

Oracle® Retail Demand Forecasting Cloud Service User Guide



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Preface

The Oracle Retail Demand Forecasting Cloud Service User Guide describes the application's user interface and how to navigate through it.

Audience

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Related Documents

For more information, see the following documents in the Oracle Retail Demand Forecasting Cloud Service Release 22.2.401.0 documentation set:

- *Oracle Retail Demand Forecasting Cloud Service Administration Guide*
- *Oracle Retail Demand Forecasting Cloud Service Implementation Guide*
- *Oracle Retail Demand Forecasting Cloud Service Release Notes*
- *Oracle Retail Demand Forecasting Cloud Service Starter Kit*
- *Oracle Retail Demand Forecasting Cloud Service User Guide*
- Oracle Retail Predictive Application Server Cloud Edition documentation

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Convention	Meaning
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1

Introduction

Oracle Retail Demand Forecasting Cloud Service (RDF CS) provides accurate forecasts that enable retailers to coordinate demand-driven outcomes that deliver connected customer interactions. With a single view of demand, RDF CS provides pervasive value across retail processes, including driving optimal strategies in planning, increasing inventory productivity in supply chains, decreasing operational costs and driving customer satisfaction from engagement to sale to fulfillment. RDF CS is a comprehensive solution that maximizes the forecast accuracy for the entire product lifecycle, the ability to adapt to recent trends, seasonality, out-of-stocks and promotions, and reflect the unique demand drivers of each retailer. Today's progressive retail organizations know that store-level demand drives the supply chain. The ability to forecast consumer demand productively and accurately is vital to a retailer's success. The business requirements for consumer responsiveness mandate a forecasting system that more accurately forecasts at the point of sale, handles difficult demand patterns, forecasts promotions and other causal events, processes large numbers of forecasts, and minimizes the cost of human and computer resources. Forecasting drives the business tasks of planning, replenishment, purchasing, and allocation. As forecasts become more accurate, businesses run more efficiently by buying the right inventory at the right time. This ultimately lowers inventory levels, improves safety stock requirements, improves customer service, and increases the company's profitability.

Forecasting Challenges and RDF CS Solutions

A number of challenges affect the ability of forecast demand accurately including:

- [Selecting the Best Forecasting Method](#)
- [Overcoming Data Sparsity Through Escalation and Pooling Levels](#)
- [Forecasting Demand for New Products and Locations](#)
- [Managing Forecasting Results Through Automated Exception Reporting](#)
- [Incorporating the Effects of Promotions and Other Event-Based Challenges on Demand](#)
- [53 Week Calendar](#)

Selecting the Best Forecasting Method

One challenge to accurate forecasting is the selection of the best model to account for level, trending, seasonal, and spiky demand. Oracle Retail's automatic evaluation of several methods eliminates this complexity. The automated approach can pick the best fit method among a large selection, like Simple Exponential Smoothing, Holt Exponential Smoothing, Additive and Multiplicative Winters Exponential Smoothing, Croston's Intermittent Demand Model, and Seasonal Regression forecasting.

Another approach is to combine the output of the competing methods to create a more robust forecast and minimize the risk of overfitting.

Overcoming Data Sparsity Through Escalation and Pooling Levels

Demand at low levels, such as item/store, is usually too noisy to identify clear selling patterns, both for baseline and promotional sales. In such cases, generating a reliable forecast requires analyzing historical data at a higher level (escalation or pooling levels) in the hierarchy in which demand patterns can be consistently detected. The forecasting components estimated at these high levels, like seasonality curves and promotion effects, are combined with low level information, like base demand and trend, to create the low level forecast that is needed to drive the supply chain.

Forecasting Demand for New Products and Locations

RDF CS also forecasts demand for new products and locations for which no sales history exists. There are several options for new products. First, there is the option to go on auto mode, and the user does not have to do anything. Another option is model the new product's demand based on that of an existing similar product for which you do have a history. The existing item selection can be automatically done by matching item attributes. There is also the option to manually select the item. Forecasts for the new products are copied from one item or can be a combination of multiple items. The level for the new products are copied from Like Item, the seasonal curve, and the promotional effects are from escalation.

Managing Forecasting Results Through Automated Exception Reporting

The RDF CS end user is typically responsible for managing the forecast results for thousands of items, at hundreds of stores, across many weeks at a time. The Oracle Retail Predictive Application Server Cloud Edition (RPAS CE) platform provides users with an automated exception reporting process that indicates to you where a forecast value may lie above or below an established threshold, thereby reducing the level of interaction needed from you. The framework for exception management is implemented using multiple features.

First, there are the approval exceptions, where the forecasts are run through business rules to determine if forecasts need review. For the forecasts that need review, a second layer of exceptions is available, to determine the priority in which the review should happen. This is implemented using the rules in the Business Rules Engine. In the exception dashboard profile, a user can filter down to different levels of merchandise/locations to view a hit count and the variance from the desired value of the forecast. She can then go to the Navigation exceptions tiles and launch in a workspace where she can review the exceptions sorted in order of priority as defined by business rules.

In the exception dashboard profile, the user can filter down to different levels of merchandise/locations to view a hit count and the variance from the desired value of the forecast. The user then goes to the Navigation exceptions tiles and launches in a workspace to review the exceptions sorted in order of priority as defined by business rules.

Once in the workspace, the user navigates to flagged positions using the workspace alerts which are synchronized with the exception dashboards. When an exception is resolved, the result is committed to the domain, and the dashboard exception count—upon refresh—reflects the change.

Incorporating the Effects of Promotions and Other Event-Based Challenges on Demand

Promotions, non-regular holidays, and other causal events create another significant challenge to accurate forecasting. Promotions such as advertised sales and free gifts with purchase might have a significant impact on a product's sales history, as can fluctuating holidays such as Easter. The causal forecasting functionality estimates the effects that such events have on demand. The results are used to predict future sales when conditions in the selling environment are similar. This type of advanced forecasting identifies the behavioral relationship of the variable you want to forecast (sales) to both its own past and explanatory variables such as promotion and advertising. Suppose that your company has a large promotional event during the Back To School season each year. The exact date of Back To School varies from year to year; as a result, the standard time-series forecasting model often has difficulty representing this effect in the seasonal profile. The Promotional Forecasting module allows you to identify the Back To School season in all years of your sales history, and then define the upcoming Back To School date. By doing so, you can causally forecast the Back To School-related demand pattern shift.

53 Week Calendar

For the majority of retailers, the business is managed using a calendar (364 days organized into 13 week quarters) that periodically includes an extra 53rd week so that the year end stays in about the same time of the year. It is useful to have some control over how this 53rd week will be managed within the forecasting system's time dimension. Management of this issue causes customers the pain, time and cost of configuring their data every few years that this happens.

The problem described has two implications. The first case is when two years—each with 52 weeks—of historical sales are available, and the retailer needs to forecast for the following year, which has 53 weeks. The second case is when one of the years of historical sales has 52 weeks, and the other has 53 weeks.

The correction for the extra week happens as part of forecasting. RDF CS creates a measure **Week 53 indicator** with the base intersection that is entered by the user in the RDF plug-in. This measure has to be loaded by the user.

There is also the **Week 53 options** measure, that indicates how to calculate the forecast value for a week that was flagged as 53rd, or extra week. This measure can be accessed in the Forecast Setup Workbook.

Forecasting Process

The forecasting process represents a next generation approach engineered to provide transparency, responsiveness and accuracy through the application of retail sciences using the scale of our modern Retail Cloud Platform.

- **Transparency** enables analytical processes and end-users to understand and engage with the forecast. This is accomplished by representing the demand model as the decomposition of intuitive components that include base rate of demand, seasonality and causal effects. The forecasting process provides transparency to the final results, individual model components and underlying decisions by the system and end-user.

- **Responsiveness** enables the coordination and simulation of demand-driven outcomes using forecasts that adapt immediately to new information and without a dependency on batch processes. This is accomplished by separating the calculation of the forecast from the analytical processes that determine components within the forecasting model.
- **Accuracy** enables retailers to deliver connected customer interactions while driving efficiencies to increase profits. Maximizing forecast accuracy is paramount to RDF CS. This is accomplished through the application of best-fit sciences throughout the forecasting process.

The forecast engine powering RDF CS is the same that powers all solutions in the Retail Science Platform. The separation of the workflow in RDF CS and the forecast engine, allows much more flexibility in evolving the two pieces separately.

Process Summary

Following is a summary of the forecasting process:

1. Prepare Reference Data

The purpose of this step is to prepare reference data for subsequent estimation, pruning and escalation processes. The emphasis in the preparation processes is to treat anomalies in historical data, such as out-of-stock, outliers and promotions, where the objective is to increase reliability of the reference data.

2. Estimated Demand Parameters

The purpose of this step is to estimate all demand parameters and at all possible escalation levels. An escalation level represents a grouping of items and locations for robust parameter estimation to overcome sparsity and sensitivity. Escalation levels can be tied to explicit hierarchy levels (for example, subclass/region) or flexible item/location groupings (for example, optimized analytical clusters). As each demand parameter is estimated, multiple machine learning methods are applied, individually optimized and evaluated for accuracy. The final model can represent the best-fit method or a robust method calculated as an intelligent blending of multiple methods weighted by accuracy.

3. Prune

The purpose of this step is to prune escalation levels that do not pass analytical quality checks. These include data, estimation and correlation quality checks. The result is a candidate pool of high quality parameter estimates for the escalation process.

4. Escalate

The purpose of this step is to select the demand parameter estimate for each component of the forecast model using the candidate pool of escalation levels. The escalation process reflects the optimal balance of richness and reliability.

5. Forecast

The purpose of this step is to calculate the forecast through the application of demand parameter estimates from the analytical processes in conjunction with the known demand drivers and user-overrides. The demand model is completely responsive to changes in demand drivers and updates to the demand model itself (for example, user-defined override). This step also includes support for responsive new-item forecasting, with tailored approaches for new-item scenarios, such as dynamic, repeatable and similar assortments.

User Experience and Workflow

The user experience is delivered on our experience-inspired RPAS Cloud Edition (RPAS CE) user interface (UI). RPAS CE provides end-users with a next generation cloud-native UI that is purpose-built to accelerate intent into action for planners and forecasters. This includes interactive and visual dashboards to assess priorities, responsive and flexible workspaces to implement decisions and a coordinated exceptions framework that ties business process all the way from dashboard to cell.

The business process is engineered to maximize the productivity of end-users through exception-driven processes and emphasis on workflow simplification. The day-in-the-life processes begin with dashboard views that enable the end-user to assess the effectiveness and quality of their forecasts and prioritize exceptions. From the dashboards, the end-user is able to contextually launch into the appropriate workspace. For exception-driven processes, the end-user is guided to the point-of-resolution, with visibility to progress and the ability to iteratively work through forecasting priorities throughout the day.

Dashboard Views and Workspaces

The dashboard views and workspaces that support day-in-the-life forecasting workflows are summarized as follows:

- **Forecast Overview Dashboard**

This dashboard leads with Key Performance Indicators (KPIs) that provide macro-level insight into forecasting priorities and the effectiveness of the forecasts in driving demand-driven outcomes. This enables end-users to assess forecasting complexity drivers, such as frequent promotions, and forecasting performance towards business objectives, such as fill rates.

- **Forecast Scorecard Dashboard**

This dashboard provides insight to forecast accuracy (for example, MAPE, Bias) along with clear visibility to system performance and the impact of end-user contributions to the forecasting process. This enables forecast analysts and managers to identify forecast process improvement priorities.

- **Exception Dashboards**

The exception dashboards represent the primary starting point for day-in-the-life processes. The approval and navigation exceptions each have a dedicated dashboards that enables end-users to efficiently drive decisions through focused exception-driven processes. From here, end-users can define the scope of exceptions to be managed through dashboard filters and launch directly to workspace views tailored for resolution. As exceptions are resolved, the dashboard is updated to enable end-users to iteratively work through forecasting priorities.

- **Forecast Review Workspaces**

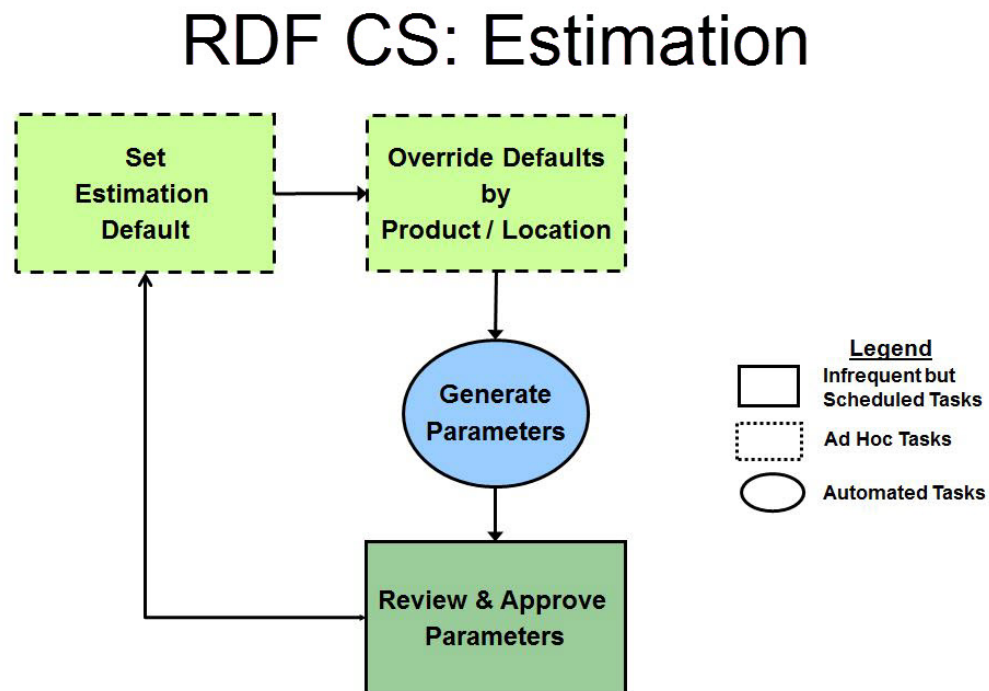
The forecast approval workspaces represent the primary point of interaction with the demand forecasts. The navigation exceptions and their workspace counterparts allow you to review forecast information guided by priorities that are dynamically implemented in the Business Rule Engine. This is supported by a rich set of decision support metrics and the ability to responsively simulate forecast updates.

Forecast Engine

Not visible to the end user is the forecast engine, and all the tasks happening behind the scenes. The forecast engine produces a single version of forecast that is used in RDF CS, all Retail Science Platform solutions, as well as planning and merchandising. The batch is split between estimation and forecasting. Estimation consists of the heavy data mining of historical demand to generate the necessary forecast parameters like seasonality, price and promo effects. Following are tasks which comprise the estimation workflow within the Retail Science Platform.

Refer to the *Oracle Retail Science Cloud Services User Guide* for details on the methodology used for forecast generation.

Figure 1-1 RDF CS Estimation

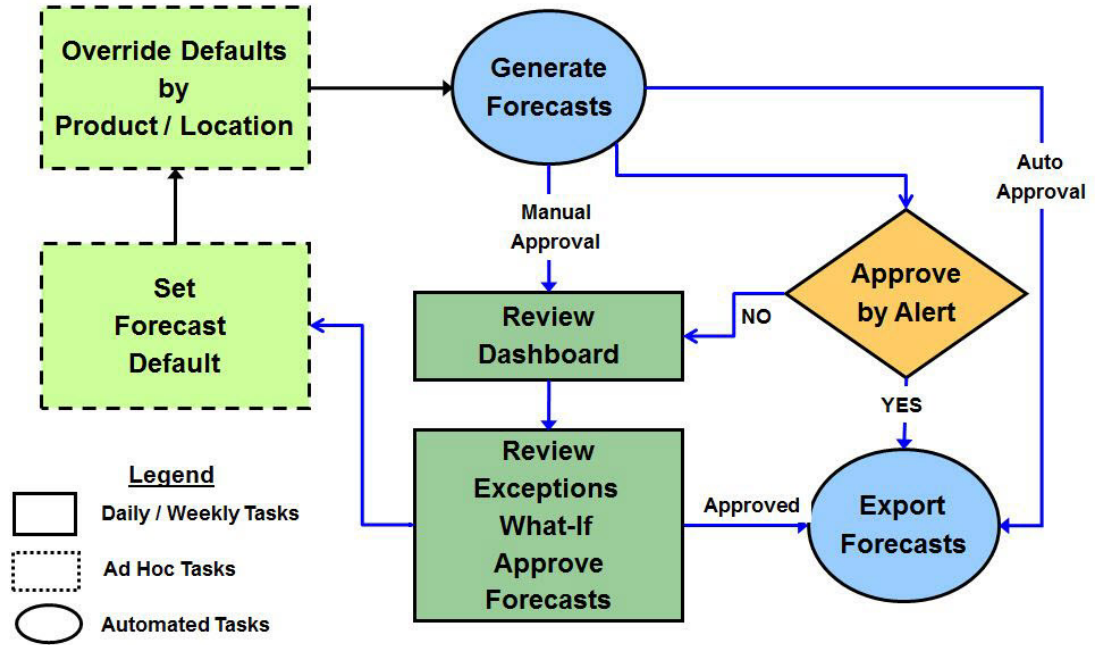


After estimation is run, the forecast parameters are computed, and everything is available to generate the forecast.

The forecast generation is happening in the forecast engine, while all the workflow-related activities are happening in the RDF CS solution.

Figure 1-2 RDF CS Forecasting

RDF CS: Forecasting



2

Dashboard

The Dashboard is the workspace that is seen upon login. You can use the dashboard to quickly analyze the health of the business. The dashboard will need to be refreshed periodically as new products, locations, and demand-related data are added. This typically happens weekly, but depends on your administrator's settings. The measure data of existing products and locations in the dashboard can be refreshed at any time to view updated changes.



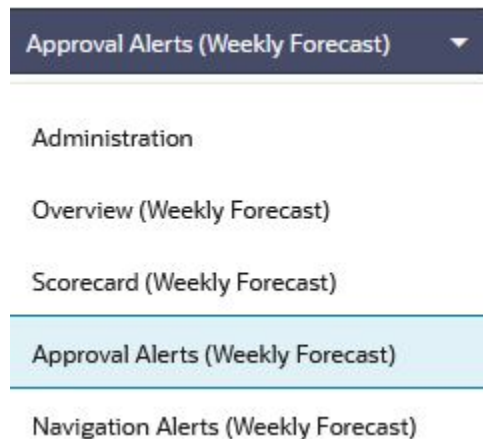
Note:

For additional information about the user interface, dashboard, and workspaces, click **Application Help** from the Help icon on the dashboard.

RDF CS has two dashboard profile types and includes two profiles for each type:

- Metric profile type
 - [Overview Dashboard](#)
 - [Forecast Scorecard Dashboard](#)
- Exception profile type
 - [Approval Alerts](#)
 - [Navigations Alerts](#)

Figure 2-1 Dashboard Profiles

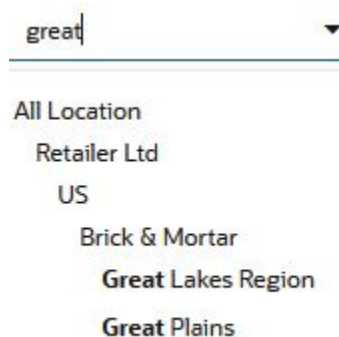


The information in the metric and exception profiles is summarized in tiles, which can be filtered on the product, location, or any other hierarchy that makes sense as shown in [Figure 2-2](#) and [Figure 2-3](#).

Figure 2-2 Product Filter



Figure 2-3 Location Filter



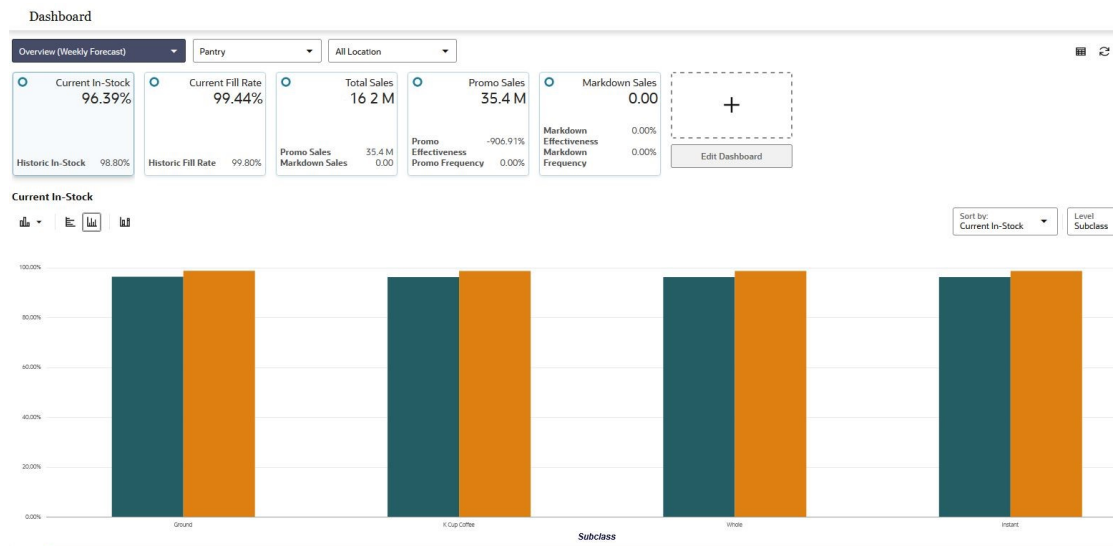
The information that is presented condensed in the tile metrics, is also presented in a chart with more detail.

In addition there is the Administration dashboard which gives information about scheduled OAT tasks, or workspace build information. More about the Administration dashboard can be found in the *Oracle Retail Predictive Application Server Cloud Edition User Guide*.

Overview Dashboard

There are five GA tiles in the Overview dashboard.

Figure 2-4 Overview Dashboard

**Note:**

This view has a dual Y-axis and the scales of the Y-axes could be different from each other.

Current and Historical In-stock Rates

The first tile displays information about how often stockouts occurred. If every four weeks, a stockout is registered, the in-stock rate would be 75%. This information is driven by how often stockouts occur. The tile displays current and historical fill rates.

Stockouts

The second tile displays information about the current and historical fill rates, which are related to service levels. This information is directly tied to the amount of lost sales caused by total or partial stockouts.

Breakdown of Sales

The third tile shows the breakdown of sales. The total sales are the sum of regular, promotional and markdown sales. The promotional and markdown sales are displayed as secondary metrics to gauge the amount of sales driven by these extraordinary events.

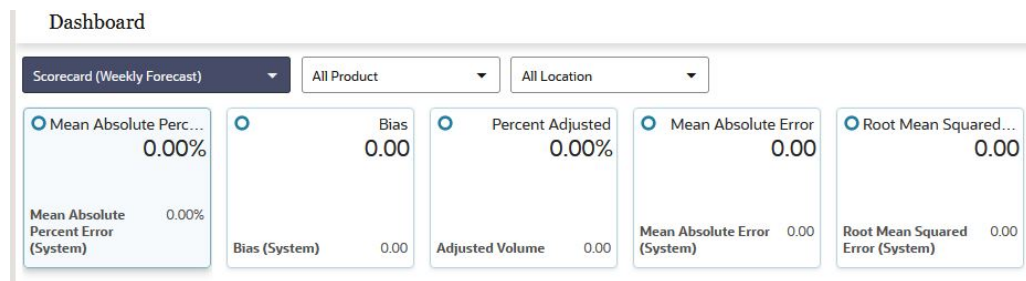
Promotional and Markdown Sales

The last two tiles display information about promotional and markdown sales. Besides the total units, additional information is displayed as secondary metrics. For instance, the tiles display how often the merchandise are promoted or marked down, as the promo or markdown frequency. Also, it shows the effectiveness of how promoting or marking down merchandise is increasing demand as compared to regular demand.

Forecast Scorecard Dashboard

The information displayed in this dashboard helps the forecast analyst or forecast manager determine how accurate the forecasts are.

Figure 2-5 Forecast Scorecard Dashboard



Error Metrics

These are the error metrics:

- Mean Absolute Percentage Error
- Root Mean Squared Error
- Mean Absolute Error
- Forecast Bias
- Percent Adjusted

The error metrics are detailed in [Appendix: Forecast Errors in the Forecast Scorecard Dashboard](#). They are calculated for both the user-adjusted, as well as for the system-generated forecasts, allowing a fair evaluation of the performance of the analyst versus the system.

Forecast Bias

Another tile is dedicated to the forecast bias, a useful metric in determining if the forecast is consistently over or under the actual demand.

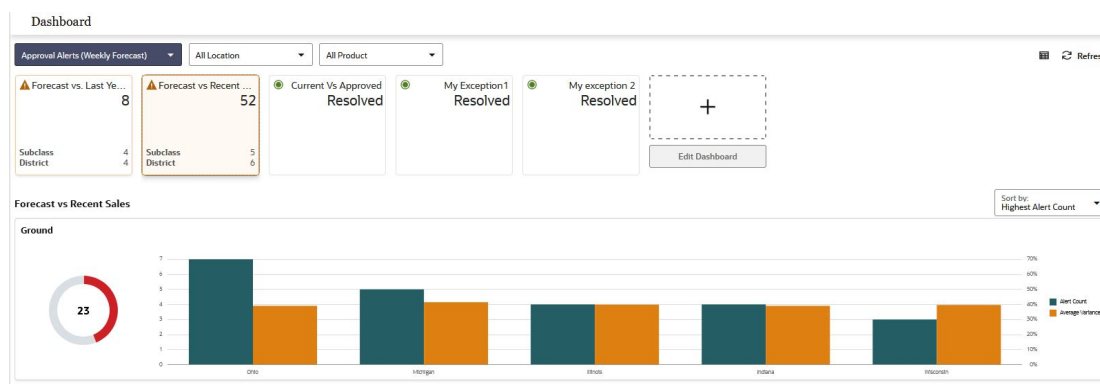
Percent Adjusted and Adjusted Volume

Finally, there is the Percent Adjusted tile, with the Adjusted Volume as the secondary metric. Here is displayed the percent of adjusted forecasts, and the volume resulted as the result of the adjustments. For instance, if the percent adjustment is high, but the adjusted volume is not significant, the analyst may want to spent time and effort on other areas of the merchandise.

Approval Alerts

This is the exception profile that shows the result of the approval business rules.

Figure 2-6 Approval Exceptions



Exceptions

The information displayed in the tiles is based on exceptions, or business rules defined to check if the forecasts are within bounds with respect to some thresholds. The exceptions definitions and expressions are detailed in [Appendix: Forecast Approval Exceptions](#).

Number of Hits Count

The main metric in the tiles is the number of hits count which is based on the product and location filter settings. If the filter settings range products and locations to a narrower selection than, *All Product* and *All Location*, then the number should be reflected in the tile; that is, it should decrease.

Number of Subclass and Districts

The secondary metric on the tiles display the number of subclass and districts that are affected. Note that the dimensions are configurable.

Charts

Each tile comes with a set of charts where the hit count information is broken down to lower levels and sorted based on hit count, or average variance.

Note:

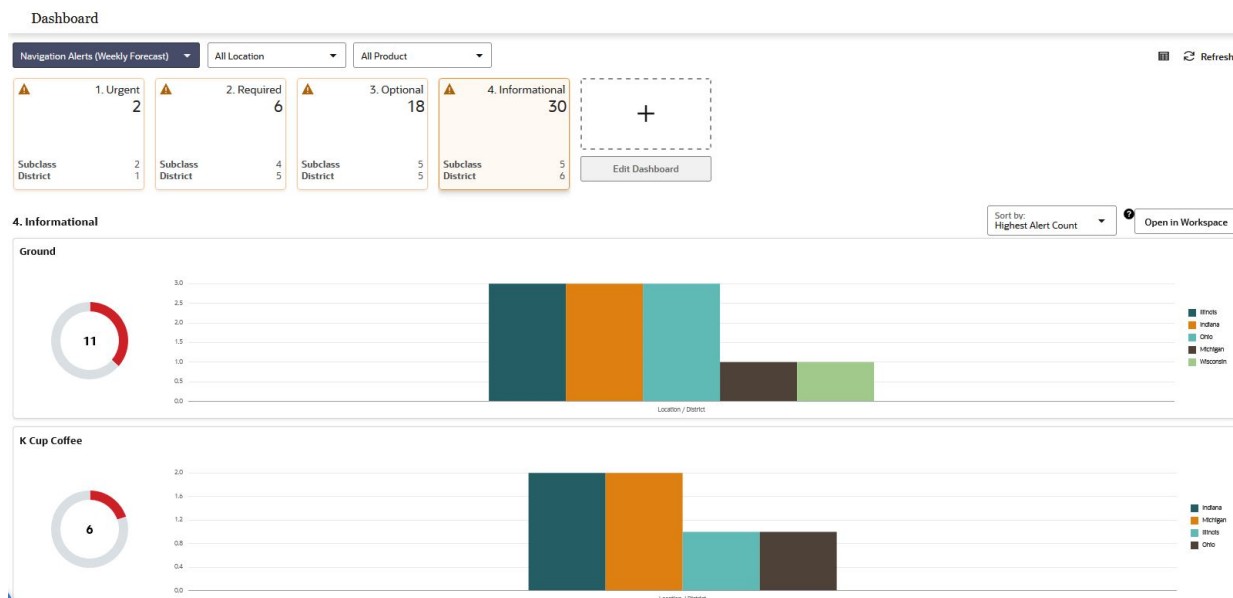
The average variance represents how much off the forecast is versus its target. For example we compare the forecast against last year sales. If the sales are 10 units and the forecast is 15 units, the variance is 5 units. The average variance is the average of all the differences between forecast and last year sales.

The hit count represents how many times the forecast did not pass the configured business rules. The average variance represents by how much the forecasts were off. This is useful, because if a subclass is heavily alerted, but the forecasts only barely miss the threshold, the user may want to concentrate on other merchandise, potentially less alerted, but where the forecasts were off by a larger amount.

Navigations Alerts

The approval exceptions are very helpful in deciding what product/locations are approved and which ones need review. However, reviewing unapproved product/locations in order of critically, makes the reviewing process much more efficient. You can start reviewing Urgent items, then move on to Required, and if time permits you can review Optional and then Informational.

Figure 2-7 Navigation Exceptions



Exceptions

The product/locations presented in this dashboard are virtually the same as the ones in the Approval Exceptions. The difference is that the product locations are sorted in order of priority, which is a proxy for the importance to the business. The rules to determine the priorities are set up in the Business Rule Engine, as detailed in the [Appendix: Business Rule Engine](#).

Forecast Review Workspace

Finally, when a user makes a decision as to which merchandise and locations to review, the user can launch directly in the Forecast Review workspace by clicking **Open in Workspace**, with the locations and product ranged down to the desired selection. Once in the workspace, you can choose to use the navigation alerts to navigate to product/locations. Every navigation exception can have a workspace counterpart. Using these exceptions you are guided to the exact product, location, and time period that needs your attention.

The **Open in Workspace** button is located in the right corner above the top chart

 **Note:**

Alternatively, you can right-click on any exception chart and select **Open in Workspace**

3

New Item & Locations Task

This chapter describes the capabilities around forecasting New Items and New Stores. Forecast generation for New Items can be fully automated, while for New Stores the process is manual.

In general, an item is eligible to be considered new if it satisfies the following condition:

- Forecast start date override is in the future *or* Sales history length is less than the time series duration parameter

An item is eligible to be considered a Like Item if it satisfies these conditions:

- Its recent sales density needs to be larger than a threshold or zero for a special case.
- Its sales history needs to be longer than the time series duration parameter.
- Finally, we provide the Like Item exclusion mask measure, which can be populated by custom rules through which the implementer can include any other eligibility conditions.

Once a New Item is assigned a system recommended Like Item, it is not processed in the next New Item batch because it is considered already taken care of.

If you set up the New Item to do manual approve first, all the New Items in the system are handled as manual approval.

In general, if auto approval is turned on, and batch is ran, the items already processed will be skipped in the batch as we only look at *refresh New Item* in each batch.

These workspaces help you achieve this task:

- [New Item Maintenance Workspace](#)
- [New Store Maintenance Workspace](#)
- [New Item Management Workspace](#)

New Item & Locations Workspaces, Steps, and Views

The following table lists the workspaces, steps, and views for the New Item & Locations task.

Workspace	Steps	Views
New Item Maintenance Workspace	New Item Settings Step	New Item Basic Parameters View
	Like Item - Select and Approve Step	New Item Forecast View New Item Statistics View Select and Approve View
New Store Maintenance Workspace	Like Store Assignment Step	Product Like Store Assignment View
New Item Management Workspace	Settings Step	New Item Basic Parameters View

Workspace	Steps	Views
	Manage Step	New Item Attributes View New Item Statistics View Select and Approve View New Item Forecast View
	View Step	Attribute Value View Similarity Score View

New Item Maintenance Workspace

Note:

There are two workspaces that can help you with setting up New Items for forecast generation:

- [New Item Maintenance Workspace](#)—Use when item attributes are not available and you need to manually select Like Items from the New Item Maintenance workspace.
- [New Item Management Workspace](#) —Use when item attributes are available, the Like Item selection can be automated using the New Item Management workspace.

It is recommended to use only one of the two workspace options, depending on whether or not attributes are available. The other workspace can be easily hidden using Access Rights.

The workflow in the New Item Maintenance workspace starts by selecting the New Items. An item is defined as new if it has a forecast startdate override that is in the future, that is., `past RPAS_TODAY`. The date can be loaded in the measure if available. If not, the date can be entered manually. Once you identified the New Item and the forecast startdate override is populated, you can select the substitution method. Depending on your selection, you may need to enter additional information. The workflow message measure guides you through the process. For instance, if you choose the Like Item option, you need to specify a Like Item. If you do not specify a Like Item, the workflow message warns you and displays **User Specified Like Item Not Set**. You have successfully set up a New Item for forecasting when the workflow message is cleared and the Approval flag is selected. You finish by running the Approve New Items custom menu.

Note:

You can work on multiple New Items and run the custom menu after you have set them all up.

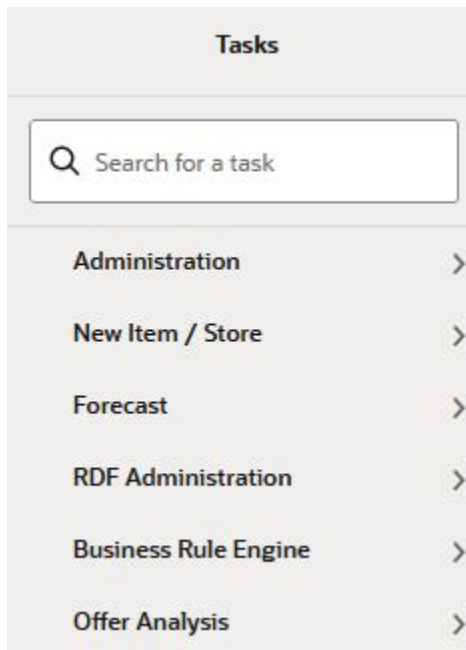
Another helpful tool in the process of setting up New Items is the Workflow Message Count measure. It displays the number of item/store combinations that have been

flagged as new, but have not yet been successfully set up. If setting up the New Items was successful, then the measure displays a count of zero.

To build the New Item Maintenance workspace, perform these steps:

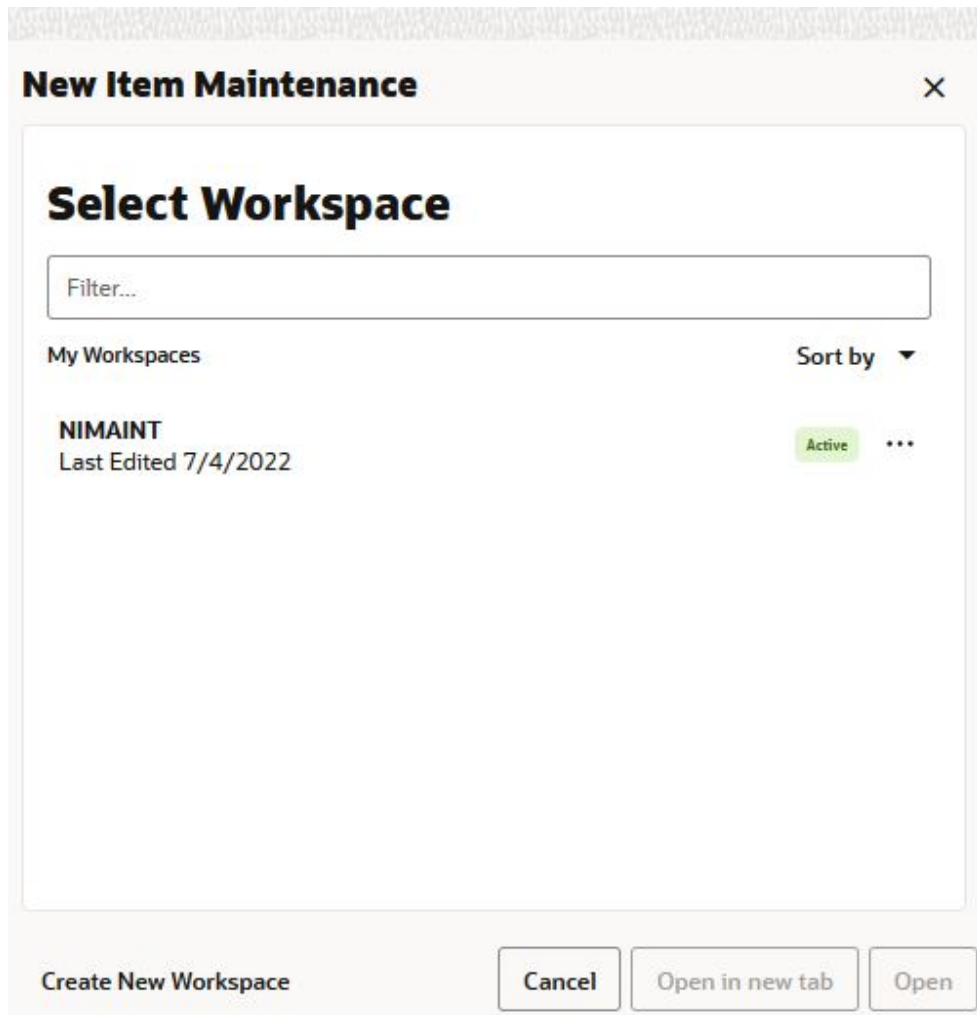
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 3-1 Task Module



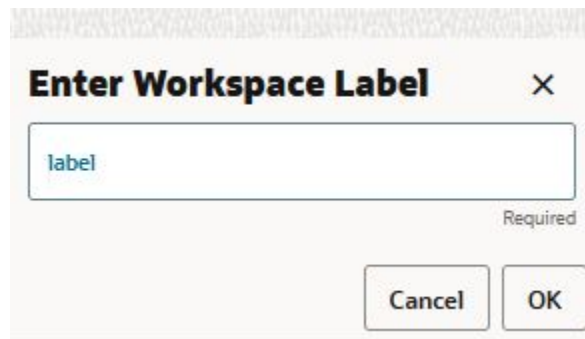
2. Click the **New Item/Store** activity to access the available workspaces.
3. Click **New Item Maintenance**. The New Item Maintenance wizard opens.
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 3-2 New Item Maintenance Wizard



4. Enter a name for your new workspace in the label text box and click **OK**.

Figure 3-3 Enter Workspace Label



5. The Workspace wizard opens. Select the products you want to work with and click **Next**.

Figure 3-4 Workspace Wizard: Select Products

Select Products

Levels & Positions

Company		Label	
<input type="checkbox"/>	Level	<input type="checkbox"/>	Label
<input type="checkbox"/>	Company	<input type="checkbox"/>	1312Casual*
<input type="checkbox"/>	Division	<input type="checkbox"/>	1322Casual*
<input type="checkbox"/>	Group	<input checked="" type="checkbox"/>	Coffee
<input type="checkbox"/>	Department	<input type="checkbox"/>	Coffee Maker
<input checked="" type="checkbox"/>	Class	<input type="checkbox"/>	Missy Sweaters
<input type="checkbox"/>	Subclass	<input type="checkbox"/>	Missy Tops
<input type="checkbox"/>	Grandparent		
<input type="checkbox"/>	Parent		
<input type="checkbox"/>	Item		

6. Select the locations you want to work with and click **Finish**.

Figure 3-7 New Item Basic Parameters View

New Item Basic Parameters	
Product	Coffee
Measure	
Adjustment Factor	0.95
Auto-Approve	<input type="checkbox"/>
Substitute Method	Base Rate of
Threshold Recent Sales Density	0.50
History Time Series Duration	5

Measures: New Item Basic Parameters View

The New Item Basic Parameters view contains the following measures:

Adjustment Factor

The only demand component needed to generate forecast for New Items is base demand. If the Like Item substitution method is selected, the adjustment factor specifies what percent of a Like Item's base demand will be copied to the New Item.

Auto-approve

You decide if automatic Like Item recommendations are automatically approved by selecting this measure. If the automatic Like Item recommendations are not automatically approved, the system suggested Like Items are still displayed, but not used in forecast generation.

Substitute Method

This measure displays a list where you can select the substitute method. When a Substitute Method is used to forecast, the method set for an intersection is cleared once the Default Forecast Start Date is greater than the Forecast Start Date Override plus the Like TS Duration for the intersection. Valid options are:

Substitute Method	Description
None	No forecast is created for the New Item.

Substitute Method	Description
Like Item	<p>The forecast is created using the base demand of a Like Item. The Like Item is selected in the User Selected Like Item measure in the Like Item - Select and Approve view. The forecast of the New Item is given by:</p> $\text{Base demand New Item} = \text{base demand Like Item} * \text{Adjustment Factor}$ <p>Forecast at time t = base demand New Item * seasonality at time t (coming from escalation level) * promo and price effects (coming from pooling level)</p>
Base Rate of Demand	<p>RDF CS calculates the escalated base rate of demand. The forecast for the new item is given by::</p> $\text{Forecast at time } t = \text{base rate of demand (coming from escalation level)} * \text{seasonality at time } t \text{ (coming from escalation level)} * \text{promo and price effects (coming from pooling level)}$
User Input	<p>This method is very similar to Base Rate of Demand, with the difference that you have to manually specify a base rate of demand. The forecast is then generated using the same formula as for Base Rate of Demand.</p>

Threshold Recent Sales Density

In this measure, you enter the threshold for the data density. If the actual density is larger than the threshold, the time series qualifies to serve as Like Item/location for a new/item/location. The data density is calculated as:

data density = number of periods with demand larger than zero / total length of demand

For a time series with the following demand values:

0,1,0,1,0,today

The data density is $2/4 = 50\%$

History Time Series Duration

In this measure you can enter the threshold for the historical demand duration to determine if a time series is considered. If the demand history is less than the threshold, the forecast of the new time series is generated using the New Item/store functionality. If the demand length is larger than the threshold, the time series is not considered new anymore, and its own demand is used to generate the forecast.

Tip:

Consider the threshold is set to five periods, and the first week of sales is 10 weeks ago, In this case, the item is not considered new anymore. Whatever Like Item strategy was selected for the item is not applied anymore and the forecast is generated based on its own demand.

Like Item - Select and Approve Step

This step contains views that allow you to set up the forecasting strategy for New Items.

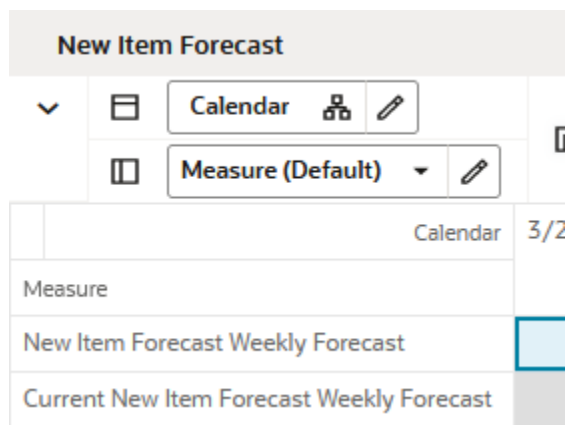
The available views are:

- [New Item Forecast View](#)
- [New Item Statistics View](#)
- [Select and Approve View](#)

New Item Forecast View

In this view you are able to view the forecast of the New Item based on the selected strategy.

Figure 3-8 New Item Forecast View



Measures: New Item Forecast View

The New Item Forecast view contains the following measures:

New Item Forecast Weekly Forecast

This measure displays the forecast resulting from a what-if action performed in the workbook.

Current New Item Forecast Weekly Forecast

This measure displays the approved forecast calculated in batch. If no new item strategy has been selected prior to the batch run, this measure is empty.

New Item Statistics View

The measures in this view are supporting the New Item setup process that happens mainly in the [Figure 3-10](#).

Figure 3-9 New Item Statistics View

New Item Statistics				
Product	1234768 - PL - 1...	1234769 - PL - F...	1234770 - PL - F...	1234771 - PL - B...
Measure	↑	↑	↑	↑
Workflow Message Count	0	0	0	0
Store Count	0	0	0	0

Measures: New Item Statistics View

The New Item Statistics view contains the following measures:

Workflow Message Count

This measure displays the count of the Workflow Message measure in the Select and Approve view. The workflow messages are guiding you in the New Item setup process. If the count is zero, you have set up correctly all New Items. The count corresponds to the number of New Item/store combinations that you still have to finish setting up.

Store Count

This measure displays the number of stores that a New Items has been set up for.

Select and Approve View

This view enables you to set up your New Items for forecasting. Depending on the strategy you select in the Substitution Method, you can choose a fully automated process, or you may need to enter additional information. The workflow messages are guiding you through the process.

Figure 3-10 Select and Approve View

Select and Approve		
Location	1006 Chicago	Product
Measure (Default)		1234768 - PL -
Location	1006 Chicago	1057 Green Bay
Measure		
Substitute Method	Base Rate of	None
User Provided Base Demand	0.00	0.00
User Selected Like Item		
Like Item Average Sales		
Forecast Start Date Override		
Approve Flag	<input type="checkbox"/>	<input type="checkbox"/>
Approve Date		
Adjustment Factor	1.00	1.00
Workflow Message	Existing Item	

Measures: Select and Approve View

The Select and Approve view contains the following measures:

Substitute Method

This measure displays a list where you can select the substitute method. When a Substitute Method is used to forecast, the method set for an intersection is cleared once the Default Forecast Start Date is greater than the Forecast Start Date Override plus the Like TS Duration for the intersection. Valid options are:

Substitute Method	Description
None	No forecast is created for the New Item
Like Item	The forecast is created using the base demand of a Like Item. The Like Item is selected in the User Selected Like Item measure in the Select and Approve view. The forecast of the New Item is given by: $\text{Base demand New Item} = \text{base demand Like Item} * \text{Adjustment Factor}$ $\text{Forecast at time } t = \text{base demand New Item} * \text{seasonality at time } t \text{ (coming from escalation level)} * \text{promo and price effects (coming from pooling level)}$

Substitute Method	Description
Base Rate of Demand	RDF CS calculates a base rate of demand based on items in the same class (dimension is configurable). The forecast for the New Item is given by: <i>Forecast at time t = base rate of demand * seasonality at time t (coming from escalation level) * promo and price effects (coming from pooling level)</i>
User Input	This method is very similar to Base Rate of Demand, with the difference that you have to manually specify a base rate of demand. The forecast is then generated using the same formula as for Base Rate of Demand

User Provided Base Demand

If the User Input substitution method was selected, you have to enter here the base rate of demand that is going to be used for the New Item when generating forecast.

User Selected Like Item

If the Like Item substitution method was selected, you have to select here the Like Item whose base demand is going to be used for the New Item when generating forecast.

Like Item Average Sales

If you selected the Like Item substitution method, and have chosen a Like Item from the picklist, this measure displays the average sales of the Like Item. This is useful because it gives you an idea of the base rate of demand that is going to be used when generating the forecast for the New Item. It is not the exact value because it is recalculated every time the forecasting batch is run, but it is likely to be very close.

Forecast Startdate Override

This is a very important measure because it identifies an item as being new. It can be loaded if the information can be interfaced from another system. If not available, you can manually set it.

Approve Flag

When the set up process for forecasting the New Item was successful, this measure becomes True and the measure displays a check mark. You are now ready to run the Approve New Items custom menu to approve the New Item forecast strategy.

Approve Date

This measure displays the date when the Like Item recommendation was approved by running the custom menu.

Adjustment Factor

The only demand component needed to generate forecast for New Items is base demand. If the Like Item substitution method is selected, the adjustment factor specifies what percent of a Like Item's base demand will be copied to the New Item.

Workflow Message

The information in this measure guides you through the forecast setup process for New Items. It informs you on the next steps depending on the substitution method that you selected.

Message	Cause	Action
Substitution Method Not Set	You have identified a New Item and set the Forecast Startdate Override, but did not select a substitution method.	Select a Substitution Method
User Specified Like Item Not Set	You have identified a New Item and selected Like Item as substitution method, but you did not select a Like Item.	Select a User Selected Like Item
Base Demand Not Input By User	You have identified a New Item and selected Base Rate of Demand as substitution method, but you did not input a User Provided Base Demand.	Input a User Provided Base Demand
Existing Item	You have entered a Forecast Startdate Override for an item that is not new	Either clear the date to avoid confusion. Even if you do not, no action is taken for the item with respect to New Item forecast setup.

Custom Menu

There is also a custom menu relevant to this view, **Approve New Items**.

After you set up the strategy to forecast New Items, then running the custom menu approves the strategy.

The setup includes selecting a substitution method, Like Items, and percent contribution among others.

After running the custom menu the Approve Date measure is populated with the current date.

New Store Maintenance Workspace

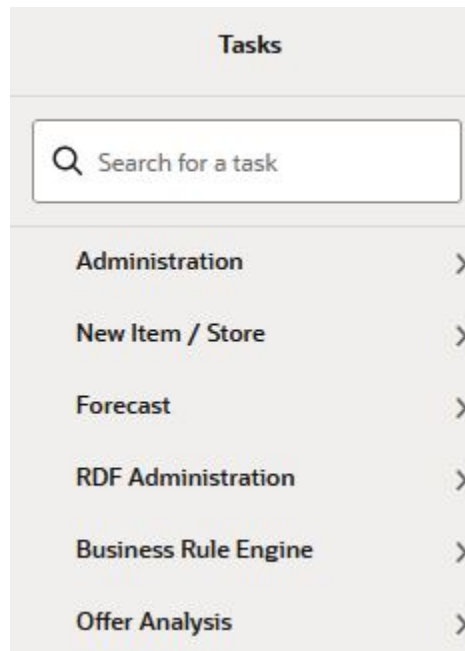
Use this workspace to assign like stores to handle forecasting for New Stores. The like store assignment is manual and there is a good reason for it. New stores have a large financial impact, so it makes sense having a business person making the like store selection.

It is probably more appropriate than going with an automatic selection based on something like store attributes. Also, new store introductions are infrequent compared to New Item introductions, so manually handling New Stores is not a significant overhead activity.

To build the New Store Maintenance workspace, perform these steps:

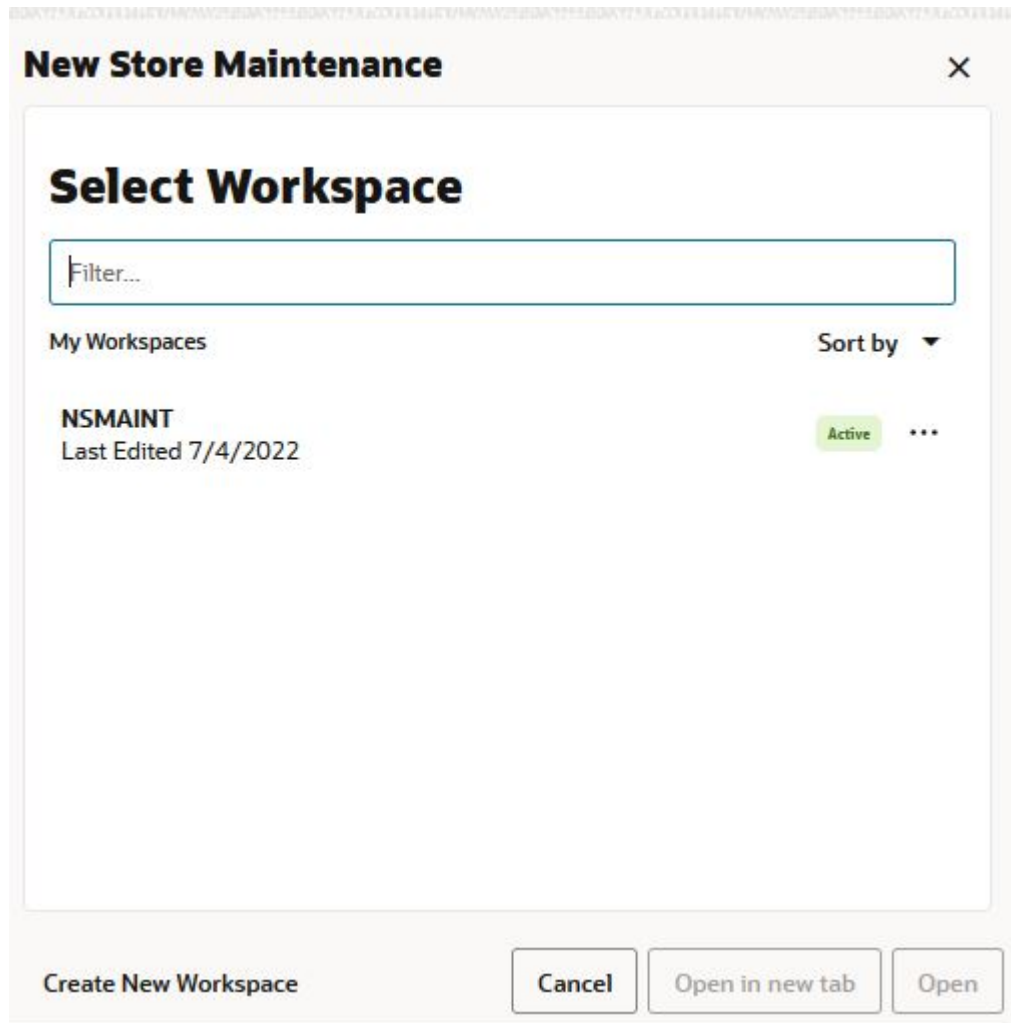
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 3-11 Task Module



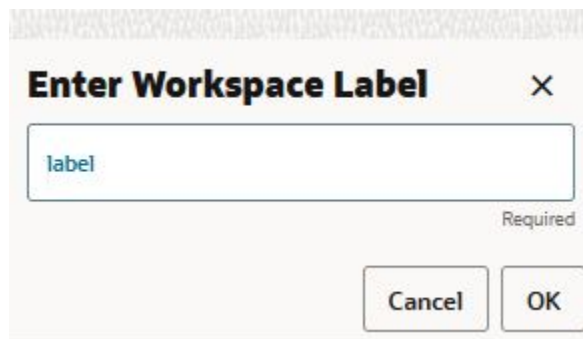
2. Click the **New Item/Store** activity and then click **New Item/Location** again to access the available workspaces.
3. Click **New Store Maintenance**. The New Store Maintenance wizard opens.
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 3-12 New Store Maintenance Wizard



4. Enter a name for your new workspace in the label text box and click **OK**.

Figure 3-13 Enter Workspace Label



5. Select the locations you want to work with and click **Finish**.

Figure 3-14 Workspace Wizard: Select Locations

Select Locations

Levels & Positions

Company		Label
<input type="checkbox"/>	Level	<input type="checkbox"/> Label
<input type="checkbox"/>	Company	<input type="checkbox"/> 11 Southeastern US
<input type="checkbox"/>	Chain	<input type="checkbox"/> 12 Northeastern US
<input type="checkbox"/>	Area	<input type="checkbox"/> 13 Midwest US
<input checked="" type="checkbox"/>	Region	<input type="checkbox"/> 14 Northcentral US
<input type="checkbox"/>	District	<input type="checkbox"/> 15 Southwestern US
<input type="checkbox"/>	Store	<input type="checkbox"/> 31 Eastern Canada
		<input type="checkbox"/> 32 Canadian Lakes
		<input type="checkbox"/> 33 Western Canada

- The wizard notifies you that your workspace is being prepared. Successful workspaces are available from the Dashboard.

Figure 3-15 Successful Workspace Build

The screenshot shows the Oracle dashboard with the following components:

- Administration** dropdown menu.
- Task Status** cards: Task Status (1 Last 7 days), Active Users (1), and a placeholder card with a plus sign and 'Edit Dashboard' button.
- Task Status** table with filters: All (4), Scheduled (2), In Progress (0), Completed (2), Failed (0). Filters for 'Last 24 hours', 'All Submitters', and 'All Task Types' are also present.
- Task Status Table:**

Description	Status	Task Type	Submitted by	Started/Scheduled	Completed	Record Status
ss	Success	WBatch Build	oeladmin	7/6/22 2:32:48 PM	7/6/22 2:34:14 PM	---
Health-Check: Pendo Task	Scheduled	hc-pendo-task		7/7/22 12:00:00 AM		---
- Recent Workspaces** sidebar with options: Manage Workspaces, Refresh, Batch Flow Administration, and a list of workspace entries (Initial, FS, FR, OA) with their last edited and created dates.

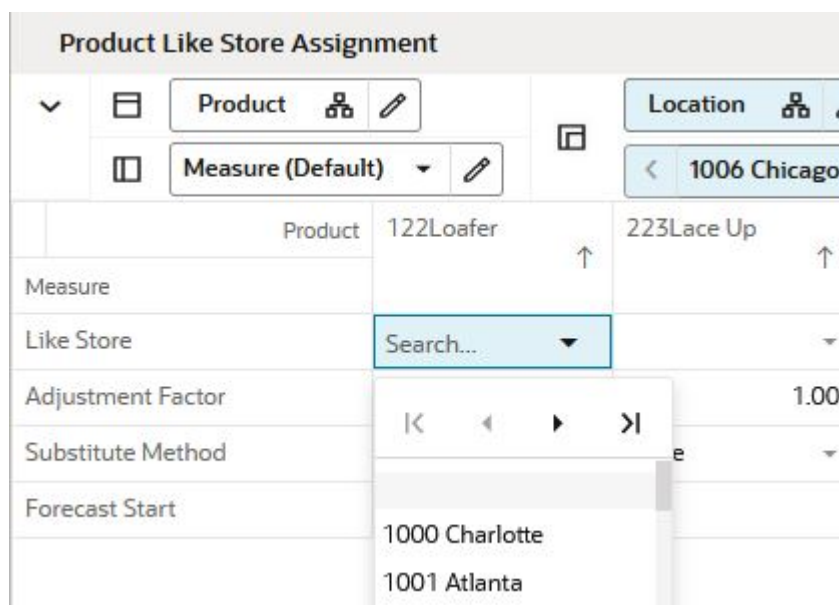
Like Store Assignment Step

This step contains the [Product Like Store Assignment View](#).

Product Like Store Assignment View

The Product Like Store Assignment view is at the intersection of prod/location, so all parameters can vary by product. For example, a new store opening in the Midwest can have a Like Store from Alaska for items in the Shovels department. However, for summer items, the Like Store is picked from the Northeast region.

Figure 3-16 Product Like Store Assignment View



Measures: Product Like Store Assignment View

The Product Like Store Assignment view contains the following measures:

Like Store

In this measure, you can specify the like store. Note how the like store can be different by product. In RDF, a different like store selection can be made for every subclass.

Adjustment Factor

This measure is relevant to the Like Store Substitution method. It determines how much of the base rate of demand of a like store is applied to the new store. For instance, if the adjustment factor is 1.25, the base rate of demand of the new store is 1.25 times the base rate of demand of the like store.

Substitute Method

This measure displays a list where you can select the substitute method. When a Substitute Method is used to forecast, the method set for an intersection is cleared once the Default Forecast Start Date is greater than the Forecast Start Date Override plus the Like TS Duration for the intersection. Valid options are:

Substitute Method	Description
None	No forecast is created for the time series.

Substitute Method	Description
Like Store	<p>If you select Like Store as strategy to generate forecast for the new store, the base demand of the new store is the base demand of the like store times the Adjustment Factor.</p> <p><i>Base demand new store = base demand like store * Adjustment Factor</i></p> <p>The forecast for the new store is calculated as:</p> <p><i>Forecast at time t = base demand new store * seasonality at time t (coming from escalation level) * promo and price effects (coming from pooling level)</i></p>

Forecast Start

This measure specifies the first date for which forecast is generated for the new store.

New Item Management Workspace

Note:

There are two workspaces that can help you with setting up New Items for forecast generation:

- [New Item Maintenance Workspace](#)—Use when item attributes are not available and you need to manually select Like Items from the New Item Maintenance workspace.
- [New Item Management Workspace](#) —Use when item attributes are available, the Like Item selection can be automated using the New Item Management workspace.

It is recommended to use only one of the two workspace options, depending on whether or not attributes are available. The other workspace can be easily hidden using Access Rights.

The workflow in the New Item Management workspace starts by selecting the New Items. An item is defined as new if it has a forecast startdate override that is in the future, that is., past `RPAS_TODAY`. The date can be loaded in the measure if available. If not, the date can be entered manually. Once you identified the New Item and the forecast startdate override is populated, you can select the substitution method. Depending on your selection, you may need to enter additional information. The workflow message measure will guide you through the process. For instance, if you choose *User Input*, you need to provide the *User Provided Base Demand*. If you do not provide the *User Provided Base Demand*, the workflow message warns you and displays *Base Demand Not Input By User*. You have successfully set up a New Item for forecasting when the workflow message is cleared and the Approval flag is selected. You finish by running the Approve New Items custom menu.



Note:

You can work on multiple New Items and run the custom menu after you have set them all up.

Another helpful tool in the process of setting up New Items is the Workflow Message Count measure. It displays the number of item/store combinations that have been flagged as new, but have not yet been successfully set up. When setting up the New Items was successful the measure will display a count of zero.

There are a few key features that are available in the New Item Management that are not included in New Item Maintenance:

- System Recommended Like Item based on the similarity between new and existing items
- Ability to display a User Selected Like Item picklist that is sorted by the similarity between new and existing items
- Ability to control how many items are included in the User Selected Like Item picklist
- Ability to edit attribute weights and immediately see the updated Like Item recommendations

Settings Step

This step contains the [New Item Basic Parameters View](#).

New Item Basic Parameters View

The New Item Basic Parameters view is used to set default values for some parameters related to the New Item functionality.

Figure 3-17 New Item Basic Parameters View

New Item Basic Parameters	
Product	Coffee
Measure	↑
Adjustment Factor	0.95
Auto-Approve	<input type="checkbox"/>
Substitute Method	Base Rate of
Threshold Recent Sales Density	0.50
History Time Series Duration	5

Measures: New Item Basic Parameters View

The New Item Basic Parameters view contains the following measures:

Adjustment Factor

The only demand component needed to generate forecast for New Items is base demand. If the Like Item substitution method is selected, the adjustment factor specifies what percent of a Like Item's base demand will be copied to the New Item.

Auto-approve

You decide if automatic Like Item recommendations are automatically approved by selecting this measure. If the automatic Like Item recommendations are not automatically approved, the system suggested Like Items are still displayed, but not used in forecast generation.

Substitute Method

This measure displays a list where you can select the substitute method. When a Substitute Method is used to forecast, the method set for an intersection is cleared once the Default Forecast Start Date is greater than the Forecast Start Date Override plus the Like TS Duration for the intersection. Valid options are:

Substitute Method	Description
None	No forecast is created for the New Item
Like Item	The forecast is created using the base demand of a Like Item. The Like Item is selected in the User Selected Like Item measure in the Like Item - Select and Approve view. The forecast of the New Item is given by: <i>Base demand New Item = base demand Like Item * Adjustment Factor</i> Forecast at time t = base demand New Item * seasonality at time t (coming from escalation level) * promo and price effects (coming from pooling level)
Base Rate of Demand	RDF CS calculates a base rate of demand based on items in the same class (dimension is configurable). The forecast for the New Item is given by: <i>Forecast at time t = base rate of demand * seasonality at time t (coming from escalation level) * promo and price effects (coming from pooling level)</i>
User Input	This method is very similar to Base Rate of Demand, with the difference that you have to manually specify a base rate of demand. The forecast is then generated using the same formula as for Base Rate of Demand

Threshold Recent Sales Density

In this measure, you enter the threshold for the data density. If the actual density is larger than the threshold, the time series qualifies to serve as Like Item/location for a new/item/location. The data density is calculated as:

data density = number of periods with demand larger than zero / total length of demand

For a time series with the following demand values:

0,1,0,1,0,today

The data density is $2/4 = 50\%$

If the value for the threshold is zero, an item that is not actively selling can also be eligible as Like Item if it has an approved base demand.

This can be useful when the item to be introduced is a replacement or similar to an item that sold last season. In this case the base demand of the New Item will be modeled after the approved base demand of the item that it replaced.

History Time Series Duration

In this measure you can enter the threshold for the historical demand duration to determine if a time series is considered. If the demand history is less than the threshold, the forecast of the new time series is generated using the New Item/store functionality. If the demand length is larger than the threshold, the time series is not considered new anymore, and its own demand is used to generate the forecast.

Tip:

Consider the threshold is set to five periods, and the first week of sales is 10 weeks ago. In this case, the item is not considered new anymore. Whatever Like Item strategy was selected for the item is not applied anymore and the forecast is generated based on its own demand.

Recommended Number of Like Items

In this measure you specify how many item you want to see in the User Selected Like Item picklist, in the Select and Approve view. If you change the value, by clicking the Calculate custom menu, the picklist is regenerated to reflect the new setting. The items in the picklist are sorted by similarities, which are calculated using item attributes and their weights.

Manage Step

This step contains views that allow you to set up the forecasting strategy for New Items.

The available views are:

- [New Item Attributes View](#)
- [New Item Statistics View](#)
- [Select and Approve View](#)
- [New Item Forecast View](#)

New Item Attributes View

In this view you can view item attributes as well as their weights. The weights can be edited, and they are managed at an intersection higher than SKU. For instance, for the coffee class the Roast attribute has a weight of 0.4. Once you change the value of any attribute weight, the similarity matrix is recalculated. This also triggers the regeneration of the user Like Item picklist. The items in the picklist are sorted by similarities, which are calculated using item attributes and their weights.

Figure 3-18 New Item Attributes View

Measure	Brand	Brand Tier	Roast	Segment	Subcategory	Subsegment	Trade Type
Attribute Weight	0.30	0.25	0.40	0.05	0.05	0.05	0.05

Measures: New Item Attributes View

The New Item Attributes view contains the following measure:

Attribute Weight

This measure displays the current weight by item attributes.

New Item Statistics View

The measures in this view are supporting the New Item setup process that happens mainly in the Select and Approve view.

Figure 3-19 New Item Statistics View

Measure	Product	1234768 - PL - 1...	1234769 - PL - F...	1234770 - PL - F...	1234771 - PL - B...
Workflow Message Count		0	0	0	0
Store Count		0	0	0	0

Measures: New Item Statistics View

The New Item Statistics view contains the following measures:

Workflow Message Count

This measure displays the count of the Workflow Message measure in the Like Item – Select and Approve view. The workflow messages are guiding you in the New Item setup process. If the count is zero, you have set up correctly all New Items. The count corresponds to the number of New Item/store combinations that you still have to finish setting up.

Store Count

This measure displays the number of stores that a New Items has been set up for.

Select and Approve View

This view enables you to set up your New Items for forecasting. Depending on the strategy you select in the Substitution Method, you can choose a fully automated process, or you may need to enter additional information. The workflow messages are guiding you through the process.

Figure 3-20 Select and Approve View

Select and Approve		
Location	1006 Chicago	Product
Measure (Default)		1234768 - PL -
Location	1006 Chicago ↑	1057 Green Bay ↑
Measure		
Substitute Method	Base Rate of	None
User Provided Base Demand	0.00	0.00
User Selected Like Item		
Like Item Average Sales		
Forecast Start Date Override		
Approve Flag	<input type="checkbox"/>	<input type="checkbox"/>
Approve Date		
Adjustment Factor	1.00	1.00
Workflow Message	Existing Item	

Measures: Select and Approve View

The Select and Approve view contains the following measures:

Substitute Method

This measure displays a list where you can select the substitute method. When a Substitute Method is used to forecast, the method set for an intersection is cleared once the Default Forecast Start Date is greater than the Forecast Start Date Override plus the Like TS Duration for the intersection. Valid options are:

Substitute Method	Description
None	No forecast is created for the New Item

Substitute Method	Description
Like Item	The forecast is created using the base demand of a Like Item. The Like Item is selected in the User Selected Like Item measure in the Like Item - Select and Approve view. The forecast of the New Item is given by: <i>Base demand New Item = base demand Like Item * Adjustment Factor</i> Forecast at time t = base demand New Item * seasonality at time t (coming from escalation level) * promo and price effects (coming from pooling level)
Base Rate of Demand	RDF CS calculates a base rate of demand based on items in the same class (dimension is configurable). The forecast for the New Item is given by: <i>Forecast at time t = base rate of demand * seasonality at time t (coming from escalation level) * promo and price effects (coming from pooling level)</i>
User Input	This method is very similar to Base Rate of Demand, with the difference that you have to manually specify a base rate of demand. The forecast is then generated using the same formula as for Base Rate of Demand

User Provided Base Demand

If the User Input substitution method was selected, you have to enter here the base rate of demand that is going to be used for the New Item when generating forecast.

Forecast Startdate Override

This is a very important measure because it identifies an item as being new. It can be loaded if the information can be interfaced from another system. If not available, you can manually set it.

Approve Date

This measure displays the date when the Like Item recommendation was approved by running the custom menu.

Adjustment Factor

The only demand component needed to generate forecast for New Items is base demand. If the Like Item substitution method is selected, the adjustment factor specifies what percent of a Like Item's base demand will be copied to the New Item.

Workflow Message

The information in this measure guides you through the forecast setup process for New Items. It informs you on the next steps depending on the substitution method that you selected.

Message	Cause	Action
Substitution Method Not Set	You have identified a New Item and set the Forecast Startdate Override, but did not select a substitution method.	Select a Substitution Method

Message	Cause	Action
User Specified Like Item Not Set	You have identified a New Item and selected Like Item as substitution method, but you did not select a Like Item.	Select a User Selected Like Item
Base Demand Not Input By User	You have identified a New Item and selected Base Rate of Demand as substitution method, but you did not input a User Provided Base Demand.	Input a User Provided Base Demand
Existing Item	You have entered a Forecast Startdate Override for an item that is not new	Either clear the date to avoid confusion. Even if you do not, no action is taken for the item with respect to New Item forecast setup.

Approved Like Item

This measure is relevant if you selected the Like item substitution method. If you go through the process to set up the New Item, and use the System Recommended Like Item or override by selecting another Like Item from the User Selected Like Item picklist, the Approval Flag is checked. Running the Approve New Items custom menu populates this measure.

System Recommended Like Item

This measure is relevant if you selected the Like item substitution method. Your environment needs to have item attributes and attributes weights, so similarities between new and existing items are calculated. In this case, the potential Like Items are sorted by their similarity scores, and the item with the highest score is displayed as the system recommendation.

Note how the Like Items are not displaying just the item label. First, you see a percentage. This represents how similar the Like Items are to the New Items. A value closer to 100% means high similarity. The second value shows the average demand of the Like Item. This is useful in selecting a Like Item, because it is an indication of forecast magnitude. This value is recalculated to reflect the latest data point, so what you see here may be outdated by a week. Finally the third element is the item label.

User Selected Like Item

This measure is relevant if you selected the Like item substitution method. It shows a picklist with items that you can select to override the system recommendation. The number of items displayed in the picklist is set in the Recommended Number of Like Items measure in the Settings step.

Note how the Like Items are not displaying just the item label. First, you see a percentage. This represents how similar the Like Items are to the New Items. A value closer to 100% means high similarity. The second value shows the average demand of the Like Item. This is useful in selecting a Like Item, because it is an indication of forecast magnitude. This value is recalculated to reflect the latest data point, so what you see here may be outdated by a week. Finally the third element is the item label.

Approve Flag

When the set up process for forecasting the New Item was successful, this measure becomes True and the measure displays a check mark. You are now ready to run the Approve New Items custom menu to approve the New Item forecast strategy.

User Forecast

This measure displays the adjusted forecast calculated in batch. If no new item strategy has been selected prior to the batch run, this measure is empty.

New Item Forecast

This measure displays the forecast resulting from a What-if action performed in the workbook.

Current New Item Forecast

This measure displays the approved forecast calculated in batch. If no new item strategy has been selected prior to the batch run, this measure is empty.

New Item Forecast View

In this view you are able to view the forecast of the New Item based on the selected strategy.

Figure 3-21 New Item Forecast View

The screenshot shows the 'New Item Forecast' view. At the top, there are navigation controls including a dropdown menu, a 'Calendar' button with a grid icon, and a 'Product' button with a list icon. Below these, there is a 'Measure (Default)' dropdown and a navigation bar for '1057 Green Bay' with left and right arrows. The main table displays the following data:

	Calendar	3/2/2019	3/9/2019
Measure		↑↓	↑↓
User Forecast Weekly Forecast		0.00	0.00
New Item Forecast Weekly Forecast		0.00	0.00
Current New Item Forecast Weekly Forecast		0.00	0.00

Measures: New Item Forecast View

The New Item Forecast view contains the following measures:

User Forecast

This measure displays the adjusted forecast calculated in batch. If no new item strategy has been selected prior to the batch run, this measure is empty.

New Item Forecast

This measure displays the forecast resulting from a What-if action performed in the workbook.

Current New Item Forecast

This measure displays the approved forecast calculated in batch. If no new item strategy has been selected prior to the batch run, this measure is empty.

View Step

This step contains views that allow you to view item attributes and how attributes define similarities among items.

The available views are:

- [Attribute Value View](#)
- [Similarity Score View](#)

Attribute Value View

This view displays attributes by product.

Figure 3-22 Attribute Value View

The screenshot shows the 'Attribute Value' view interface. At the top, there are controls for 'Product Attributes' and 'Like Product'. Below these is a breadcrumb trail: '< 1254768 - PL - 100% Columbian Non-Flavored Regu... @ >'. The main table has columns for 'Product Attributes', 'Brand', 'Brand Tier', 'Format Size', 'Manufacturing Pr...', 'Roast', 'Segment', 'Subcategory', and 'Trade Type'. The 'Trade Type' column is highlighted in blue. The data row shows: 'Product Attribute of the Like Product', 'PI', 'Value', '12 Oz', 'Non Organic', '100 Columbian', 'Regular Caffeinated', 'Ground', and 'Non Free Trade'.

Product Attributes	Brand	Brand Tier	Format Size	Manufacturing Pr...	Roast	Segment	Subcategory	Trade Type
Product Attribute of the Like Product	PI	Value	12 Oz	Non Organic	100 Columbian	Regular Caffeinated	Ground	Non Free Trade

Measures: Attribute Value View

The Attribute Value view contains the following measure:

Product Attribute

This measure displays the attributes of an item.

Similarity Score View

In this view you can review the similarity scores between new and existing items. This view has a PQD defined, so you can filter the Product hierarchy to show only positions corresponding to New Items.

Figure 3-23 Similarity Score View

Product	Similarity Score
1234768 - PL - 100% Columbian Non-Flavored Regular - Ground - 12 oz Can	0.67
1234769 - PL - French Roast Non-Flavored Regular - Ground - 12 oz Bag	0.70
1234770 - PL - French Roast Non-Flavored Regular - Whole - 12 oz Bag	0.67
1234771 - PL - Breakfast Roast Non-Flavored Regular - Whole - 12 oz Bag	0.67
1234772 - PL - Medium Roast Non-Flavored Regular - Ground - 12 oz Bag	0.00
1234773 - PL - Dark Roast Non-Flavored Regular - Ground - 12 oz Bag	0.70
1234774 - PL - French Roast Non-Flavored Decaf - Ground - 12 oz Bag	0.67
1234775 - PL - Breakfast Roast Non-Flavored Decaf - Ground - 12 oz Bag	0.67
1234776 - PL - 100% Columbian Non-Flavored Regular - Whole - 12 oz Bag	0.67
1234777 - PL - 100% Columbian Non-Flavored Decaf - Ground - 12 oz Bag	0.67

Measures: Similarity Score View

The Similarity Score view contains the following measures:

Similarity Scores

This measure displays the similarity scores among new and existing items.

What-if Similarity Scores

Similarity Scores are calculated based on item attributes and their weights. The weights can be adjusted in the New Item Attributes view. This triggers the recalculation of the similarity scores calculation. This measure displays the resulting scores.

4

Forecast Setup Task

This chapter describes the Forecast Setup task for RDF Cloud Service.

Forecast Setup Workspaces, Steps, and Views

The following table lists the workspaces, steps, and views for the Forecast Setup task.

Workspace	Step	Views
Forecast Setup Workspace	General Step	Basic Parameters View Advanced Parameters View Intermediate Level View Final Level View
	Exception Management Step	Basic Parameters View Intermediate Level View Final Level View
	Flexible Grouping Step	Group Label View Group Assignments View

Forecast Setup Workspace

The Forecast Setup workspace allows you access to all of the views listed in [Forecast Setup Workspace](#).

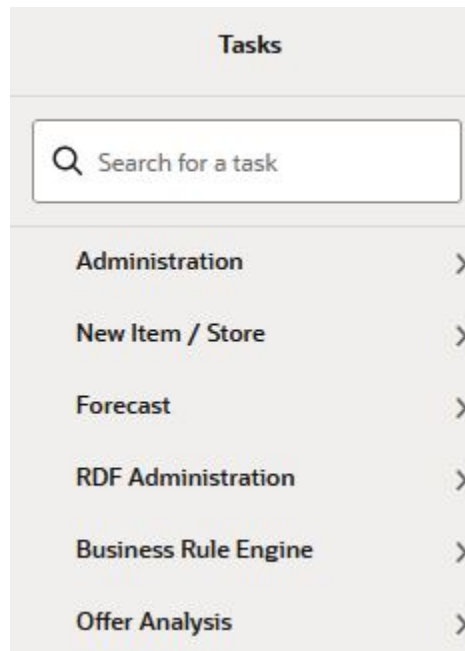
The workspace is intended for the business user, who sets high level forecast parameters such as forecast length, start, or end. It is also the place to select adjustment and approval strategies through the exception management capabilities provided by RPAS.

For details on forecasting algorithms and how to tune analytical parameters, refer to the *Oracle Retail Science Platform User Guide*.

To build the Forecast Setup workspace, perform these steps:

1. From the left sidebar menu, click the Task Module to view the available tasks.

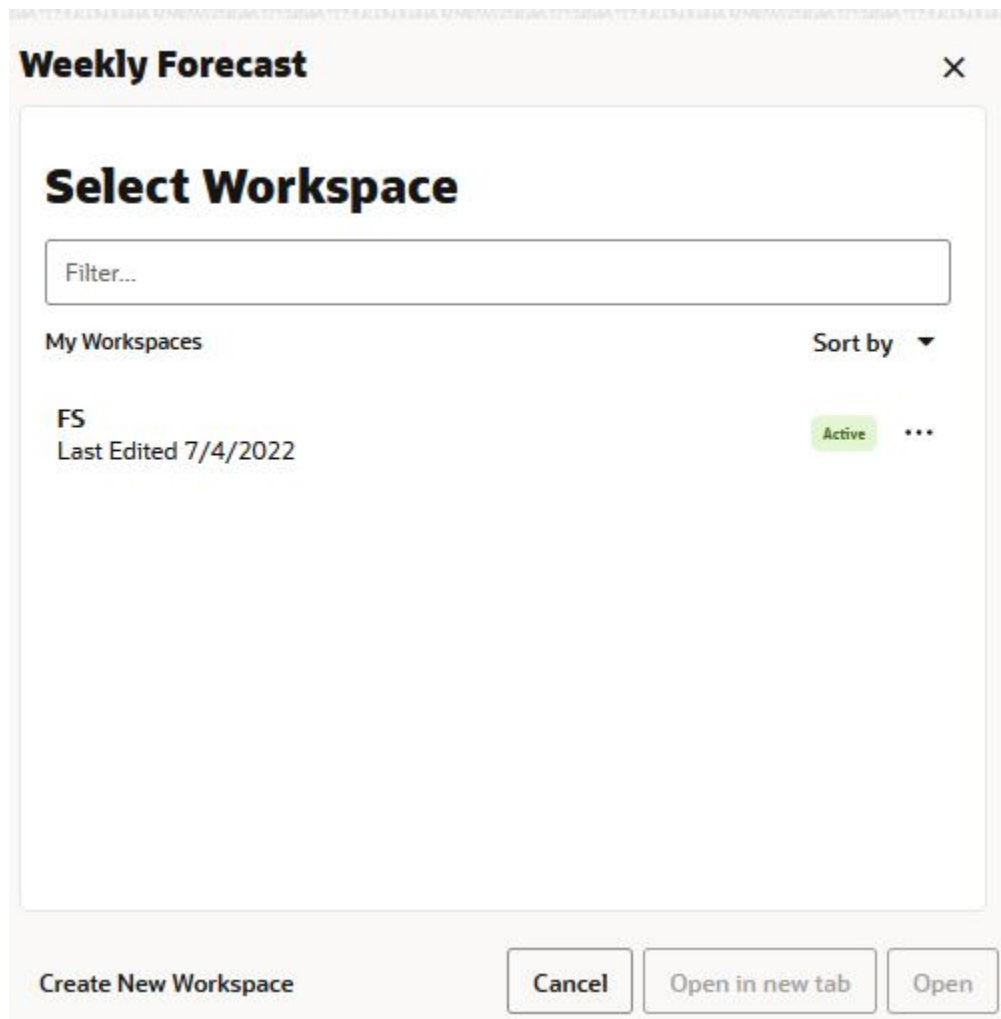
Figure 4-1 Task Module



2. Click the **Forecast** activity and then click **Setup** to access the available workspaces.
3. Click **Weekly Forecast**. The wizard opens.

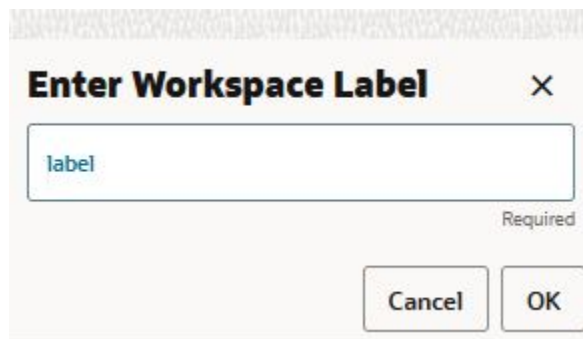
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 4-2 Weekly Forecast Wizard



4. Enter a name for your new workspace in the label text box and click **OK**.

Figure 4-3 Enter Workspace Label



5. The Workspace wizard opens. Select the products you want to work with and click **Next**.

Figure 4-4 Workspace Wizard: Select Products

Select Products

Levels & Positions

Company		Label	
<input type="checkbox"/>	Level	<input type="checkbox"/>	Label
<input type="checkbox"/>	Company	<input type="checkbox"/>	1312Casual*
<input type="checkbox"/>	Division	<input type="checkbox"/>	1322Casual*
<input type="checkbox"/>	Group	<input checked="" type="checkbox"/>	Coffee
<input type="checkbox"/>	Department	<input type="checkbox"/>	Coffee Maker
<input checked="" type="checkbox"/>	Class	<input type="checkbox"/>	Missy Sweaters
<input type="checkbox"/>	Subclass	<input type="checkbox"/>	Missy Tops
<input type="checkbox"/>	Grandparent		
<input type="checkbox"/>	Parent		
<input type="checkbox"/>	Item		

6. Select the locations you want to work with and click **Finish**.

Figure 4-5 Workspace Wizard: Select Locations

Select Locations

Levels & Positions

Company		Label
<input type="checkbox"/>	Level	<input type="checkbox"/> Label
<input type="checkbox"/>	Company	<input type="checkbox"/> 11 Southeastern US
<input type="checkbox"/>	Chain	<input type="checkbox"/> 12 Northeastern US
<input type="checkbox"/>	Area	<input type="checkbox"/> 13 Midwest US
<input checked="" type="checkbox"/>	Region	<input type="checkbox"/> 14 Northcentral US
<input type="checkbox"/>	District	<input type="checkbox"/> 15 Southwestern US
<input type="checkbox"/>	Store	<input type="checkbox"/> 31 Eastern Canada
		<input type="checkbox"/> 32 Canadian Lakes
		<input type="checkbox"/> 33 Western Canada

- The wizard notifies you that your workspace is being prepared. Successful workspaces are available from the Dashboard.

Figure 4-6 Successful Workspace Build

The screenshot shows the Oracle Dashboard interface. At the top, there's a 'Dashboard' header and a navigation menu with 'Administration' selected. Below the navigation, there are two summary cards: 'Task Status' (1 task, Last 7 days) and 'Active Users' (1 user). A dashed box with a plus sign and 'Edit Dashboard' button is visible. Below these are filters for task status: 'All (4)', 'Scheduled (2)', 'In Progress (0)', 'Completed (2)', and 'Failed (0)'. A 'Task Status' section shows a table with columns for Description, Status, Task Type, Submitted by, Started/Scheduled, Completed, and Record Status. The table contains two rows: one for 'ss' (Success) and one for 'Health-Check: Pendo Task' (Scheduled). On the right side, there's a 'Recent Workspaces' section with a 'Manage Workspaces' button and a list of workspace entries including 'Batch Flow Administration', 'FS', 'FR', and 'OA'.

The Forecast Setup workspace is built. This workspace contains these steps:

- [General Step](#)
- [Exception Management Step](#)
- [Flexible Grouping Step](#)

General Step

The available views are:

- [Basic Parameters View](#)

- [Advanced Parameters View](#)
- [Intermediate Level View](#)
- [Final Level View](#)

Basic Parameters View

The Basic Parameters view allows you to view and set high level information. For instance, you can set the approval policy or determine the time frame for which forecast is required.

Figure 4-7 Basic Parameters View

1. Basic Parameters	
Measure	Measure (Default)
Forecast Start Date	
Forecast Length	13
Approval Method	Recent Sales vs

Measures: Basic Parameters View

The Basic Parameters view contains the following measures:

Forecast Start Date

This is the starting date of the forecast. If no value is specified at the time of forecast generation, the system uses the data/time at which the batch is executed as the default value. If a value is specified in this field and it is used to successfully generate the batch forecast, this value is cleared.

Forecast Length

The Forecast Length is used with the Forecast Start Date to determine forecast horizon. The forecast length is based on the calendar dimension of the final-level. For example, if the forecast length is to be 10 weeks, the setting for a final-level at day is 70 (10 x 7 days).

Approval Method

This field is a list from which you select the default automatic approval policy for forecast items. Valid values are:

- Manual

The system-generated forecast is not automatically approved. Forecast values must be manually approved by accessing and amending the Forecast Review view

- **Automatic**
The system-generated quantity is automatically approved as is.
- **By Alert**
This list of values may also include any Forecast Approval alerts that have been configured for use in the forecast approval process. Alerts are configured during the implementation and can be enabled to be used for Forecast Approval in the Enable Alert for Forecast Approval view. Refer to the Oracle Retail Predictive Application Server Configuration Tools User Guide for more information on the Alert Manager. The Alert Parameters view contains a list and descriptions of available alerts, and for which level (causal/baseline) that they are designed for.

Advanced Parameters View

The Advanced Parameters view allows you to set default values for parameters that are less frequently accessed, such as History length or measures affecting cumulative interval calculations.

Figure 4-8 Advanced Parameters View

2. Advanced Parameters	
Measure	
Updating Last Week Forecast	Replicate
Interval Lower Ratio	0.30
Interval Upper Ratio	1.00
Adjust Forecast Method	No Adjustment
Run Forecast 01	<input checked="" type="checkbox"/>
History Prerange Length	13
History Length	10

Measures: Advanced Parameters View

The Advanced Parameters view contains the following measures:

History Length

This measure lets you control how many periods are used by the forecast engine when calculating the base demand.

History Prerange Length

This measure lets you control how many calendar positions are showed in the wizard prior to RPAS_TODAY when building the Forecast Review workbook.

The historical positions (before RPAS_TODAY/forecast start date) displayed in the wizard are decided by the number entered here, and the history length used to forecast the level.

If the number displayed here is 10 and the history length is 17, the number of positions before today, are pre-ranged in the wizard to:

$\text{MAX}(\text{History Prerange Length}, \text{History Length}) = \text{MAX}(10, 17) = 17$

Adjust Forecast Method

This measure allows you to choose how to automatically adjust the system generated forecast. The options are:

- **No Adjustment**
No adjustment is made to the system generated forecast
- **Keep Last Change**
If any adjustments were done to the forecast in the previous runs, they are reflected in the Adjusted Forecast measure. In this use case, the total forecast is retained.
- **Keep Last Baseline**
If any adjustments were done in the Adjusted Baseline in the previous runs, they are retained. In this use case. the system calculated peaks are applied on the Adjusted Baseline
- **Keep Last Peak**
If any adjustments were done in the Adjusted Peak measure in the previous runs, they are retained. In this use case, the adjusted peaks are applied on the system calculated baseline.

Updating Last Week Forecast

This field is a list from which you can select the method for updating the Approved Forecast for the last specified number of weeks of the forecast horizon. This option is valid only if the Approval Method Override is set to Manual or Approve by alert, and the alert was rejected. The choices are:

- **No change**
When using this method, the last week in the forecast horizon does not have an Approved Forecast value. The number of weeks is determined number of weeks elapsed between the forecast start date and the last approval date.
- **Replicate**
When using this method the last weeks in the forecast horizon are forecast using the Approved Forecast for the week corresponding to the last approval date.
- **Use Forecast**
When using this method, the System Forecast for the last weeks in the forecast horizon is approved.

Interval Lower Ratio

The value entered in this field multiplied by the forecast represents the lower bound of the confidence interval for a given period in the forecast horizon.

Interval Upper Ratio

The value entered in this field multiplied by the forecast represents the upper bound of the confidence interval for a given period in the forecast horizon.

Run Forecast

This field lets you specify if the forecast should be run for this final level. This is useful if multiple final levels are available, and the need is to forecast only a subset of them.

Intermediate Level View

It allows you to view and set high level information, but below the global settings. For instance, you can select the approval policy or determine the history length used to calculate base demand.

Figure 4-9 Intermediate Level View

	Product	Ground	Instant
Measure		↑	↑
Forecast Length at Intermediate			
Approve Method at Intermediate		▼	▼
Adjust Forecast Method at Intermediate		▼	▼
History Length at Intermediate			

Measures: Intermediate Level View

The Intermediate Level view contains the following measures:

Forecast Length at Intermediate

The Forecast Length is used with the Forecast Start Date to determine forecast horizon. The forecast length is based on the calendar dimension of the final-level. For example, if the forecast length is to be 10 weeks, the setting for a final-level at day is 70 (10 x 7 days).

If the final level is at day, and the forecast length override is specified, it can happen that the week level forecast is generated for an additional week in the future. However, when spread to day, the forecast length is respected.

The previous circumstance covers for the following case. The forecast is generated on a Tuesday, and the forecast length override 14. If a week is starting Monday, the forecast generated at week level is going to be three weeks long. However, it is going to be spread to day for only the desired 14 days.

Approve Method at Intermediate

This field is a list from which you select the default automatic approval policy for forecast items. Valid values are:

- **Manual**
The system-generated forecast is not automatically approved. Forecast values must be manually approved by accessing and amending the Forecast Review view.
- **Automatic**
The system-generated quantity is automatically approved as is.
- **By Alert**
This list of values may also include any Forecast Approval alerts that have been configured for use in the forecast approval process. Alerts are configured during the implementation and can be enabled to be used for Forecast Approval in the Enable Alert for Forecast Approval view. Refer to the Oracle Retail Predictive Application Server Configuration Tools User Guide for more information on the Alert Manager. The Alert Parameters view contains a list and descriptions of available alerts, and for which level (causal/baseline) that they are designed for.

Adjust Forecast Method at Intermediate

This measure allows you to automatically adjust the system generated forecast.

The options are:

- **No Adjustment**
No adjustment is made to the system generated forecast
- **Keep Last Change**
If any adjustments were done to the forecast in the previous runs, they are reflected in the Adjusted Forecast measure. In this use case, the total forecast is retained.
- **Keep Last Baseline**
If any adjustments were done in the Adjusted Baseline in the previous runs, they are retained. In this use case. the system calculated peaks are applied on the Adjusted Baseline
- **Keep Last Peak**
If any adjustments were done in the Adjusted Peak measure in the previous runs, they are retained. In this use case, the adjusted peaks are applied on the system calculated baseline.

History Length at Intermediate

This is the override of the History Length in Basic Parameters.

Final Level View

The Final Level view allows you to override some default measures, such as forecast start and end dates, or override the approval policy.

Figure 4-10 Final Level View

4. Final Level		
Product	1234768 - PL - 1...	1234769 - PL - F...
Measure		
Forecast Start Date at Final		
Forecast Length at Final		
Forecast End Date at Final		
Approval Method at Final		
Adjust Forecast Method at Final		
History Length at Final		

Measures: Final Level View

The Final Level view contains the following measures:

History Length at Final

This is the override of the History Length in Basic Parameters.

Forecast Start Date at Final

This is the override of the Forecast Start Date in Basic Parameters.

If the final level is at day, and the forecast length override is specified, it can happen that the week level forecast is generated for an additional week in the future. However, when spread to day, the forecast length is respected.

The previous circumstance covers for the following case. The forecast is generated on a Tuesday, and the forecast length override 14. If a week is starting Monday, the forecast generated at week level is going to be three weeks long. However, it is going to be spread to day for only the desired 14 days.

Forecast Length at Final

This is the override of the Forecast Length in Basic Parameters.

Forecast End Date at Final

This is the override of the Forecast End Date in Basic Parameters.

Adjust Forecast Method at Final

This is the override of the Adjust Forecast Method in Advanced Parameters .

Approval Method at Final

Set only at the final-level, the Approval Method at Final is a list from which you select the approval policy for individual product/location combinations. The options are:

- No at Final
The default approval policy is used
- Manual
The system-generated forecast is not automatically approved. Forecast values must be manually approved by accessing and amending the Forecast Review view
- Automatic
The system-generated quantity is automatically approved as is.

By Alert

This list of values may also include any Forecast Approval alerts that have been configured for use in the forecast approval process. Alerts are configured during the implementation and can be enabled to be used for Forecast Approval in the Enable Alert for Forecast Approval view. Refer to the Oracle Retail Predictive Application Server Configuration Tools User Guide for more information on the Alert Manager. The Alert Parameters view contains a list and descriptions of available alerts, and for which level (causal/baseline) that they are designed for.

Exception Management Step

The available views are:

- [Basic Parameters View](#)
- [Intermediate Level View](#)
- [Final Level View](#)

Basic Parameters View

The Basic Parameters view allows you to view and edit threshold for approval exceptions.

Figure 4-11 Basic Parameters View

Measure	
Alert - Calculation Periods	5
Alert - Error Threshold	0.35
Alert - Average Sales Threshold	1.00
Recent Sales Window	52
Current Period Window	13
Historic Period Window	52
Alert - Causal Peak Factor	1.00

Measures: Basic Parameters View

The Basic Parameters view contains the following measures:

Alert – Calculation Periods

The number stored in this field defines the number of calculations periods used in generating exceptions.

Alert – Error Threshold

This field stores the value that determines if a forecast error is acceptable, or if it needs to be flagged as exception.

Alert – Average Sales Threshold

Threshold used in deciding if average sales are high or low, depending on how they compare against the value.

Alert - Causal Peak Factor

This measure is relevant for promotional forecasting. The current forecast values are divided by the maximum historical demand. If the result is larger than the value of this measure, the forecast may be too large and an exception is triggered

Recent Sales Window

This field determines the time frame over which recent sales are considered in the exception calculations.

Current Period Window

This field stores the number of periods, going back from today, used to calculate various key metrics, such as service level or number of out-of-stock units. This is meant to be for the current periods, so the value should be something reflecting the current state. For instance the current service level could be calculated for the past week, so four or five periods

Historic Service Level Window

This field stores the number of periods, going back from today, used to calculate various key metrics, such as service level or number of out-of-stock units. This is meant to be for the historic level, so the value should be something reflecting a longer past period. For instance the current service level could be calculated for the past year or half year, so twenty six or fifty two periods.

Intermediate Level View

The Intermediate Level view allows you to view and edit threshold for approval exceptions at a level lower than in the Basic Parameters view. A typical level is subclass/region.

Figure 4-12 Intermediate Level View

The screenshot shows the '2. Intermediate Level' view. At the top, there are three filter boxes: 'Product' (with a dropdown arrow, a list icon, and an edit icon), 'Location' (with a list icon, a list icon, and an edit icon), and 'Measure (Default)' (with a dropdown arrow and an edit icon). Below these filters, the 'Location' is set to 'Great Lakes Region'. The main table has columns for 'Product', 'Ground', and 'Instant'. The 'Ground' and 'Instant' columns have upward-pointing arrows. The table lists several measures:

	Product	Ground	Instant
Measure		↑	↑
Alert - Calculation Periods at Intermediate			
Alert - Error Threshold at Intermediate			
Alert - Average Sales Threshold at Intermediate			
Recent Sales Window at Intermediate			
Current Period Window at Intermediate			
Historic Period Window at Intermediate			
Alert - Causal Peak Factor at Intermediate			

Measures: Intermediate Level View

The Intermediate Level View contains the following measures:

Alert – Average Sales Threshold at Intermediate

Threshold used in deciding if average sales are high or low, depending on how they compare against the value.

Alert – Calculation Periods at Intermediate

The number stored in this field defines the number of calculations periods used in generating exceptions.

Alert – Error Threshold at Intermediate

This field stores the value that determines if a forecast error is acceptable, or if it needs to be flagged as exception.

Alert - Causal Peak Factor at Intermediate

This measure is relevant for promotional forecasting. The current forecast values are divided by the maximum historical demand. If the result is larger than the value of this measure, the forecast may be too large and an exception is triggered.

Current Period Window at Intermediate

This field stores the number of periods, going back from today, used to calculate the service level. This is meant to be for the current level, so the value should be something reflecting the current state. For instance the current service level could be calculated for the past week, so four or five periods.

Historic Period Window at Intermediate

This field stores the number of periods, going back from today, used to calculate the service level. This is meant to be for the historic level, so the value should be something reflecting a longer past period. For instance the current service level could be calculated for the past year or half year, so twenty six or fifty two periods.

Recent Sales Window at Intermediate

This field determines the time frame over which recent sales are considered in the exception calculations.

Final Level View

The Final Level view allows you to view and edit threshold for approval exceptions at a levels typically lower than in both the Basic Parameters as well as Intermediate Level views. The intersection may be as low as sku/store.

Figure 4-13 Final Level View

3. Final Level		
Product	1234768 - PL - 1...	1234769 - PL - F...
Measure		
Alert - Average Sales Threshold at Final		
Alert - Calculation Periods at Final		
Alert - Error Threshold at Final		
Alert - Causal Peak Factor at Final		
Recent Sales Window at Final	0	0
Current Period Window at Final	0	0
Historic Period Window at Final	0	0

Flexible Grouping Step

The available views are:

- [Group Label View](#)
- [Group Assignments View](#)

Group Label View

The Group Label view allows you to view and edit the labels of the groups. While RDF CS GA comes with generic labels, like **Time Series Group xyz**, it is in this view where you can assign more meaningful labels. For instance, perhaps the criteria to create a group is to check for sales volume. In this case the groups can be labeled; High, Medium, or Low. Or if the criteria is price, then the labels could be either Premium, Moderate, or Economy

Figure 4-14 Group Label View

Group Levels	class/regn/week f...	scls/chnl/week f...
Time Series Grouping		
Time Series Group 111	High	Premium
Time Series Group 112	Medium	Moderate
Time Series Group 113	Low	Economy

Measures: Group Label View

The Group Label view contains the following measure:

Group Label

This is where you can enter the desired labels.

Group Assignments View

The assignments of product and/or locations to groups is usually done programmatically using some kind of business rules. However, the Group Assignments View allows you to manually assign product or location combinations to certain groups.

For instance, if you want to group products by sales volume, then label the groups as High, Medium, or Low and then assign the relevant merchandise to them.

Figure 4-15 Group Assignments View

2. Group Assignments	
Product	1234768 - PL - 1...
Location	1006 Chicago
	1057 Green Bay
	1058 Madison
	1059 Milwaukee
	1060 Rockford
	1061 Aurora
	1062 Peoria

High

Medium

Low

Measures: Group Assignments View

The Group Assignments view contains the following measure:

Group Assignment Position

Use this to manually assign product or locations to groups.

5

Forecast Review Task

This chapter describes the Forecast Review for RDF Cloud Service.

Forecast Review Workspaces, Steps, and Views

The following table lists the workspaces, steps, and views for the Forecast Review task.

Workspace	Step	Views
Forecast Review Workspace	Approve Step	Forecast Results View Approve Information View Forecast Results Chart View What-If Parameters View Preprocessing Details View

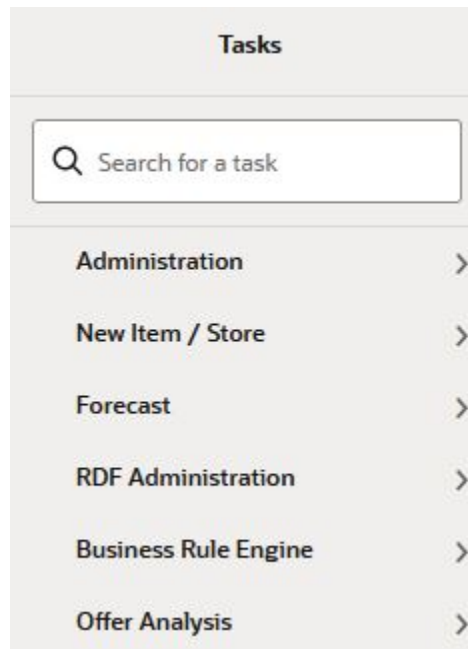
Forecast Review Workspace

The Forecast Review workspace allows you access to all of the views listed in [Forecast Review Workspaces, Steps, and Views](#).

To build the Forecast Review workspace, perform these steps:

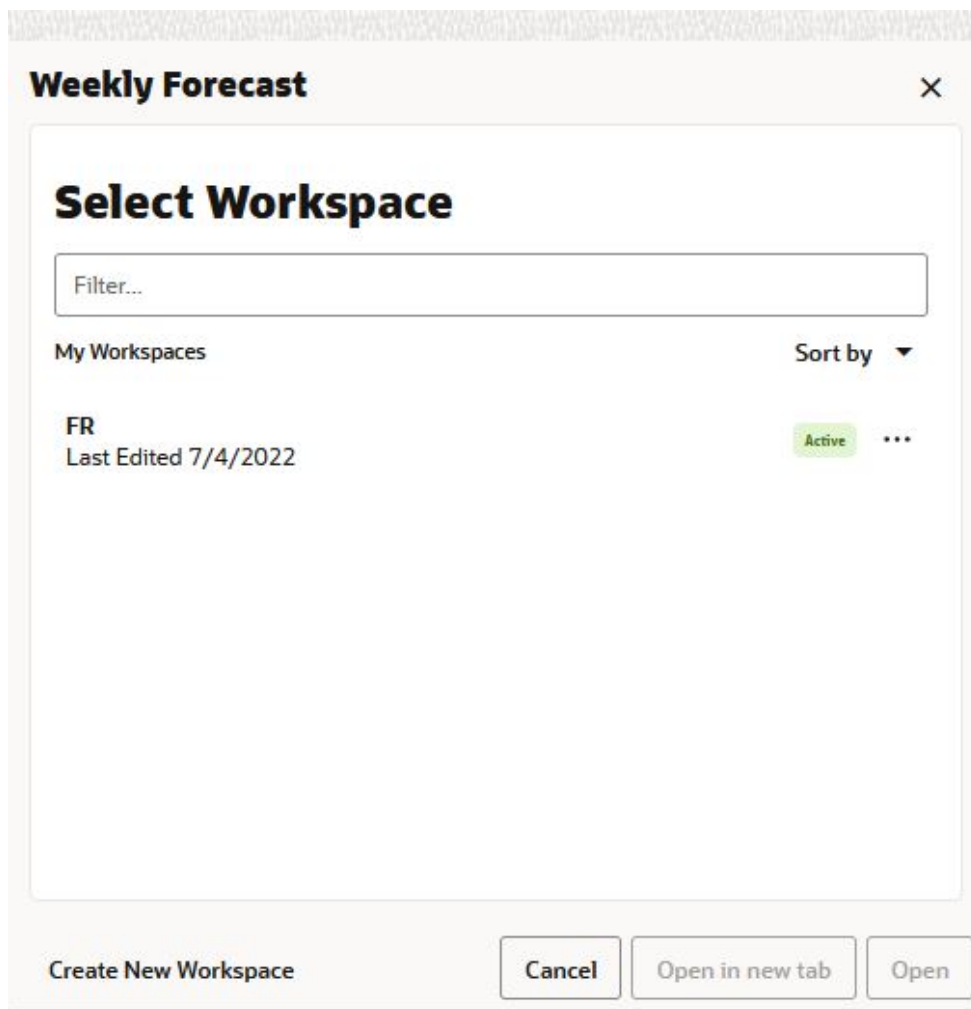
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 5-1 Task Module



2. Click the **Forecast** activity and then click **Review** to access the available workspaces.
3. Click **Weekly Forecast**. The wizard opens.
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 5-2 Weekly Forecast



4. Enter a name for your new workspace in the label text box and click **OK**.

Figure 5-3 Enter Workspace Label

5. The Workspace wizard opens. Select the products you want to work with and click **Next**.

Figure 5-4 Workspace Wizard: Select Products

Select Products

Levels & Positions

Company		Label	
<input type="checkbox"/>	Level	<input type="checkbox"/>	Label
<input type="checkbox"/>	Company	<input type="checkbox"/>	1312Casual*
<input type="checkbox"/>	Division	<input type="checkbox"/>	1322Casual*
<input type="checkbox"/>	Group	<input checked="" type="checkbox"/>	Coffee
<input type="checkbox"/>	Department	<input type="checkbox"/>	Coffee Maker
<input checked="" type="checkbox"/>	Class	<input type="checkbox"/>	Missy Sweaters
<input type="checkbox"/>	Subclass	<input type="checkbox"/>	Missy Tops
<input type="checkbox"/>	Grandparent		
<input type="checkbox"/>	Parent		
<input type="checkbox"/>	Item		

6. The Workspace wizard opens. Select the locations you want to work with and click **Next**.

Figure 5-5 Workspace Wizard: Select Locations

Select Locations

Levels & Positions

Company		Label	
<input type="checkbox"/>	Level	<input type="checkbox"/>	Label
<input type="checkbox"/>	Company	<input type="checkbox"/>	11 Southeastern US
<input type="checkbox"/>	Chain	<input type="checkbox"/>	12 Northeastern US
<input type="checkbox"/>	Area	<input type="checkbox"/>	13 Midwest US
<input checked="" type="checkbox"/>	Region	<input type="checkbox"/>	14 Northcentral US
<input type="checkbox"/>	District	<input type="checkbox"/>	15 Southwestern US
<input type="checkbox"/>	Store	<input type="checkbox"/>	31 Eastern Canada
		<input type="checkbox"/>	32 Canadian Lakes
		<input type="checkbox"/>	33 Western Canada

7. Select the time periods you want to work with and click **Finish**.

Figure 5-6 Workspace Wizard: Select Available Calendar Positions

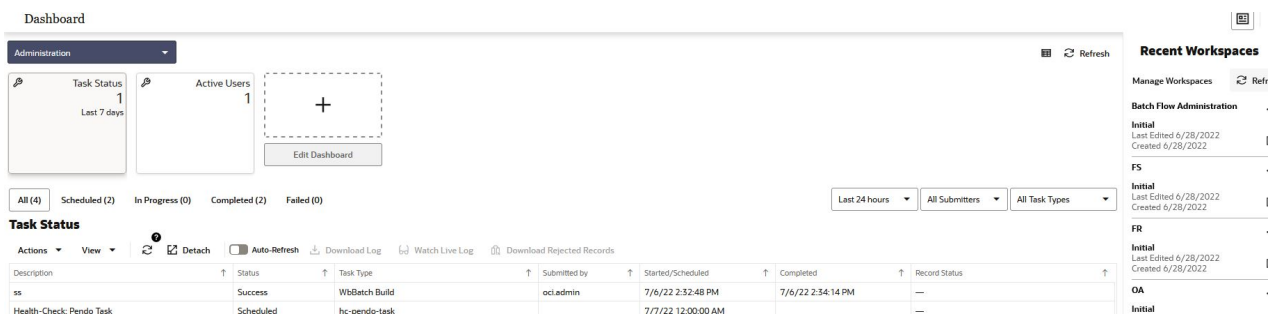
Select Calendar

Levels & Positions

Year		Label	
<input type="checkbox"/>	Level	<input checked="" type="checkbox"/>	Label
<input type="checkbox"/>	Year	<input checked="" type="checkbox"/>	▼ Dec FY2018
<input type="checkbox"/>	Half	<input checked="" type="checkbox"/>	1/5/2019
<input type="checkbox"/>	Quarter	<input checked="" type="checkbox"/>	▼ Jan FY2019
<input checked="" type="checkbox"/>	Month	<input checked="" type="checkbox"/>	1/12/2019
<input checked="" type="checkbox"/>	Week	<input checked="" type="checkbox"/>	1/19/2019
		<input checked="" type="checkbox"/>	1/26/2019
		<input checked="" type="checkbox"/>	2/2/2019
		<input checked="" type="checkbox"/>	▼ Feb FY2019

- The wizard notifies you that your workspace is being prepared. Successful workspaces are available from the Dashboard.

Figure 5-7 Successful Workspace Build



Approve Step

The available views are:

- [Forecast Results View](#)
- [Approve Information View](#)
- [Forecast Results Chart View](#)
- [What-If Parameters View](#)
- [Preprocessing Details View](#)

Forecast Results View

The Forecast Results view shows all information related to forecast generation. It shows the forecast with its components, baseline and promotional peaks. It also shows sales of last year, and cumulative interval information.

The navigation of this worksheet is very conveniently driven by real time or workbook alerts.

Note:

There is a duplicate of this view - [Forecast Results Chart View](#)- that is intended to show the information in chart form.

If not already in table mode, you need to change the view type from chart to pivot table and save the format. This is a one-time action.

Figure 5-8 Forecast Results View

1. Forecast Results			
Calendar	4/13/2019	4/20/2019	
Measure	↑	↑	↑
Adjusted Forecast	153.36	139.84	184.57
Adjusted Baseline	153.36	139.84	184.57
Approved Forecast	153.36	139.84	184.57
Approved System Forecast	153.36	139.84	184.57
Preprocessed Sales	0.00	0.00	0.00
Last Year Sales	163.96	154.00	136.00
Event			
Discount	0.00	0.00	0.00
Last Last Year Sales	0.00	0.00	0.00
System Forecast	153.36	139.84	184.57
System Baseline	153.36	139.84	184.57
What-If Baseline	0.00	0.00	0.00
Adjusted Cumint	46.01	62.26	83.32
Approved Cumint	46.01	62.26	83.32

Measures: Forecast Results View

The Forecast Results view contains the following measures:

Adjusted Baseline

The value in this field initially defaults to the System Baseline if the forecast is automatically approved by the system or through a Forecast Approval Alert. Otherwise, the value in the Adjusted Baseline is different than the System Baseline if:

- Adjusted Baseline has been updated by you.
- Keep Last Changes is selected.
- Update Last Weeks Forecast is set to Replicate.

- Changes to the Adjusted Baseline are automatically approved. The Approval view updates with the date of the adjustment and the name of the user who made the adjustment.
- Demand transference is selected as the adjustment method in forecast setup and significant demand transference effects are available.

Adjusted Cumint

Cumulative Intervals are used in safety stock calculation within allocation and replenishment systems. Its value is similar to a running total of a percentage of the actual forecast and is read-only.

Adjusted Forecast

This is a read-only measure that equals the adjusted baseline plus the adjusted peaks.

Adjusted Peak

The value in this field initially defaults to the System Peak if the forecast is automatically approved by the system or through a Forecast Approval Alert. Otherwise, the value in the Adjusted Peak is different than the System Peak if:

- Adjusted Peak has been updated by you.
- Keep Last Changes is selected.
- Update Last Weeks Forecast is set to Replicate.
- Changes to the Adjusted Peak are automatically approved. The Approval view updates with the date of the adjustment and the name of the user who made the adjustment.

Approved Cumint

Cumulative Intervals are used in safety stock calculation within allocation and replenishment systems. Its value is similar to a running total of a percentage of the actual forecast and is read-only.

Approved Forecast

The Approved Forecast is the forecast quantity that was approved at the time of the task build. The values contained in this measure are read-only. If changes are made to the Adjusted Forecast, then click Calculate to show the new value in the Approved Forecast.

Approved System Forecast

The Approved System Forecast is populated with the last System Forecast approved for a time series:

1. Approval Method set to Automatic Approval
2. Approval Method set to a Forecast Approval Alert and the alert is not triggered
3. Update Last Weeks Forecast is set to Use Forecast

Discount

This is the discount from the full price for which a product was sold at a given location for a given time period.

Event

This measure displays at the item, location, and week level if one or more offers were active. This usually goes together with the Discount measure.

Preprocessed Sales

This read-only measure is the demand data used to generate the forecast. This allows you to compare Actuals to forecast values. The preprocessed sales are based on the historical sales which are undergoing several rounds corrections.

System Baseline

The System Baseline displays the system generated baseline forecast. The values contained in this field are read-only. The system baseline incorporates level, trend, seasonality, but no causal-related information.

System Forecast

This is a read-only measures that equals the system baseline plus the system peaks.

System Peak

The System Peak displays the causal-related peaks. The values contained in this field are read-only.

What-if Baseline

In the What-if Parameters view you can change some forecast parameters and see how they impact the forecast. The resulting forecast is stored in this measure. If you like the change, you can run the Copy What-if custom menu, and the forecast is copied in the Adjusted Forecast measure

Approve Information View

The Approve Information view shows information around the approval process, like which user approved the forecast, when it was approved and potential notes.

Figure 5-9 Approve Information View

2. Approve Information					
	Product	Location			
	Measure (Default)	1006 Chicago			
Product	1234768 - PL - 1...	1234769 - PL - F...	1234770 - PL - F...	1234771 - PL - B...	1234772 - PL - ...
Measure					
Adjust Forecast Method	No Adjustment	No Adjustment	No Adjustment	No Adjustment	No Adjustment
Approve By	fralrt01	fralrt01	fralrt01	fralrt01	fralrt01
Approval Comment					
Violated Exceptions					
Approval Date	03/31/2019	03/31/2019	03/31/2019	03/31/2019	03/31/2019
Approve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Active Forecast Items	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Measures: Approve Information View

The Approve Information view contains the following measures:

Active Forecast Items

This field indicates if an item/store qualifies to have a forecast generated.

Adjust Forecast Method

This measure displays the adjustment method used to programmatically adjust the system forecast. The options are:

- **No Adjustment**
No adjustment is made to the system generated forecast
- **Keep Last Change**
If any adjustments were done to the forecast in the previous runs, they are reflected in the Adjusted Forecast measure. In this use case, the total forecast is retained.
- **Keep Last Baseline**
If any adjustments were done in the Adjusted Baseline in the previous runs, they are retained. In this use case, the system calculated peaks are applied on the Adjusted Baseline
- **Keep Last Peak**
If any adjustments were done in the Adjusted Peak measure in the previous runs, they are retained. In this use case, the adjusted peaks are applied on the system calculated baseline.

Approval Comment

Approval Comment is a field in which notes may be entered regarding the forecast values or any pertinent information for specified product/location combinations.

Approval Date

Approval Date is a read-only field that displays the date that the forecast quantity is approved either automatically during the batch forecast process or when changes are made to the Adjusted Forecast. This information is necessary for RDF Cloud Service to carry out any subsequent processes, such as replenishment procedures.

Approve

This field may be checked if you want to accept the System Forecast quantity for a time series that has yet to be approved. The flag is also activated when a change is made to the Adjusted Forecast and Calculate occurs. When this flag is activated, the time series for an item/location are approved and both the Approval Date and Approved By fields are updated.

Approve By

Approved By is a read-only field that displays the name of the user to approve forecasts for an item/location. This field may be populated with `sys` if the system was set to automatically approve forecasts during the batch forecast process.

Violated Exceptions

This field displays which (if at all) approval exception business rule was violated.

Forecast Results Chart View

The Forecast Results view shows all information related to forecast generation. It shows the forecast with its components, baseline and promotional peaks. It also shows sales of last year, and cumulative interval information.

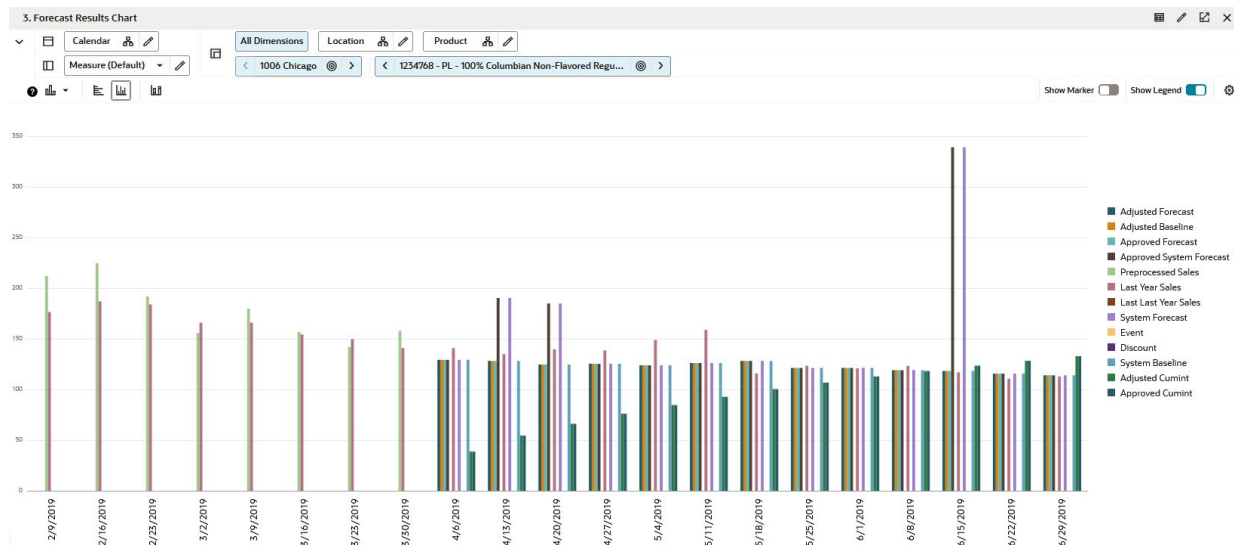
The navigation of this worksheet is very conveniently driven by real time or workbook alerts.

 **Note:**

There is a duplicate of this view - [Forecast Results View](#)- that is intended to show the information in table form.

If not already in chart mode, you need to change the view type from pivot table to chart and save the format. This is a one-time action.

Figure 5-10 Forecast Results Chart View



Measures: Forecast Results Chart View

The Forecast Results Chart view contains the following measures:

Adjusted Baseline

The value in this field initially defaults to the System Baseline if the forecast is automatically approved by the system or through a Forecast Approval Alert. Otherwise, the value in the Adjusted Baseline is different than the System Baseline if:

- Adjusted Baseline has been updated by you.
- Keep Last Changes is selected.
- Update Last Weeks Forecast is set to Replicate.
- Changes to the Adjusted Baseline are automatically approved. The Approval view updates with the date of the adjustment and the name of the user who made the adjustment.
- Demand transference is selected as the adjustment method in forecast setup and significant demand transference effects are available.

Adjusted Cumint

Cumulative Intervals are used in safety stock calculation within allocation and replenishment systems. Its value is similar to a running total of a percentage of the actual forecast and is read-only.

Adjusted Forecast

This is a read-only measure that equals the adjusted baseline plus the adjusted peaks.

Adjusted Peak

The value in this field initially defaults to the System Peak if the forecast is automatically approved by the system or through a Forecast Approval Alert. Otherwise, the value in the Adjusted Peak is different than the System Peak if:

- Adjusted Peak has been updated by you.
- Keep Last Changes is selected.
- Update Last Weeks Forecast is set to Replicate.
- Changes to the Adjusted Peak are automatically approved. The Approval view updates with the date of the adjustment and the name of the user who made the adjustment.

Approved Cumint

Cumulative Intervals are used in safety stock calculation within allocation and replenishment systems. Its value is similar to a running total of a percentage of the actual forecast and is read-only.

Approved Forecast

The Approved Forecast is the forecast quantity that was approved at the time of the task build. The values contained in this measure are read-only. If changes are made to the Adjusted Forecast, then click Calculate to show the new value in the Approved Forecast.

Approved System Forecast

The Approved System Forecast is populated with the last System Forecast approved for a time series:

1. Approval Method set to Automatic Approval
2. Approval Method set to a Forecast Approval Alert and the alert is not triggered
3. Update Last Weeks Forecast is set to Use Forecast

Discount

This is the discount from the full price for which a product was sold at a given location for a given time period.

Event

This measure displays at the item, location, and week level if one or more offers were active. This usually goes together with the Discount measure.

Preprocessed Sales

This read-only measure is the demand data used to generate the forecast. This allows you to compare Actuals to forecast values. The preprocessed sales are based on the historical sales which are undergoing several rounds corrections.

System Baseline

The System Baseline displays the system generated baseline forecast. The values contained in this field are read-only. The system baseline incorporates level, trend, seasonality, but no causal-related information.

System Forecast

This is a read-only measures that equals the system baseline plus the system peaks.

System Peak

The System Peak displays the causal-related peaks. The values contained in this field are read-only.

What-if Baseline

In the What-if Parameters view you can change some forecast parameters and see how they impact the forecast. The resulting forecast is stored in this measure. If you like the change, you can run the Copy What-if custom menu, and the forecast is copied in the Adjusted Forecast measure

What-If Parameters View

The What-If Parameters view allows you to adjust some forecast parameters and immediately view the effects on the forecast in the Forecast Results view.

If you like the new adjusted forecast, you first have to Approve the forecast to get the forecast in the approved forecast measure. Next you have to Commit to update the database with the approved forecast as well as with the What-if forecast parameters settings. These parameters are used the next time the forecast batch is run.

Parameters that can be adjusted will affect base demand as well as total forecast.

Figure 5-11 What-If Parameters View

4. What-if Parameters			
Product	1234768 - PL - 1...	1234769 - PL - F...	1234770 - PL - F...
Measure			
What-if Forecast Start Date			
What-if Forecast Length			
What-if Forecast End Date			
What-if History Length			
What-if	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
What-if Base Demand	0.00	0.00	0.00
What-if Forecast Length Requested	0	0	0
What-if Forecast Start Date Requested			
What-if History Length Requested			
Copy to Adjusted	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Measures: What-If Parameters View

The What-If Parameters view contains the following measures:

What-if

This Boolean measures specifies if the user can perform what-if. If it is unchecked, no what-if is triggered. To perform what-if you need to select at least one of the following measures:

- [What-if Forecast Length](#)
- [What-if Forecast Start Date](#)
- [What-if History Length](#)

If the What-if flag is on, you can run it by clicking on the What-if custom menu.

Copy to Adjusted

After you are finished adjusting the parameters, you can either return reviewing the forecast or you can make some of the changes stick. For this to happen, enable this measure and run the Copy to Adjusted custom menu to copy the forecast generated using What-if parameters in the Adjusted Forecast measure from the Forecast Results view.

What-if Base Demand

This measure displays the value for the base demand based on the new history length.

What-if Forecast End Date

This measure displays the date based on the entries in the Forecast Start Date and Forecast Length. Forecast End Date = Forecast Start Date + Forecast Length.

What-if Forecast Length

This measure lets you specify a forecast length, which is likely not the default forecast end date less forecast start date used in batch. The value used will be reflected in the Forecast End Date measure.

What-if Forecast Length Requested

This measure displays the requested forecast length. This is useful, because after running the What-if custom menu, the What-if Forecast Length measure will be blanked out. It is this measure where you keep track of the latest forecast length used.

What-if Forecast Start Date

This measure lets you specify a different forecast start date than the default used in batch, which is RPAS_TODAY.

What-if Forecast Start Date Requested

This measure displays the requested forecast start date. This is useful, because after running the What-if custom menu, the What-if Forecast Start Date measure will be blanked out. It is this measure where you keep track of the latest forecast start date used.

What-if History Length

This measure lets you specify the number of periods used to calculate the base demand.

What-if History Length Requested

This measure displays the requested history length. This is useful, because after running the What-if custom menu, the What-if History Length measure will be blanked out. It is this measure where you keep track of the latest history length used.

Preprocessing Details View

The Preprocessing Details view shows all necessary information to determine how the loaded sales were transformed into unconstrained demand. You can review the numbers after each step, and also have the possibility to override the total demand. Unconstrained demand is what an item would have sold at a location without the influence of any outside factor. These factors can include:

- Out of stock situations where an item would have likely sold more
- Outliers like fatty fingers or Software bugs
- Promotions that can boost sales
- Weather that can boost sales (water during a hurricane) or lower them (BBQ items for a rainy day)

For details on how the corrections are made refer to the *Oracle Retail Science Platform User Guide*.

Figure 5-12 Preprocessing Details View

5. Preprocessing Details					
Calendar	2/9/2019	2/16/2019	2/23/2019	3/2/2019	3/9/2019
Measure	↑	↑	↑	↑	↑
Depromote Adjustment	0.00	0.00	0.00	0.00	0.00
Outage Adjustment	0.00	0.00	0.00	0.00	0.00
Outlier Adjustment	0.00	0.00	0.00	0.00	0.00
Outage Indicator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Promotion Indicator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Baseline Sales	212.00	225.00	192.00	156.00	180.00
Historical Discount	0.00	0.00	0.00	0.00	0.00
Historical Event					
Outlier Indicator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Raw Sales	212.00	225.00	192.00	156.00	180.00
Preprocessed Sales	212.00	225.00	192.00	156.00	180.00
User Override	-1.00	-1.00	-1.00	-1.00	-1.00

Measures: Preprocessing Details View

The Preprocessing Details view contains the following measures:

Baseline Sales

This measure represents the demand that was sold at a location without the influence of any outside factor.

Depromote Adjustment

This measure displays the units that were removed from the historical sales, because they were caused by the lift in demand due to one or more offers.

Historical Discount

When the Historical Discount or Historical Event measures are not blank, it is likely that the Promotion Indicator is On, and the Depromote Adjustment will also have a non-zero value.

Historical Event

When the Historical Discount or Historical Event measures are not blank, it is likely that the Promotion Indicator is On, and the Depromote Adjustment will also have a non-zero value.

Outage Adjustment

This measure displays the units that were added to the historical sales, because they were caused by the artificial drop in demand due to stockouts.

Outage Indicator

This measure is either loaded or calculated by the rules in the custom menu. It is used during the pre-processing run that corrects sales for lost sales.

Outlier Adjustment

This measure displays the units that were added to the historical sales, because they were caused by the artificial drop in demand due unusual events, like human error, or extreme bottle water sales during a hurricane.

Outlier Indicator

This measure is either loaded or calculated by the rules in the custom menu. It is used during the pre-processing run that corrects the sales for outliers.

Preprocessed Sales

This measure represents the demand – including promotion and offer data that was sold at a product/location/calendar. If configured properly, the stockout and outliers impact is removed.

Promotion Indicator

This measure is usually calculated as the **OR** of all available offers that are active for a product/location/calendar combination. It is used during the preprocessing run that removes promotional sales.

Raw Sales

This measure is loaded and it represents the historical sales at a product/location/calendar period level. It is different from demand because it may be constrained by stockouts, outliers, weather, and so on.

User Override

After reviewing all the above measures, this is the place to override the demand at the product/location/calendar level. This can be useful for special cases (introduction of key items) as well as extreme situations when entire departments were hurt by natural events, like a pandemic.

6

RDF Administration Task

This chapter describes the RDF batch flow management for RDF Cloud Service.

Batch Flow Administration Workspace, Step, and View

The following table lists the workspace, step, and view for the RDF Administration task.

Workspace	Step	Views
Batch Flow Administration Workspace	Batch Flow Management Step	Batch Flow Management View

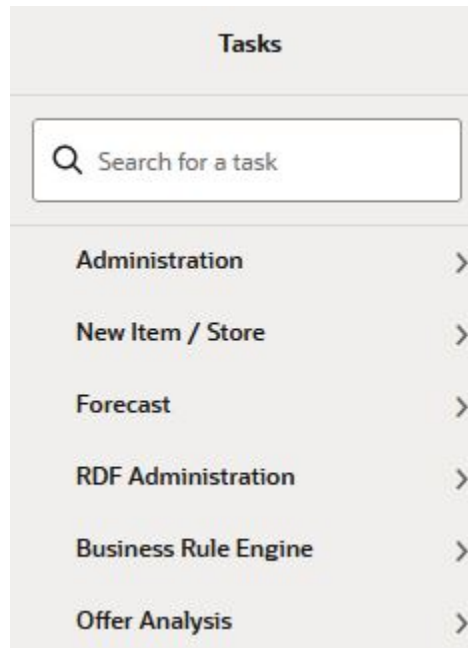
Batch Flow Administration Workspace

The Batch Flow Administration workspace allows you access to all of the views listed in [Batch Flow Administration Workspace, Step, and View](#).

To build the Batch Flow Administration workspace, perform these steps:

1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 6-1 Task Module



2. Click the **RDF Administration** activity and then click **Batch Flow Administration**. This workbook does not have a wizard. A workbook is being prepared. Successful workspaces are available from the Dashboard.

The Batch Flow Administration workspace is built. This workspace contains this step: [Batch Flow Management Step](#).

Batch Flow Management Step

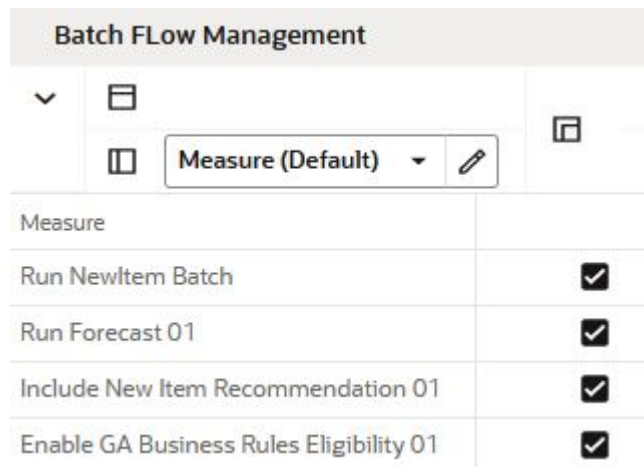
This step includes the [Batch Flow Management View](#).

Batch Flow Management View

This view contains measures that control what steps should be run doing batch. It is information that is passed to the OAT. For instance, if in the OAT you select to run forecast, by default the task runs forecast for all available final levels. However, if in the Batch Flow Management you enable Run Forecast 01, and disable Run Forecast for other levels - like 03, the OAT will only run forecast for final level 01.

The reason why some steps may be skipped has to do with the tuning of the system during the implementation. If one step is fine-tuned, for instance selecting the forecast strategy for new items, for the sake of saving time, the implementer may want to skip non-relevant steps, like running forecast for established items.

Figure 6-2 Batch Flow Management View



Batch Flow Management	
Measure	
Run Newitem Batch	<input checked="" type="checkbox"/>
Run Forecast 01	<input checked="" type="checkbox"/>
Include New Item Recommendation 01	<input checked="" type="checkbox"/>
Enable GA Business Rules Eligibility 01	<input checked="" type="checkbox"/>

Measures: Batch Flow Management

The Batch Flow Management view contains the following measures:

Include New Item Recommendation

If selected, the forecast for New Items is generated.

Run New Item Batch

If selected, this step calculates the New Item setup. For example, similarities, New Item recommendations, and so on.

Run Forecast

If selected, the forecast for the selected final levels is generated.

Enable GA Business Rules Eligibility

If selected, this makes sure that only forecastable items are handled by the business rule engine in the approval process. If deselected, the approval rules set up in the business rule engine become invalid. However, you can write custom rules to decide what items should go through the approval process. For instance a rule can be; ***Any item with average sales of less than 1 unit per month is automatically approved.*** The result of the rule should be stored in the Eligible MASK per Rule Group measure. The measure name is: `rulgeligmask_CF`. For additional details, refer to the *Oracle Retail Demand Forecasting Cloud Service Implementation Guide*.

7

Business Rule Engine

This chapter describes the tasks that comprise the Business Rule Engine for RDF Cloud Service, including:

- [Attributes Task](#)
- [Business Rule Group Admin Task](#)
- [Business Rule Setup Task](#)

Attributes Task

This section describes the Attributes task for RDF Cloud Service.

Attributes Workspaces, Steps, and Views

The following table lists the workspaces, steps, and views for the Attributes task.

Workspace	Step	Views
Attributes Workspace	Review Step	Location Attributes View Product Attributes View Product/Location Attributes View

Attributes Workspace

The Attributes workspace allows you access to all of the views listed in [Attributes Workspaces, Steps, and Views](#).

The Attributes workspace allows you to review attributes that you can use in rules using the Business Rule engine. The attributes can be product specific, like brand or class. They can also be location specific, like store format, or number of stores an item is sold in. Finally, they can product/location specific, like average sales, or the vendor from where the products were sourced for a specific store.

The attribute data types are:

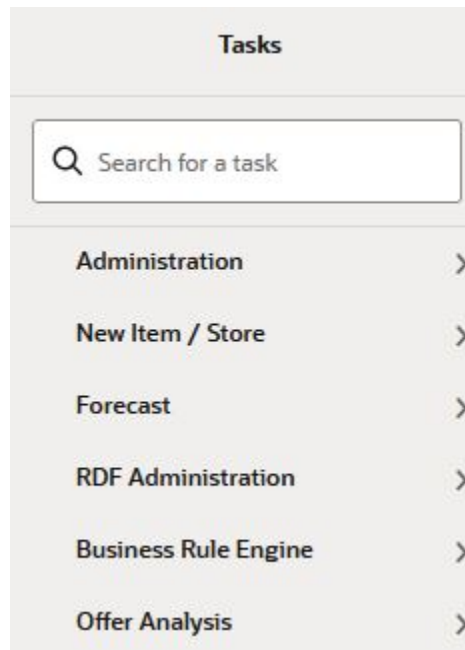
- **String** - brand, region
- **Date** - like store open date, forecast end date
- **Numeric** - historical average sales, coefficient of variance

The sources of the attribute information can come from various source. They can be loaded or calculated. RDF CS GA has a set of calculated attributes that can be easily expanded to including any retailer-relevant attributes. For additional technical information on how the attributes are managed, refer to the *Oracle Retail Demand Forecasting Cloud Service Implementation Guide*.

To build the Attributes workspace, perform these steps:

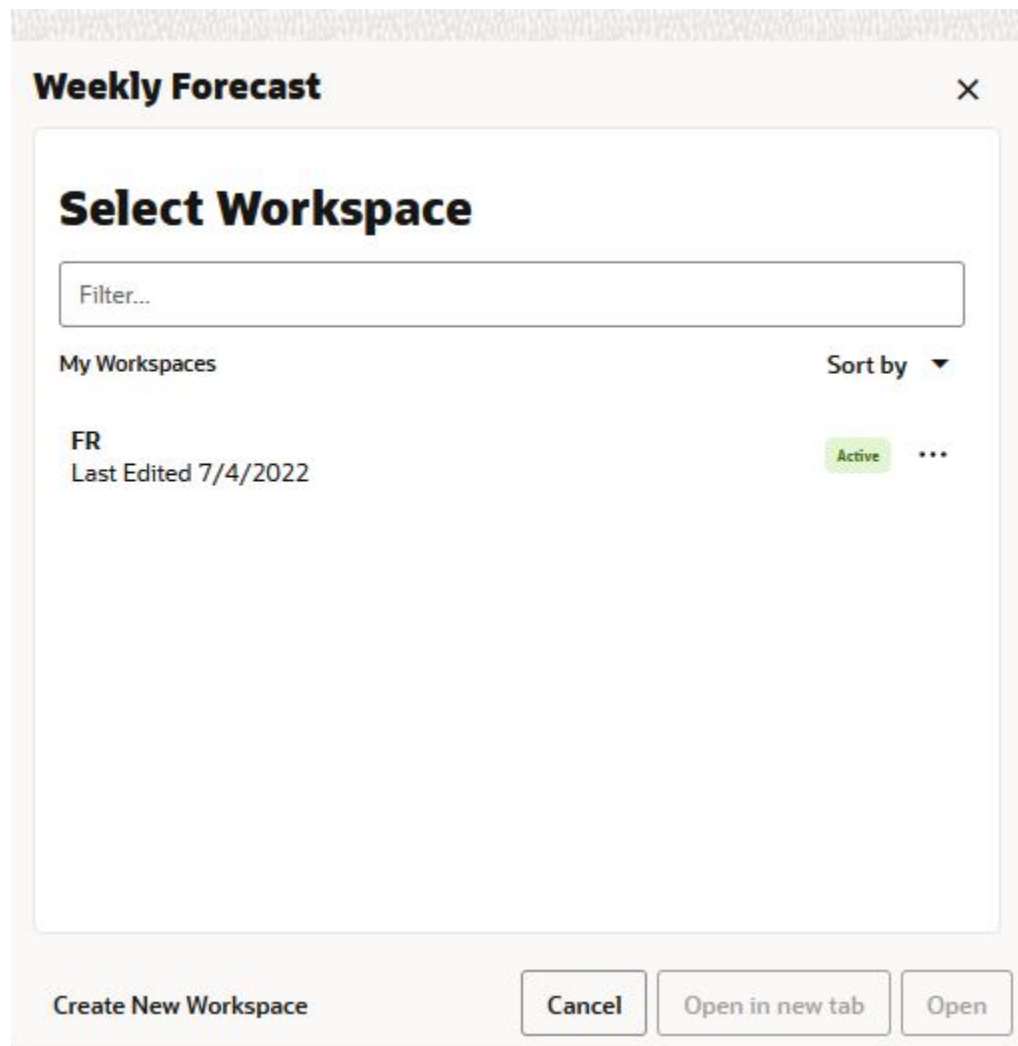
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 7-1 Task Module



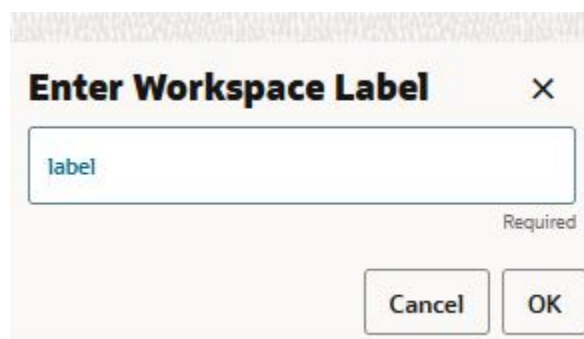
2. Click the **Business Rule Engine** activity and then click **Attributes** to access the available workspaces.
3. Click **Weekly Forecast**. The wizard opens.
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 7-2 Weekly Forecast Wizard



4. Enter a name for your new workspace in the label text box and click **OK**.

Figure 7-3 Enter Workspace Label



5. The Workspace wizard opens. Select the locations you want to work with and click **Next**.

Figure 7-4 Workspace Wizard: Select Locations

Select Locations

Levels & Positions

Company		Label	
<input type="checkbox"/>	Level	<input type="checkbox"/>	Label
<input type="checkbox"/>	Company	<input type="checkbox"/>	11 Southeastern US
<input type="checkbox"/>	Chain	<input type="checkbox"/>	12 Northeastern US
<input type="checkbox"/>	Area	<input type="checkbox"/>	13 Midwest US
<input checked="" type="checkbox"/>	Region	<input type="checkbox"/>	14 Northcentral US
<input type="checkbox"/>	District	<input type="checkbox"/>	15 Southwestern US
<input type="checkbox"/>	Store	<input type="checkbox"/>	31 Eastern Canada
		<input type="checkbox"/>	32 Canadian Lakes
		<input type="checkbox"/>	33 Western Canada

6. Select the products you want to work with and click **Finish**.

Figure 7-5 Workspace Wizard: Select Products

Select Products

Levels & Positions

Company		Label	
<input type="checkbox"/>	Level	<input type="checkbox"/>	Label
<input type="checkbox"/>	Company	<input type="checkbox"/>	1312Casual*
<input type="checkbox"/>	Division	<input type="checkbox"/>	1322Casual*
<input type="checkbox"/>	Group	<input checked="" type="checkbox"/>	Coffee
<input type="checkbox"/>	Department	<input type="checkbox"/>	Coffee Maker
<input checked="" type="checkbox"/>	Class	<input type="checkbox"/>	Missy Sweaters
<input type="checkbox"/>	Subclass	<input type="checkbox"/>	Missy Tops
<input type="checkbox"/>	Grandparent		
<input type="checkbox"/>	Parent		
<input type="checkbox"/>	Item		

- The wizard notifies you that your workspace is being prepared. Successful workspaces are available from the Dashboard.

Figure 7-6 Successful Workspace Build

The screenshot shows the Oracle dashboard with the following details:

- Dashboard:** Administration menu, Task Status (1), Active Users (1), and an Edit Dashboard button.
- Task Status:**
 - Filters: All (4), Scheduled (2), In Progress (0), Completed (2), Failed (0)
 - Buttons: Actions, View, Detach, Auto-Refresh, Download Log, Watch Live Log, Download Rejected Records
 - Table:

Description	Status	Task Type	Submitted by	Started/Scheduled	Completed	Record Status
ss	Success	WbBatch Build	oci.admin	7/6/22 2:32:48 PM	7/6/22 2:34:14 PM	—
Health-Check: Pendo Task	Scheduled	hc-pendo-task		7/7/22 12:00:00 AM		—
- Recent Workspaces:**
 - Manage Workspaces, Refresh
 - Batch Flow Administration
 - Initial (Last Edited 6/28/2022, Created 6/28/2022)
 - FS (Initial, Last Edited 6/28/2022, Created 6/28/2022)
 - FR (Initial, Last Edited 6/28/2022, Created 6/28/2022)
 - OA (Initial)

The Attributes workspace is built. This workspace contains this step:

- [Review Step](#)

Review Step

The available views are:

- [Location Attributes View](#)

- [Product Attributes View](#)
- [Product/Location Attributes View](#)

Location Attributes View

The Location Attributes View view allows you to review attributes and their values that are location specific.

Figure 7-7 Location Attributes View

Business Rule Attribute	Brand
Measure	↑
Location Based Attribute String	
Location Based Attribute Number	0.00
Location Based Attribute Date	

Measures: Location Attributes View

The Location Attributes View view contains the following measures:

Location Based Attribute String

This measure displays location based attributes that have a string value, such as region, or store format.

Location Based Attribute Number

This measure displays location based attributes that have a numeric value, such as number of products carried in a location, or average sales per store.

Location Based Attribute Date

This measure displays location based attributes that have a date value, such as a store open date.

Product Attributes View

The Product Attributes view allows you to review attributes and their values that are product specific.

Figure 7-8 Product Attributes View

	Business Rule Attribute	Brand	Class
Product			
1234768 - PL - 100% Columbian Non-Flavored Regular - Ground - 12 oz Can		pl	Coffee
1234769 - PL - French Roast Non-Flavored Regular - Ground - 12 oz Bag		pl	Coffee
1234770 - PL - French Roast Non-Flavored Regular - Whole - 12 oz Bag		pl	Coffee
1234771 - PL - Breakfast Roast Non-Flavored Regular - Whole - 12 oz Bag		pl	Coffee
1234772 - PL - Medium Roast Non-Flavored Regular - Ground - 12 oz Bag		pl	Coffee
1234773 - PL - Dark Roast Non-Flavored Regular - Ground - 12 oz Bag		pl	Coffee
1234774 - PL - French Roast Non-Flavored Decaf - Ground - 12 oz Bag		pl	Coffee

Measures: Product Attributes View

The Product Attributes view contains the following measures:

Product Based Attribute String

This measure displays product based attributes that have a string value, such as brand, or class.

Product Based Attribute Number

This measure displays product based attributes that have a numeric value, such as number of locations carrying an item, or average sales per item.

Product Based Attribute Date

This measure displays product based attributes that have a date value, such as item start date.

Product/Location Attributes View

The Product/Location Attributes view allows you to review attributes and their values that are product/location specific.

Figure 7-9 Product/Location Attributes View

Business Rule Attribute	Brand
Product	
1234768 - PL - 100% Columbian Non-Flavored Regular - Ground - 12 oz Can	
1234769 - PL - French Roast Non-Flavored Regular - Ground - 12 oz Bag	
1234770 - PL - French Roast Non-Flavored Regular - Whole - 12 oz Bag	
1234771 - PL - Breakfast Roast Non-Flavored Regular - Whole - 12 oz Bag	
1234772 - PL - Medium Roast Non-Flavored Regular - Ground - 12 oz Bag	

Measures: Product/Location Attributes View

The Product/Location Attributes view contains the following measures:

Product/Location Based Attribute String

This measure displays product/location based attributes that have a string value, such as brand, or price tier.

Product/Location Based Attribute Number

This measure displays product/location based attributes that have a numeric value, such as average sales or error variance.

Product/Location Based Attribute Date

This measure displays product/location based attributes that have a date value, such as item start or end dates.

Business Rule Group Admin Task

This section describes the Business Rule Group Admin task for RDF Cloud Service.

Business Rule Group Admin Workspaces, Steps, and Views

The following table lists the workspaces, steps, and views for the Business Rule Group Admin task.

Workspace	Step	Views
Business Rule Group Admin Workspace	Setup Step	Rule Group Info View Rule Group Active Attribute View Rule Group Scope View

Business Rule Group Admin Workspace

The Business Rule Group Admin workspace allows you access to all of the views listed in [Business Rule Group Admin Workspaces, Steps, and Views](#).

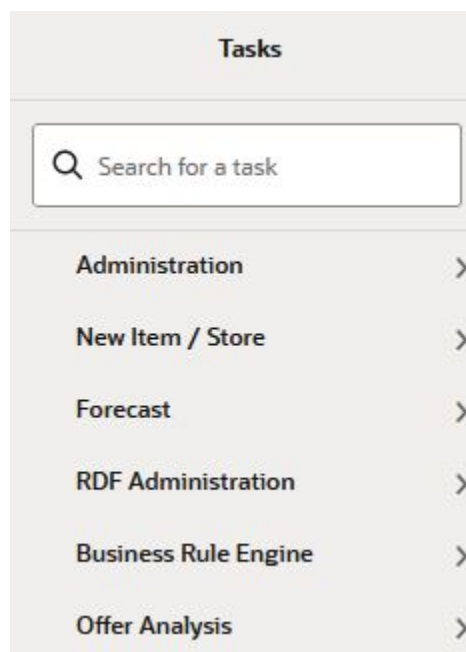
The Business Rule Group Admin sets up the framework to efficiently use the Business Rule Engine. Here you can enable or disable Rule Groups, or can assign attributes to certain rule groups. The workspace is not intended to be used by the forecast analyst on a regular basis. It is more for the Administrator of the solution.

The rule groups can have associated certain types of items to them. For instance, Spring fashion items. For these items, you may not want to enable rule groups.

To build the Business Rule Group Admin workspace, perform these steps:

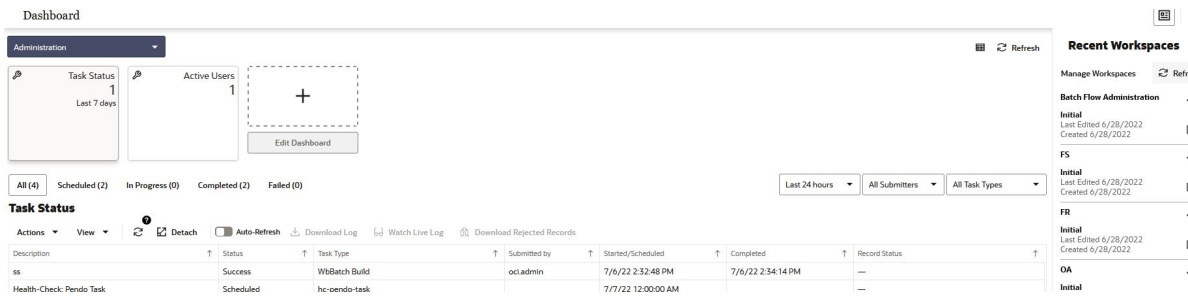
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 7-10 Task Module



2. Click the **Business Rule Engine** activity and then click **Business Rule Management** to access the available workspace.
3. Click **Business Rule Group Admin**.
4. There is no wizard for this task. Successful workspaces are available from the Dashboard.

Figure 7-11 Successful Workspace Build



The Business Rule Group Admin workspace is built. This workspace contains this step:

- [Setup Step](#)

Setup Step

The available views are:

- [Rule Group Info View](#)
- [Rule Group Active Attribute View](#)
- [Rule Group Scope View](#)

Rule Group Info View

The Rule Group Info View view allows you to review attributes and their values that are location specific.

Figure 7-12 Rule Group Info View

1. Rule Group Info						
Measure	Rule Group Type	Rule Group Descr...	Priority Lowerbo...	Priority Upperbo...	Enable Rule Group	
Business Rule						
Beverage - Approval	Approval	Beverage -	1.00	100.00	<input checked="" type="checkbox"/>	
Beverage - Navigation	Navigation	Beverage -	1.00	100.00	<input checked="" type="checkbox"/>	
Men's shoes - Approval	Approval	Men's shoes -	201.00	300.00	<input checked="" type="checkbox"/>	
Men's shoes - Navigation	Navigation	Men's shoes -	201.00	300.00	<input checked="" type="checkbox"/>	

Measures: Rule Group Info View

The Rule Group Info View view contains the following measures:

Rule Group Type

In this measure you can assign a type to your rule groups. Available options in GA are:

- **Approval**— assigns business rules to the approval rule groups to decide what product/locations are approved and which need to be reviewed
- **Navigation** — the product/locations that were not approved are assigned to Navigation rule groups and you decide on the priority that they need to be reviewed.
- **Custom**— **Approval** and **Navigation** are very useful in the approval workflow of the solution. However, the scope of the rule groups in the context of the Business Rule Engine can be expanded to many areas.

Rule Group Description

This measure allows you to type a meaningful description for each rule group, depending on its purpose.

Priority Lowerbound

The rules inside a rule group need to have a priority assigned to them in case of conflicts. This measure sets the lower bound for rule priorities.

Priority Upperbound

The rules inside a rule group need to have a priority assigned to them in case of conflicts. This measure sets the upper bound for rule priorities.

Enable Rule Group

This measure allows you to enable rule groups, or disable them if they became out of scope.

Rule Group Active Attribute View

The Rule Group Active Attribute view allows you to enable attributes for rule groups. The number of attributes can be very high and not all attributes are relevant for all types of merchandise. For instance, you have little use of the flavor attribute when it comes to fashion, or *Neckline* when it comes to hard-line merchandise.

Once you know what type of merchandise is associated with every rule group, you can decide what attributes is relevant to each rule group. This makes the workflow around the business rules more efficient and user friendlier.

Figure 7-13 Rule Group Active Attribute View

Business Rule	Beverage - Appro...	Beverage - Navig...
Business Rule Attribute		
Brand	<input type="checkbox"/>	<input type="checkbox"/>
Brand Tier	<input type="checkbox"/>	<input type="checkbox"/>
Channel	<input type="checkbox"/>	<input type="checkbox"/>
Class	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Collar	<input type="checkbox"/>	<input type="checkbox"/>
Color	<input type="checkbox"/>	<input type="checkbox"/>
Department	<input type="checkbox"/>	<input type="checkbox"/>

Measures: Rule Group Active Attribute View

The Rule Group Active Attribute view contains the following measure:

Rule Group Active Attribute

This measure allows you to select the attributes relevant for every rule group.

Rule Group Scope View

The Rule Group Scope view allows you to define the scope of a rule group in terms of what product/locations may be associated with it.

Figure 7-14 Rule Group Scope View

Location	Catalog	e-Commerce	Great Lakes Region
Product			
Espresso Coffee Maker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ground	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Instant	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
K Cup Coffee	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Measures: Rule Group Scope View

The Rule Group Scope view contains the following measure:

Rule Group Scope

In this measure you can assign products and locations to certain rule groups.

Business Rule Setup Task

This section describes the Business Rule Setup for RDF Cloud Service.

Business Rule Setup Workspaces, Steps, and Views

The following table lists the workspaces, steps, and views for the Business Rule Setup task.

Workspace	Step	Views
Business Rule Setup Workspace	Setup Step	Rule Enable View Rule Condition Setup View Rule Membership View Parameters for Approval View Parameters for Navigation View

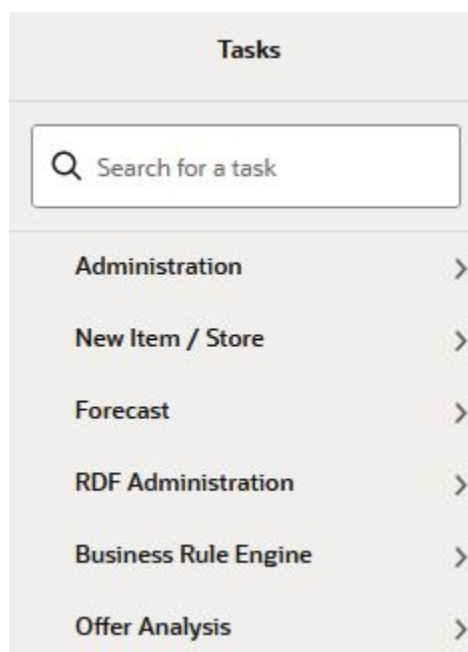
Business Rule Setup Workspace

The Business Rule Setup sets up the framework to efficiently use the Business Rule Engine. Here you can enable or disable Rule Groups, or can assign attributes to certain rule groups. The workspace is not intended to be used by the forecast analyst on a regular basis. It is intended for an Administrator for br-engine.fm.

To build the Business Rule Setup workspace, perform these steps:

1. From the left sidebar menu, click the Task Module to view the available tasks.

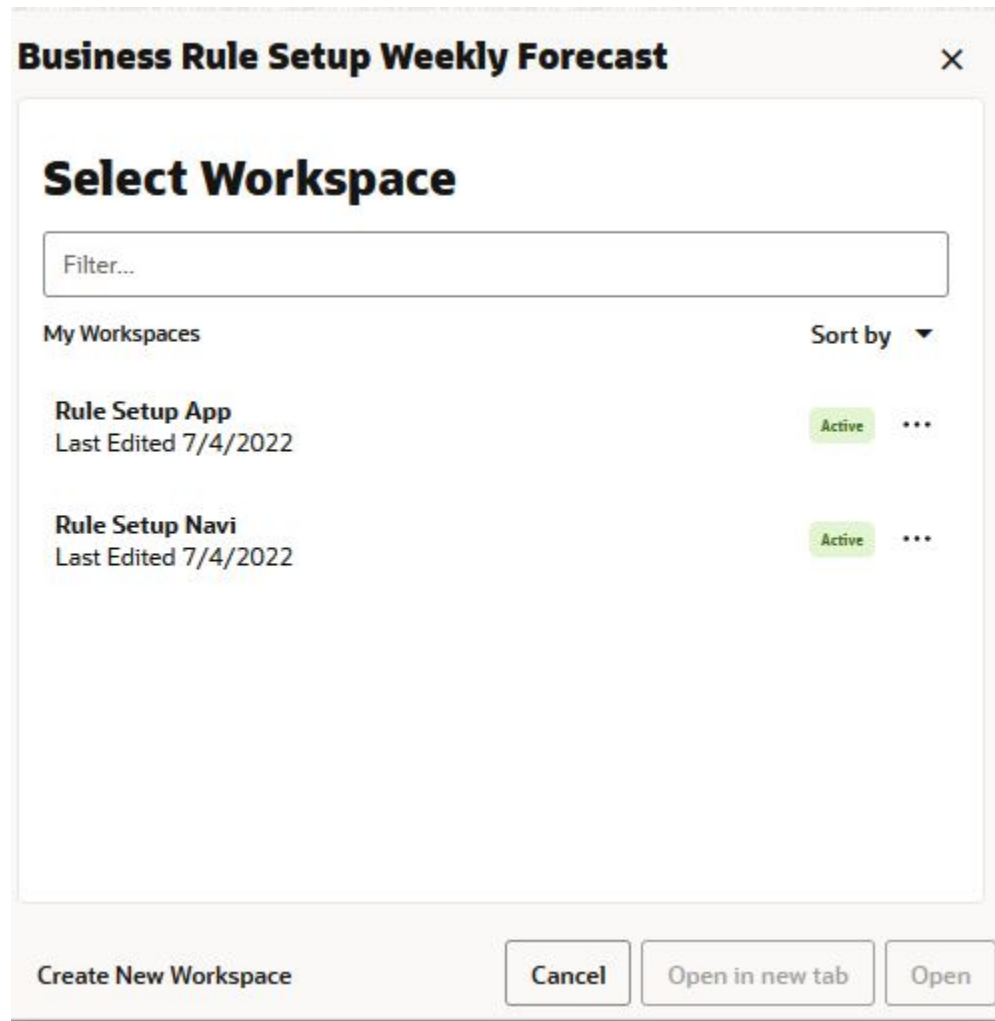
Figure 7-15 Task Module



2. Click the **Business Rule Engine** activity and then click **Business Rule Management** to access the available workspaces.
3. Click **Business Rule Setup**. The wizard opens.

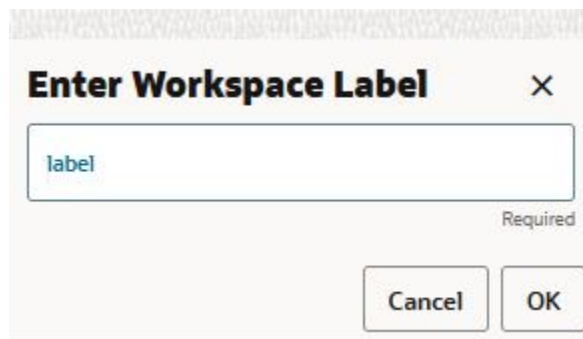
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 7-16 Wizard



4. Enter a name for your new workspace in the label text box and click **OK**.

Figure 7-17 Enter Workspace Label



5. The Workspace wizard opens. Select the Business Rule Group type you want to work with. It is important to click only one of the available options, otherwise you will get a warning and cannot proceed to the next step. Click **Next**.

Figure 7-18 Workspace Wizard: Select Business Rule Group Type

Select Business Rule Group Type

Levels & Positions

Final Level		Label	
<input type="checkbox"/>	Level	<input type="checkbox"/>	Label
<input type="checkbox"/>	Final Level	<input type="checkbox"/>	Approval
<input checked="" type="checkbox"/>	Business Rule Group Type	<input checked="" type="checkbox"/>	Navigation

6. Select the Business Rule Groups you want to work with and click **Next**.

Figure 7-19 Workspace Wizard: Select Business Rule Groups

Select Business Rule Group

Levels & Positions

Business Rule Group		Label	
<input checked="" type="checkbox"/>	Level	<input type="checkbox"/>	Label
<input checked="" type="checkbox"/>	Business Rule Group	<input checked="" type="checkbox"/>	Beverage - Navigation
		<input type="checkbox"/>	Men's shoes - Navigation

7. Select the products you want to work with and click **Next**.

Figure 7-20 Workspace Wizard: Select Products

Select Products

Levels & Positions

Company		Label	
<input type="checkbox"/>	Level	<input type="checkbox"/>	Label
<input type="checkbox"/>	Company	<input type="checkbox"/>	1312Casual*
<input type="checkbox"/>	Division	<input type="checkbox"/>	1322Casual*
<input type="checkbox"/>	Group	<input checked="" type="checkbox"/>	Coffee
<input type="checkbox"/>	Department	<input type="checkbox"/>	Coffee Maker
<input checked="" type="checkbox"/>	Class	<input type="checkbox"/>	Missy Sweaters
<input type="checkbox"/>	Subclass	<input type="checkbox"/>	Missy Tops
<input type="checkbox"/>	Grandparent		
<input type="checkbox"/>	Parent		
<input type="checkbox"/>	Item		

8. Select the locations you want to work with and click **Finish**.

Figure 7-21 Workspace Wizard: Select Locations

Select Locations

Levels & Positions

Company		Label	
<input type="checkbox"/>	Level	<input type="checkbox"/>	Label
<input type="checkbox"/>	Company	<input type="checkbox"/>	11 Southeastern US
<input type="checkbox"/>	Chain	<input type="checkbox"/>	12 Northeastern US
<input type="checkbox"/>	Area	<input type="checkbox"/>	13 Midwest US
<input checked="" type="checkbox"/>	Region	<input type="checkbox"/>	14 Northcentral US
<input type="checkbox"/>	District	<input type="checkbox"/>	15 Southwestern US
<input type="checkbox"/>	Store	<input type="checkbox"/>	31 Eastern Canada
		<input type="checkbox"/>	32 Canadian Lakes
		<input type="checkbox"/>	33 Western Canada

- The wizard notifies you that your workspace is being prepared. Successful workspaces are available from the Dashboard.

Figure 7-22 Successful Workspace Build

The screenshot shows the Oracle Business Rule Setup Dashboard. The main area displays 'Task Status' with a table of tasks. The 'Recent Workspaces' sidebar on the right lists several workspaces: 'Batch Flow Administration', 'FS', 'FR', and 'OA'. The 'Task Status' table shows a successful build for the 'WBatch Build' task.

Description	Status	Task Type	Submitted by	Started/Scheduled	Completed	Record Status
Health-Check: Pendo Task	Scheduled	hc-pendo-task		7/7/22 12:00:00 AM		
ss	Success	WBatch Build	oeladmin	7/6/22 2:32:48 PM	7/6/22 2:34:14 PM	---

The Business Rule Group Admin workspace is built. This workspace contains this step:

- Setup

Setup Step

The available views are:

- [Rule Enable View](#)
- [Rule Condition Setup View](#)
- [Rule Membership View](#)

- [Parameters for Approval View](#)
- [Parameters for Navigation View](#)

Rule Enable View

The Rule Enable view allows you to review attributes and their values that are location specific.

Figure 7-23 Rule Enable View

Measure	Enable	Priority	Start Date	End Date	Rule Description	Rule On/Off
high volume	<input checked="" type="checkbox"/>	1.00			high volume	<input checked="" type="checkbox"/>
low volume	<input checked="" type="checkbox"/>	2.00			low volume	<input checked="" type="checkbox"/>

Measures: Rule Enable View

The Rule Enable view contains the following measures:

Enable

In this measure you can enable or disable the rule. Note that although you decide to enable the rule, other factors also need to hold true. For instance the time you want to enable the rule needs to be within the start and end dates.

Priority

The rule conditions used to assign product/locations may result in product/locations been assigned to more than one rule. The rule priority decides which rule takes precedence. A lower number denotes a higher priority.

Start Date

The date when the rule becomes active. Rarely used in RDF CS, but may be very helpful for planning or replenishment solutions.

End Date

The date when the rule stops being active. Rarely used in RDF CS, but may be very helpful for planning or replenishment solutions.

Rule Description

Here you can enter a description for a rule. For instance if a rule condition is to check for high sellers with stable demand, the rule description could be: **High demand / low variability**.

Rule On/Off

This measure displays the status of a rule.

Rule Condition Setup View

The Rule Condition Setup view allows you to assign items to business based on the conditions you specify.

For the purpose of reviewing the forecast, you may want to group together key items as well as high sellers.

Examples of rule conditions can include:

- If an item is a key item and recent sales are larger than 50 items per week, then group together
- Group all coffee items together, except for private label.
- If class is Coffee and brand is not Private Label, then group together.

RDF CS GA has up to four conditions per rule. How to change this, and for more examples and technical details, refer to the *Oracle Retail Demand Forecasting Cloud Service Implementation Guide*, as well as the [Appendix: Business Rule Engine](#).

Figure 7-24 Rule Condition Setup View

Business Rule	Rule Condition	Measure	Attribute Selected	Between Condition	Condition Operator	Condition Value	Condition Value	Condition Value	Condition Value	Condition Error S	Total Eligible Items	Condition Count
high volume	condition 01	Recent Average	-	-	>=	-	200.00	-	-	-	2808	0
	condition 02	-	-	-	-	-	0.00	-	-	-	2808	0
low volume	condition 01	Recent Average	-	-	<	-	100.00	-	-	-	2808	0
	condition 02	-	-	-	-	-	0.00	-	-	-	2808	0

Measures: Rule Condition Setup View

The Rule Condition Setup view contains the following measures:

Attribute Selected

This measure allows you to select the attribute for the condition. The attributes for the rule are assigned in the Attributes workspace.

Between Condition and/or

If multiple conditions are set up for a rule, this measure allows you to specify if the operator is **AND**, or **OR**.

Condition Operator

This measure compares the attribute value with a condition value.

Possible Operators	Descriptions	Example
==	Checks if the attribute value is equal with the Condition Value	brand == Private Label

Possible Operators	Descriptions	Example
!=	Checks if the attribute value is different from the Condition Value	average sales != 0
>	Checks if the attribute value is larger than the Condition Value	
>=	Checks if the attribute value is larger or equal to the Condition Value	
<	Checks if the attribute value is less than the Condition Value	
<=	Checks if the attribute value is less or equal to the Condition Value	
contain		
not contain		
match		
not match		

Condition Value (string)

This measure is used when the type of the attribute is a string. Example: `brand == Private Label`

Condition Value (numeric)

This measure is used when the type of the attribute is numeric. Example: `average sales > 10`

Condition Value (date)

This measure is used when the type of the attribute is a date. Example: `today >= 02/30/2024"`

Condition Value (measure)

This measure is used when you want to refine the condition value. For instance, for coffee items, except Private Label, you want to assign items to the rule that sell more than 50 per week. For Private Label items you may want the value to be 100.

You need to populate your Condition measure with a value of 100 for all Private Label items, and the rest of the coffee items with 100.

Total Eligible Items

Total number of items that are brought in the workspace and are eligible to be managed using business rules.

Condition Count

Number of items that are attached to each condition.

Rule Count

Number of items that are filtered to each rule.

Condition Error

In case an error occurs, this measure displays the reason. For instance, an attribute was of type string, and was compared to a Condition Value of type date.

Business Rule Process

Perform the following steps to run the business rules.

1. Once the conditions are setup, click **Calculate**. Then run the custom menu **Validate Rule Setup**. If any rules were set up incorrectly, a message appears in the Condition Error measure.
2. Correct the conditions until the error message no longer appears.
3. Run the **Assign Membership** custom menu. This runs the conditions in the rules, and assigns product/locations to the designated rules.
4. To make sure that conditions and assignments are successful, check the **Condition Count** and **Rule Count** measures. They show you how many product/locations are assigned to each rule. Once you see the count and membership you can commit and after running the batch the business rules will take effect.

Rule Membership View

The Rule Membership view displays the condition and rule a product/location is assigned to.

Figure 7-25 Rule Membership View

3. Rule Membership		
Business Rule	Rule Condition	Product
high volume	condition 01	<input type="checkbox"/>
	condition 02	<input type="checkbox"/>
	condition 03	<input type="checkbox"/>
	condition 04	<input type="checkbox"/>
low volume	condition 01	<input type="checkbox"/>
	condition 02	<input type="checkbox"/>
	condition 03	<input type="checkbox"/>
	condition 04	<input type="checkbox"/>

Measures: Rule Membership View

The Rule Membership view contains the following measures:

Rule Membership

This measure displays what rule a certain product/location is assigned to.

Condition Membership

This measure displays what condition a certain product/location is assigned to.

Parameters for Approval View

The Parameters for Approval view allows you to manage the approval exception setting based on the business rules you set up. For instance, if a rule has assigned high margin items, you may want to tighten the Error threshold, to make sure the forecast is in line with your expectations.

Figure 7-26 Parameters for Approval View

Measure	Alert - Average S...	Alert - Calculatio...	Alert - Error Thre...	Approval Method...	Alert - Causal Pe...
Business Rule	↑	↑	↑	↑	↑
high volume	-1.00	-1	0.25	Last Year Sales	-1.00
low volume	-1.00	-1	0.35	Recent Sales vs	-1.00

Measures: Parameters for Approval View

The Parameters for Approval view contains the following measures:

Approval Method at Rule

This field is a list from which you select the default automatic approval policy for forecast items. Valid values are:

- **Manual**

The system-generated forecast is not automatically approved. Forecast values must be manually approved by accessing and amending the Forecast Review view

- **Automatic**

The system-generated quantity is automatically approved as is.

- **By Alert**

This list of values may also include any Forecast Approval alerts that have been configured for use in the forecast approval process. Alerts are configured during the implementation and can be enabled to be used for Forecast Approval in the Enable Alert

for Forecast Approval view. Refer to the *Oracle Retail Predictive Application Server Configuration Tools User Guide* for more information on the Alert Manager. The Alert Parameters view contains a list and descriptions of available alerts, and for which level (causal/baseline) that they are designed for.

Alert - Average Sales Threshold at Rule

Threshold used in deciding if average sales are high or low, depending on how they compare against the value. It overrides the values set up in the Forecast Setup workspace.

Alert - Calculation Periods at Rule

The number stored in this field defines the number of calculations periods used in generating exceptions. It overrides the values set up in the Forecast Setup workspace.

Alert - Error Threshold at Rule

This field stores the value that determines if a forecast error is acceptable, or if it needs to be flagged as exception. It overrides the values set up in the Forecast Setup workspace.

Alert - Causal Peak Factor at Rule

This measure is relevant for promotional forecasting. The current forecast values are divided by the maximum historical demand. If the result is larger than the value of this measure, the forecast may be too large and an exception is triggered. It overrides the values set up in the Forecast Setup workspace.

Parameters for Navigation View

The Parameters for Navigation view allows setup for what forecasts are approved and which ones need review

The forecast approval process is two prong.

- First, you set up business to decide what forecasts are approved and which ones need review.

The setup occurs in the [Rule Condition Setup View](#) and the [Parameters for Navigation View](#). After the batch is run, there will be a pool of approved product/locations, and a pool of product/locations that need review. However, not all product/locations in this pool have the same criticality.

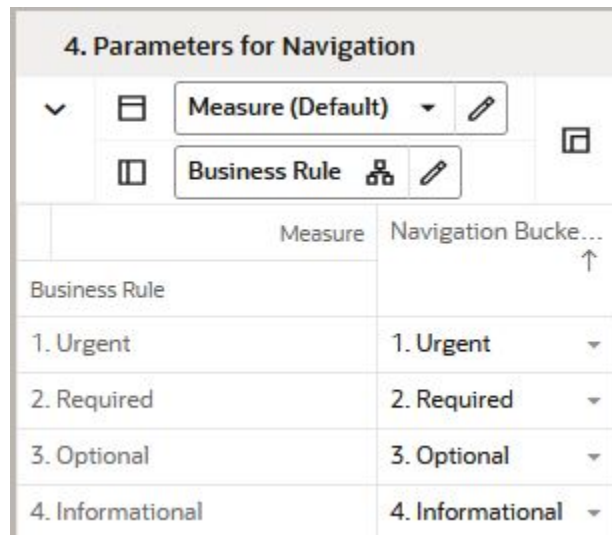
- Secondly, navigation exceptions come in the picture.

The unapproved product/locations are run thru the business rules for navigations and assigned to different navigation buckets.

For instance, key items and high margin items will always be **Urgent**. High sellers, but lower value can be **Required**. The next tier can be **Optional**.

Finally, unapproved product/locations that are not as important for the business as the ones already assigned to the top tiers can be assigned to **Informational**.

Figure 7-27 Parameters for Navigation View



Measures: Parameters for Navigation View

The Parameters for Navigation view contains the following measure:

Navigation Buckets at Rule

In this measure you assign the product/locations assigned to the navigation business rules to the Navigation Buckets, which represent the urgency they need review.

8

Offer Analysis Task

This chapter describes the Offer Analysis task for RDF Cloud Service.

Offer Analysis Workspaces, Steps, and Views

The following table lists the workspaces, steps, and views for the Offer Analysis task.

Workspace	Step	Views
Offer Analysis Workspace	Offer Analysis Step	Summary View Detailed View

Offer Analysis Workspace

The Offer Analysis workspace allows you access to all of the views listed in [Offer Analysis Workspaces, Steps, and Views](#).

It allows you to review how certain events have performed historically. The current promotion model consists of campaigns, which are a collection of promotions. Each promotion has one or more active offers.

Examples of this event structure are listed in the following table.

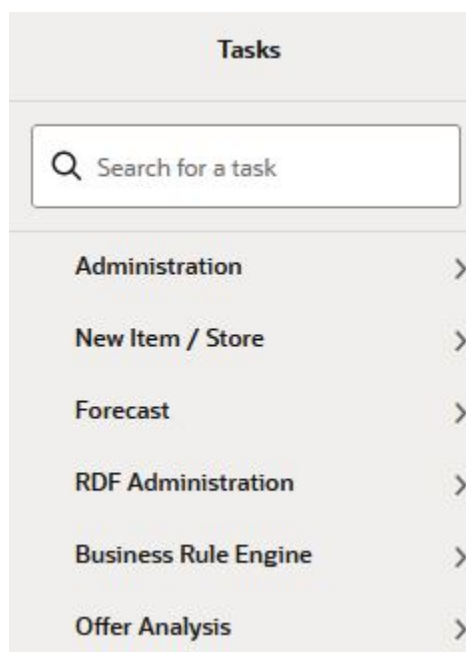
Campaign	Promotions	Offers
Winter 2024	TV Ad December	Multiple Buys Gift with purchase
	Price Discount February	Buy One Get One 20% off any collection

The information is useful to review at any of these levels, but it is at the offer level where the impact on demand is quantified inside the forecast engine. It is then aggregated across offers to present the data per promotion, and across promotions to see how well the campaign did. All information in this workbook is historical. Offer information for the forecast (as it impacts future demand) is presented in the Forecast Review workbook. When reviewing the forecast the you can select how similar offers performed in the past and include additional information for the approval process in addition to the business rules set up for exception management.

To build the Offer Analysis workspace, perform these steps:

1. From the left sidebar menu, click the Task Module to view the available tasks.

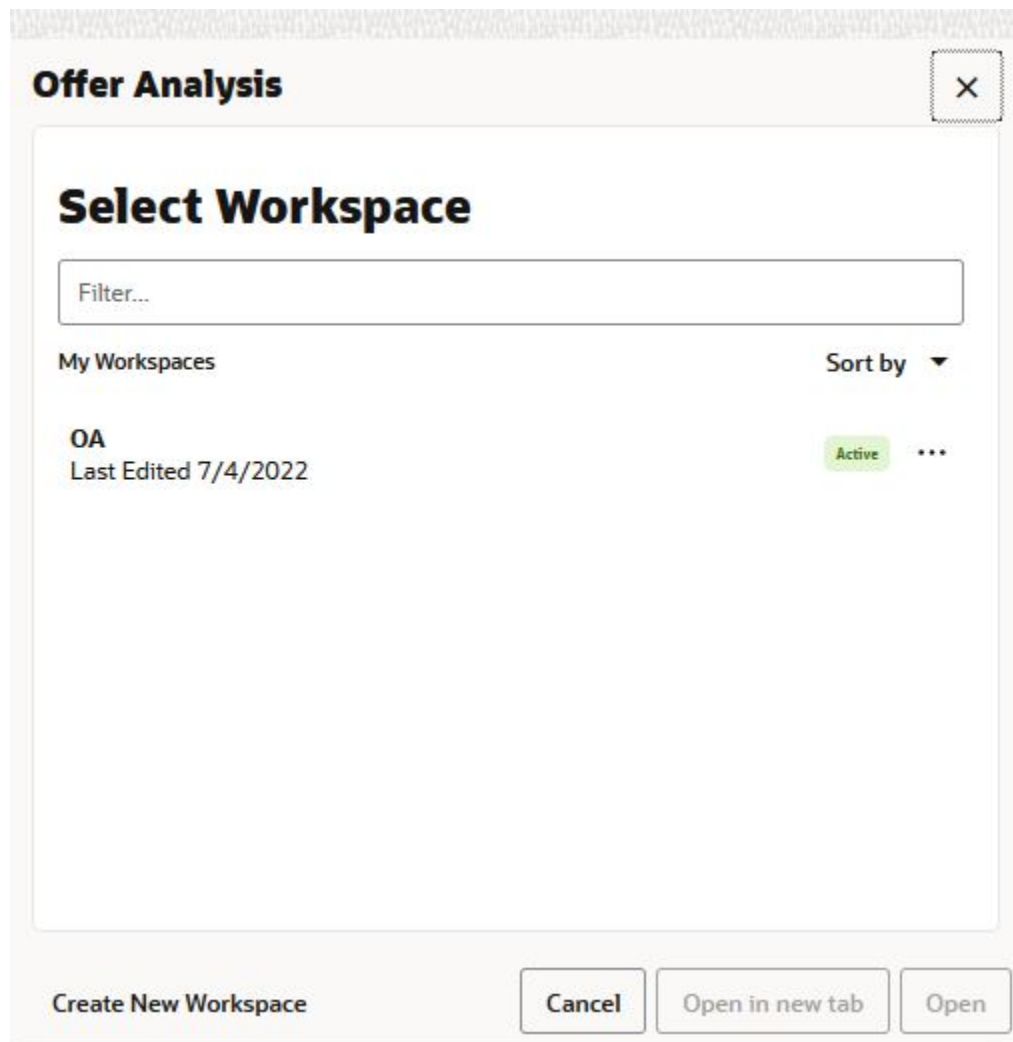
Figure 8-1 Task Module



2. Click the **Offer Analysis** activity and then click **Offer Analysis** to access the available workspaces.
3. Click **Offer Analysis**. The wizard opens.

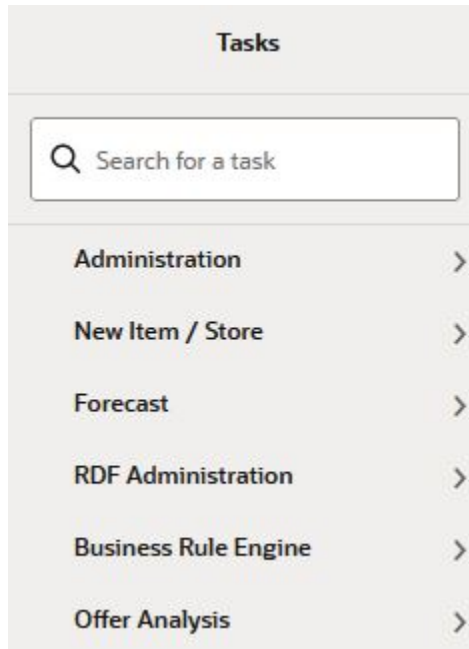
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 8-2 Offer Analysis Wizard



4. Enter a name for your new workspace in the label text box and click **OK**.

Figure 8-3 Enter Workspace Label



5. The Workspace wizard opens. Select the items you want to work with and click **Next**.

Figure 8-4 Workspace Wizard: Select Items

Select Offer

Levels & Positions

Campaign Alias	
<input type="checkbox"/>	Level
<input type="checkbox"/>	Campaign Alias
<input type="checkbox"/>	Campaign
<input checked="" type="checkbox"/>	Promo
<input checked="" type="checkbox"/>	Offer

6. The Workspace wizard opens. Select the locations you want to work with and click **Next**.

Figure 8-5 Workspace Wizard: Select Locations

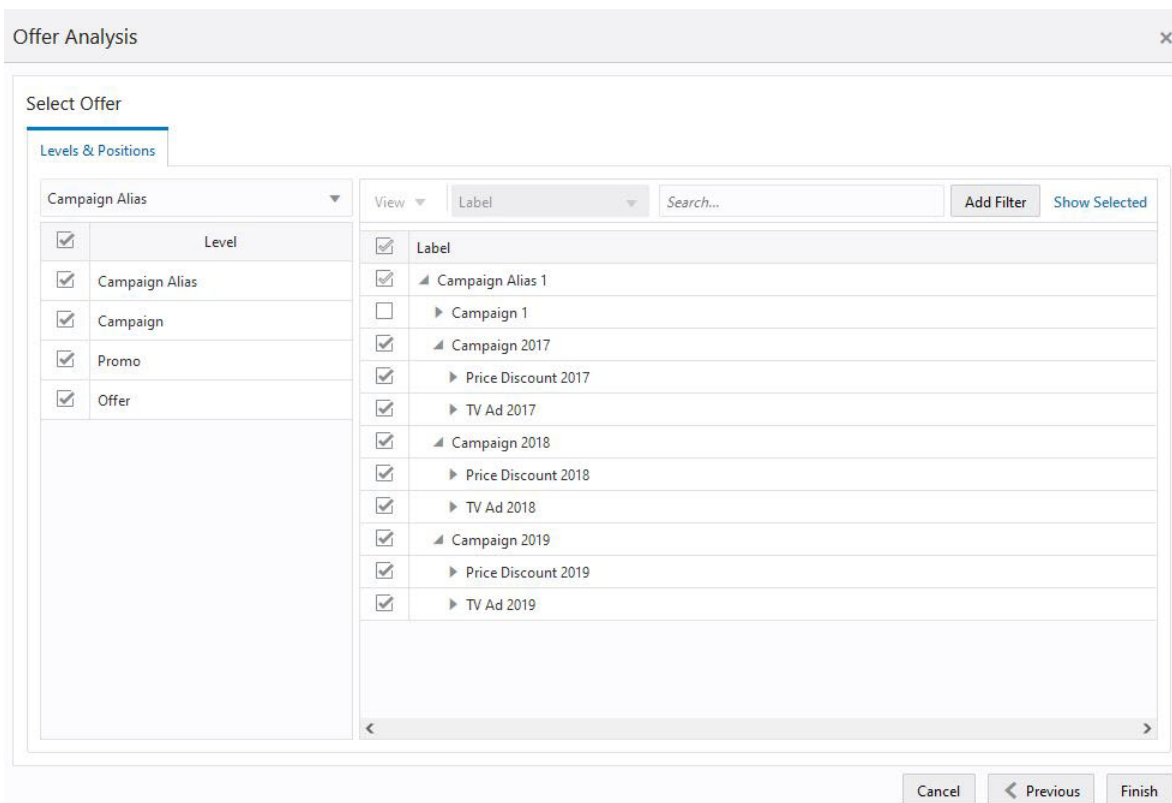
Select Locations

Levels & Positions

Company		Label	
<input type="checkbox"/>	Level	<input type="checkbox"/>	Label
<input type="checkbox"/>	Company	<input type="checkbox"/>	11 Southeastern US
<input type="checkbox"/>	Chain	<input type="checkbox"/>	12 Northeastern US
<input type="checkbox"/>	Area	<input type="checkbox"/>	13 Midwest US
<input checked="" type="checkbox"/>	Region	<input type="checkbox"/>	14 Northcentral US
<input type="checkbox"/>	District	<input type="checkbox"/>	15 Southwestern US
<input type="checkbox"/>	Store	<input type="checkbox"/>	31 Eastern Canada
		<input type="checkbox"/>	32 Canadian Lakes
		<input type="checkbox"/>	33 Western Canada

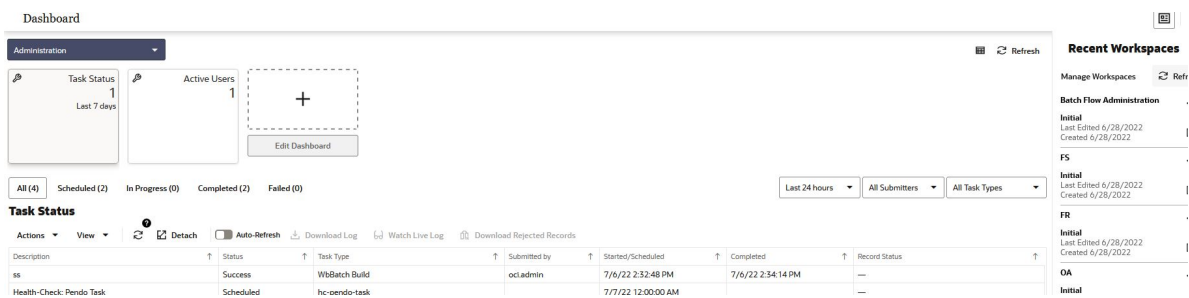
7. Select the offers you want to work with and click **Finish**.

Figure 8-6 Workspace Wizard: Select Offers



- The wizard notifies you that your workspace is being prepared. Successful workspaces are available from the Dashboard.

Figure 8-7 Successful Workspace Build



The Offer Analysis workspace is built. This workspace contains this step:

- [Offer Analysis Step](#)

Offer Analysis Step

The available views are:

- [Summary View](#)

- [Detailed View](#)

Summary View

The Summary view allows you to review campaign/promo/offer data at a level in the product and location hierarchies that is higher than item/store. For a more detailed look, the same measures presented in this view can be reviewed in the [Detailed View](#).

Figure 8-8 Summary View

Product	Offer	Measure	Baseline Sales U...	Markdown Sales ...	Offer Sales Units	Reward Type	Effective Discount	Offer Start Date	Offer End Date	Offer Length	Product Count	Location Count
Ground	Buy One Get One		128,272,277	0	41,785	percent off	31.76%	05/20/2019	09/20/2019		123	49
	Gift With Purchase		128,272,277	0	77,065	amount off	32.14%	06/20/2019	10/20/2019		122	49
	Multiple Buys		128,272,277	0	33,700	fixed price	27.07%	07/20/2019	11/20/2019		123	49

Measures: Summary View

The Summary view contains the following measures:

Baseline Sales Units

This measure displays the sales units that would have been sold during the offer period if no reward was active.

Markdown Sales Units

This measure displays clearance units sold during the offer period.

Offer Sales Units

This measure displays the additional sales units sold during the offer period due to the offer reward.

Reward Type

This measure displays the mechanism used during the offer period to drive additional demand. The reward types available are:

- **Percent off:** Price discount from the original price. Let's say the original price is \$9.99, and the discount is 15%. During the offer the price at which items were sold is \$8.49
- **Amount off:** Amount off from the original price. Let's say the original price is \$9.99 and the amount off is \$2. During the offer the price at which items were sold is \$7.99.
- **Fixed price:** The price at which an item was sold. No matter what the original price is, the fixed price is what the items were sold for.

Effective Discount

This measure displays the actual discount offered during the offer period, no matter what the reward type was. This is a very important metric, since it is probably the main driver of the additional demand produced during an offer. It is also not always trivial to calculate. For example, for a Buy One Get One Free offer one would think the discount is 50%. However,

not everybody buys an even number of items, even when this offer is active. This will actually lower the effective discount to be less than 50%.

Offer Start Date

This measure displays the date when the offer period started. This measure is displayed at an aggregate level, and let us say that some stores have different offer start dates, due to different weather in their geographic location. The date displayed is the earliest of the available dates.

Offer End Date

This measure displays the date when the offer period ended. This measure is displayed at an aggregate level, and let us say that some stores have different offer start dates, due to different weather in their geographic location. The date displayed is the latest of the available dates.

Offer Length

This measure displays the number of dates the offer was active. It is the number of days between the offer end and start dates.

Product Count

This measure displays how many items were part of the offer.

Location Count

This measure displays how many stores were part of the offer.

Detailed View

The Detailed view has the exact same metrics as the [Summary View](#). The difference is that the Detailed view has the information displayed at the item/store level, while the [Summary View](#) shows it at a higher level in the product and location hierarchies.

A

Appendix: Forecast Approval Exceptions

This appendix provides the details on approval and navigation exceptions defined for the GA version of RDF CS.

The exception management framework available in RPAS CE works on several levels. First, the users refines the approval and navigation rules in the Business Rule Engine.

The forecast approval method is one of the following options:

- **Manual**
The system-generated forecast is not automatically approved. Forecast values must be manually approved by accessing and possibly amending values in the Forecast Review workspace.
- **Automatic**
The system-generated forecast is automatically approved as is.
- **By exception**
This list contains the exceptions that were configured for use in the forecast approval process. They should match the dashboard exceptions and workspace alerts.

The unapproved product/locations are then assigned in order of priority to one of the following buckets:

- Urgent
- Required
- Optional
- Informational

Both the approval and navigation features can be configured to fit retailers' needs.

Then, the batch is run and the approval and navigation exceptions are worked out. Now it is time to review them and take actions. First there is the dashboard. You can review the approval exception tiles and see which business rules had a larger impact. The navigation exception profile displays how many production/locations are in each of the navigation buckets. This helps you plan your work when reviewing forecasts in order of priorities, assigned using business rules. From here you can open the Forecast Review workspace. Once in the workspace, you can decide how to review the forecasts. Every dashboard exception can have a workspace alert counterpart. You can navigate to product/locations that are flagged as exceptions, or you can use the workspace exceptions, that point you to cells where the business rules have been violated. This is possible because the workspace alerts have the time dimension while dashboard exceptions are at the production/location intersection, pointing you to the time series that needs attention.

The following details the GA approval alerts calculations.

Forecast versus Recent Sales

Usually it is not expected that demand values differ very much period to period. This also implies that the forecast magnitude generally is in line with the magnitude of the most recent sales. There are cases when this is not the case. For instance when an item enters a season, the forecast is probably higher than the sales in periods leading to the season. Or when an item is towards the end of the season, the forecast will be lower than sales in peak periods. For these cases, the user can be alerted to review the forecast, rather than auto approving it.

The following is the alert expression:

$$\begin{aligned}
 & \sum_{today-alert\ window\ length-1}^{today-1} baseline\ demand(t) > 0 \\
 & \&\& \\
 & \frac{\sum_{today}^{today+alert\ window\ length} adjusted\ baseline(t)}{alert\ window\ length} > threshold1 \\
 & \&\& \\
 & \left| \frac{\sum_{today}^{today+alert\ window\ length} adjusted\ baseline(t)}{\sum_{today-alert\ window\ length-1}^{today-1} baseline\ demand(t)} - 1 \right| > threshold2
 \end{aligned}$$

Where *length*, *threshold1*, and *threshold2* are adjustable parameters.

Note how the calculations are not performed for the entire forecast horizon, but rather by the number of periods determined by the length parameter. The reason is that the forecast horizon can sometimes be very long; for example, 52 weeks, and average demand over such a long time period cannot be used as in-season versus out of season rate of sales.

Adjusted versus Approved

RDF is typically set up to generate forecast weekly. Every week, new sales data is loaded, the forecast is regenerated. While the latest data points are expected to make the forecast more accurate, it is not expected that the difference in forecasts generated in two consecutive weeks to vary too much. If the forecasts differ, the user is alerted to review the forecasts.

The following is the alert expression:

$$\left| \frac{\sum_{today}^{today+forecast\ length-1} adjusted\ forecast(t)}{\sum_{today}^{today+forecast\ length-1} lappf(t)} - 1 \right| > threshold1$$

$$\frac{\sum_{today}^{today+forecast\ length-1} adjusted\ forecast(t)}{forecast\ length - 1} > threshold2$$

Where *threshold1* and *threshold2* are adjustable parameters.

Note how summation of forecasts is not performed over the entire forecast length. It is stopped one period prior the forecast horizon ends, because this is the last populated period of the last approved forecast.

Forecast versus Last Year Sales

The most reliable forecasts are generated from data that has a repeatable pattern year over year. However, this is not always the case. A change in business strategy, merchandise reclassifications, New Items can all lead to changing selling patterns over time.

To detect possible changes in selling patterns, the following alert will compare the last year's sales volume with the forecasted sales volume. If they are different by an adjustable percent, the alert is triggered.

The following is the alert expression:

$$\frac{\sum_{today}^{today+alert\ window\ length} adjusted\ baseline(t)}{alert\ window\ length} > threshold1$$

||

$$\frac{\sum_{today}^{today+alert\ window\ length} baseline\ demand\ LY(t)}{alert\ window\ length} > threshold1$$

&&

$$\left| \frac{\sum_{today}^{today+alert\ window\ length} adjusted\ baseline(t)}{\sum_{today}^{today+alert\ window\ length} baseline\ demand\ LY(t)} - 1 \right| > threshold2$$

Where *threshold1* and *threshold2* are adjustable parameters.

First we check if the forecast is close to the sales LY. If it is, no alert is triggered. If it is not, we check the rate of sales of the item. If the item is selling consistently, we trigger an alert. If the sales and forecast are different, but the rate of sales of the item is not significant - defined by *threshold2*, no alert is triggered. This way we avoid prompting the user to review forecasts for low selling items.

Promo Peaks

The purpose of this alert is to check how large the forecast peaks are compared to historical demand. The peaks can come from various effects like promotions, price discount, demand transference due to assortment changes, and so on. The most common, though, are due to price changes and promotions.

The following is the alert expression:

$$\textit{Adjusted Peak} > \textit{Max Sales History} * \textit{Causal Peak Factor}$$

Where the *Causal Peak Factor* is an adjustable parameter.

The business case this addresses is to alert you when the peaks in the forecast region are larger than any observed sales in the past. There may be valid justification for this, for instance, several events are active in the same time period, thus creating a huge spike in demand. You can review the alert and take action.

B

Appendix: Forecast Errors in the Forecast Scorecard Dashboard

This appendix provides background and formulas for the error metrics used in the Forecast Scorecard dashboard. The errors are always calculated at the lowest level - typically item/store/week, and then averaged at the intersection of the dashboard tiles. For GA this intersection is subclass/district, but it can be configured at implementation time. The evaluation of the forecast is done over a window starting today and looking back a configurable number of periods. All errors are calculated for the system-generated forecast as well as the user adjusted forecast.

The following are the error metrics:

- [Mean Absolute Percent Error](#)
- [Root Mean Squared Error](#)
- [Mean Absolute Error](#)
- [Forecast Bias](#)
- [Percent Adjusted](#)

Mean Absolute Percent Error

The percentage error of a forecast observation is the difference between the actual POS value and the forecast value, divided by the actual POS value. The result of this calculation expresses the forecast error as a percentage of the actual value. The Mean Absolute Percentage Error statistic measures forecast accuracy by taking the average of the sum of the absolute values of the percentage error calculations across all observations. This method is useful when comparing the accuracy of forecasts for different volume products (it normalizes error by volume).

$$MAPE = \frac{100\%}{n} \sum_{t=1}^n \left| \frac{demand(t) - forecast(t)}{demand(t)} \right|$$

Root Mean Squared Error

This is the square root of the Mean Squared Error. The Root Mean Squared Error is one of the most commonly used measures of forecast accuracy because of its similarity to the basic statistical concept of a standard deviation. It evaluates the magnitude of errors in a forecast on a period-by-period basis, and it is best used to compare alternative forecasting models for a given series.

$$RMSE = \sqrt{\frac{\sum_{t=1}^n (demand(t) - forecast(t))^2}{n}}$$

Mean Absolute Error

The absolute error of a forecast observation is the absolute value of the difference between the forecast value and the actual POS value. The Mean Absolute Error statistic is a measure of the average absolute error. This is calculated by summing the absolute errors for all observations and then dividing by the number of observations to obtain the average. Mean Absolute Error gives you a better indication of how the forecast performed period by period because the absolute value function ensures that negative errors in one period are not canceled out by positive errors in another. Mean Absolute Error is most useful for comparing two forecast methods for the same series.

$$MAE = \frac{\sum_{t=1}^n |demand(t) - forecast(t)|}{n}$$

Forecast Bias

Forecast BIAS is described as a tendency to either:

- over-forecast (meaning, more often than not, the forecast is more than the actual)
- under-forecast (meaning, more often than not, the forecast is less than the actual).

A desired property of a forecast is that it is not biased.

$$BIAS = \frac{100\%}{n} \sum_{t=1}^n \frac{demand(t) - forecast(t)}{demand(t)}$$

Percent Adjusted

This number represents the count of adjusted forecast values divided by the total count of forecast values. A high percentage indicates that the users heavily adjust the forecasts.

C

Appendix: Business Rule Engine

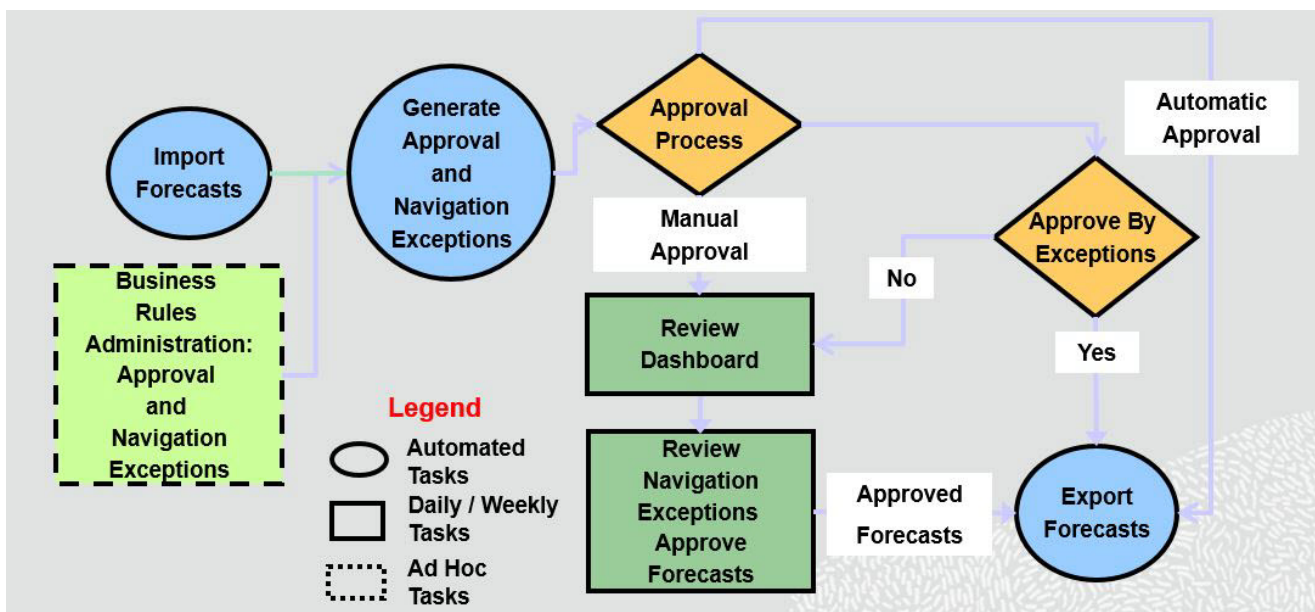
Oracle Retail has designed the Business Rule Engine (BRE) to help RDF CS users set up business strategies to manage parameters used in the forecast approval and navigation processes. Parameters include alert thresholds, alert calculation window, as well as navigation criteria. These parameters can be set up manually in the forecast setup workbook at the global, intermediate, and final levels (override). With the business rule engine, the parameter values at final level can be dynamically adjusted based on business requirements. No patching of the environment is required. For example, a business strategy can be to set the alert error threshold to 10% for all product/locations combos with average sales larger than 10 units per week. For product/locations with average sales less than 10 units per week, the threshold can be relaxed to 20%. This way high sellers have a tighter error threshold because they are more important for the business, and the analysts may want to review their forecasts more rigorously. Using this approach, the parameter values were assigned to product/locations based on business strategy rather than hierarchy positions.

The BRE is used in br-engine.fm mainly in the approval process. This has been refined to include multiple stages. At a high level these are:

- Automatically adjust the system forecast
- Run the approval exceptions
- Assign the unapproved product/locations to navigation buckets based on business priorities you have set up
- Finally, in the Forecast Review workspace, review/adjust/approve product/locations being guided by the navigation exceptions.

Figure C-1 depicts the overall approval process

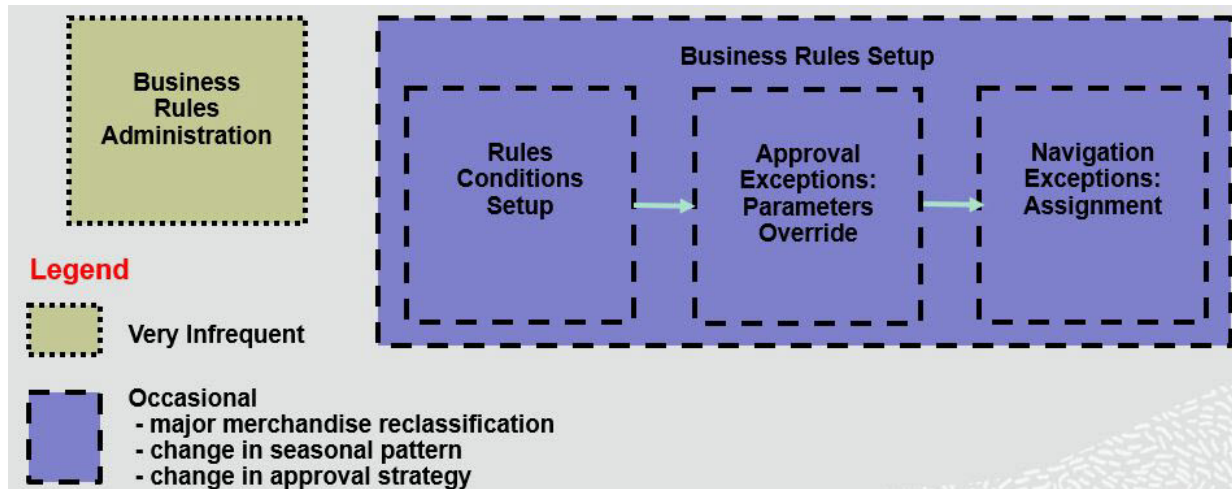
Figure C-1 Approval Workflow



Notice how the work done in the BRE is mentioned as an infrequent task. You only need to access it when you want to change business rules regarding approval and/or navigation strategies.

The interaction with the BRE is depicted in [Figure C-2](#).

Figure C-2 Business Rule Engine



You start with the rules conditions, then adjust the approval exceptions requirement, and finally the navigation strategies.

Examples of how approval rule conditions can be used:

- High margin items: tighten approval criteria
- Key items: never approve, too important
- Product/locations not in season: approve automatically
- Low sellers: Loosen approval criteria

After the approval exception process is run, there will be a pool of product/locations that are approved and a pool of product/locations that are not approved. However, not all product/locations in this pool have the same criticality.

This is where the navigation exceptions come in the picture. The unapproved product/locations are run through the business rules for navigations and assigned to different navigation buckets. Let say we have four buckets for navigation: **Urgent**, **Required**, **Optional**, and **Informational**. You can set conditions to achieve the following assignments on unapproved product/locations to navigation buckets (or tiers).

- **Urgent**- key items, high sellers
- **Required**- decent sellers and high navigation variance
- **Optional**- high navigation variance
- **Informational**- all other unapproved items

Note:

The navigation variance is calculated during the approval exception process and it records by how much the forecast was off from the measure it was compared to.

Figure C-3 illustrates the concepts of approval and navigation conditions, as well as how they support the approval workflow.

Figure C-3 Rule Conditions

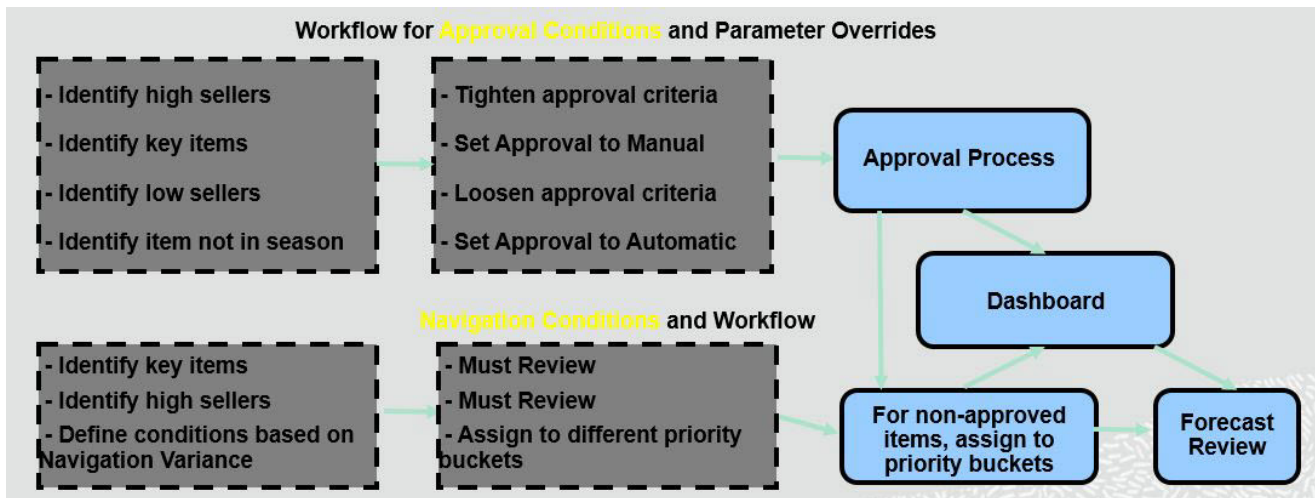


Figure C-4 and Figure C-5 show images of the Rule Condition Setup views in the UI for approval and navigation.

Figure C-4 Approval Conditions

2. Rule Condition Setup							
Business Rule	Rule Condition	Measure	Attribute Selected	Between Condi...	Condition Operator	Condition Value (string)	Condition Value (...)
high volume	condition 01	Recent Average Sales	↑	OR	>=	↓	200.00
	condition 02	HighPriority Item 01	↓	↓	==	↓	1.00
low volume	condition 01	Recent Average Sales	↓	↓	<	↓	100.00
	condition 02	↓	↓	↓	↓	↓	0.00

Figure C-5 Navigation Conditions

2. Rule Condition Setup						
Measure (Default)		Rule Condition				
Business Rule	Rule Condition	Attribute Selected	Between Condti...	Condition Operator	Condition Value (string)	Condition Value (numeric)
1. Urgent	condition 01	HighPriority Item 01	OR	==		1.00
	condition 02	Recent Average Sales		>=		100.00
2. Required	condition 01	Navigation Variance	AND	>=		0.45
	condition 02	Class		==	Coffee	0.00

D

Troubleshooting

This appendix provides details that you can use to identify and resolve problems.

Accessing Multiple RPAS CE Applications

A user may need to access multiple RPAS CE applications, such as MFP, AP, and RDF, at the same time. In this case it is necessary to launch each application URL in a separate browser window, in the following way.

Launch one application in a browser window, then launch every other application in an incognito window (Chrome) or in a private window (Firefox). Launching multiple applications using regular browser windows of the same type (for example, Chrome/Firefox) can lead to unexpected UI errors, such as logging out of one application causing a logout across all applications.