Oracle® Retail Demand Forecasting

Release Notes

Release 16.0

December 2016

Oracle Retail Demand Forecasting (RDF) is a statistical and promotional forecasting solution. It uses state-of-the-art modeling techniques to produce high quality forecasts with minimal human intervention. Forecasts produced by the Demand Forecasting system enhance the retailer's supply chain planning, allocation, and replenishment processes, enabling a profitable and customer-oriented approach to predicting and meeting product demand.

All Oracle Retail Grade and Oracle Retail Curve documentation is included with the RDF documentation. The packaging and delivery of Curve and Grade remains the same.

> **Note:** Because RDF, Curve, and Grade use the Oracle Retail Predictive Application Server (RPAS) platform, Oracle Retail recommends that you review the *Oracle Retail Predictive Application Server Release Notes* for fixed and known issues that may affect RDF.
>
> In addition, RPAS 13.3 and later releases have significant technical enhancements related to hierarchy management (such as integer indexing) that have an effect on the configuration and maintenance of RDF, Curve, and Grade. You must upgrade to key RPAS versions and complete the upgrade process as described in the chapter, "Patch Installation" in the *Oracle Retail Demand Forecasting Installation Guide* before upgrading to a 16.0 RDF domain.

Grade Overview

Grade is a clustering tool that provides insight into how various parts of a retailer's operations can be grouped together. Typically, a retailer may cluster stores over item sales to create logical groupings of stores based upon sales of particular products. This provides increased visibility to where products are selling, and it allows the retailer to make more accurate decisions in merchandising. Beyond this traditional use of clusters, Grade is flexible enough to cluster any business measure based on products, locations, time, promotions, customers, or any hierarchy configured in the solution.

Key Grade functionality includes:

- Two methods of creating Grades/Clusters:
- Breakpoints: the sorting of data points into groups based on user-defined indexes
- Clustering, or the BaNG Algorithm: the optimization of data points into clusters based on the user-defined number of clusters

- Group By capabilities: support the segmentation of clusters for more detailed and focused cluster generation
- Clustering statistics: provide insight into the relationship of members within a cluster and how all clusters relate to one another
- Cluster What-if: allows user changes to members assigned to clusters and the review of recalculated clustering statistics

Regardless of the method employed to create clusters, Grade is designed to support the decision-making process necessary to create effective and actionable groupings of data.

Curve Overview

Curve is an optional automated predictive solution that can generate ratio arrays from historical data at user-specified intersections. The profiles generated by Curve can be used for various purposes; for example, they can be used to convert the organization level assortment plans into base level weekly sales forecasts and to generate seasonal forecasts, daily forecasts, or new product forecasts using lifecycle profiles.

Important Steps to Address RMS/RPAS/RDF Integration

This section describes important steps to address the RMS/RPAS/RDF integration.

Change of Class and Subclass Naming

Oracle Retail Merchandising System (RMS) sends hierarchy files to Oracle Retail Demand Forecasting (RDF). RMS ensures that a class is unique to only its department and a subclass is unique to only its own class. In other words, Dept10 and Dept. 20 both can contain Class 100. However, within RPAS, unless class names are unique across the domain, it results in a multi-parent problem. Prior to Release 13.1.2, RDF tried to ensure uniqueness by concatenation of positions as follows:

- RDF Class = RMS Dept + RMS Class
- RDF Subclass = RMS Dept + RMS Class + RMS Subclass

However, this can result in a multi-parent problem. For example:

RMS Department	RMS Class	RPAS/RDF Class
10	110	10110
101	10	10110

In this scenario, Clss10110 rolls into both Dept10 and Dept101. This is not acceptable in any RPAS application.

Resolution

Position names are made unique by adding an underscore. In the previous example, the classes would be named Clss10_110 and Clss101_10. However, when these position names are corrected and new hierarchy files are created, the existing class/subclass name no longer exists. Therefore, if the upgrade process is not specifically followed, any data that was stored at the class or subclass level (such as Clss10110) is erased.

Important: Failure to follow these upgrade instructions could result in data loss.

The following upgrade process needs to be followed only by the customers who:

- Use standard integration between RMS and RPAS based applications (other than AIP).
- Have stored data at class or subclass levels.
- Upgrade from a version prior to 13.0.4.18 to 13.0.4.18 or later. Those customers must apply the Upgrade Process for Class and Subclass Naming. In the future, customers already on 13.0.4.18 or later do not need to use this process again.

Upgrade Process for Class and Subclass Naming

1. Point the environment variable RPAS_HOME to the new RPAS_HOME.
2. Run the script `$RPAS_HOME/rfx/src/rmse_rpas_merchhier.ksh` to generate the `rmse_rpas_merchhier.dat` file. This is how the new position names are generated.
3. Run `repos.ksh` with the `-a n` flag to produce the position rename file and run **renamePositions** without applying the changes. Examine the log file `PRODrename.log` for errors.
4. When ready, run the `repos.ksh` script without the `-a y` flag to apply the changes.

Change of Position Label Widths

Fields lengths for RDF hierarchies were increased to accept wider labels from RMS. These new field lengths are currently not patchable directly in any RPAS domain. Therefore, the following upgrade process must be followed:

Upgrade Process for Field Lengths

All customers using 13.0.4.18 and earlier should perform the following steps every time a new hot fix is applied.

1. Export the following environment variables in the environment before running the upgrade scripts.
   - UPGRADE_HOME: This variable should point to the path of upgrade scripts where `environment.ksh`, `updateschemafiles.ksh`, `updatetoolsconfiguration.ksh`, and other configuration files are present.
   - RDF_DOMAIN_PATH: The path of RDF domain which you are going to patch. The dimension field length of this RDF domain is taken and applied to the configuration and schema files.
   - RDF_SCHEMA_DIR: The RETL RDF schema files directory. This must be the latest release directory, which you use for patching. It points to the SCHEMA files location in the release, which you use for patching the RDF domain.
   - TOOLS_CONFIG_DIR: The Configuration Tools XML files directory. It points to the directory where the `hierarchy.xml` file is present. It must be the latest release directory which you use for patching.
   - UPGRADE_BACKUP_DIR: A backup of SCHEMA and `hierarchy.xml` files is kept in this directory.

2. Set up the following upgrade scripts:
   - The `updateschemafiles.ksh` script updates the dimension field length of schema files to the length as available in the domain.
   - The `updatetoolsconfiguration.ksh` script updates the dimension field length of configuration files to the length as available in the domain.
3. Change the directory to UpgradeScripts directory.

   ```
   $ cd UpgradeScripts
   ```
4. Run `updatetoolsconfiguration.ksh`. This updates the `hierarchy.xml` file.

   ```
   $ ./ updatetoolsconfiguration.ksh
   ```
5. Run `updateschemafiles.ksh`. This updates the RETL RDF schema files.

   ```
   $ ./ updateschemafiles.ksh
   ```

> **Note:** For added visibility for retailers, these instructions are included in both the *Oracle Retail Demand Forecasting Release Notes* and the *Oracle Retail Demand Forecasting Installation Guide*. For more information, see the *Oracle Retail Demand Forecasting Installation Guide.*

Upgrade Note

While not directly related to RDF, the 13.3 Release of Oracle Retail Predictive Application Server (RPAS) has undergone a major change to simplify hierarchy administration. Full details of these changes are outlined in the 13.3 *Oracle Retail Predictive Application Server Release Notes*. Due to these changes, configuration updates have been made to RDF, and you will need to perform additional steps to upgrade your RDF domain, such as setting dimension sizes. The upgrade to RPAS 13.3 or later for this application includes a conversion process in addition to the normal upgrade process. Details are provided in the chapter, "Patch Installation", in the *Oracle Retail Demand Forecasting Installation Guide*.

Upgrading to 15.0

When upgrading to RDF version 16.0, if the current version is older than 14.0 and a life cycle profile was configured in Curve, then the domains need to be rebuilt. Patching will not work.

The GA version of CPEM is not upgradeable to version 15.0 from any other previous versions. The two main reasons are the changes in the cannibalization level, and the requirement for item/store level data.

Hardware and Software Requirements

See the Oracle Retail Demand Forecasting Installation Guide for information about the following:

- Hardware and software requirements
- Oracle Retail application software compatibility information

Functional Enhancements

RDF 16.0 includes the following functional enhancements.

Exception Management

Due to the huge volume of data points created during the forecast generation process it is impossible for a user to do a thorough review of all the forecast values. Moreover, a review of all forecasts is not even needed, as only a small subset of data points actually needs to be reviewed.

The decision on which values need to be reviewed is made by designing business rules, and checking the forecasts against them.

The forecasts that violate the rules, are flagged as exceptions. It does not automatically mean that they are poor forecasts, just that a user should review them.

For this release, RDF has refined a set of alerts that are available for both the batch and workbook version. The user can use the batch alerts to build a workbook with just the flagged information. Then the user can navigate the workbook by switching to the workbook alerts.

Promotion Effectiveness Workbook

For this release the Promotion Effectiveness workbook has received a major overhaul. The user can review, adjust and commit all the information necessary to determine the impact of events and/or price discount have on demand. This includes item level effects, effects estimated at the pooling intersections, as well the blending of the two effects.

To preview how the changes impact demand, the user has the ability to play with the promotion calendar and run What-if analyses.

If the changes made in this workbook are committed, they will be reflected in the next forecast that is generated.

Usability Enhancements

The Fusion taskflow has been reworked to improve usability. Related forecasting steps and tasks were grouped under the same activities.

Other enhancements are around the following areas:

- Users can dynamically change labels of certain positions
- Several tasks were enabled to display images of products
- Additional parameters sheet in the Forecast Approval workbook for causal displays information relevant to events

Noteworthy Defect Fixes

The following table contains issues that have been fixed for the current release.

Affected Component	Fixed Issue/Defect	Defect Number
Calculation	Enhanced the forecast accuracy calculation in the Forecast Scorecard workbook, by ranging the measures in the low rate of sales error calculation.	24466275
Documentation	The *Oracle Retail Demand Forecasting Implementation Guide* states that the RDF and CPEM product hierarchies are the same. This is no longer true, so the documentation was updated accordingly.	24566842
Forecast	No forecast could be generated forecast using the Online Admin Tools. This issue was resolved, by making sure forecast generation is possible.	23108213
Forecast	The forecast generated in the Interactive Forecast workbook was not reflecting updates in forecast parameters (history start date, forecast start date, forecast end date). This is resolved by passing in correctly the forecast parameters.	24484675, 24320416
Installer	The RDF installer points to the correct domain path for RDF and CPEM.	23228539
New Item	Several fixes for the new item functionality, when implemented with or without item attributes.	24290494, 24305693, 24484504, 24463662
Documentation	Both versions of the *Oracle Retail Demand Forecasting User Guide* provide instructions to override the approval method in the Forecast Maintenance workbook.	19467391
Patching	When patching a configuration change to RDF, the measures Training Window Method and System Training Window in Curve are changing to default options in the Profile Administration workbook. This has been resolved by retaining the modified/updated values before the patching.	23125308
Promotions	Negative promotional lifts are generated, even after the Accept Negative Lifts option is disabled. This issues has been addressed by only allowing negative promotional lifts, when the option is selected.	24340716

Known Issues

The following table contains issues that have been identified for the current release.

Affected Component	Known Issue/Defect	Defect Number
Grade Workbooks	When navigating through the wizard selections for certain Grade workbooks, the selections are being duplicated on screen. The workbooks include Generate Grade Breakpoints and Generate Clusters.	18196485
Translation Files	There may be issues when loading translated strings into RDF.	20923721

Related Documentation

For more information, see the following documents in the Oracle Retail Demand Forecasting Release 16.0 documentation set:

- *Oracle Retail Demand Forecasting Implementation Guide*
- *Oracle Retail Demand Forecasting Installation Guide*
- *Oracle Retail Demand Forecasting Release Notes*
- *Oracle Retail Demand Forecasting User Guide for the RPAS Classic Client*
- *Oracle Retail Demand Forecasting User Guide for the RPAS Fusion Client*
- Oracle Retail Predictive Application Server documentation

The following documentation may also be needed when implementing RDF:

- *Oracle Retail Predictive Application Server Batch Script Architecture Implementation Guide*

Supplemental Documentation

The following document is available through My Oracle Support at the following URL:

https://support.oracle.com

Oracle Retail Demand Forecasting 16.0 Cumulative Fixed Issues (Note ID 2194062.1)

This document details the fixed issues and defects for all RDF, Curve, and Grade patch releases prior to and including the current release.

Supplemental Training on My Oracle Support

The following document is available on the My Oracle Support Web site. Access My Oracle Support at the following URL:

https://support.oracle.com

Transfer of Information (TOI) Material (ID 732026.1)

Online training is available to Oracle supported customers at product release. These online courses provide release-specific product knowledge that enables your functional and technical teams to plan, implement and/or upgrade and support Oracle Retail applications effectively and efficiently.

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