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.

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

---

ORACLE
- 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:

<table>
<thead>
<tr>
<th>RMS Department</th>
<th>RMS Class</th>
<th>RPAS/RDF Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>110</td>
<td>10110</td>
</tr>
<tr>
<td>101</td>
<td>10</td>
<td>10110</td>
</tr>
</tbody>
</table>

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.
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 upgradable 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.

<table>
<thead>
<tr>
<th>Affected Component</th>
<th>Fixed Issue/Defect</th>
<th>Defect Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculation</td>
<td>Enhanced the forecast accuracy calculation in the Forecast Scorecard workbook, by ranging the measures in the low rate of sales error calculation.</td>
<td>24466275</td>
</tr>
<tr>
<td>Documentation</td>
<td>The <em>Oracle Retail Demand Forecasting Implementation Guide</em> states that the RDF and CPEM product hierarchies are the same. This is no longer true, so the documentation was updated accordingly.</td>
<td>24566842</td>
</tr>
<tr>
<td>Forecast</td>
<td>No forecast could be generated forecast using the Online Admin Tools. This issue was resolved, by making sure forecast generation is possible.</td>
<td>23108213</td>
</tr>
<tr>
<td>Forecast</td>
<td>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.</td>
<td>24484675, 24320416</td>
</tr>
<tr>
<td>Installer</td>
<td>The RDF installer points to the correct domain path for RDF and CPEM.</td>
<td>23228539</td>
</tr>
<tr>
<td>New Item</td>
<td>Several fixes for the new item functionality, when implemented with or without item attributes.</td>
<td>24290494, 24305693, 24484504, 24463662</td>
</tr>
<tr>
<td>Documentation</td>
<td>Both versions of the <em>Oracle Retail Demand Forecasting User Guide</em> provide instructions to override the approval method in the Forecast Maintenance workbook.</td>
<td>19467391</td>
</tr>
<tr>
<td>Patching</td>
<td>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.</td>
<td>23125308</td>
</tr>
<tr>
<td>Promotions</td>
<td>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.</td>
<td>24340716</td>
</tr>
</tbody>
</table>

# Known Issues

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

<table>
<thead>
<tr>
<th>Affected Component</th>
<th>Known Issue/Defect</th>
<th>Defect Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade Workbooks</td>
<td>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.</td>
<td>18196485</td>
</tr>
<tr>
<td>Translation Files</td>
<td>There may be issues when loading translated strings into RDF.</td>
<td>20923721</td>
</tr>
</tbody>
</table>
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.
Documentation Accessibility

For information about Oracle’s commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Oracle® Retail Demand Forecasting Release Notes, Release 16.0.

Copyright © 2016, Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not reproduce, disassemble, decompile, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decopilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are “commercial computer software” pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates do not warrant the safety or reliability of this software or hardware when used in dangerous applications.

This software or hardware and documentation may provide access to or information on content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services. Oracle Corporation and its affiliates disclaim any liability for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services.

Value-Added Reseller (VAR) Language

Oracle Retail VAR Applications

The following restrictions and provisions only apply to the programs referred to in this section and licensed to you. You acknowledge that the programs may contain third party software (VAR applications) licensed to Oracle. Depending upon your product and its version number, the VAR applications may include:

(i) the MicroStrategy component developed and licensed by MicroStrategy Services Corporation (MicroStrategy) of McLean, Virginia to Oracle and imbedded in the MicroStrategy for Oracle Retail Data Warehouse and MicroStrategy for Oracle Retail Planning & Optimization applications.

(ii) the Wavelink component developed and licensed by Wavelink Corporation (Wavelink) of Kirkland, Washington, to Oracle and imbedded in Oracle Retail Mobile Store Inventory Management.

(iii) the software component known as Access Via™ licensed by Access Via of Seattle, Washington, and imbedded in Oracle Retail Signs and Labels.

(iv) the software component known as Adobe Flex™ licensed by Adobe Systems Incorporated of San Jose, California, and imbedded in Oracle Retail Promotion Planning & Optimization application.

You acknowledge and confirm that Oracle grants you use of only the object code of the VAR Applications. Oracle will not deliver source code to the VAR Applications to you. Notwithstanding any other term or condition of the agreement and this ordering document, you shall not cause or permit alteration of any VAR Applications. For purposes of this section, “alteration” refers to all alterations, translations, upgrades, enhancements, customizations or modifications of all or any portion of the VAR Applications including all reconfigurations, reassembly or reverse assembly, re-engineering or reverse engineering and recompilations or reverse compilations of the VAR Applications or any derivatives of the VAR Applications.

You acknowledge that it shall be a breach of the agreement to utilize the relationship, and/or confidential information of the VAR Applications for purposes of competitive discovery.

The VAR Applications contain trade secrets of Oracle and Oracle’s licensors and Customer shall not attempt, cause, or permit the alteration, decompilation, reverse engineering, disassembly or other reduction of the VAR Applications to a human perceivable form. Oracle reserves the right to replace, with functional equivalent software, any of the VAR Applications in future releases of the applicable program.