Oracle® Retail Demand Forecasting

Release Notes

Release 13.2.2.4

April 2011

Oracle Retail Demand Forecasting Overview

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.

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. Until this release, 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.

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Resolution

Position names are made unique by adding an underscore. In the example above, the classes would be named Clss 10_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 above) 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 process described below. In the future, customers already on 13.0.4.18 or later do not need to use this process again.

Upgrade Process

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

All customers applying 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:
   - updateschemafiles.ksh script updates the dimension field length of schema files to the length as available in the domain.
   - 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 Notice

For users with a generally available RDF configuration, a patch installation will not create the additional forecast levels that were introduced in RDF Release 13.2.2.4. You must perform a full installation of RDF to include these changes. Refer to the *Oracle Retail Demand Forecasting Installation Guide* for full installation instructions.

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

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Note: After the 13.2.2.x release, MKS Toolkit will no longer be supported as a requirement for operating the RPAS Server on all versions of Windows operating systems. Use of Cygwin is in development as a replacement.

Functional Enhancements

RDF 13.2.2.4 includes the following functional enhancements.

Apply Regular Price Lifts in the Forecast

RDF is enhanced with the ability to apply lifts due to regular price changes.

There are three components to the Regular Price Lift:

- **Self Lift**—determined by the regular price self elasticity
- **Cannibalization**—determined by the regular price cannibalization cross elasticity
- **Halo**—determined by the regular price halo cross elasticity

RDF is very flexible with regard to what and how the lifts are applied. With RDF you can:

- Specify if regular price lifts should or should not be applied at a high level (domain), a very granular level (item/store), or both.
- Determine if regular price lifts should be applied in the presence of promotions. Again, this can be applied at high levels, granular levels, or both.
- Specify which regular price lift components should be applied, that is, any combination of Self Lift, Cannibalization, and Halo.

Causal Enhancements for Short Life Cycle Items

Short life cycle items are items that only sell for a certain period of a year. These are typically seasonal items such as swimwear. For RDF users, we suggest an approach on how these items should be forecast. The recommended forecast process consists of three steps:

1. Baseline Estimation
2. Promotion Lift Estimation
3. Lift Application

Baseline Estimation

The process for Baseline Estimation consists of these steps:

1. Deprice the sales.
2. Depromote the depriced sales.
3. Depromoted sales are smoothed.

   The resulting measure is the natural demand for the item, that is, not influenced by price, promotions, or both.
4. Perform additional smoothing and spreading.

   The demand is aggregated to a certain intersection for more smoothing, and then spread down to item/store level based on the rate of sales of each item/store. The resulting curve is the life cycle curve for the item.
5. Reshape the curve.

   The curve needs to be shifted and potentially shrunk or stretched to fit the new season in the future.
6. Generate the causal baseline.

   The shifted curve serves as the Bayesian plan to generate the causal baseline.

Promotion Lift Estimation

The process for Promotion Lift Estimation consists of these steps:

1. Seasonality bias in the sales is removed.

   This is achieved by filtering out the promotional lifts from the sales using preprocessing.
2. Promotional effects are calculated.

   The lifts are added to the rate of sales for each item/store and the resulting measure, together with the promotional indicators, are used by the regression engine to compute the promotional effects.

> **Note:** To create more stable values, the item/store promotional effects can be averaged using the existing causal higher functionality in RDF.

Lift Application

You have the option to use individual or averaged effects created during the Promotion Lift Estimation. The selected effects are applied on top of the baseline calculated in the Baseline Estimation.

Integration Enhancements

RDF 13.2.2.4 includes the following technical enhancements.

Regular Price Optimization (RPO)

RPO sends the future price plan to RDF. RDF uses the future prices, together with the regular price elasticities, to determine the regular price effects.

Analytic Parameter Calculator for Regular Price Optimization (APC-RPO)

APC-RPO integrates with RDF by sending the following measures:

- Self price elasticities
- Cross cannibalization price elasticities
- Cross halo price elasticities
- Historical prices
- Anchor prices

RDF uses the elasticities, together with the future price plan, to determine the regular price effects.

RDF uses the historical prices and anchor price to determine the depriced sales for the short life cycle calculation.

Fixed Issues/Defects

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

Defect Number	Fixed Issue/Defect
8918093	There are differences between measures on Forecast Administration workbook and the *Oracle Retail Demand Forecasting User Guide*. The documentation was updated. This issue has been corrected.
10028337	When the promotion variables are printed through log messages, zeros are appended to the end rather than getting appended to the front. This leads to logging of wrong values in the log files. This issue has been corrected.
10191333	When generating a causal forecast based on data that contained negative values, the resulting forecast contained only zeroes. This issue has been corrected by setting all negative values to zero prior to generate forecast.

Defect Number	Fixed Issue/Defect
10243696	In the Forecast Approval workbook after selecting the approved flag measure for one item and then editing the Adjusted Forecast measure for the next item, the Approved Forecast measure, Manually Approved and Approval Date measures are not getting updated. This issue has been corrected.
10287942	For some items, the fix for Bug 10243696 did not work correctly when the save format is in place. This issue has been corrected.
11668918	Seasonal regression behavior around a peak is not working as expected. This issue has been resolved by forcing the forecast engine to use one variable regression if the level is negative. This issue has been corrected.
11669050	Season regression is giving different forecasts with similar sales. This issue has been resolved by forcing the forecast engine to use one variable regression for fashion items. This issue has been corrected.
11775271	Program rdft.ksh aborts due to absent reject files. This issue has been corrected.
11794777	Several rdft scripts complete with an error due to absent sort.dat files. This issue has been corrected.

Known Issues

The following table contains known issues for the current release.

Defect Number	Fixed Issue/Defect
NA	The build domain functionality fails in the RDF Windows installer.

Related Documentation

For more information, see the following documents in the Oracle Retail Demand Forecasting 13.2.2.4 documentation set:

- *Oracle Retail Demand Forecasting Configuration Guide*
- *Oracle Retail Demand Forecasting Installation Guide*
- *Oracle Retail Demand Forecasting Implementation Guide*
- *Oracle Retail Demand Forecasting User Guide*
- Oracle Retail Predictive Application Server documentation

Previous Releases

For additional information on previous Oracle Retail Demand Forecasting release enhancements and additional information, refer to the release notes and documentation that accompany the previous release.

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