure the Event Stream Processor Kafka consumer to use the following value deserializer:

   ```
   org.apache.kafka.common.serialization.ByteArrayDeserializer
   ```

With these settings, Event Stream Processor processes uncompressed rated-event JSON without validating the **ce_*** headers.

For more information, see *BRM Loading Rated Events*.

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15

Deprecated and Removed Features

Learn about features that have been deprecated or removed in Oracle Communications Billing and Revenue Management (BRM) Suite.

Topics in this document:

- Deprecated and Removed Features in 16.26.0
- Removed Operations from the Billing Care REST API

Deprecated and Removed Features in 16.26.0

Table 15-1 lists the components and features that have been deprecated in BRM Suite 16.26.0.

Table 15-1 Deprecated Features in BRM Suite 16.26.0

Component	Description
Customer Center client	BRM no longer supports the Customer Center client. You must now use Billing Care instead for customer relationship management tasks.
Customer Center SDK	BRM no longer supports the Customer Center SDK.
Event Browser (an application in Customer Center)	BRM no longer supports the Event Browser feature in Customer Center. You must now use Billing Care instead to find, inspect, and adjust events associated with a customer account. See "Event Browser" in *Billing Care Online Help*.
GSM Manager Customer Center Extension	BRM no longer supports the GSM Manager Customer Center extension.
Payment Center client	BRM no longer supports the Payment Center client. You must now use Billing Care instead to manage payments in suspense. See "Payment Browser" in *Billing Care Online Help*.
Self-Care Manager (WebKit)	BRM no longer supports Self-Care Manager.
WebLogic Server and Tomcat Server Support in Web Services Manager	Web Services Manager can no longer be deployed on WebLogic Server and Tomcat Server. Web Services Manager can only be deployed in standalone mode. See *BRM Web Services Manager*.

Removed Operations from the Billing Care REST API

Table 15-2 lists the operations that were removed from the Billing Care REST API 16.26.0 release.

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Table 15-2 Removed Billing Care REST API Operations in Release 16.26.0

Category	Operation	Method	Endpoint Path
Authentication	Get an OAuth Access Token	GET	**/authentication/ queryAccessToken**
Metrics	Get Metrics	GET	**/metrics**

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