

Oracle® Retail Demand Forecasting Cloud Service

User Guide

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Oracle Retail Demand Forecasting Cloud Service User Guide, Release 19.0.

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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

This document is intended for the users and administrators of Oracle Retail Demand Forecasting Cloud Service. This may include merchandisers, buyers, and business analysts.

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Related Documents

For more information, see the following documents in the Oracle Retail Demand Forecasting Cloud Service Release 19.0 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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Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Introduction

Oracle Retail Demand Forecasting Cloud Service (RDFCS) provides accurate forecasts that enable retailers to coordinate demand-driven outcomes that deliver connected customer interactions. With a single view of demand, RDFCS 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. RDFCS is a comprehensive solution that maximizes the forecast accuracy for the entire product lifecycle, with tailored approaches for short and long lifecycle products, 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 RDFCS 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](#)
- [Demand Transference](#)
- [Support for Short Lifecycle Merchandise](#)
- [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

RDFCS 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 RDFCS 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 is the exception dashboard profile, where the user can filter down to desired merchandise/locations to view a hit count and the variance from the desired value of the forecast. Based on that information, the user can launch in a workspace where she can review only the exceptions inside the product and location's space defined in the dashboard filter settings.

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.

Demand Transference

What is Demand Transference?

When New Items are added to a retailer's assortment, the existing items' demand may be negatively impacted. Conversely, if items are removed from an assortment, the remaining items may experience a boost in demand, because there is less competition. We call this demand transference due to assortment changes.

Demand transference across items in an assortment is a challenge for all retailers. How one item effects the performance of another is difficult to predict, and can significantly impact an assortments performance overall.

Enabling demand transference in RDFCS adds to the already extensive capabilities to create more accurate and robust forecasts by incorporating the impact of assortment changes. Accurate forecasts translate to high service levels and fewer lost sales, which in turn means better margin and improved customer satisfaction. With this release, RDFCS is enhanced to layer the demand transference impact on top of the base demand, trend, seasonality, as well as price and promo information, to create a holistic version of the forecast.

Support for Short Lifecycle Merchandise

Short lifecycle items have the unique trait that they sell for a relatively short period of time and then never again. This type of merchandise can be divided as fashion items, and items that have replacements. For fashion items, the demand is modeled based on items that started selling around the same time of year in the past years. For instance, a spring collection for this coming year, is modeled based on a Spring collection that started selling in February in the past year.

The items that replace other items are treated differently. The demand for an item that will start selling is going to be modeled after the demand of the item that it is replacing.

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. In this case, the retailer needs to have a forecast for that period, but also preserving the seasonality for the other periods. The second case is when one of the years of historical sales has 52 weeks, and the other has 53 weeks. In this case, the retailer needs to have a forecast where the 53 week history is mapped to 52 seasonality indices. There is a third case, when the 53rd week is outside the dates considered for the forecast generation. If this is the case, nothing needs to be done.

There is no special setup for handling the 53rd week. It is only the calendar file that has 53 fiscal weeks in one of the years. If the 53rd week is in history, the value for that week is not taken into account when calculating time-phased metrics. Specifically for seasonality, the sales of the 53rd week are not used to calculate the 52 seasonal indices. However, for the base demand calculation, which does not have a time component, the value of the 53 week is used. If the 53rd week is in the forecast region, the seasonality for the upcoming 53rd week is the average of the week 52 and the first week of the following year.

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 RDFCS. This is accomplished through the application of best-fit sciences throughout the forecasting process.

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. For long-lifecycle

items where data tends to be reliable over long time periods, the anomalies are corrected. For short-lifecycle items where data tends to be unreliable over short periods, the anomalies are omitted.

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 short and long lifecycle forecasting processes each have a dedicated dashboard that enables end-users to efficiently drive decisions through focused exception-driven processes. From here, end-users are able to 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**

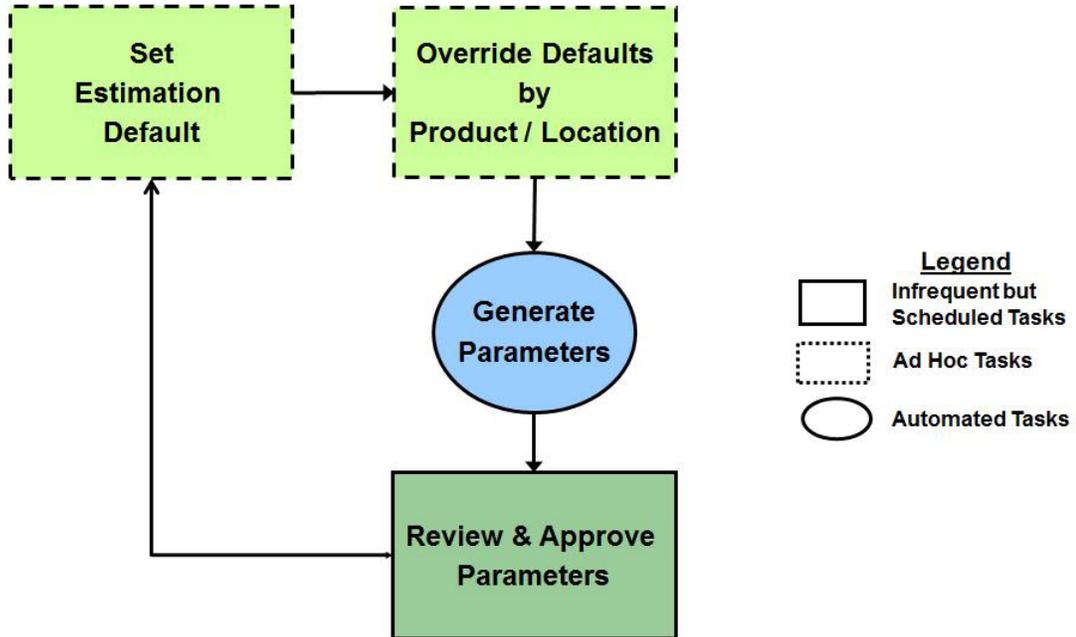
The forecast approval workspaces represent the primary point of interaction with the demand forecasts. The short and long lifecycle forecasting processes each have a dedicated forecast approval workspace to enable end-users to efficiently review, adjust, and approve their forecasts. This is supported by a rich set of decision support metrics and the ability to responsively simulate forecast updates based on new demand drivers and different forecasting methods. The workspace also features real-time alerts and dedicate exception management views that navigate end-users to the point resolution.

Forecast Engine

Not visible to the end user is the forecast engine, and all the tasks happening behind the scenes. 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.

Figure 1-1 RDFCS Estimation

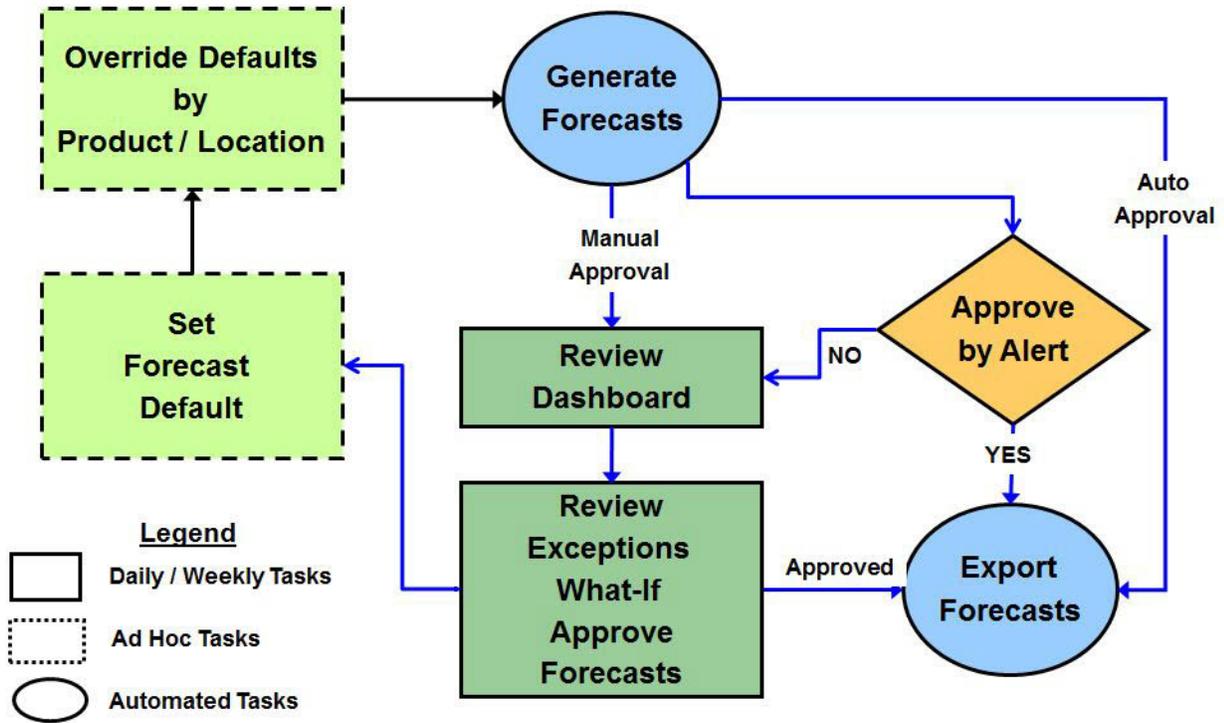
RDF CS: Estimation



After estimation is run, the forecast parameters are computed, and everything is available to generate the forecast. Since most metrics are already pre-calculated during estimation, this step is very quick, allowing for extensive What-if in the Forecast review workspace. Following are the tasks related to generating, reviewing, and approving forecasts.

Figure 1-2 RDFCS Forecasting

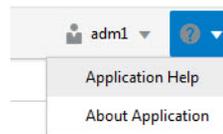
RDF CS: Forecasting



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.

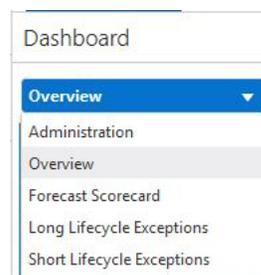
Note: For additional information about the user interface, dashboard, and workspaces, click **Application Help** from the Help icon on the dashboard.



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

- Metric profile type
 - Overview
 - Forecast Scorecard
- Exception profile type
 - Long Lifecycle Exceptions
 - Short Lifecycle Exceptions

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

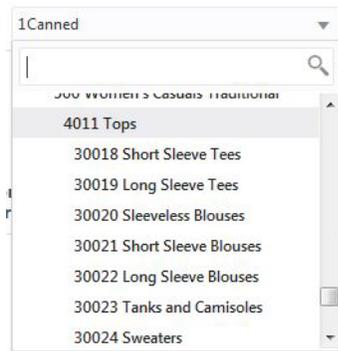
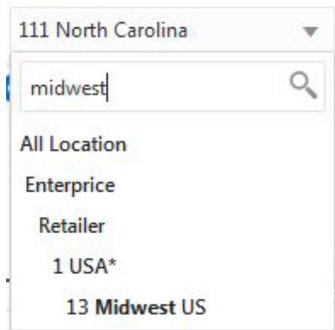


Figure 2–3 Location Filter



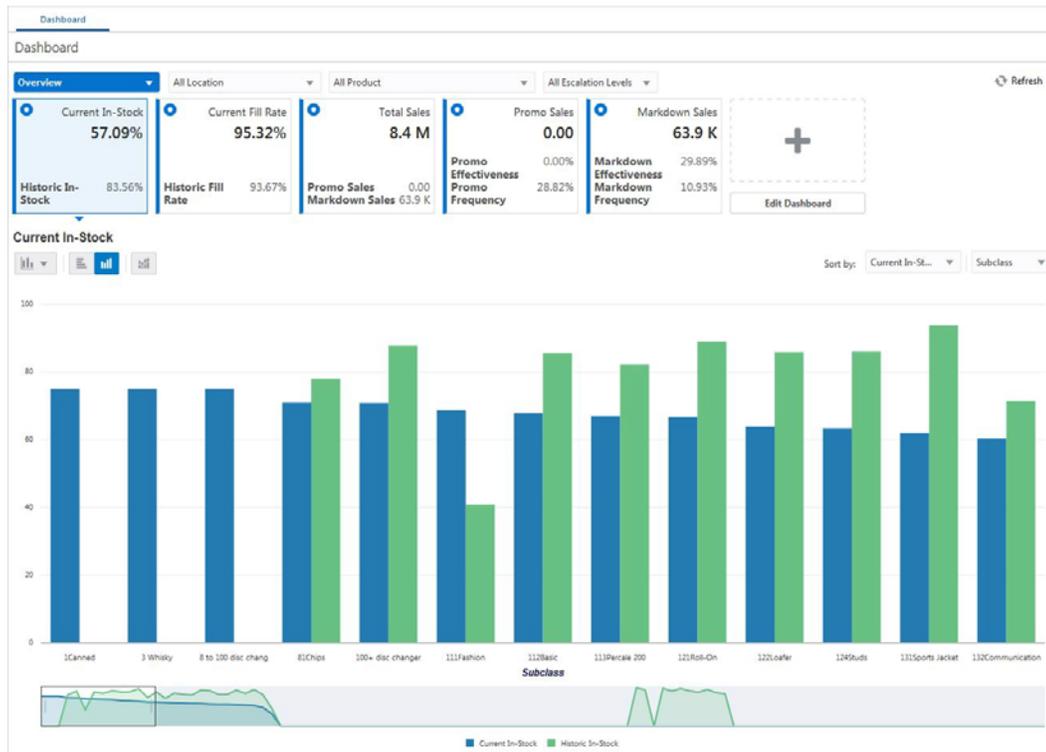
The information that is presented condensed in the tile metrics, is also presented in a chart with more detail.

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.

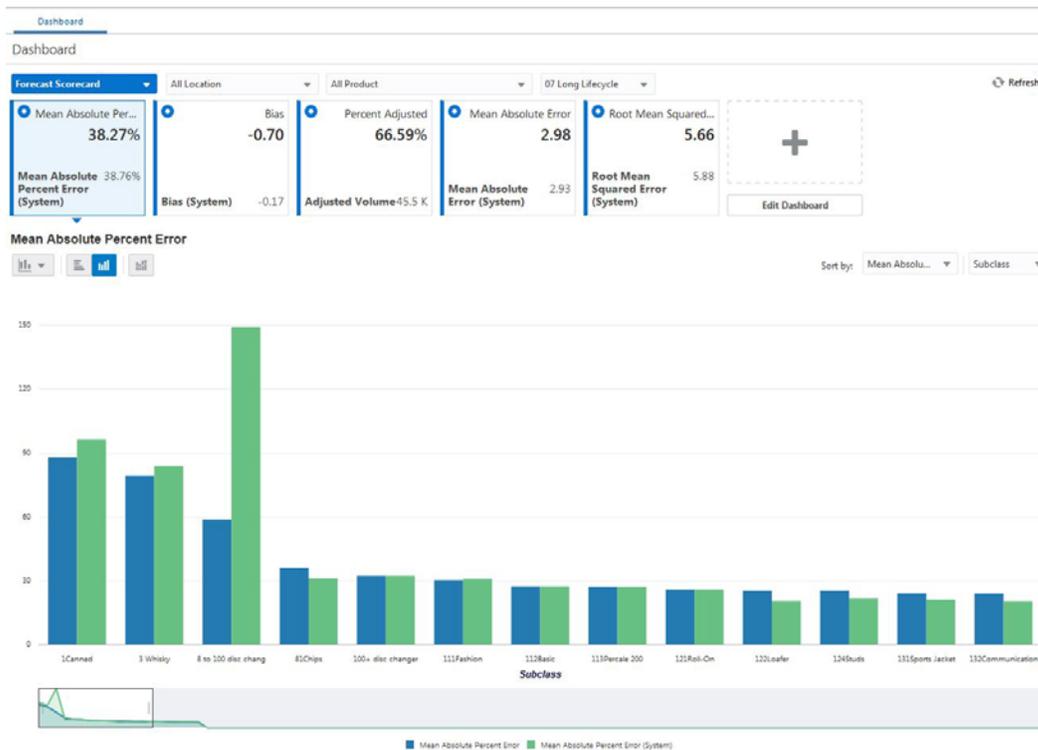
Promotional and Markdown Sales

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 B, "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

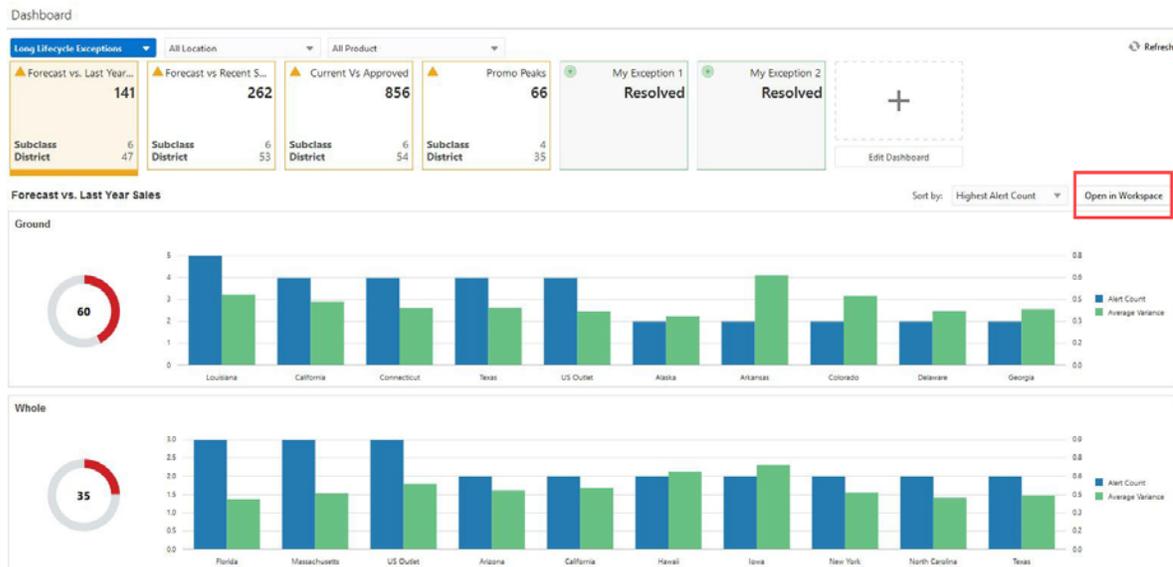
Finally, there is the Percent Adjusted tile, with the Adjusted Volume as the secondary metric. Here is displayed the percent of adjusted forecasts, and the volume resulted as

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.

Long Lifecycle Exceptions

This is the first of the exception profile types available in RDFCS. It is relevant to merchandise that sells year over year, like hardlines, grocery items or basic fashion items.

Figure 2-6 Long Lifecycle 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 A, "Appendix: Forecast Exceptions & Alerts."](#)

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.

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.

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

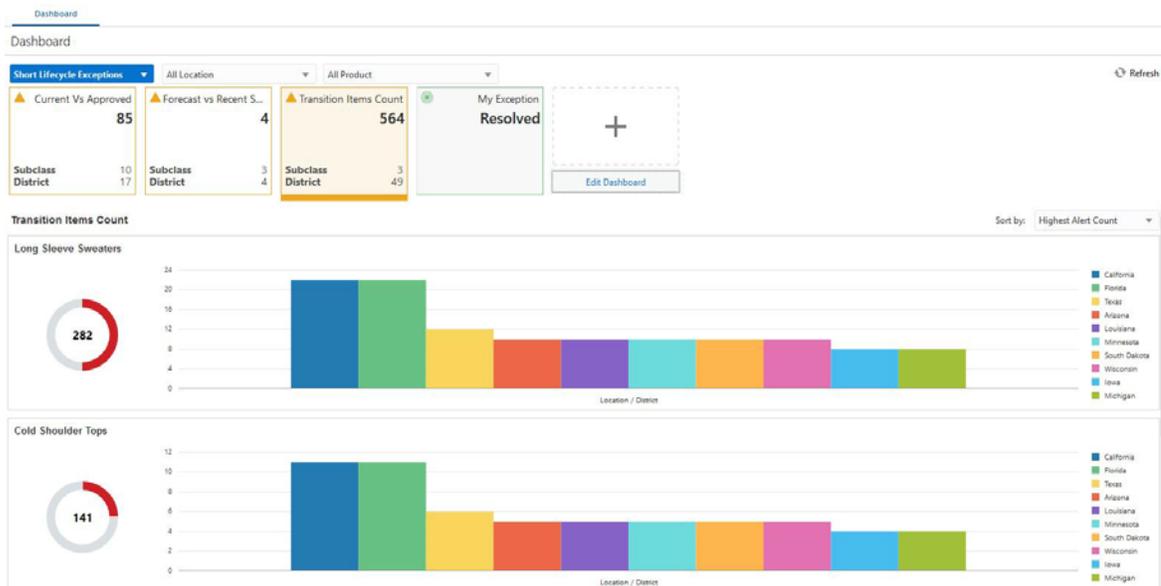
Note: Alternatively, you can right-click on any exception chart and select **Open in Workspace**.

Once in the workspace, the navigation is elegantly assisted by the workspace alerts.

Short Lifecycle Exceptions

This is the second of the exception profile types available in RDFCS. It is relevant to merchandise that sell for a relatively short period of time and then never again. This type of merchandise can be divided in fashion items, and items that have replacements.

Figure 2-7 Short Lifecycle Exceptions



Exceptions

The information presented in this dashboard is conceptually the same as the information for long lifecycle items. The difference is the business rules that are setup for this type of merchandise. The exceptions definitions and expressions are detailed in [Appendix A, "Appendix: Forecast Exceptions & Alerts."](#)

Forecast Review Workspace

Almost every exception has a counterpart in the Forecast Review workspace, as workspace alerts. Once the user decides in the dashboard what merchandise to review, she launches in the workspace, and navigates using the workspace alerts. The only exception that is a bit different is the "[Transition Items Count](#)." This exception alerts the user on the number of pre-season items that will start selling in the next few periods, and hence have to be managed. There is no workspace alert counterpart, because the items do not actively sell, and a review is not needed. The alert is useful to let the user know of the additional workload coming up in the next few periods. This is also the reason why there is no **Open in Workspace** button associated with the Forecast Review workspace.

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 thru 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 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
	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 thru 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.

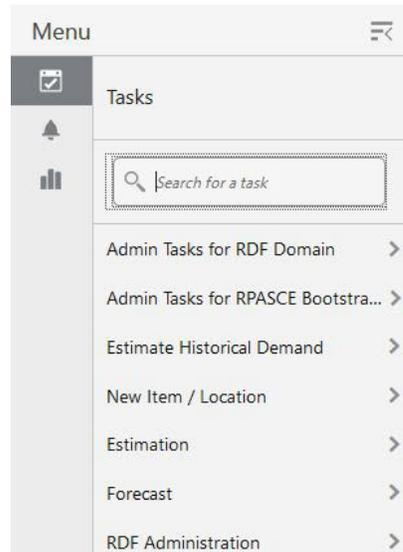
Another helpful tool in the process of setting up New Items is the Workflow Message Count measure. It displays the number of item/store combinations that have been

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:

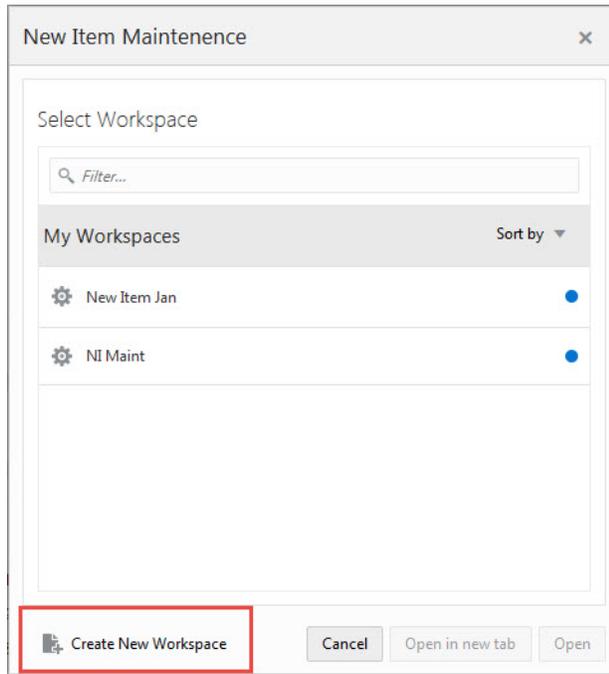
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 3–1 Task Module



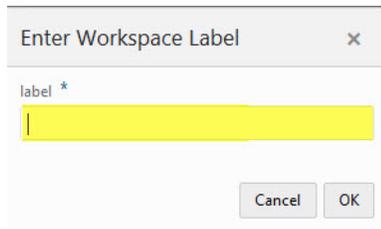
2. Click the **New Item/Location** activity to access the available workspaces.
3. Click **New Item Maintenance**. The New Item Maintenance wizard opens.
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 3–2 New Item Maintenance Wizard



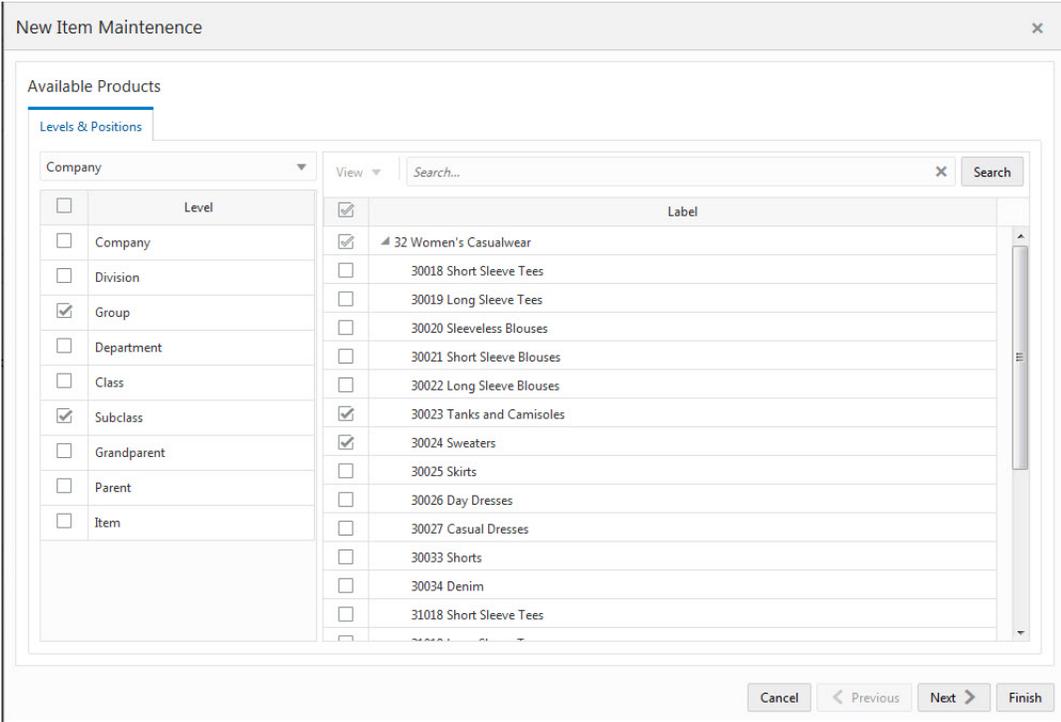
4. Enter a name for your new workspace in the label text box and click **OK**.

Figure 3–3 Enter Workspace Label



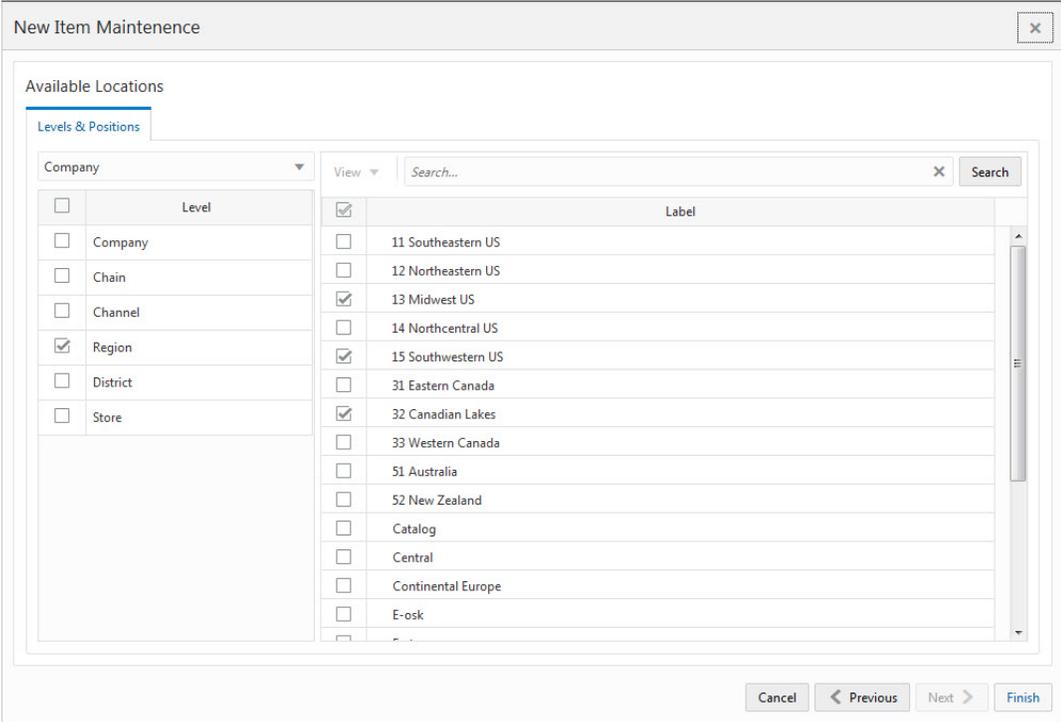
5. The Workspace wizard opens. Select the products you want to work with and click **Next**.

Figure 3-4 Workspace Wizard: Select Products



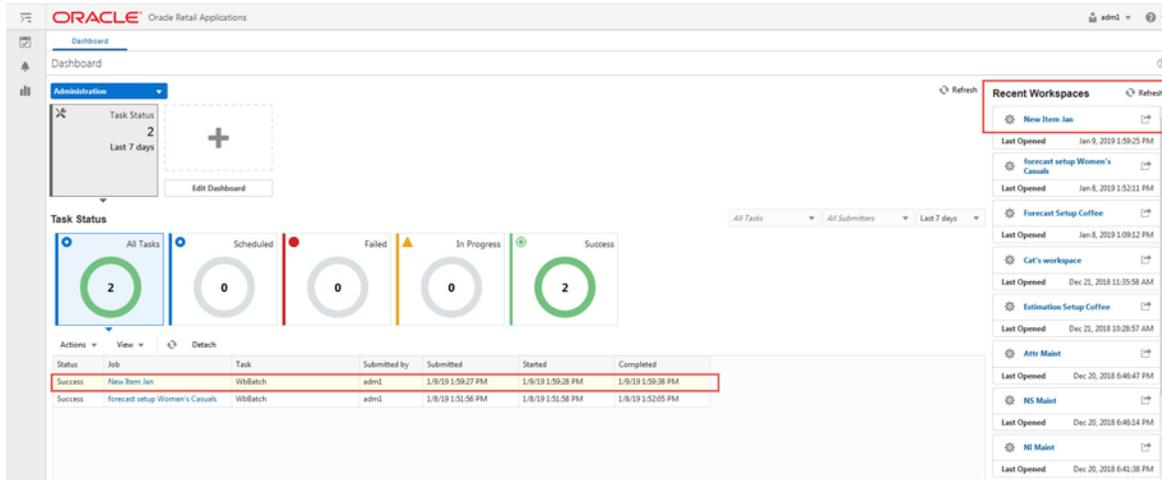
6. Select the locations you want to work with and click **Finish**.

Figure 3-5 Workspace Wizard: Select Locations



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

Figure 3–6 Successful Workspace Build



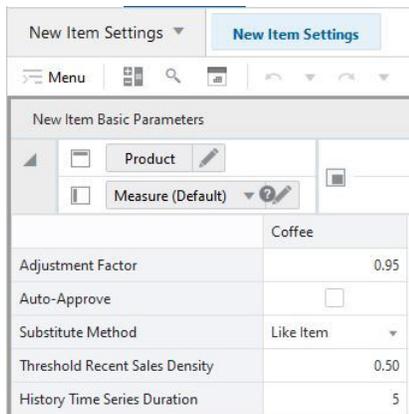
New Item Settings Step

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

New Item Basic Parameters View

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

Figure 3–7 New Item Basic Parameters View



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	RDFCS calculates the escalated base rate of demand. The forecast for the new item is given by: <i>Forecast at time t = base rate of demand (coming from escalation level) * 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:

$$\text{data density} = \text{number of periods with demand larger than zero} / \text{total length of demand}$$

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.

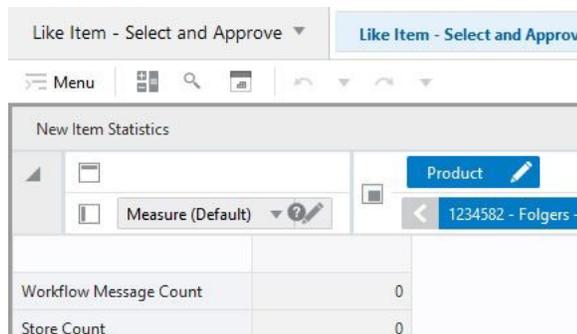
The available views are:

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

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 3–8 New Item Statistics View



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 thru the process.

Figure 3–9 Select and Approve View

	1006 Chicago	1057 Green Bay
Substitute Method	Like Item	User Input
User Provided Base Demand	0.00	0.00
User Selected Like Item		
Like Item Average Sales		
Forecast Start Date Override	04/20/2019	04/20/2019
Approve flag	<input type="checkbox"/>	<input type="checkbox"/>
Approve date		
Adjustment Factor	1.00	1.00
Workflow Message	User Specified Like Item Not Set	Base Demand Not Input By User
New Item Base Demand 07	82.90	70.29
New Item Seasonality Level 07	12 week/subclass/district	12 week/subclass/district

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: <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	RDFCS 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 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 thru 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

Message	Cause	Action
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.

New Item Base Demand

This measure displays the average Base Demand in the New Item's subclass. This is useful because it gives you an idea of the base rate of demand that is going to be used if you choose Base Rate of Demand as substitution method. It is not the exact value because it is recalculated every time the forecasting batch is run, but it is likely very close. This measure is for information purpose only.

New Item Seasonality

This measure displays the intersection where the New Item's seasonality is calculated. Base demand and seasonality determine the shape and magnitude of the forecast. This measure is for information purpose only.

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

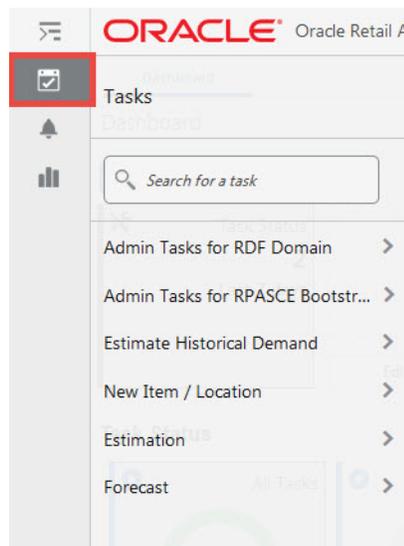
Use this workspace to assign like stores to handle forecasting for new stores. The like store assignment is manual and there is a good reason for it. New stores have a large financial impact, so it makes sense having a business person making the like store selection.

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:

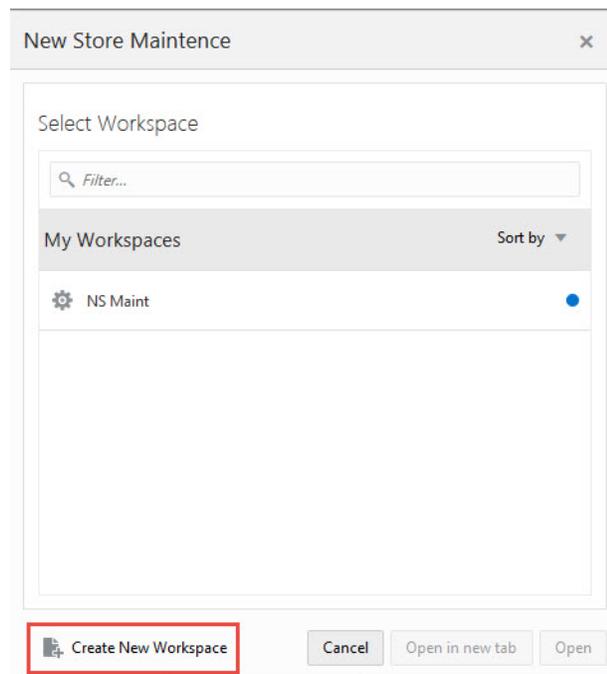
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 3–10 Task Module



2. Click the **New Item/Location** 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 3–11 New Store Maintenance Wizard



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

Figure 3–12 Enter Workspace Label

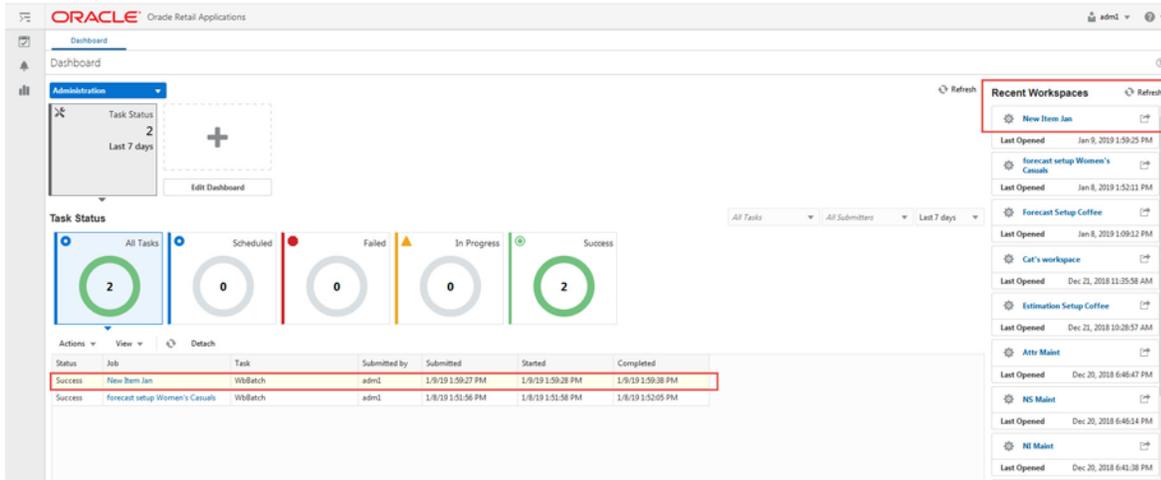
5. Select the locations you want to work with and click **Finish**.

Figure 3–13 Workspace Wizard: Select Locations

Level	Label	Selected
<input type="checkbox"/>	Company	<input checked="" type="checkbox"/>
<input type="checkbox"/>	Chain	<input type="checkbox"/>
<input type="checkbox"/>	Channel	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Region	<input checked="" type="checkbox"/>
<input type="checkbox"/>	District	<input type="checkbox"/>
<input type="checkbox"/>	Store	<input type="checkbox"/>
	11 Southeastern US	<input type="checkbox"/>
	12 Northeastern US	<input type="checkbox"/>
	13 Midwest US	<input checked="" type="checkbox"/>
	14 Northcentral US	<input type="checkbox"/>
	15 Southwestern US	<input checked="" type="checkbox"/>
	31 Eastern Canada	<input type="checkbox"/>
	32 Canadian Lakes	<input checked="" type="checkbox"/>
	33 Western Canada	<input type="checkbox"/>
	51 Australia	<input type="checkbox"/>
	52 New Zealand	<input type="checkbox"/>
	Catalog	<input type="checkbox"/>
	Central	<input type="checkbox"/>
	Continental Europe	<input type="checkbox"/>
	E-osk	<input type="checkbox"/>

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

Figure 3–14 Successful Workspace Build



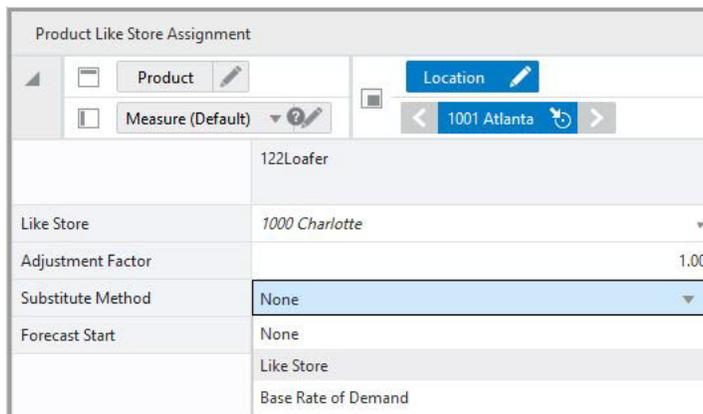
Like Store Assignment Step

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 3–15 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.
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 thru 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 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 3–16 New Item Basic Parameters View

New Item Basic Parameters	
Product	
Measure (Default)	
	Coffee
Adjustment Factor	0.95
Auto-Approve	<input checked="" type="checkbox"/>
Substitute Method	Base Rate of Demand
Threshold Recent Sales Density	0.50
History Time Series Duration	5
Recommended Number of Like Items	3

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	RDFCS 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:

$$\text{data density} = \text{number of periods with demand larger than zero} / \text{total length of demand}$$

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

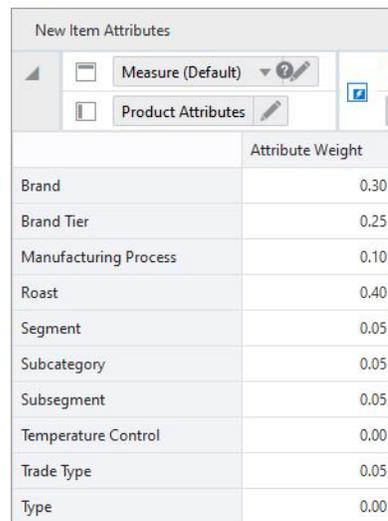
This step contains views that allow you to set up the forecasting strategy for New Items.

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 3–17 New Item Attributes View


	Attribute Weight
Brand	0.30
Brand Tier	0.25
Manufacturing Process	0.10
Roast	0.40
Segment	0.05
Subcategory	0.05
Subsegment	0.05
Temperature Control	0.00
Trade Type	0.05
Type	0.00

Measures: New Item Attributes View

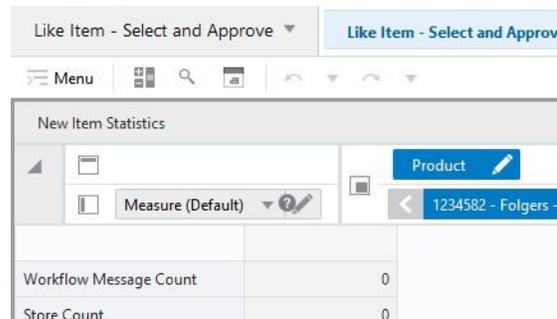
The New Item Attributes view contains the following measure:

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 3–18 New Item Statistics View


Workflow Message Count	0
Store Count	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 thru the process.

Figure 3–19 Select and Approve View

Select and Approve		
	1006 Chicago	1057 Green Bay
Substitute Method	User Input	Like Item
User Provided Base Demand	0.00	0.00
Forecast Start Date Override	04/20/2019	04/20/2019
Approve date		
Adjustment Factor	1.00	1.00
Workflow Message	Base Demand Not Input By User	
Approved Like Item		
System Recommended Like Item	81% 145.43 1236235 - PL - Medium Roast Non-Flavored Decaf - K Cup Coffee - 12 CT K-Cups/Box	81% 65.26 1236235 - PL - Medium Roast Non-Flavored Decaf - K Cup Coffee - 12 CT K-Cups/Box
User Selected Like Item		
Approve flag	<input type="checkbox"/>	<input checked="" type="checkbox"/>
New Item What-if	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
New Item Base Demand 07	82.90	70.29
New Item Seasonality Level 07	12 week/subclass/district	12 week/subclass /district

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	<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>RDFCS 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:</p> $\text{Forecast at time t} = \text{base rate of demand} * \text{seasonality at time t (coming from escalation level)} * \text{promo and price effects (coming from pooling level)}$
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>

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 thru 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

Message	Cause	Action
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 thru 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 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 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.

New Item Base Demand

This measure displays the average Base Demand in the New Item's subclass. This is useful because it gives you an idea of the base rate of demand that is going to be used

if you choose Base Rate of Demand as substitution method. It is not the exact value because it is recalculated every time the forecasting batch is run, but it is likely very close. This measure is for information purpose only.

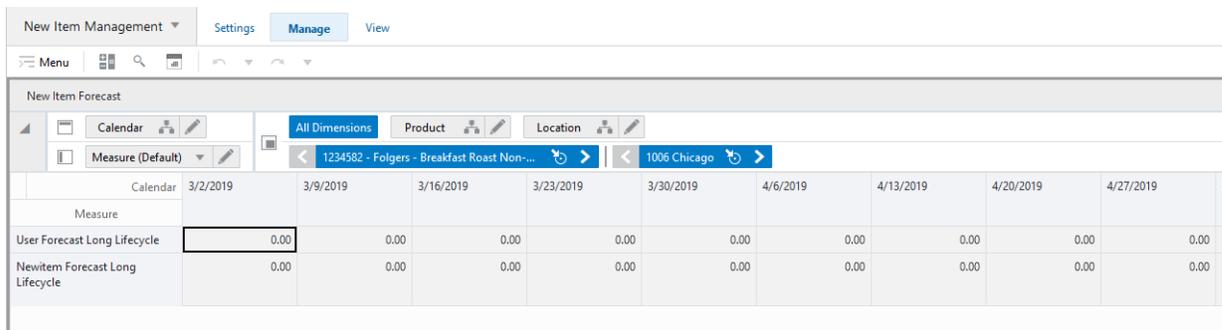
New Item Seasonality

This measure displays the intersection where the New Item’s seasonality is calculated. Base demand and seasonality determine the shape and magnitude of the forecast. This measure is for information purpose only.

New Item Forecast View

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

Figure 3–20 New Item Forecast View



Measures: New Item Forecast View

The New Item Forecast view contains the following measures:

System Recommendation

This measure displays the forecast of the New Item based on the selection of the Substitute Method.

For instance, if the selected option is:

Substitute Method	Description
None	No forecast is created for the New Item
Like Item	The forecast is based on the system recommended Like Item is displayed.
Base Rate of Demand	The forecast is displayed using the base rate of demand from items in the same class.
User Input	The forecast using the based rate of demand specified in the User Provided Base Demand.

User Selection

When the Substitute Method is Like Item, this measure displays the forecast of the New Item based on the base rate of demand of the User Selected Like Item, which is also displayed in the view. If no User Selected Like Item is specified, then the forecast is zero.

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 3–21 *Attribute Value View*

The screenshot shows the 'Attribute Value' view for product '1234582 - Folgers'. The interface includes a header with 'Measure (Default)' and 'Product Attributes' buttons, and a 'Comp Prod' button. The main table displays the following data:

	Product Attribute on the PROR
Brand	brand~folgers
Brand Tier	brandtier~value
Format Size	formatsize~12_oz
Manufacturing Process	manufacturingprocess~non_organic
Roast	roast~breakfast
Segment	segment~de_caffeinated
Subcategory	subcategory~ground
Subsegment	subsegment~can
Trade Type	tradetype~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 3–22 Similarity Score View

Similarity Score							
Product		Measure (Default)					
Comp Prod		Similarity Scores					
	1234772 - PL - Medium Roast Non-Flavored	1373794 - Illy Coffee Cafe Filtre Medium Roast K-Cup Pods -	1376438 - Illy Coffee Cafe Filtre Dark Roast K-Cup Pods -	1422776 - Illy Espresso Ground Coffee Illy Blend	1511496 - Illy Decaf Medium Roast Ground Coffee - 8.8	1512298 - Illy Ground Espresso Coffee Medium	
1234582 - Folgers - Breakfast Roast Non-Flavored Decaf - Ground - 12 oz Can	0.41	0.07	0.07	0.19	0.22	0.19	
1234600 - Maxwell House - 100% Columbian Non-Flavored Decaf - Ground - 12 oz Can	0.41	0.07	0.07	0.19	0.22	0.19	
1234615 - Maxwell House - Breakfast Roast Non-Flavored Decaf - Ground - 12 oz Can	0.41	0.07	0.07	0.19	0.22	0.19	
1234747 - Folgers - 100% Columbian Non-Flavored Regular - Ground - 12 oz Can	0.44	0.11	0.11	0.22	0.19	0.22	
1234753 - Folgers - Dark Roast Non-Flavored Regular - Ground - 12 oz Can	0.44	0.11	0.41	0.52	0.19	0.22	
1234759 - Folgers - Medium Roast Non-Flavored Regular - Ground - 12 oz Can	0.74	0.41	0.11	0.22	0.48	0.52	
1234762 - Folgers - Breakfast Roast Non-Flavored Regular - Ground - 12 oz Can	0.44	0.11	0.11	0.22	0.19	0.22	
1234765 - Folgers - French Roast Non-Flavored Regular - Ground - 12 oz Can	0.44	0.11	0.11	0.22	0.19	0.22	
1234768 - PL - 100% Columbian Non-Flavored Regular - Ground - 12 oz Can	0.67	0.11	0.11	0.22	0.19	0.22	
1234769 - PL - French Roast Non-Flavored Regular - Ground - 12 oz Bag	0.70	0.11	0.11	0.19	0.15	0.19	
1234770 - PL - French Roast Non-Flavored Regular - Whole - 12 oz Bag	0.67	0.11	0.11	0.15	0.11	0.15	
1234771 - PL - Breakfast Roast Non-Flavored Regular - Whole - 12 oz Bag	0.67	0.11	0.11	0.15	0.11	0.15	
1234772 - PL - Medium Roast Non-Flavored Regular - Ground - 12 oz Bag	0.00	0.00	0.00	0.00	0.00	0.00	
1234773 - PL - Dark Roast Non-Flavored Regular - Ground - 12 oz Bag	0.70	0.11	0.41	0.48	0.15	0.19	
1234774 - PL - French Roast Non-Flavored Decaf - Ground - 12 oz Bag	0.67	0.07	0.07	0.15	0.19	0.15	
1234775 - PL - Breakfast Roast Non-Flavored Decaf - Ground - 12 oz Bag	0.67	0.07	0.07	0.15	0.19	0.15	

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.

Data Cleansing for Seasonality Estimation Task

This chapter describes the functionality of the Data Cleansing for Seasonality Estimation Task which includes:

- Preprocessing Administration, see [About Preprocessing Administration](#)
- Source Measure Maintenance see [About Source Measure Maintenance](#)

Data Cleansing for Seasonality Estimation Workspace, Steps, and Views

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

Workspace	Step	Views
Preprocess Administration Workspace	Preprocess Parameters Step	Preprocess Admin Seasonality View Preprocess Method Parameters for Seasonality View Preprocess Method Parameters Override for Seasonality View Preprocess Panel for Seasonality View
Source Measure Maintenance Workspace	Preprocess Parameters Step	Preprocess Admin Seasonality View Preprocess Method Parameters for Seasonality View Preprocess Method Parameters Override for Seasonality View Preprocess Panel for Seasonality View
	Review Step	Source Measure Maintenance for Seasonality View

About Preprocessing Administration

This section describes how the preprocessing functionality is implemented in RDF using the [Preprocess Administration Workspace](#).

Use the [Preprocess Administration Workspace](#) to perform this step:

- [Preprocess Parameters Step](#)

Note: Similar to the [Preprocess Administration Workspace](#) is the [Source Measure Maintenance Workspace](#). For functionality differences, see [Source Measure Maintenance Functionality](#).

About Preprocessing

Preprocessing is a module that is used to correct historical data prior to forecast generation when history does not represent general demand patterns. It is meant to automatically make adjustments to the raw POS (Point Of Sales) data so the next demand forecasts do not replicate undesired patterns.

Data Preprocessing is commonly used to:

- Correct for lost sales due to stock-outs
- Cleanse data for effects of promotions and short-term price changes (optional)
- Correct for outliers – unusually high or low values introduced by human error or special events (hurricane that left a store closed for a week)
- Scrub data manually to fake history and override user history
- Adjust demand for the occasional 53rd calendar week
- Manage demand created during events and holidays that do not occur in the same period every year, for example, Back to School.

Preprocessing runs after the data has been loaded from the host system and prior to forecast generation. Use the [Preprocess Administration Workspace](#) to select the techniques used to transform sales to unconstrained demand. It is common for an environment to require preprocessing to run multiple times to properly smooth the history. Commonly, there are up to three or four runs to go from raw sales to the data source that is used to generate the forecast. For RDF, a maximum of six runs is allowed for one data source. For example, if there is one baseline and one causal level, there can be up to six preprocessing runs allowed to create the data source for the baseline forecast, and up to six runs allowed to create the data source for the causal forecast.

Preprocessing Data in the RDF Workflow

Preprocessing offers a variety of algorithm methods to support the business requirements. The main reason for preprocessing is to transform the raw sales data into a measure that gets as close as possible to unconstrained demand.

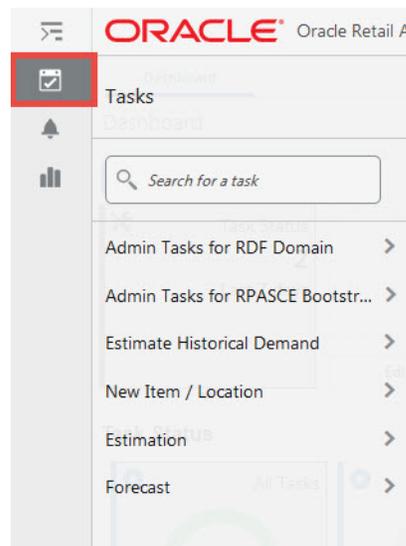
The preprocessing step is most often implemented in batch, by invoking a preprocessing special expression. The special expression takes several measures as input. For instance, one needs to specify the measure to be corrected, the desired algorithm, and the number of periods to be considered. However, you can go into more detail, and specify several filter window lengths, or exponential smoothing parameters.

Preprocess Administration Workspace

To build the Preprocess Administration workspace, perform these steps:

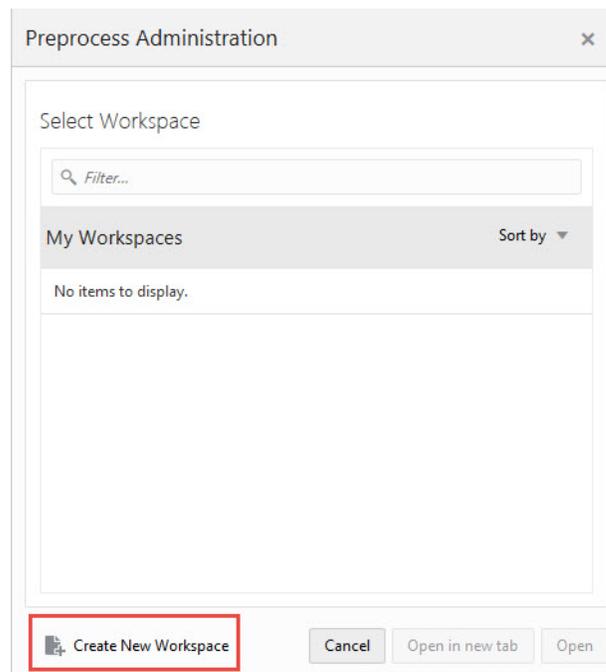
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 4–1 Task Module



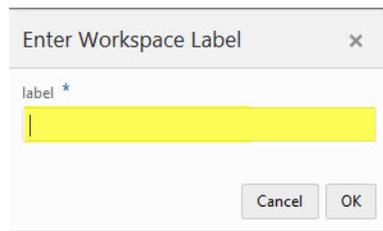
2. Click the **Estimate Historical Demand** activity and then click **Seasonality** to access the available workspaces.
3. Click **Preprocess Administration**. The Preprocess Administration wizard opens. You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 4–2 Preprocess Administration Wizard



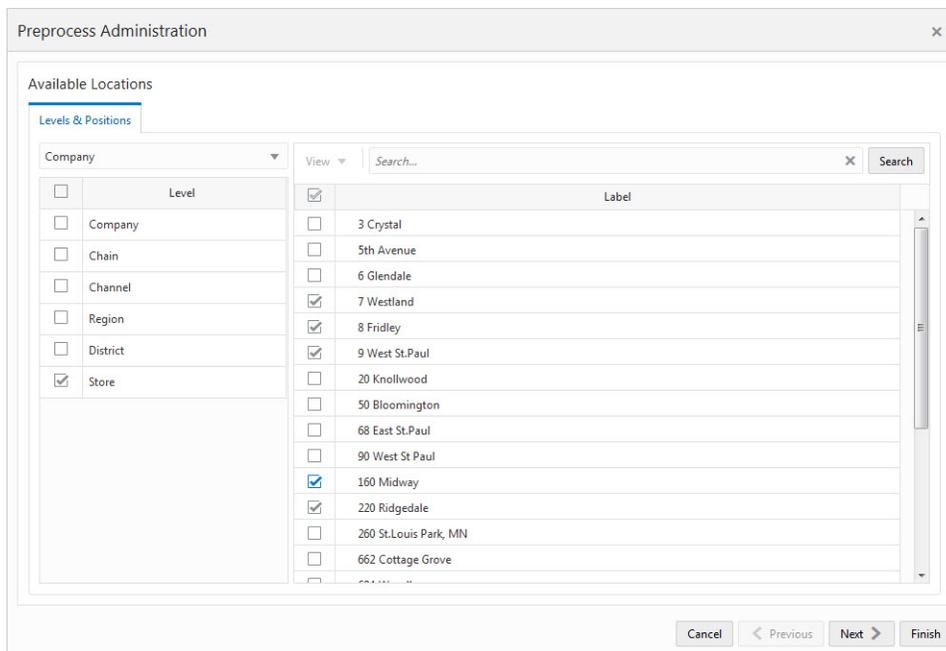
4. Enter a name for your new workspace in the label text box and click **OK**.

Figure 4–3 Enter Workspace Label



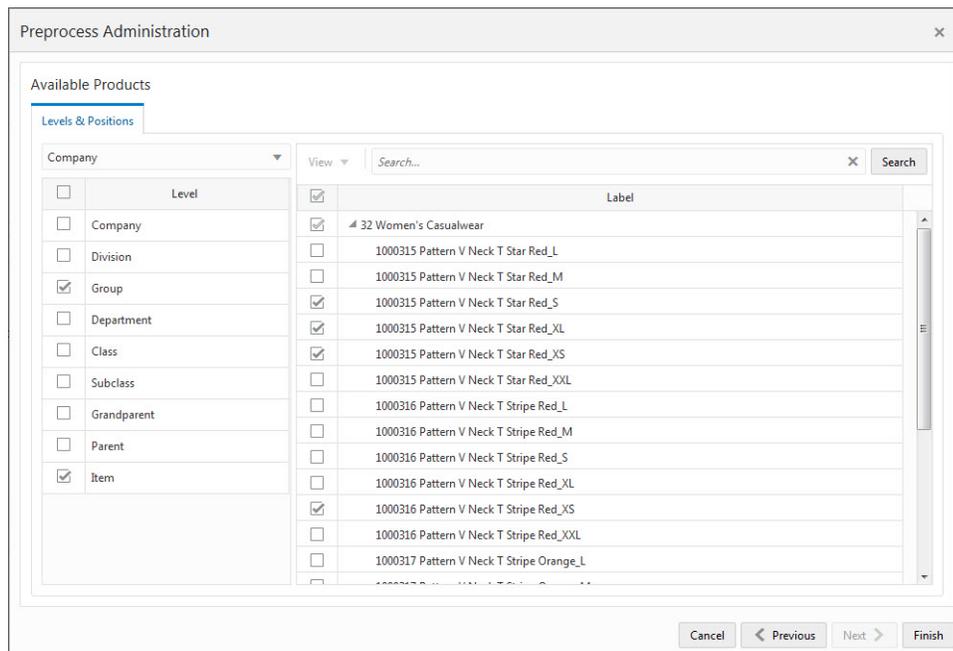
5. The Workspace wizard opens. Select the locations you want to work with and click **Next**.

Figure 4–4 Workspace Wizard: Select Locations



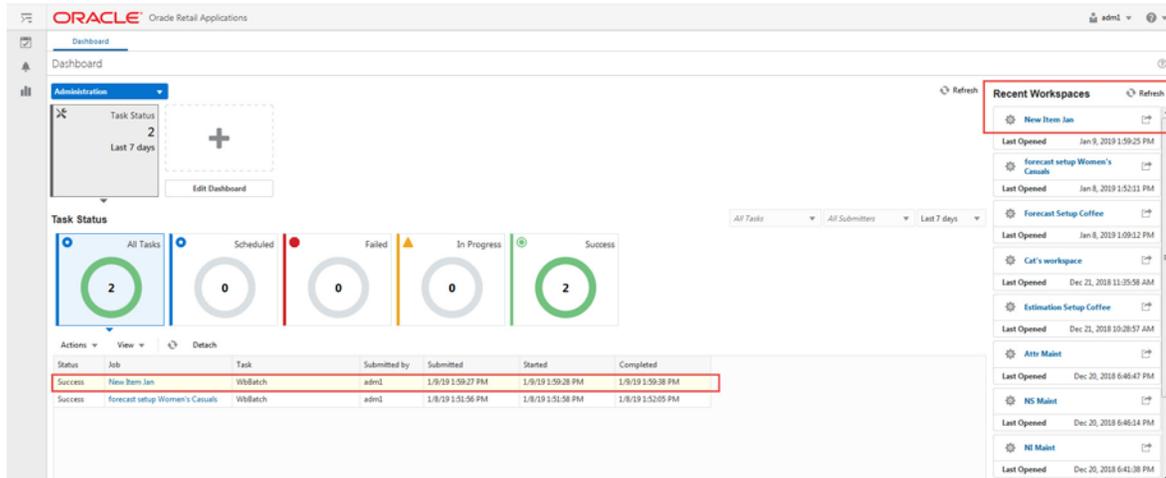
6. Select the products you want to work with and click **Finish**.

Figure 4–5 Workspace Wizard: Select Products



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

Figure 4–6 Successful Workspace Build



Preprocess Parameters Step

The available views are:

- Preprocess Admin Seasonality View
- Preprocess Method Parameters for Seasonality View

- [Preprocess Method Parameters Override for Seasonality View](#)
- [Preprocess Panel for Seasonality View](#)

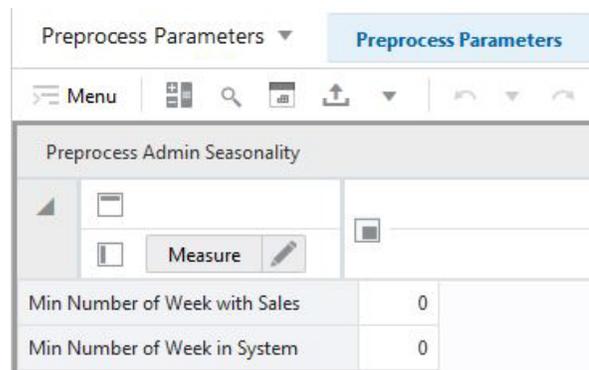
These views make available the preprocessing parameters for four rounds of preprocessing runs, necessary to calculate the data source for baseline forecasting and promotional forecasting.

In RDF, preprocessing is configured to create the data sources for baseline forecasting, as well as, causal forecasting. The creation of each of the sources can go through at most six runs of preprocessing. For example, to generate the Causal Data Source, it is configured for three runs and for the baseline data source, it is configured for four runs.

Preprocess Admin Seasonality View

The Preprocess Admin Promo view allows you to define the scope of the preprocessing run, as well as filter out item/locations where preprocessing does not make sense because of lack of enough historical sales.

Figure 4–7 Preprocess Admin Seasonality View



Measures: Preprocess Admin Seasonality View

The Preprocess Admin Seasonality view contains the following measures:

Min Number of Weeks in System

This parameter defines the number of periods from when an item was introduced in the system. Usually the introduction time is considered to be the date when the item first sold. This check is also introduced to stop making data corrections for items that are very new, and where cleansing would be unreliable.

Min Number of Weeks with Sales

This parameter defines the number of weeks with sales that an item/store combination needs to have to qualify for data cleansing. The reasoning behind this check is that for items without enough data, corrections may not be reliable. Once there is enough data, and trends become clearer, corrections can be made.

Preprocess Method Parameters for Seasonality View

There are actually two views with the same set of measures, where, you can enter values for parameters specific for some of the preprocessing methods available in the special expression to create the data sources for the baseline and causal forecasts.

There is a set of parameters for each of the maximum six runs allowed. However, very likely not all six are configured. For example, when generating the Causal Data Source, three runs are configured. The parameters are entered at the class/store intersection

Figure 4–8 Preprocess Method Parameters for Seasonality View

Measure	run 1	run 2	run 3
Alpha	0.20	0.20	0.20
Future Weeks	5	5	5
Last Date			
Partial Outage Flag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Preprocessing Window	100	100	100
Past Weeks	5	5	5
Standard Median Window	5	5	5
Stop at Event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Short Event Max Length	3	3	3

Measures: Preprocess Method Parameters for Seasonality View

The Preprocess Method Parameters for Seasonality view contains the following measures:

Alpha

Exponential smoothing coefficient used to calculate past and future velocities.

Future Weeks

This represents the maximum number of data points to calculate the future velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Last Date

This represents the end date of the preprocessing window; it is typically today's date, but can be any date in the past.

Past Weeks

This represents the maximum number of data points to calculate the past velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Preprocessing Window

Number of historical data points that are preprocessed.

Short Event Max Length

This measure is related to a new method used to de-promote the sales. The legacy way of de-promoting is by using the Standard ES method. If the promolift is non-zero and the promotion length is less than or equal to short event max length, Standard Exponential Smoothing is performed on the input.

If the new method is specified and the promotion window is longer than the value stored in this measure, the input data is divided by the promolift value to remove promo lift.

Standard Median Window

Filter window length for the Standard Median preprocessing method.

Partial Outage

A scalar parameter indicating if the period immediately following an out-of-stock period should be adjusted. The default behavior is for the flag to be True.

Stop at Event

This parameter determines which periods are included in the calculation of past/future velocities.

If the flag is set to True, then the algorithm only includes periods before the first event flag or event indicator.

If the flag is False, then all available, non-flagged periods, within the windows defined by Past Weeks and Future Weeks, are used in the calculation of the past and future velocities.

The default setting for the flag is False.

Window#

Additionally, there are five measures, Window1 thru Window5. These measures define the lengths of the five Standard Median filter windows that are run as part of the Retail Median preprocessing method.

Preprocess Method Parameters Override for Seasonality View

In this view at the item/store level, you can override values for parameters specific for some of the preprocessing methods available in the special expression. There are two views, corresponding to the preprocessing runs necessary to create the data sources for the baseline and causal forecasts.

After all parameters are set and committed back to the domain, usually a batch job will run the pre-processing steps and prepare the data source s for forecast generation.

Figure 4–9 Preprocess Method Parameters Override for Seasonality View

Run Round	run 1	run 2	run 3
Measure			
Alpha			
Future Weeks			
Last Date			
Partial Outage Flag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preprocessing Window			
Past Weeks			
Stop at Event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standard Median Window			
Short Event Max Length	–	–	–

Measures: Preprocess Method Parameters Override for Seasonality View

The Preprocess Method Parameters Override for Seasonality view contains the following measures:

Alpha Override

Exponential smoothing coefficient used to calculate past and future velocities.

Future Weeks Override

This represents the maximum number of data points to calculate the future velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Last Date Override

This represents the end date of the preprocessing window; it is typically today's date, but can be any date in the past.

Past Weeks Override

This represents the maximum number of data points to calculate the past velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Preprocessing Window Override

Number of historical data points that are preprocessed.

Short Event Max Length

This measure is related to a new method used to de-promote the sales. The legacy way of de-promoting is by using the Standard ES method. If the promolift is non-zero and the promotion length is less than or equal to short event max length, Standard Exponential Smoothing is performed on the input.

If the new method is specified and the promotion window is longer than the value stored in this measure, the input data is divided by the promo lift value to remove promo lift.

Standard Median Window Override

Filter window length for the Standard Median preprocessing method.

Partial Outage Override

A scalar parameter indicating if the period immediately following an out-of-stock period should be adjusted. The default behavior is for the flag to be True.

Stop at Event Override

This parameter determines which periods are included in the calculation of past/future velocities.

If the flag is set to True, then the algorithm only includes periods before the first event flag or event indicator.

If the flag is False, then all available, non-flagged periods, within the windows defined by *nfut* and *npast*, are used in the calculation of the past and future velocities.

The default setting for the flag is False.

Window#

Additionally, there are five measures, Window1 thru Window5. These measures define the lengths of the five Standard Median filter windows that are run as part of the Retail Median preprocessing method.

Preprocess Panel for Seasonality View

The view displays the measures necessary to create the data source for baseline forecasting. This involves four rounds of preprocessing that run in batch or online in this order:

1. Correcting for stockouts
2. Correcting for outliers
3. Depromoting sales
4. Smooth sales

Figure 4–10 Preprocess Panel for Seasonality View

	run 1	run 2	run 3	run 4
First Time-Phased Parameter	PreOosInd	PreOutInd	PrePpiInd	
Preprocess Methods	Standard Exponential Smoothing	Standard Exponential Smoothing	Standard Exponential Smoothing	Standard Median
Run Label	Correct OOS	Correct Outliers	Depromote Sales	Smooth Sales
Run Preprocess Flag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Second Time-Phased				

Measures: Preprocess Panel for Seasonality View

Note: Measures are replicated for each round of preprocessing.

The Preprocess Panel for Seasonality view contains the following measures:

Input Data Source

Indicates the measure that will be corrected. This is the input to the first preprocessing run. There are no inputs available for other runs other than the first run.

First Time-Phased Parameter

This measure stores the first time-phased measure that is required for some preprocessing methods. For instance, for the Std ES LS method, this measure would store the measure name of the outage flag. Or for the Std ES method, it could store the name of the outlier flag.

Preprocess Method

Name of the preprocessing method to be used for each run. This method is selected in the Configuration Tools

Output Data Measure

Indicates the measure that stores the result of the last configured preprocessing run. For instance, for the Preprocess Panel for Baseline, the output comes from run 4.

Run Label

A label denoting the purpose of the preprocessing run, for example, Correct Outliers, or Depromote Sales.

Run Preprocess Flag

Boolean measure indicating if this run should be enabled or skipped.

Second Time-Phased Parameter

This measure stores the second time-phased measure that is required for some preprocessing methods. For instance, for the Forecast Sigma method, this measure

would store measure name of the confidence intervals. Or for the Override method it could store the measure name of the outage flag.

About Source Measure Maintenance

This section describes how the preprocessing functionality is implemented in RDF using the [Source Measure Maintenance Workspace](#).

The functionality in the [Source Measure Maintenance Workspace](#) is a superset of the functionality in the [Preprocess Administration Workspace](#). The purpose and functionality between the two is described in [Source Measure Maintenance Functionality](#).

Use the [Source Measure Maintenance Workspace](#) to perform these steps:

- [Preprocess Parameters Step](#)
- [Review Step](#)

Note: For information about preprocessing and RDF, see [Preprocessing Data in the RDF Workflow](#)

Source Measure Maintenance Functionality

The [Preprocess Administration Workspace](#) and the [Source Measure Maintenance Workspace](#) have a large set of common content.

The main difference is that while the [Source Measure Maintenance Workspace](#) has the calendar hierarchy, on top of the product and location, and the [Preprocess Administration Workspace](#) has only the product and location.

The additional hierarchy allows the review of the time-phased preprocessing measures, as well as the calculated forecasting data sources.runs.

Due to their additional dimension of *week*, these measures add to the size of the workspace, and also make workspace operations slower. For instance, workspace build, refresh, commit, and so on, take longer than in the otherwise similar [Preprocess Administration Workspace](#).

Preprocess Administration Workspace

The [Preprocess Administration Workspace](#) is at the product/location intersection, so it can be built with a lot of positions, without experiencing poor performance. The purpose is to set preprocessing parameters, which are inputs to the special expression that is run in batch.

Source Measure Maintenance Workspace

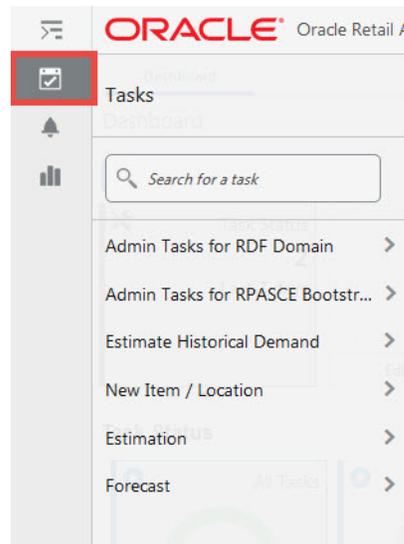
The [Source Measure Maintenance Workspace](#), described in this chapter, is at the product/location/calendar intersection, and is a lot more data intensive. The purpose is to set preprocessing parameters and run the data filtering online, with the ability to review the results without having to wait for an overnight batch. If the results are not as expected, or you want to experiment with different settings, you can make changes to the parameters and rerun the custom menus. To achieve this it is expected that only a small subset of the available product/locations is included in the workspace.

Source Measure Maintenance Workspace

To build the Source Measure Maintenance workspace, perform these steps:

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

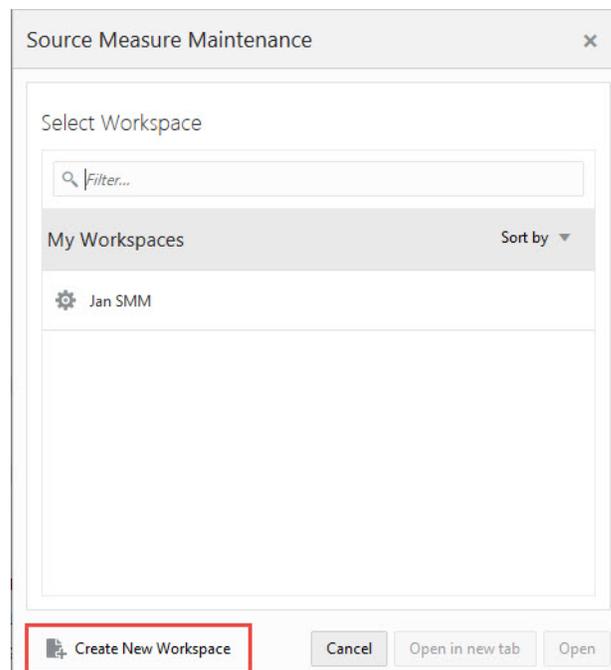
Figure 4–11 Task Module



2. Click the **Estimate Historical Demand** activity and then click **Seasonality** to access the available workspaces.
3. Click **Source Measure Maintenance**. The Source Measure Maintenance wizard opens.

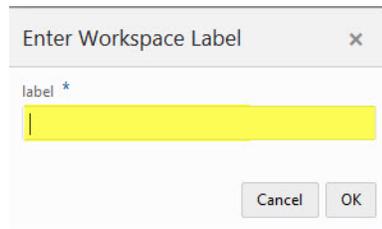
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 4–12 Source Measure Maintenance Wizard



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

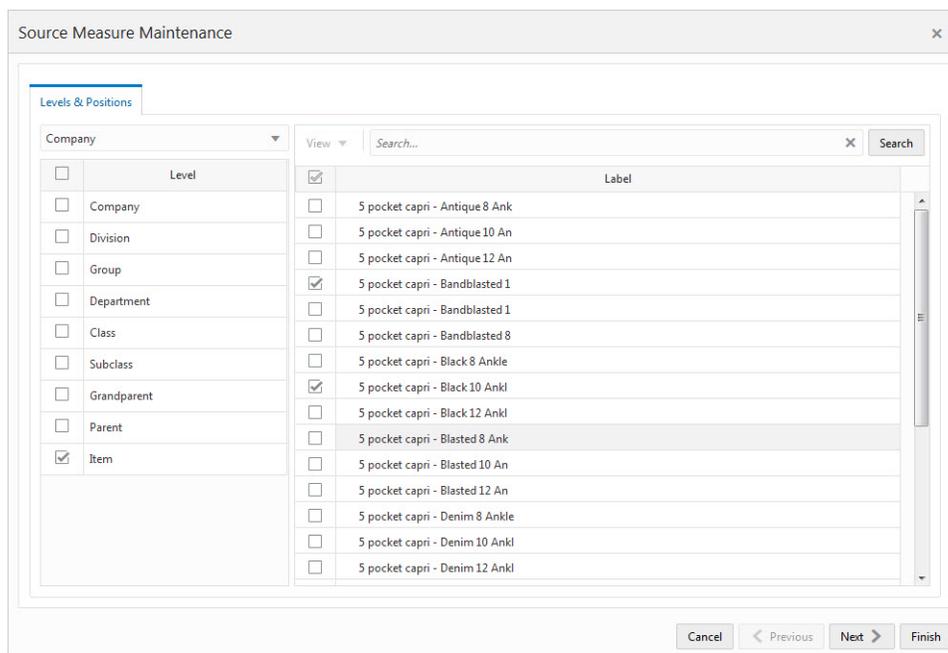
Figure 4–13 Enter Workspace Label



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

Note: It is important to include all products that are members of the Merchandise dimensions in the forecast levels to be analyzed. For example, if you select to view a forecast level that is defined at subclass/store/week, you must include all items that are members of the particular subclass to be analyzed. It is recommended that Position Query functionality or selection from aggregate levels in the Merchandise hierarchy is employed if the task supports an AutoTask build.

Figure 4–14 Workspace Wizard: Select Products



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

Note: It is important to include all locations that are members of the location dimensions in the forecast levels to be analyzed. For example, if you select to view a forecast level that is defined at item/chain/week, you should include all locations that are members of the particular chain to be analyzed. It is recommended that Position Query functionality or selection from aggregate levels in the location hierarchy is employed if the task supports an AutoTask build.

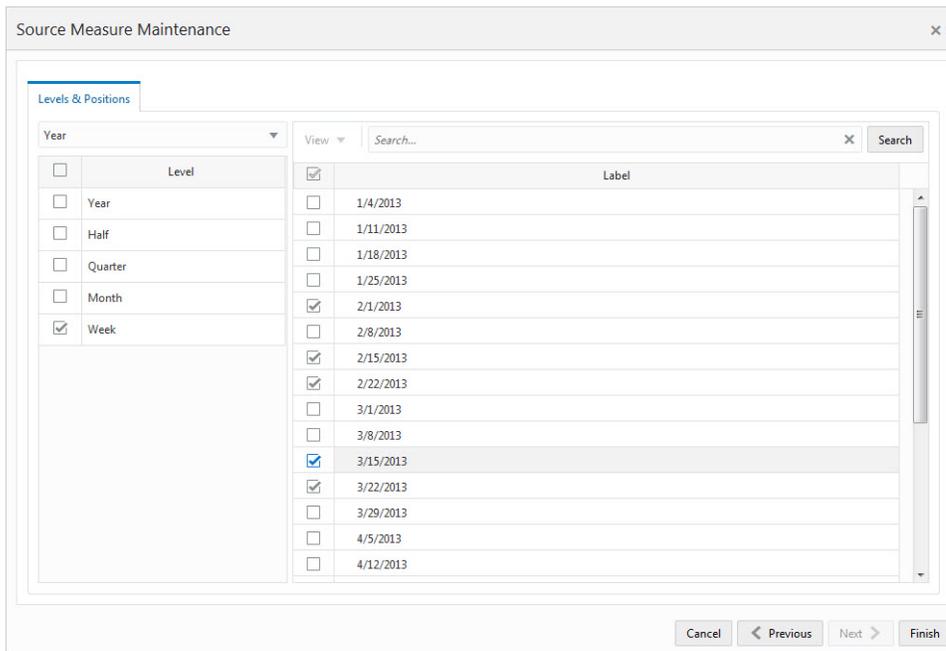
Figure 4–15 *Workspace Wizard: Select Locations*

The screenshot shows the 'Source Measure Maintenance' workspace wizard. The 'Levels & Positions' tab is active. On the left, a list of levels is shown with checkboxes: Company, Chain, Channel, Region, District, and Store (checked). On the right, a table of store locations is displayed with checkboxes for selection. The table has columns for 'View', 'Search...', and 'Label'. The 'Label' column lists various store locations, and the 'View' column has checkboxes. The 'Search' button is located to the right of the search input field. At the bottom, there are buttons for 'Cancel', '< Previous', 'Next >', and 'Finish'.

Level	Label
<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Company	<input checked="" type="checkbox"/> 3 Crystal
<input type="checkbox"/> Chain	<input checked="" type="checkbox"/> 5th Avenue
<input type="checkbox"/> Channel	<input type="checkbox"/> 6 Glendale
<input type="checkbox"/> Region	<input type="checkbox"/> 7 Westland
<input type="checkbox"/> District	<input checked="" type="checkbox"/> 8 Fridley
<input checked="" type="checkbox"/> Store	<input checked="" type="checkbox"/> 9 West St.Paul
	<input type="checkbox"/> 20 Knollwood
	<input type="checkbox"/> 50 Bloomington
	<input type="checkbox"/> 68 East St.Paul
	<input type="checkbox"/> 90 West St Paul
	<input type="checkbox"/> 160 Midway
	<input type="checkbox"/> 220 Ridgedale
	<input type="checkbox"/> 260 St.Louis Park, MN
	<input type="checkbox"/> 662 Cottage Grove
	<input type="checkbox"/> 694 Woodbury

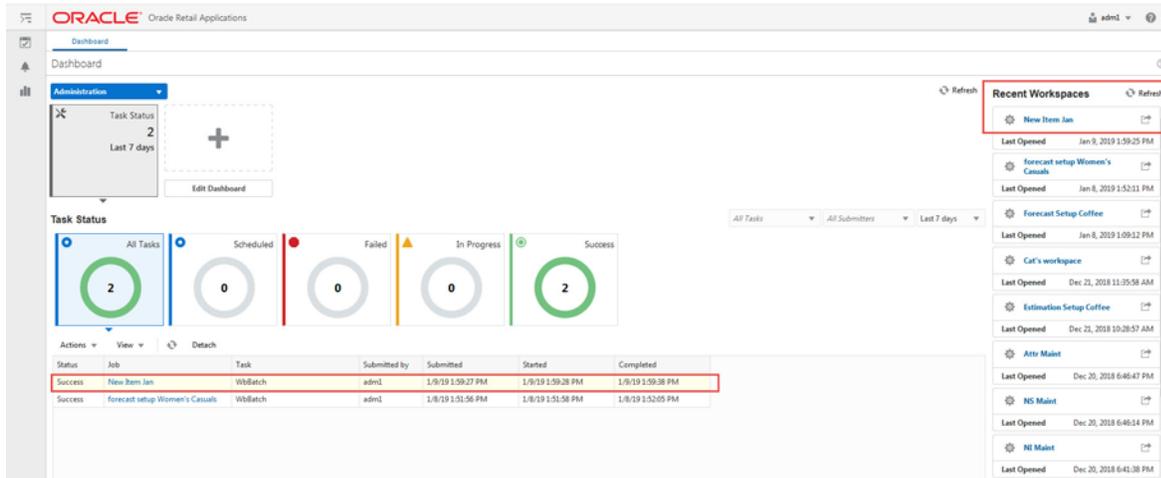
7. Select the weeks of the forecast you wish to review and click **Finish**.

Figure 4–16 Workspace Wizard: Select Available Calendar Positions



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

Figure 4–17 Successful Workspace Build



The Source Measure Maintenance workspace is built and includes these steps:

- [Preprocess Parameters Step](#)
- [Review Step](#)

Preprocess Parameters Step

The available views are:

- [Preprocess Admin Seasonality View](#)
- [Preprocess Method Parameters for Seasonality View](#)
- [Preprocess Method Parameters Override for Seasonality View](#)
- [Preprocess Panel for Seasonality View](#)

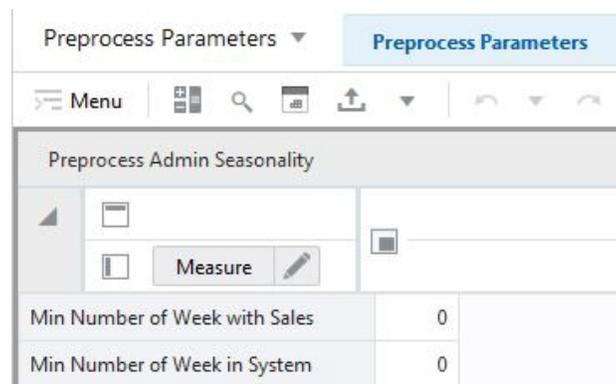
These views make available the preprocessing parameters for four rounds of preprocessing runs, necessary to calculate the data source for baseline forecasting and promotional forecasting.

In RDF, preprocessing is configured to create the data sources for baseline forecasting, as well as, causal forecasting. The creation of each of the sources can go through at most six runs of preprocessing. For example, to generate the Causal Data Source, it is configured for three runs and for the baseline data source, it is configured for four runs.

Preprocess Admin Seasonality View

This step contains the Preprocess Admin view that allows you to define the scope of the preprocessing run, as well as filter out item/locations where preprocessing does not make sense because of lack of enough historical sales.

Figure 4–18 Preprocess Panel for Baseline View



Measures: Preprocessing Panel for Baseline View

The Preprocessing Panel for Baseline view contains the following measures:

Min Number of Weeks in System

This parameter defines the number of periods from when an item was introduced in the system. Usually the introduction time is considered to be the date when the item first sold. This check is also introduced to stop making data corrections for items that are very new, and where cleansing would be unreliable.

Min Number of Weeks with Sales

This parameter defines the number of weeks with sales that an item/store combination needs to have to qualify for data cleansing. The reasoning behind this

check is that for items without enough data, corrections may not be reliable. Once there is enough data, and trends become clearer, corrections can be made.

Preprocess Method Parameters for Seasonality View

There are actually two views with the same set of measures, where, you can enter values for parameters specific for some of the preprocessing methods available in the special expression to create the data sources for the baseline and causal forecasts. There is a set of parameters for each of the maximum six runs allowed. However, very likely not all six are configured. For example, when generating the Causal Data Source, three runs are configured. The parameters are entered at the class/store intersection

Figure 4–19 Preprocess Method Parameters for Seasonality View

Measure	run 1	run 2	run 3
Alpha	0.20	0.20	0.20
Future Weeks	5	5	5
Last Date			
Partial Outage Flag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Preprocessing Window	100	100	100
Past Weeks	5	5	5
Standard Median Window	5	5	5
Stop at Event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Short Event Max Length	3	3	3

Measures: Preprocess Method Parameters for Seasonality View

The Preprocess Method Parameters for Seasonality view contains the following measures:

Alpha

Exponential smoothing coefficient used to calculate past and future velocities.

Future Weeks

This represents the maximum number of data points to calculate the future velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Last Date

This represents the end date of the preprocessing window; it is typically today's date, but can be any date in the past.

Past Weeks

This represents the maximum number of data points to calculate the past velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Preprocessing Window

Number of historical data points that are preprocessed.

Short Event Max Length

This measure is related to a new method used to de-promote the sales. The legacy way of de-promoting is by using the Standard ES method. If the promo lift is non-zero and the promotion length is less than or equal to short event max length, Standard Exponential Smoothing is performed on the input.

If the new method is specified and the promotion window is longer than the value stored in this measure, the input data is divided by the promo lift value to remove promo lift.

Standard Median Window

Filter window length for the Standard Median preprocessing method.

Partial Outage

A scalar parameter indicating if the period immediately following an out-of-stock period should be adjusted. The default behavior is for the flag to be True.

Stop at Event

This parameter determines which periods are included in the calculation of past/future velocities.

If the flag is set to True, then the algorithm only includes periods before the first event flag or event indicator.

If the flag is False, then all available, non-flagged periods, within the windows defined by nfuture and npast, are used in the calculation of the past and future velocities.

The default setting for the flag is False.

Window#

Additionally, there are five measures, Window1 thru Window5. These measures define the lengths of the five Standard Median filter windows that are run as part of the Retail Median preprocessing method.

Preprocess Method Parameters Override for Seasonality View

In this view at the item/store level, you can override values for parameters specific for some of the preprocessing methods available in the special expression. There are two views, corresponding to the preprocessing runs necessary to create the data sources for the baseline and causal forecasts.

After all parameters are set and committed back to the domain, usually a batch job will run the pre-processing steps and prepare the data sources for forecast generation.

Figure 4–20 Preprocess Method Parameters Override for Seasonality View

Run Round	run 1	run 2	run 3
Measure			
Alpha			
Future Weeks			
Last Date			
Partial Outage Flag	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preprocessing Window			
Past Weeks			
Stop at Event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Standard Median Window			
Short Event Max Length	—	—	—

Measures: Preprocess Method Parameters Override for Seasonality View

The Preprocess Method Parameters Override for Seasonality view contains the following measures:

Alpha Override

Exponential smoothing coefficient used to calculate past and future velocities.

Future Weeks Override

This represents the maximum number of data points to calculate the future velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Last Date Override

This represents the end date of the preprocessing window; it is typically today's date, but can be any date in the past.

Past Weeks Override

This represents the maximum number of data points to calculate the past velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Preprocessing Window Override

Number of historical data points that are preprocessed.

Short Event Max Length

This measure is related to a new method used to de-promote the sales. The legacy way of de-promoting is by using the Standard ES method. If the promo lift is non-zero and the promotion length is less than or equal to short event max length, Standard Exponential Smoothing is performed on the input.

If the new method is specified and the promotion window is longer than the value stored in this measure, the input data is divided by the promo lift value to remove promo lift.

Standard Median Window Override

Filter window length for the Standard Median preprocessing method.

Partial Outage Override

A scalar parameter indicating if the period immediately following an out-of-stock period should be adjusted. The default behavior is for the flag to be True.

Stop at Event Override

This parameter determines which periods are included in the calculation of past/future velocities.

If the flag is set to True, then the algorithm only includes periods before the first event flag or event indicator.

If the flag is False, then all available, non-flagged periods, within the windows defined by nfut and npast, are used in the calculation of the past and future velocities.

The default setting for the flag is False.

Window#

Additionally, there are five measures, Window1 thru Window5. These measures define the lengths of the five Standard Median filter windows that are run as part of the Retail Median preprocessing method.

Preprocess Panel for Seasonality View

The view displays the measures necessary to create the data source for baseline forecasting. This involves four rounds of preprocessing that run in batch or online in this order:

1. Correcting for stockouts
2. Correcting for outliers
3. Depromoting sales
4. Smooth sales

Figure 4–21 Preprocess Panel for Seasonality View

	run 1	run 2	run 3	run 4
First Time-Phased Parameter	PreOosInd	PreOutInd	PrePpiInd	
Preprocess Methods	Standard Exponential Smoothing	Standard Exponential Smoothing	Standard Exponential Smoothing	Standard Median
Run Label	Correct OOS	Correct Outliers	Depromote Sales	Smooth Sales
Run Preprocess Flag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Second Time-Phased				

Measures: Preprocess Panel for Seasonality View

Note: Measures are replicated for each round of preprocessing.

The Preprocess Panel for Seasonality view contains the following measures:

Input Data Source

Indicates the measure that will be corrected. This is the input to the first preprocessing run. There are no inputs available for other runs other than the first run.

First Time-Phased Parameter

This measure stores the first time-phased measure that is required for some preprocessing methods. For instance, for the Std ES LS method, this measure would store the measure name of the outage flag. Or for the Std ES method, it could store the name of the outlier flag.

Preprocess Method

Name of the preprocessing method to be used for each run. This method is selected in the Configuration Tools

Output Data Measure

Indicates the measure that stores the result of the last configured preprocessing run. For instance, for the Preprocess Panel for Baseline, the output comes from run 4.

Run Label

A label denoting the purpose of the preprocessing run, for example, Correct Outliers, or Depromote Sales.

Run Preprocess Flag

Boolean measure indicating if this run should be enabled or skipped.

Second Time-Phased Parameter

This measure stores the second time-phased measure that is required for some preprocessing methods. For instance, for the Forecast Sigma method, this measure

would store measure name of the confidence intervals. Or for the Override method it could store the measure name of the outage flag.

Review Step

The main purpose of this step is to display time-phased measures that represent input and output to the preprocessing stages, run in batch based on the settings selected in Preprocessing Admin.

This step contains the [Source Measure Maintenance for Seasonality View](#).

This view can show either the [Baseline View](#) or the [Causal View](#).

Baseline View

The baseline view displays the measures necessary to create the data source for baseline forecasting. This involves four rounds of preprocessing that run in batch or online in this order:

1. Correcting for stockouts
2. Correcting for outliers
3. Depromoting sales
4. Smooth sales

Causal View

The causal view displays the measures necessary to create the data source for causal forecasting. This involves three rounds of preprocessing that are run in batch:

1. Correcting for stockouts
2. Correcting for outliers
3. Deseasonalizing the measure to create the Causal Data Source

Source Measure Maintenance for Seasonality View

This view displays measures that represent input and output of the preprocessing runs, in table format.

Figure 4–22 Source Measure Maintenance for Seasonality View

	10/21/2016	10/28/2016	11/4/2016	11/11/2016	11/18/2016	11/25/2016
User Adjustment	0.00	0.00	0.00	0.00	20.00	0.00
Out of Stock Indicator	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outlier Indicator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Promotion Indicator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LLC Sales data	26.00	20.00	18.00	48.00	18.00	19.00
Data Source Baseline	26.00	20.00	18.00	48.00	38.00	19.00

Measures: Source Measure Maintenance for Seasonality View

The Source Measure Maintenance for Seasonality view contains the following measures:

User Adjustment

In this measure, you can enter values that are going to be added to the preprocessing adjustments to create the data sources.

The logic is: data source = weekly sales + preprocessing adjustments + user adjustment

This measure is read/write.

Weekly Sales

This measure stores the raw sales loaded in RDF. This is the input to the first run of preprocessing. This measure is read only.

Data Source

This measure represents the output of the preprocessed raw sales, as well as incorporates the user adjustments according to the formula:

data source = weekly sales + preprocessing adjustments + user adjustments.

Out of Stock 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.

Outliers 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.

Promotion Indicator

This measure is usually calculated as the or of all available Boolean promotional variables. It is used during the preprocessing run that removes promotional sales.

Data Cleansing for Promo Estimation Task

This chapter describes the functionality of the Data Cleansing for Promo Estimation Task which includes:

- Preprocessing Administration, see [About Preprocessing Administration](#)
- Source Measure Maintenance see [About Source Measure Maintenance](#)

Data Cleansing for Promo Estimation Workspace, Steps, and Views

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

Workspace	Step	Views
Preprocess Administration Workspace	Preprocess Parameters Step	Preprocess Admin Promo View Preprocess Method Parameters for Promo View Preprocess Method Parameters Override for Promo View Preprocess Panel for Promo View
Source Measure Maintenance Workspace	Preprocess Parameters Step	Preprocess Admin Promo View Preprocess Method Parameters for Promo View Preprocess Method Parameters Override for Promo View Preprocess Panel for Promo View
	Review Step	Source Measure Maintenance for Promo View

About Preprocessing Administration

This section describes how the preprocessing functionality is implemented in RDF using the [Preprocess Administration Workspace](#).

Use the [Preprocess Administration Workspace](#) to perform this step:

- [Preprocess Parameters Step](#)

Note: Similar to the [Preprocess Administration Workspace](#) is the [Source Measure Maintenance Workspace](#). For functionality differences, see [Source Measure Maintenance Functionality](#).

About Preprocessing

Preprocessing is a module that is used to correct historical data prior to forecast generation when history does not represent general demand patterns. It is meant to automatically make adjustments to the raw POS (Point Of Sales) data so the next demand forecasts do not replicate undesired patterns.

Data Preprocessing is commonly used to:

- Correct for lost sales due to stock-outs
- Cleanse data for effects of promotions and short-term price changes (optional)
- Correct for outliers – unusually high or low values introduced by human error or special events (hurricane that left a store closed for a week)
- Scrub data manually to fake history and override user history
- Adjust demand for the occasional 53rd calendar week
- Manage demand created during events and holidays that do not occur in the same period every year, for example, Back to School.

Preprocessing runs after the data has been loaded from the host system and prior to forecast generation. Use the [Preprocess Administration Workspace](#) to select the techniques used to transform sales to unconstrained demand.. Commonly, there are up to three or four runs to go from raw sales to the data source that is used to generate the forecast. For RDF, a maximum of six runs is allowed for one data source. For example, if there is one baseline and one causal level, there can be up to six preprocessing runs allowed to create the data source for the baseline forecast, and up to six runs allowed to create the data source for the causal forecast.

Preprocessing Data in the RDF Workflow

Preprocessing offers a variety of algorithm methods to support the business requirements. The main reason for preprocessing is to transform the raw sales data into a measure that gets as close as possible to unconstrained demand.

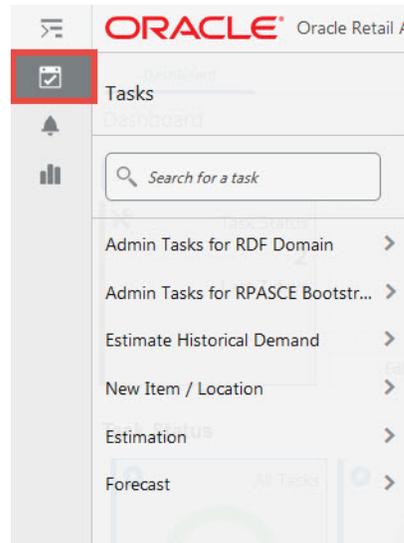
The preprocessing step is most often implemented in batch, by invoking a preprocessing special expression. The special expression takes several measures as input. For instance, one needs to specify the measure to be corrected, the desired algorithm, and the number of periods to be considered. However, you can go into more detail, and specify several filter window lengths, or exponential smoothing parameters.

Preprocess Administration Workspace

To build the Preprocess Administration workspace, perform these steps:

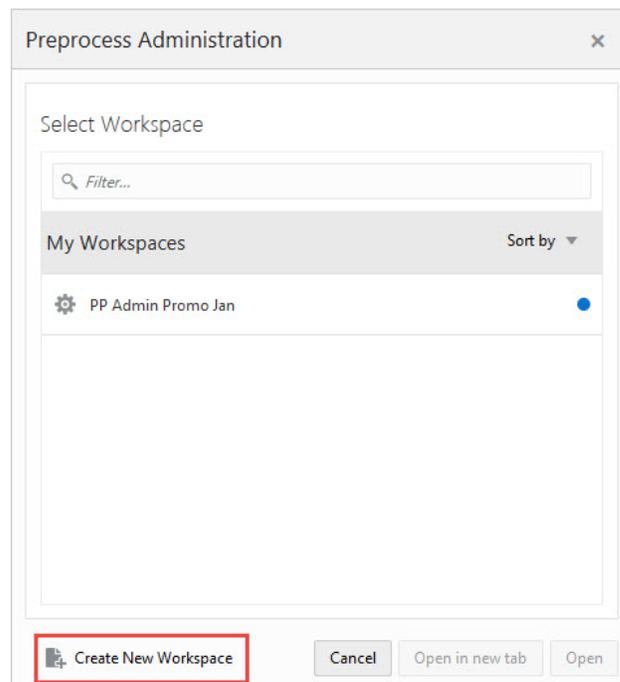
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 5–1 Task Module



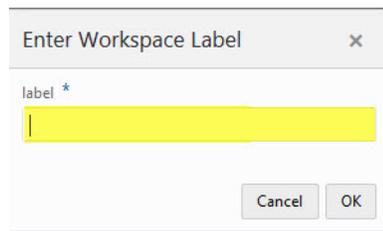
2. Click the **Estimate Historical Demand** activity and then click **Promo** to access the available workspaces.
3. Click **Preprocess Administration**. The Preprocess Administration wizard opens. You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 5–2 Preprocess Administration Wizard



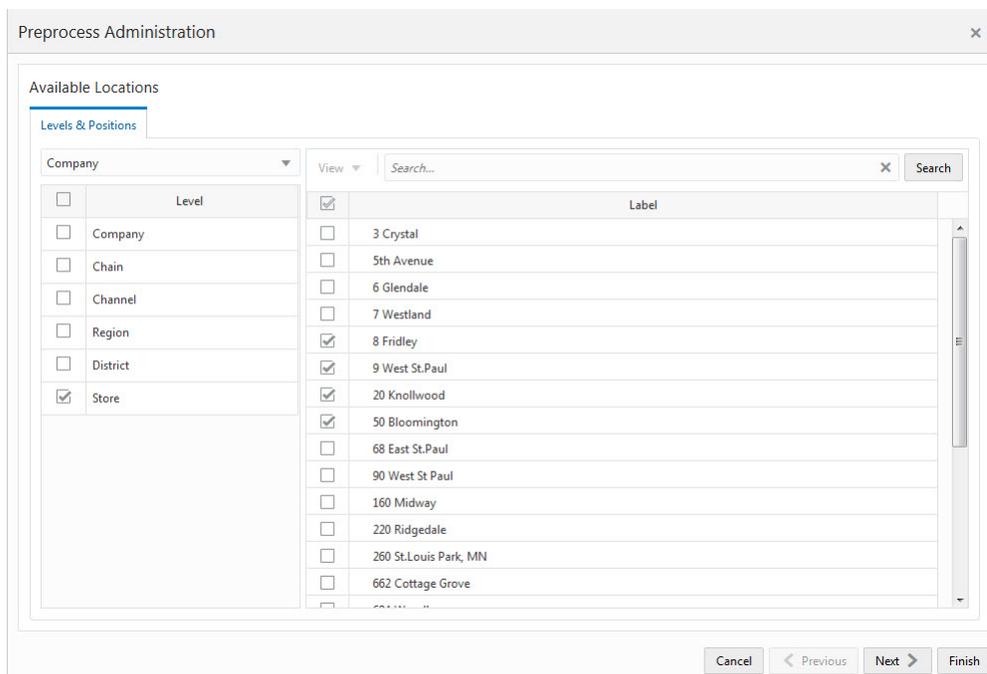
4. Enter a name for your new workspace in the label text box and click **OK**.

Figure 5–3 Enter Workspace Label

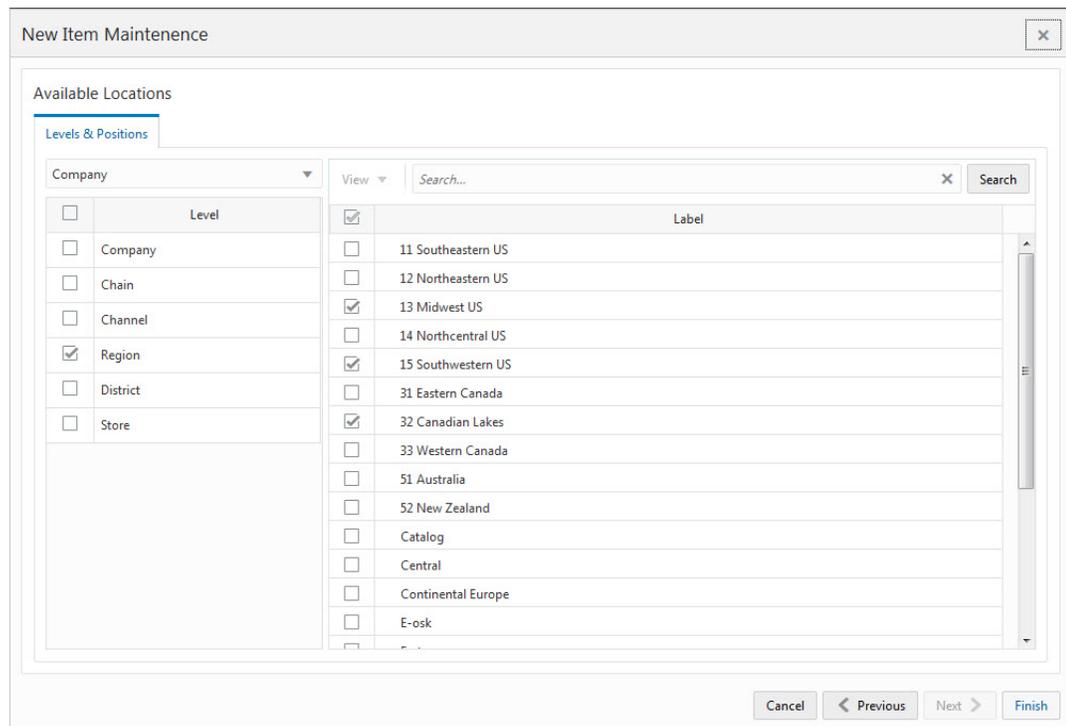


5. The Workspace wizard opens. Select the locations you want to work with and click **Next**.

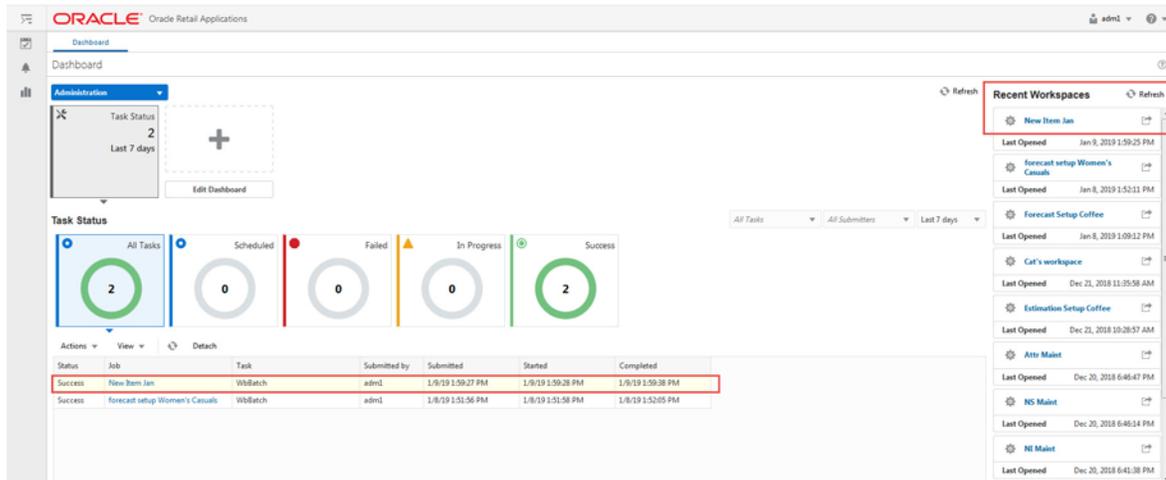
Figure 5–4 Workspace Wizard: Select Locations



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

Figure 5–5 Workspace Wizard: Select Products

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

Figure 5–6 Successful Workspace Build

The Preprocess Administration workspace is built.

Preprocess Parameters Step

The available views are:

- [Preprocess Admin Promo View](#)

- [Preprocess Method Parameters for Promo View](#)
- [Preprocess Method Parameters Override for Promo View](#)
- [Preprocess Panel for Promo View](#)

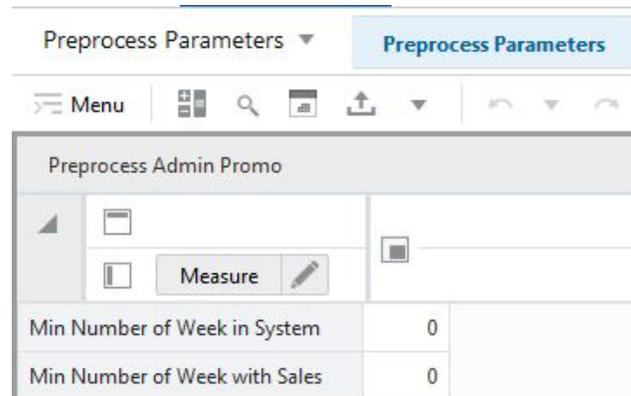
These views make available the preprocessing parameters for four rounds of preprocessing runs, necessary to calculate the data source for baseline forecasting and promotional forecasting.

In RDF, preprocessing is configured to create the data sources for baseline forecasting, as well as, causal forecasting. The creation of each of the sources can go through at most six runs of preprocessing. For example, to generate the Causal Data Source, it is configured for three runs and for the baseline data source, it is configured for four runs.

Preprocess Admin Promo View

The Preprocess Admin Promo view allows you to define the scope of the preprocessing run, as well as filter out item/locations where preprocessing does not make sense because of lack of enough historical sales.

Figure 5–7 Preprocess Admin Promo



Measures: Preprocess Admin Promo View

The Preprocess Admin Promo view contains the following measures:

Min Number of Weeks in System

This parameter defines the number of periods from when an item was introduced in the system. Usually the introduction time is considered to be the date when the item first sold. This check is also introduced to stop making data corrections for items that are very new, and where cleansing would be unreliable.

Min Number of Weeks with Sales

This parameter defines the number of weeks with sales that an item/store combination needs to have to qualify for data cleansing. The reasoning behind this check is that for items without enough data, corrections may not be reliable. Once there is enough data, and trends become clearer, corrections can be made.

Std ES Adjustment

This parameter determines the sign of the adjustments. The values can be:

- **Positive**— The adjustments are positive, meaning the demand is going to increase. This is useful when correcting for periods of out-of-stock, when the demand is likely larger than the actual sales.
- **Negative**— The adjustments are negative, meaning the sales are going to be decreased. This is useful when removing promotion demand from sales to create the baseline demand.
- **Both**— Both positive and negative adjustments are allowed. This is useful when the sales are corrected for outliers and stockouts during the same preprocessing run.

Preprocess Method Parameters for Promo View

There are actually two views with the same set of measures, where, you can enter values for parameters specific for some of the preprocessing methods available in the special expression to create the data sources for the baseline and causal forecasts. There is a set of parameters for each of the maximum six runs allowed. However, very likely not all six are configured. For example, when generating the causal data source, three runs are configured. The parameters are entered at the class/store intersection

Figure 5–8 Preprocess Method Parameters for Promo View

	run 1	run 2	run 3
Alpha	0.20	0.20	0.20
Future Weeks	5	5	5
Last Date			
Partial Outage Flag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Preprocessing Window	100	100	100
Past Weeks	5	5	5
Standard Median Window	5	5	5
Stop at Event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Std ES Adjustment	Negative	Positive	None

Measures: Preprocess Method Parameters for Promo View

The Preprocess Method Parameters for Promo view contains the following measures:

Alpha

Exponential smoothing coefficient used to calculate past and future velocities.

Future Weeks

This represents the maximum number of data points to calculate the future velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Last Date

This represents the end date of the preprocessing window; it is typically today's date, but can be any date in the past.

Past Weeks

This represents the maximum number of data points to calculate the past velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Preprocessing Window

Number of historical data points that are preprocessed.

Standard Median Window

Filter window length for the Standard Median preprocessing method.

Partial Outage

A scalar parameter indicating if the period immediately following an out-of-stock period should be adjusted. The default behavior is for the flag to be True.

Stop at Event

This parameter determines which periods are included in the calculation of past/future velocities.

If the flag is set to True, then the algorithm only includes periods before the first event flag or event indicator.

If the flag is False, then all available, non-flagged periods, within the windows defined by Past Weeks and Future Weeks, are used in the calculation of the past and future velocities.

The default setting for the flag is False.

Std ES Adjustment Ovr

This parameter overrides the default behavior set in the Std ES Adjustment measure. The values can be:

- **Positive**— The adjustments are positive, meaning the demand is going to increase. This is useful when correcting for periods of out-of-stock, when the demand is likely larger than the actual sales.
- **Negative**— The adjustments are negative, are negative, meaning the sales are going to be decreased. This is useful when removing promotion demand from sales to create the baseline demand.
- **Both**— Both positive and negative adjustments are allowed. This is useful when the sales are corrected for outliers and stockouts during the same preprocessing run.
- **None**— No override of the default setting is necessary.

Preprocess Method Parameters Override for Promo View

In this view at the item/store level, you can override values for parameters specific for some of the preprocessing methods available in the special expression. There are two views, corresponding to the preprocessing runs necessary to create the data sources for the baseline and causal forecasts.

After all parameters are set and committed back to the domain, usually a batch job will run the pre-processing steps and prepare the data sources for forecast generation.

Figure 5–9 Preprocess Method Parameters Override for Promo View

	run 1	run 2	run 3
Alpha Ovr	0.00	0.00	0.00
Future Weeks Ovr	0	0	0
Last Date Ovr			
Partial Outage Flag Ovr	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preprocessing Window Ovr	0	0	0
Past Weeks Ovr	0	0	0
Standard Median Window Ovr	5	5	5
Stop at Event Ovr	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Std ES Adjustment Ovr	None	None	None

Measures: Preprocess Method Parameters Override for Promo View

The Preprocess Method Parameters Override for Promo view contains the following measures:

Alpha Override

Exponential smoothing coefficient used to calculate past and future velocities.

Future Weeks Override

This represents the maximum number of data points to calculate the future velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Last Date Override

This represents the end date of the preprocessing window; it is typically today's date, but can be any date in the past.

Past Weeks Override

This represents the maximum number of data points to calculate the past velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Preprocessing Window Override

Number of historical data points that are preprocessed.

Standard Median Window Override

Filter window length for the Standard Median preprocessing method.

Partial Outage Override

A scalar parameter indicating if the period immediately following an out-of-stock period should be adjusted. The default behavior is for the flag to be True.

Stop at Event Override

This parameter determines which periods are included in the calculation of past/future velocities.

If the flag is set to True, then the algorithm only includes periods before the first event flag or event indicator.

If the flag is False, then all available, non-flagged periods, within the windows defined by Past Weeks and Future Weeks, are used in the calculation of the past and future velocities.

The default setting for the flag is False.

Preprocess Panel for Promo View

Depending on your wizard selection for either baseline or causal, the view shows the preprocessing parameters for each relevant run. For example if baseline is selected, the view displays preprocessing information for the four runs that are configured. If causal is selected, the view shows preprocessing parameters for three runs.

Baseline View

The view displays the measures necessary to create the data source for baseline forecasting. This involves four rounds of preprocessing that run in batch or online in this order:

1. Correcting for stockouts
2. Correcting for outliers
3. Depromoting sales
4. Smooth sales

Causal View

This view displays the measures necessary to create the data source for causal forecasting. This involves three rounds of preprocessing that run in this order:

1. Correcting for stockouts
2. Correcting for outliers
3. Deseasonalizing the measure to create the Causal Data Source

Figure 5–10 Preprocess Panel for Promo View

	run 1	run 2	run 3
First Time-Phased Parameter	PreOosInd	PreOutInd	PreSeaProf
Preprocess Methods	Standard Exponential Smoothing	Standard Exponential Smoothing	DeSeasonalize
Run Label	Correct OOS	Correct Outliers	DeSeasonalize Sales
Run Preprocess Flag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Second Time-Phased Parameter			

Measures: Preprocess Panel for Promo View

The Preprocess Panel for Promo view contains the following measures:

First Time-Phased Parameter Causal

This measure stores the first time-phased measure that is required for some preprocessing methods. For instance, for the STD ES LS method, this measure would store the measure name of the outage flag. Or for the STD ES method, it could store the name of the outlier flag.

Preprocess Method

Name of the preprocessing method to be used for each run. This method is selected in the Configuration Tools

Output Data Measure

Indicates the measure that stores the result of the last configured preprocessing run. For instance, for the Preprocess Panel for Baseline, the output comes from run 4.

Run Label

A label denoting the purpose of the preprocessing run, for example, Correct Outliers, or Depromote Sales.

Run Preprocess Flag

Boolean measure indicating if this run should be enabled or skipped.

Second Time-Phased Parameter Causal

This measure stores the second time-phased measure that is required for some preprocessing methods. For instance, for the Forecast Sigma method, this measure would store measure name of the confidence intervals. Or for the Override method it could store the measure name of the outage flag.

About Source Measure Maintenance

This section describes how the preprocessing functionality is implemented in RDF using the [Source Measure Maintenance Workspace](#).

The functionality in the [About Source Measure Maintenance](#) is a superset of the functionality in the [About Preprocessing Administration](#). The purpose and functionality between the two is described in [Source Measure Maintenance Functionality](#).

Use the [Source Measure Maintenance Workspace](#) to perform these steps:

- [Preprocess Parameters Step](#)
- [Review Step](#)

Note: For information about preprocessing and RDF, see [Preprocessing Data in the RDF Workflow](#)

Source Measure Maintenance Functionality

The [Preprocess Administration Workspace](#) and the [Source Measure Maintenance Workspace](#) have a large set of common content.

The main difference is that while the [Source Measure Maintenance Workspace](#) has the calendar hierarchy, on top of the product and location, and the [Preprocess Administration Workspace](#) has only the product and location.

The additional hierarchy allows the review of the time-phased preprocessing measures, as well as the calculated forecasting data sources.runs.

Due to their additional dimension of *week*, these measures add to the size of the workspace, and also make workspace operations slower. For instance, workspace build, refresh, commit, and so on, take longer than in the otherwise similar [Preprocess Administration Workspace](#).

Preprocess Administration Workspace

The [Preprocess Administration Workspace](#) is at the product/location intersection, so it can be built with a lot of positions, without experiencing poor performance. The purpose is to set preprocessing parameters, which are inputs to the special expression that is run in batch.

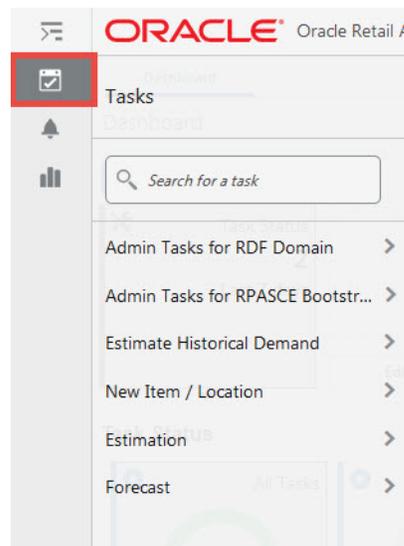
Source Measure Maintenance Workspace

The [Source Measure Maintenance Workspace](#), described in this chapter, is at the product/location/calendar intersection, and is a lot more data intensive. The purpose is to set preprocessing parameters and run the data filtering online, with the ability to review the results without having to wait for an overnight batch. If the results are not as expected, or you want to experiment with different settings, you can make changes to the parameters and rerun the custom menus. To achieve this it is expected that only a small subset of the available product/locations is included in the workspace.

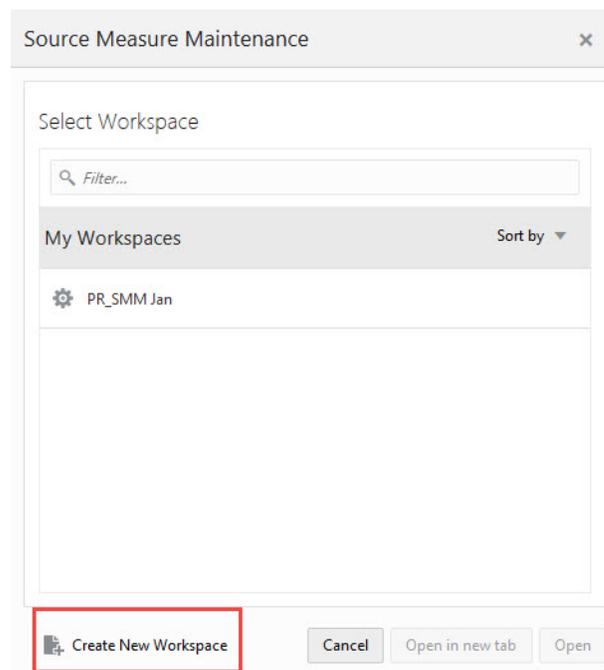
Source Measure Maintenance Workspace

To build the Source Measure Maintenance workspace, perform these steps:

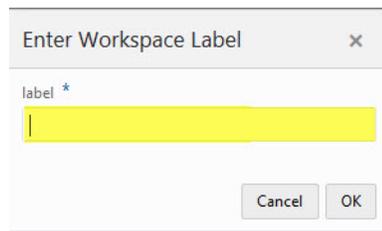
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 5–11 Task Module

2. Click the **Estimate Historical Demand** activity and then click **Promo** to access the available workspaces.
3. Click **Source Measure Maintenance**. The Source Measure Maintenance wizard opens.
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

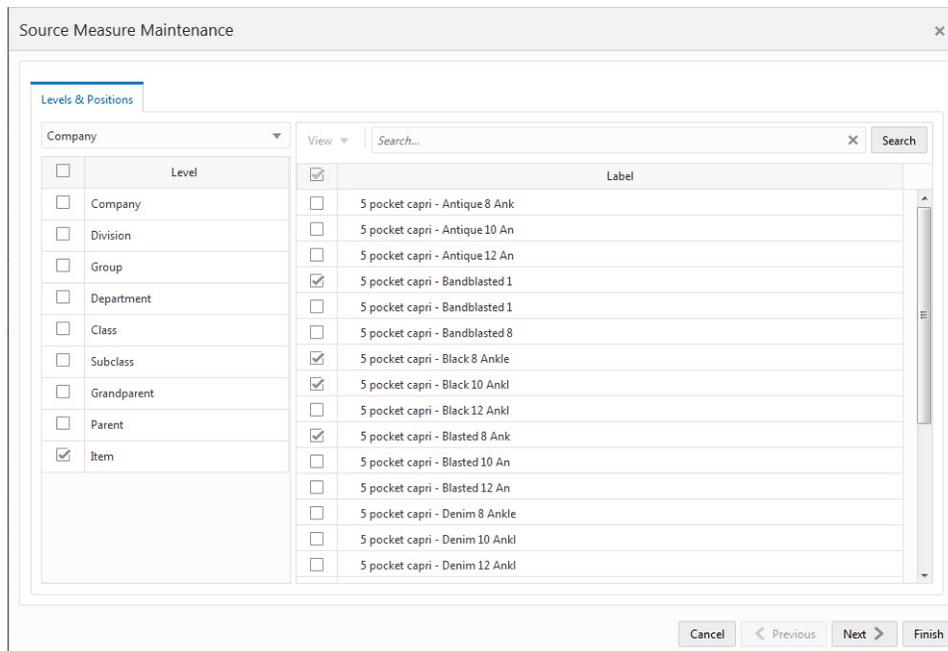
Figure 5–12 Source Measure Maintenance Wizard

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

Figure 5–13 Enter Workspace Label

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

Note: It is important to include all products that are members of the Merchandise dimensions in the forecast levels to be analyzed. For example, if you select to view a forecast level that is defined at subclass/store/week, you must include all items that are members of the particular subclass to be analyzed. It is recommended that Position Query functionality or selection from aggregate levels in the Merchandise hierarchy is employed if the task supports an AutoTask build.

Figure 5–14 Workspace Wizard: Select Products

Level	Label
<input type="checkbox"/>	<input type="checkbox"/> 5 pocket capri - Antique 8 Ank
<input type="checkbox"/>	<input type="checkbox"/> 5 pocket capri - Antique 10 An
<input type="checkbox"/>	<input type="checkbox"/> 5 pocket capri - Antique 12 An
<input type="checkbox"/>	<input checked="" type="checkbox"/> 5 pocket capri - Bandblasted 1
<input type="checkbox"/>	<input type="checkbox"/> 5 pocket capri - Bandblasted 1
<input type="checkbox"/>	<input type="checkbox"/> 5 pocket capri - Bandblasted 8
<input type="checkbox"/>	<input checked="" type="checkbox"/> 5 pocket capri - Black 8 Ankle
<input type="checkbox"/>	<input checked="" type="checkbox"/> 5 pocket capri - Black 10 Ankl
<input type="checkbox"/>	<input type="checkbox"/> 5 pocket capri - Black 12 Ankl
<input type="checkbox"/>	<input checked="" type="checkbox"/> 5 pocket capri - Blasted 8 Ank
<input type="checkbox"/>	<input type="checkbox"/> 5 pocket capri - Blasted 10 An
<input type="checkbox"/>	<input type="checkbox"/> 5 pocket capri - Blasted 12 An
<input type="checkbox"/>	<input type="checkbox"/> 5 pocket capri - Denim 8 Ankle
<input type="checkbox"/>	<input type="checkbox"/> 5 pocket capri - Denim 10 Ankl
<input type="checkbox"/>	<input type="checkbox"/> 5 pocket capri - Denim 12 Ankl

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

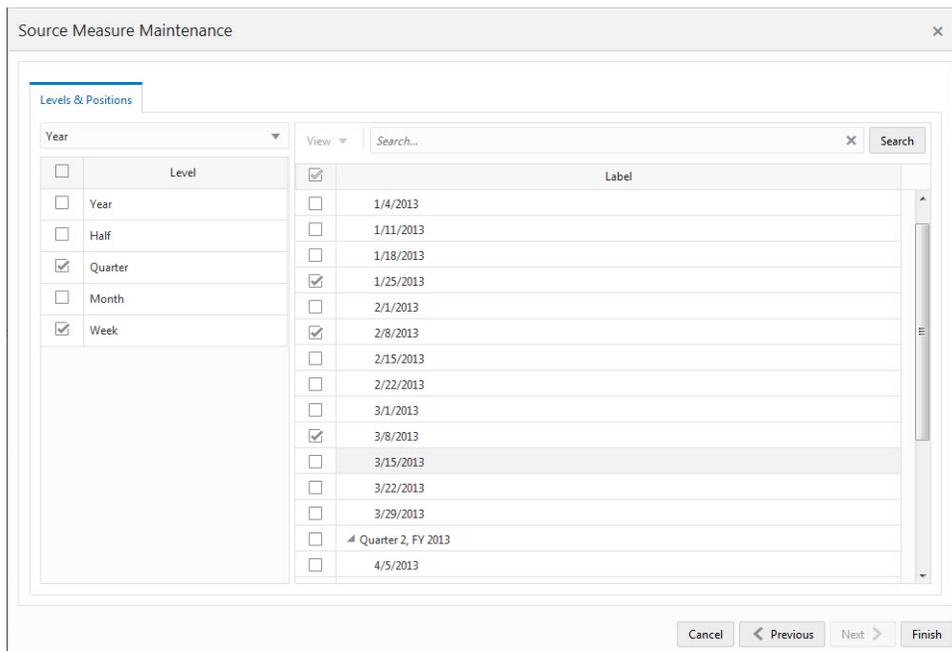
Note: It is important to include all locations that are members of the location dimensions in the forecast levels to be analyzed. For example, if you select to view a forecast level that is defined at item/chain/week, you should include all locations that are members of the particular chain to be analyzed. It is recommended that Position Query functionality or selection from aggregate levels in the location hierarchy is employed if the task supports an AutoTask build.

Figure 5–15 Workspace Wizard: Select Locations

The screenshot shows the 'Source Measure Maintenance' workspace wizard. The 'Levels & Positions' tab is active. On the left, a list of levels is shown with checkboxes: Company, Chain, Channel, Region, District, and Store (checked). On the right, a list of store locations is shown with checkboxes: 3 Crystal, 5th Avenue, 6 Glendale, 7 Westland, 8 Fridley, 9 West St.Paul (checked), 20 Knollwood, 50 Bloomington, 68 East St.Paul, 90 West St Paul, 160 Midway, 220 Ridgedale (checked), 260 St.Louis Park, MN (checked), 662 Cottage Grove (checked), and 694 Woodbury (checked). At the bottom, there are buttons for 'Cancel', '< Previous', 'Next >', and 'Finish'.

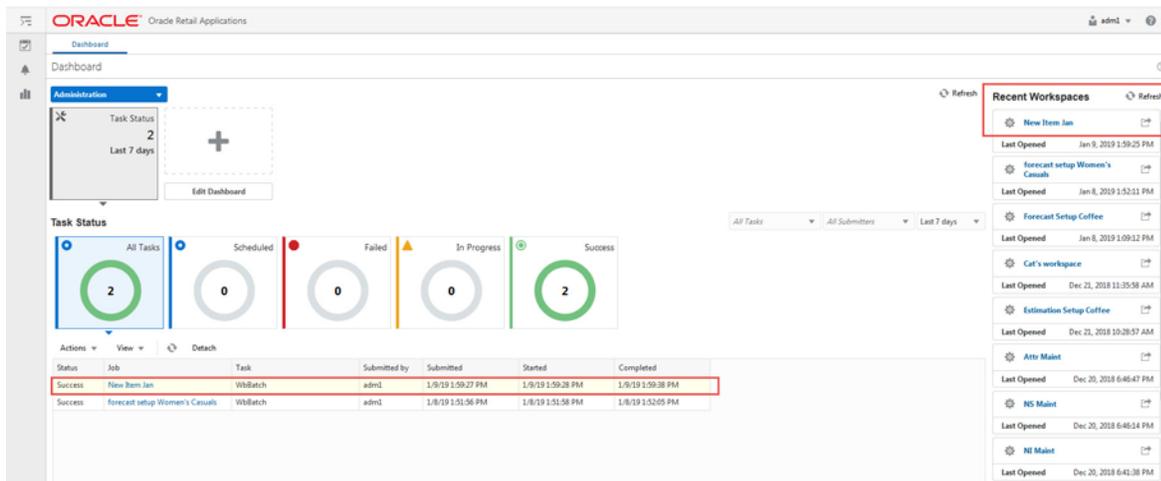
7. Select the weeks of the forecast you wish to review and click **Finish**.

Figure 5–16 Workspace Wizard: Select Available Calendar Positions



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

Figure 5–17 Successful Workspace Build



The Source Measure Maintenance workspace is built and includes these steps:

- [Preprocess Parameters Step](#)
- [Review Step](#)

Preprocess Parameters Step

The available views are:

- [Preprocess Admin Promo View](#)
- [Preprocess Method Parameters for Promo View](#)
- [Preprocess Method Parameters Override for Promo View](#)
- [Preprocess Panel for Promo View](#)

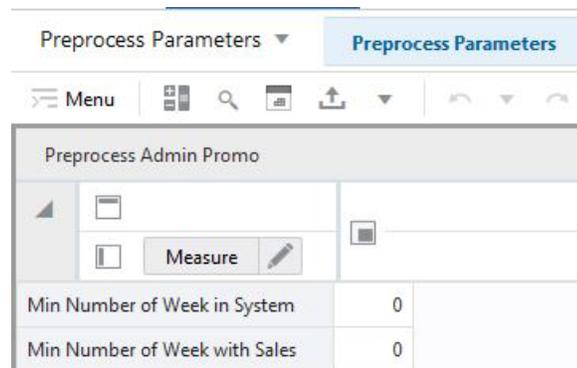
These views make available the preprocessing parameters for four rounds of preprocessing runs, necessary to calculate the data source for baseline forecasting and promotional forecasting.

In RDF, preprocessing is configured to create the data sources for baseline forecasting, as well as, causal forecasting. The creation of each of the sources can go through at most six runs of preprocessing. For example, to generate the Causal Data Source, it is configured for three runs and for the baseline data source, it is configured for four runs.

Preprocess Admin Promo View

This step contains the Preprocess Admin view that allows you to define the scope of the preprocessing run, as well as filter out item/locations where preprocessing does not make sense because of lack of enough historical sales.

Figure 5–18 *Preprocess Admin Promo View*



Measures: Preprocess Admin Promo View

Min Number of Weeks in System

This parameter defines the number of periods from when an item was introduced in the system. Usually the introduction time is considered to be the date when the item first sold. This check is also introduced to stop making data corrections for items that are very new, and where cleansing would be unreliable.

Min Number of Weeks with Sales

This parameter defines the number of weeks with sales that an item/store combination needs to have to qualify for data cleansing. The reasoning behind this check is that for items without enough data, corrections may not be reliable. Once there is enough data, and trends become clearer, corrections can be made.

Preprocess Method Parameters for Promo View

There are actually two views with the same set of measures, where, you can enter values for parameters specific for some of the preprocessing methods available in the special expression to create the data sources for the baseline and causal forecasts. There is a set of parameters for each of the maximum six runs allowed. However, very likely not all six are configured. For example, when generating the causal data source, three runs are configured. The parameters are entered at the class/store intersection

Figure 5–19 Preprocess Method Parameters for PromoView

	run 1	run 2	run 3
Alpha	0.20	0.20	0.20
Future Weeks	5	5	5
Last Date			
Partial Outage Flag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Preprocessing Window	100	100	100
Past Weeks	5	5	5
Standard Median Window	5	5	5
Stop at Event	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Std ES Adjustment	Negative	Positive	None

Measures: Preprocess Method Parameters for Promo View

The Preprocess Method Parameters for Promo view contains the following measures:

Alpha

Exponential smoothing coefficient used to calculate past and future velocities.

Future Weeks

This represents the maximum number of data points to calculate the future velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Last Date

This represents the end date of the preprocessing window; it is typically today's date, but can be any date in the past.

Past Weeks

This represents the maximum number of data points to calculate the past velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Preprocessing Window

Number of historical data points that are preprocessed.

Standard Median Window

Filter window length for the Standard Median preprocessing method.

Partial Outage

A scalar parameter indicating if the period immediately following an out-of-stock period should be adjusted. The default behavior is for the flag to be True.

Stop at Event

This parameter determines which periods are included in the calculation of past/future velocities.

If the flag is set to True, then the algorithm only includes periods before the first event flag or event indicator.

If the flag is False, then all available, non-flagged periods, within the windows defined by Past Weeks and Future Weeks, are used in the calculation of the past and future velocities.

The default setting for the flag is False.

Preprocess Method Parameters Override for Promo View

In this view at the item/store level, you can override values for parameters specific for some of the preprocessing methods available in the special expression. There are two views, corresponding to the preprocessing runs necessary to create the data sources for the baseline and causal forecasts.

After all parameters are set and committed back to the domain, usually a batch job will run the pre-processing steps and prepare the data sources for forecast generation.

Figure 5–20 Preprocess Method Parameters Override for Promo View

	run 1	run 2	run 3
Alpha Ovr	0.00	0.00	0.00
Future Weeks Ovr	0	0	0
Last Date Ovr			
Partial Outage Flag Ovr	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Preprocessing Window Ovr	0	0	0
Past Weeks Ovr	0	0	0
Standard Median Window Ovr	5	5	5
Stop at Event Ovr	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Std ES Adjustment Ovr	None	None	None

Measures:Preprocess Method Parameters Override for Promo View

The Preprocess Method Parameters Override for Promo view contains the following measures:

Alpha Override

Exponential smoothing coefficient used to calculate past and future velocities.

Future Weeks Override

This represents the maximum number of data points to calculate the future velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Last Date Override

This represents the end date of the preprocessing window; it is typically today's date, but can be any date in the past.

Past Weeks Override

This represents the maximum number of data points to calculate the past velocity, when using the Standard Exponential Smoothing or Lost Sales Standard Exponential Smoothing preprocessing methods.

Preprocessing Window Override

Number of historical data points that are preprocessed.

Standard Median Window Override

Filter window length for the Standard Median preprocessing method.

Partial Outage Override

A scalar parameter indicating if the period immediately following an out-of-stock period should be adjusted. The default behavior is for the flag to be True.

Stop at Event Override

This parameter determines which periods are included in the calculation of past/future velocities.

If the flag is set to True, then the algorithm only includes periods before the first event flag or event indicator.

If the flag is False, then all available, non-flagged periods, within the windows defined by Past Weeks and Future Weeks, are used in the calculation of the past and future velocities.

The default setting for the flag is False.

Preprocess Panel for Promo View

Depending on your wizard selection for either baseline or causal, the view shows the preprocessing parameters for each relevant run. For example if baseline is selected, the view displays preprocessing information for the four runs that are configured. If causal is selected, the view shows preprocessing parameters for three runs.

Baseline View

The view displays the measures necessary to create the data source for baseline forecasting. This involves four rounds of preprocessing that run in batch or online in this order:

1. Correcting for stockouts
2. Correcting for outliers
3. Depromoting sales
4. Smooth sales

Causal View

The causal view displays the measures necessary to create the data source for causal forecasting. This involves three rounds of preprocessing that are run in batch:

1. Correcting for stockouts
2. Correcting for outliers
3. Deseasonalizing the measure to create the Causal Data Source

Figure 5–21 Preprocess Panel for Promo View

	run 1	run 2	run 3
First Time-Phased Parameter	PreOosInd	PreOutInd	PreSeaProf
Preprocess Methods	Standard Exponential Smoothing	Standard Exponential Smoothing	DeSeasonalize
Run Label	Correct OOS	Correct Outliers	Deseasonalize Sales
Run Preprocess Flag	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Second Time-Phased Parameter			

Measures: Preprocess Panel for Promo View

The Preprocess Panel for Promo view contains the following measures:

First Time-Phased Parameter Causal

This measure stores the first time-phased measure that is required for some preprocessing methods. For instance, for the STD ES LS method, this measure would store the measure name of the outage flag. Or for the STD ES method, it could store the name of the outlier flag.

Preprocess Method

Name of the preprocessing method to be used for each run. This method is selected in the Configuration Tools

Output Data Measure

Indicates the measure that stores the result of the last configured preprocessing run. For instance, for the Preprocess Panel for Baseline, the output comes from run 4.

Run Label

A label denoting the purpose of the preprocessing run, for example, Correct Outliers, or Depromote Sales.

Run Preprocess Flag

Boolean measure indicating if this run should be enabled or skipped.

Second Time-Phased Parameter Causal

This measure stores the second time-phased measure that is required for some preprocessing methods. For instance, for the Forecast Sigma method, this measure would store measure name of the confidence intervals. Or for the Override method it could store the measure name of the outage flag.

Review Step

The main purpose of this step is to display time-phased measures that represent input and output to the preprocessing stages, run in batch based on the settings selected in Preprocessing Admin.

This step includes the [Source Measure Maintenance for Promo View](#).

Source Measure Maintenance for Promo View

This view displays measures that represent input and output of the preprocessing runs, in table format.

Figure 5–22 Source Maintenance View

The screenshot shows the 'Source Maintenance for Promo' interface. It includes a 'Review' dropdown, a 'Menu' bar with icons, and a toolbar with 'Calendar', 'Product', and 'Location' buttons. A breadcrumb shows the path: '70010043 - Folgers Breakfast Roast Non-F...'. The main table displays measures for dates 7/29/2016, 8/5/2016, 8/12/2016, 8/19/2016, and 8/26/2016. The 'User Adjustment' row has values 0.00, 10.00, 0.00, 0.00, and 0.00. The 'Out of Stock Indicator' row has checkboxes. The 'Outlier Indicator' row has a checked checkbox on 8/19/2016. The 'LLC Sales data' and 'Data Source Causal' rows have numerical values.

	7/29/2016	8/5/2016	8/12/2016	8/19/2016	8/26/2016
User Adjustment	0.00	10.00	0.00	0.00	0.00
Out of Stock Indicator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Outlier Indicator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
LLC Sales data	33.00	12.00	18.00	33.00	17.00
Data Source Causal	33.00	22.00	18.00	33.00	17.00

Measures: Source Maintenance View

The Source Maintenance view contains the following measures:

User Adjustment

In this measure, you can enter values that are going to be added to the preprocessing adjustments to create the data sources.

The logic is: data source = weekly sales + preprocessing adjustments + user adjustment
This measure is read/write.

Weekly Sales

This measure stores the raw sales loaded in RDF. This is the input to the first run of preprocessing. This measure is read only.

Data Source

This measure represents the output of the preprocessed raw sales, as well as incorporates the user adjustments according to the formula:

data source = weekly sales + preprocessing adjustments + user adjustments.

Out of Stock 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.

Outliers 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.

Promotion Indicator

This measure is usually calculated as the or of all available Boolean promotional variables. It is used during the preprocessing run that removes promotional sales.

Estimation Setup Short Lifecycle Task

This chapter describes the Estimation Setup Short Lifecycle for RDF Cloud Service.

Estimation Setup SLC Workspaces, Steps, and Views

The following table lists the workspaces, steps, and views for the Estimation Setup Short Lifecycle task.

Workspace	Step	Views
General Estimation Setup SLC Workspace	General Estimation Setup SLC Step	SLC Estimation Setup View
	Season Code Setup Step	Season Code Parameters View
	Escalation Path Step	Default Escalation Path View
		Escalation Path Override View
	Calculation Setup Step	Profile Normalization View
		Filter Thresholds View
Calculation Parameters Override Step	Pruning Parameters Override View	
Group Assignment Step	Group Assignment View	
	Group Label Override View	

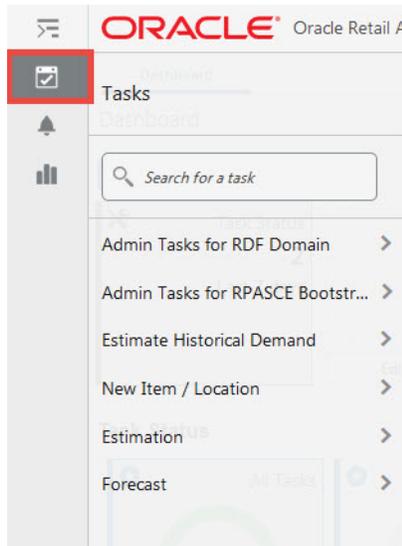
General Estimation Setup SLC Workspace

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

To build the General Estimation Setup SLC workspace, perform these steps:

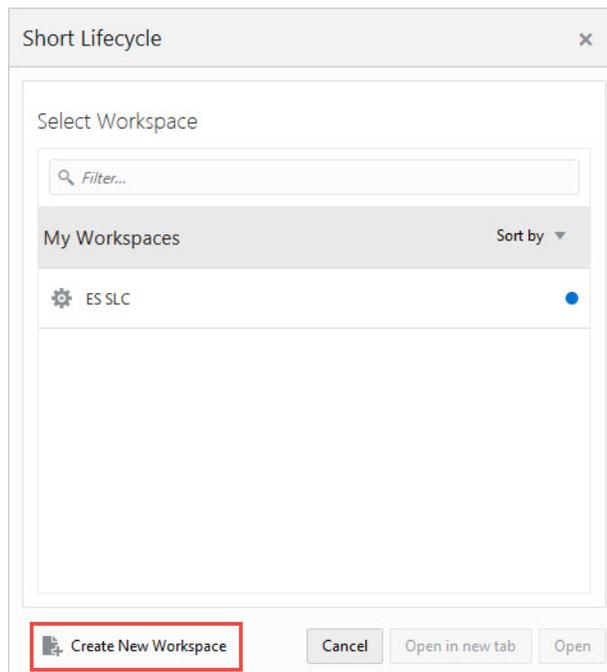
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 6–1 Task Module

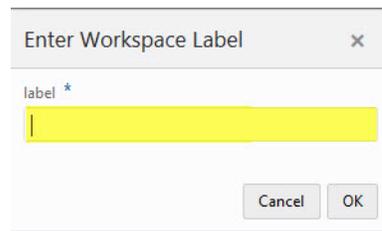


2. Click the **Estimation** activity and then click **Setup** to access the available workspaces.
3. Click **Short Lifecycle**. The Short Lifecycle wizard opens.
 You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 6–2 Short Lifecycle Wizard



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

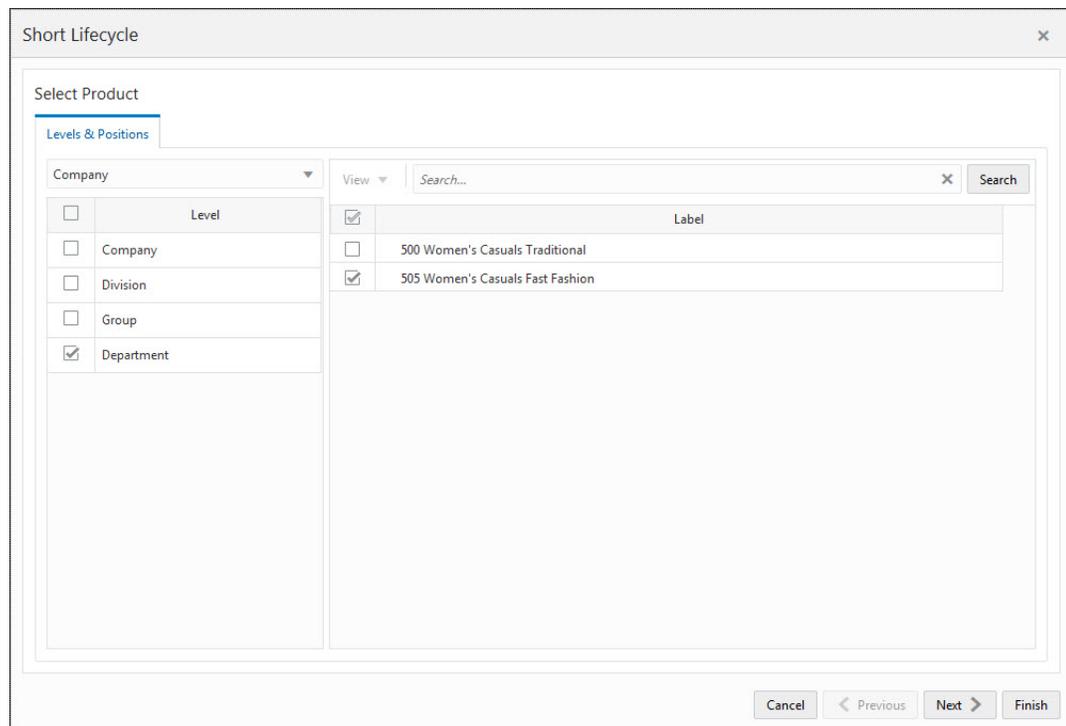
Figure 6–3 Enter Workspace Label

Enter Workspace Label

label *

Cancel OK

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

Figure 6–4 Workspace Wizard: Select Products

Short Lifecycle

Select Product

Levels & Positions

Company

Level
<input type="checkbox"/> Company
<input type="checkbox"/> Division
<input type="checkbox"/> Group
<input checked="" type="checkbox"/> Department

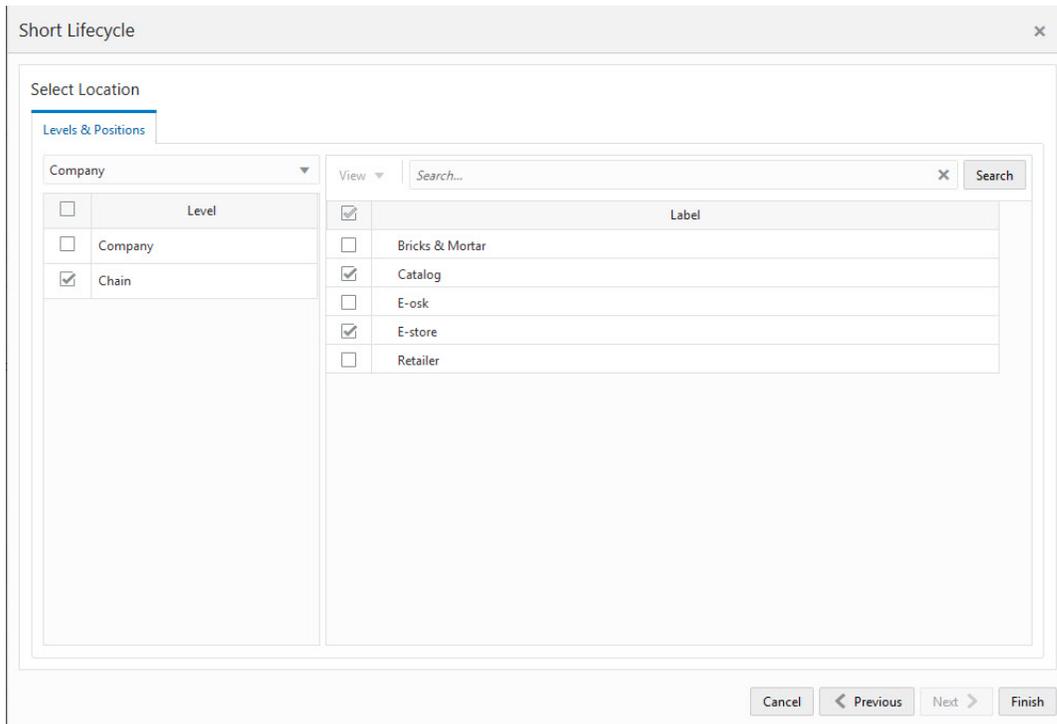
View Search...

Label
<input type="checkbox"/> 500 Women's Casuals Traditional
<input checked="" type="checkbox"/> 505 Women's Casuals Fast Fashion

Cancel < Previous Next > Finish

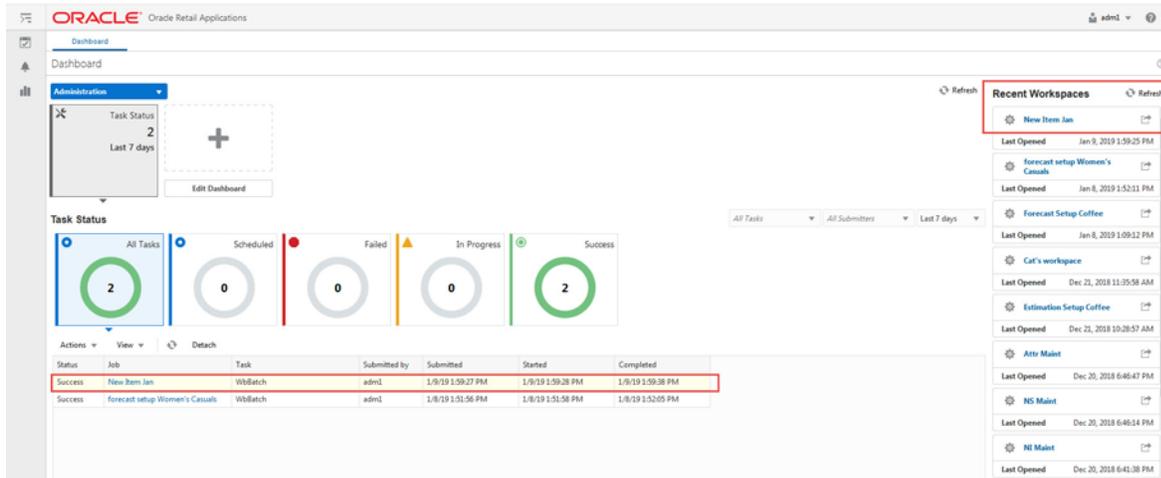
6. Select the locations you want to work with and click **Finish**.

Figure 6–5 Workspace Wizard: Select Locations



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

Figure 6–6 Successful Workspace Build



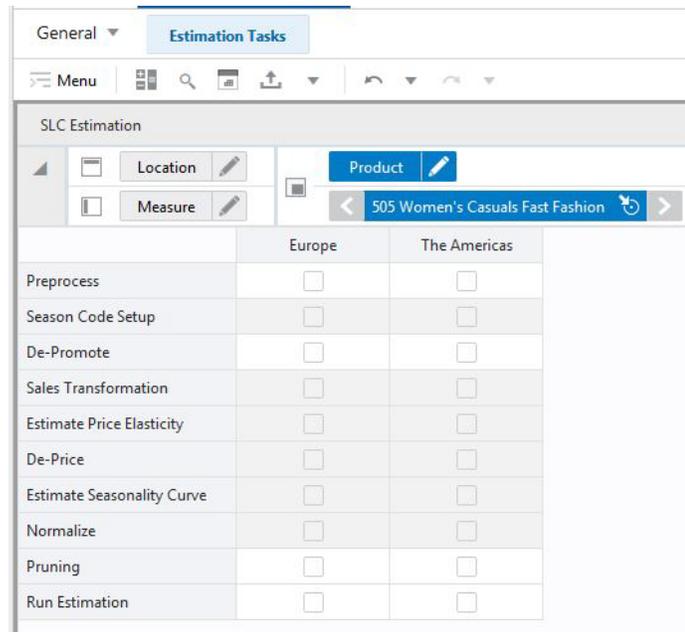
General Estimation Setup SLC Step

This step includes the [SLC Estimation Setup View](#).

SLC Estimation Setup View

The SLC Estimation Setup view shows the steps running the estimation and allows enabling or disabling some of them.

Figure 6–7 SLC Estimation Setup View



Measures: SLC Estimation View

The SLC Estimation view contains the following measures:

Run Estimation

If this flag is selected, estimation is run for the given merchandise.

Preprocess

If this flag is selected, preprocessing is run for the given merchandise. During this step unreliable data points are filtered out and not considered in further calculations.

De-Price

During this step clearance effects are removed from the demand. De-pricing is mandatory.

De-Promote

If this flag is selected the demand is depromoted. During this step, the effects of temporary price reductions of promotions and holidays are removed from demand.

Normalize

During this step the lifecycle curves are normalized, so the values add up to 52. Normalizing is mandatory.

Estimate Price Elasticity

During this step the impact of clearance prices on demand are quantified. The outputs are price elasticities. Estimating price elasticities is mandatory.

Season Code Setup

During this step the user defines how merchandise shall be grouped so its demand is processed together. Setting up season codes is mandatory.

Estimate Seasonality Curve

During this step seasonality curves are calculated at several escalation levels. Estimating seasonality curves is mandatory.

Sales Transformation

During this step the sales are processed such that seasonality and other effects are removed. Sales transformation is mandatory.

History End Date

In this measure the user can specify the most recent period to be used in estimation. For instance if today's date is 1/1/2025, and the user sets the History End Date to be 12/1/2024, the sales from December 2024 are not used during estimation.

Season Code Setup Step

This step includes the [Season Code Parameters View](#).

Season Code Parameters View

The goal of the estimation task is to estimate seasonality curves as well as price and promotion effects. Since short lifecycle merchandise, such as fashion items, do not sell year over year, demand for the items that are selling this year

, is not available for past years. The demand parameters need to be estimated using demand of similar items that sold in previous years.

Among the criteria used for deciding what similar items are, include the following:

- When the items have started selling
- How long the items have been selling

For instance, a possible scenario is to group all items that have started selling in March, and have been selling for 13 weeks. Or all items that have started selling in Spring and sold for up to 26 weeks. All items that share these properties are sharing a so called season code

In the Season Code Parameters view, you can specify the basic information for defining season codes.

Figure 6–8 Season Code Parameters View

Season code	Season Begin Week	Season End Week	Season Code Label	Season Maximum Length	Season Minimum Length
Season code 001	Week 01	Week 04	January	26	13
Season code 002	Week 05	Week 09	February	26	13
Season code 003	Week 10	Week 14	March	26	13
Season code 004	Week 15	Week 20	Summer 1	26	7
Season code 005	Week 21	Week 25	Summer 2	26	7
Season code 006	Week 26	Week 30	Summer / Fall	26	13
Season code 007	Week 31	Week 35	Fall 1	26	7
Season code 008	Week 36	Week 40	Fall 2	26	7
Season code 009	Week 41	Week 45		99	1

Measures: Season Code Parameters View

Note: An item/location can only belong to one season code.

The Season Code Parameters view contains the following measures:

Season Begin Week

The Season Begin Week and Season End Week define the period that similar items start selling. For instance, we may say that items starting selling in the second half of March and beginning of April should be considered to belong to the same season code. Note that in addition to the period when items start selling, the season length criteria also needs to be met.

Season End Week

The Season Begin Week and Season End Week define the period that similar items start selling. For instance, we may say that items starting selling in the second half of March and beginning of April should be considered to belong to the same season code. Note that in addition to the period when items start selling, the season length criteria also needs to be met.

Season Code Label

This measure allows you to give a meaningful label to items that are processed together. For instance 'Spring Fast Fashion' or 'Winter Apparel'.

Season Maximum Length

The Season Minimum and Maximum Length measures allow the grouping of items by the length of their shelf life. For instance items that sell between 10 and 15 weeks are candidates to be grouped together in the same season code. Note that for the grouping to actually happen the items also need to start selling around the same time of the year, as defined by the Season Begin and End measures.

Season Minimum Length

The Season Minimum and Maximum Length measures allow the grouping of items by the length of their shelf life. For instance items that sell between 10 and 15 weeks are candidates to be grouped together in the same season code. Note that for the grouping to actually happen the items also need to start selling around the same time of the year, as defined by the Season Begin and End measures.

Escalation Path Step

The available views are:

- [Default Escalation Path View](#)
- [Escalation Path Override View](#)

Default Escalation Path View

The Default Escalation Path view allows you to specify the priority of each escalation level. Escalation levels with low intersections, such as subclass, usually capture more detailed demand patterns, but are less stable because the lower number of data points used for estimation.

Escalation levels with high intersections, such as department, usually capture more generic demand patterns, but are very stable because of the large number of data points used for estimation.

Figure 6–9 *Default Escalation Path View*

	01 Short Lifecycle	02 week of year/subclass/store	03 week of year/subclass/district
4111 Tops	2	3	4
4112 Bottoms	2	3	4
4138 Dresses	2	3	4

Measures: Default Escalation Path View

The Default Escalation Path view contains the following measures:

Level Intersection

This measure displays the intersections of the escalation levels. This can be helpful for the business user when assigning priorities in the escalation path.

Escalation Path

The user can specify the priority in which the system searches escalation levels for forecast parameters like seasonality curves and/or promotion effects. For instance, suppose there are three escalation levels available. The path may be defined as follows:

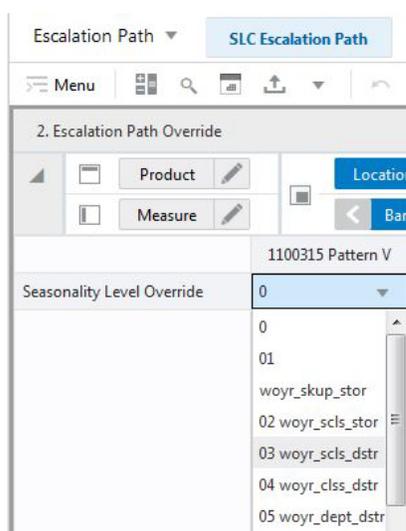
- Escalation Level #1: priority 3
- Escalation Level #2: priority 4
- Escalation Level #3: priority 2

In this case, when generating the forecast, the system will first look to get parameters from Escalation Level #3 (highest priority). If they are available, they are used. If they are not available, because they were deemed unreliable and pruned, the system will go to Escalation Level #1 (second highest priority). Finally, if the search is not successful, the search continues at Escalation Level #2.

Escalation Path Override View

The Escalation Path Override view you can specify the top priority escalation level.

Figure 6–10 Escalation Path Override View



Measures: Escalation Path Override View

The Escalation Path Override view contains the following measures:

Escalation Path Override

In this field the user can override the default escalation path selections. The user can enter the preferred Escalation Level and that will become the top priority.

Calculation Setup Step

This step includes the [Estimation Parameters Sub-step](#).

Estimation Parameters Sub-step

This sub-step includes the [Profile Normalization View](#).

Profile Normalization View

The Profile Normalization view explains the filters or checks that a curve needs to pass.

Figure 6–11 Profile Normalization View

	01 Short Lifecycle	02 week of year/subclass/store	03 week of year/subclass/district
Sparsity Threshold	1	1	1
Maximum Seasonality Value	20.00	20.00	20.00
Minimum Seasonality Value	0.00	0.00	0.00
Standard Deviation Threshold	2.00	2.00	2.00
Smoothing Window Length	3	3	3

Measures: Profile Normalization View

The Profile Normalization view contains the following measures:

Sparsity Threshold

Seasonality curves with the number of consecutive periods with indices equal to zero equal to or less than the sparsity threshold will be pruned.

Maximum Seasonality Value

This number holds the maximum allowed seasonality value.

Minimum Seasonality Value

This number holds the minimum allowed seasonality value.

Standard Deviation Threshold

This measure holds the maximum allowed standard deviation of the curve.

Smoothing Window Length

Window length for smoothing using the Standard Median filter.

Pruning Parameters Sub-step

This sub-step contains this view:

- [Filter Thresholds View](#)

Filter Thresholds View

The Filter Thresholds view explains the pruning strategy.

After estimation is performed, the demand parameters are undergoing a rigorous check to make sure they are suitable for forecasting. In this view, you can set the thresholds for various filters.

Figure 6–12 Filter Thresholds View

Measure	Value
Season Ratio Threshold	0.00
Max Number of Zero Sales	3
Average Sales Threshold	1.20
Minimum Weeks Threshold	6
Season Length Threshold	6
Season Length Upper Bound	52
Markdown Upper Bound	1.50
Markdown Lower Bound	0.30

Measures: Filter Thresholds View

The Filter Thresholds view contains the following measures:

Season Ratio Threshold

This measure defines the length of the season. If the sales are less than the maximum sales times this threshold, the sales are not used in further calculations.

Max Number of Zero Sales

This is maximum allowed number of zero sales cells that a curve can have without being pruned.

Average Sales Threshold

This is the minimum allowed average sales that a curve can have without being pruned.

Minimum Weeks Threshold

This is the minimum allowed number of weeks that a curve must have data for without being pruned.

Season Length Threshold

This measure decides which sales to use in further calculations. If the season length for a product location combination is less than this value, the sales of the product location combination are not used in further calculations.

Season Length Upper Bound

This measure controls the upper bound of the sales length to be used in the Short Lifecycle calculation. Items with sales count greater than the season length upper bound will be pruned out.

The pruned time series based on the Season Length threshold and season length upped bound will be displayed in the SLC Preprocess Summary in the Estimation Review workbook.

Markdown Upper Bound

This measure decides if a marked down period is a legitimate data point or must be discarded. If the sales price for the period divided by the regular price is more than this value, the data point is discarded.

Markdown Lower Bound

This measure decides if a marked down period is a legitimate data point or must be discarded. If the sales price for the period divided by the regular price is less than this value, the data point is discarded.

Calculation Parameters Override Step

This step includes the [Pruning Parameters Override View](#).

Pruning Parameters Override View

In the Pruning Parameters Override view you can override the thresholds for the pruning thresholds at a more granular level.

Figure 6–13 Pruning Parameters Override View

	4111 Tops	4112 Bottoms	4138 Dresses
Minimum Seasonality Value Override	0.00	0.00	0.00
Maximum Seasonality Value Override	840.00	1144.00	350.00
Sparsity Threshold Override	168	208	105
Standard Deviation Threshold Override	840.00	1040.00	525.00

Measures: Pruning Parameters Override View

The Pruning Parameters Override view contains the following measures:

Minimum Seasonality Value Override

This number holds the minimum allowed seasonality value. If set to zero, it assures that no negative seasonal indices are used.

Maximum Seasonality Value Override

This number holds the maximum allowed seasonality value.

Sparsity Threshold Override

Override of the Sparsity Threshold value.

Standard Deviation Threshold Override

This measure holds the maximum allowed standard deviation of the curve.

Group Assignment Step

The available views are:

- [Group Assignment View](#)
- [Group Label Override View](#)

Group Assignment View

Typically, escalation and pooling levels are intersections along the product, location and calendar hierarchies, such as subclass/region/week. However, RDFCS also offers the ultimate flexibility where any item at any store can be grouped together. For instance rain gear in the Southeast region, may be grouped together with snow shovels in the Midwest region, something that would not be possible if the levels are tied to the hierarchies. Determining what item/locations is meaningful to be grouped together can be achieved in several ways. First, the analysis can be done outside of RDFCS, and the groups can be imported using Load Measure. A second option is to implement logic in RDFCS thru the extensibility framework. Finally, the Group Assignment view allows you to manually assign time series to such groups.

Figure 6–14 Group Assignment View

The screenshot shows the 'Group Assignment' view in a software interface. At the top, there are tabs for 'Group Assignment' (selected) and 'Group Label Override'. Below the tabs is a menu bar with icons for 'Menu', 'Location', 'Product', and 'Measure'. The main area displays a table with columns for 'Location' and 'Product', and a 'Group Assignment Position' section with a 'Measure' button. The table below has columns for 'Continental Europe', 'Great Britain', 'North America', and 'South America'. The rows list products and their assigned measures for each region.

	Continental Europe	Great Britain	North America	South America
1Canned	high sellers Summer	high sellers Summer	high sellers Winter	heavily promoted
81Chips	heavily promoted	heavily promoted	high sellers Winter	basic merchandise
201Canned P&B	basic merchandise	basic merchandise	high sellers Winter	high sellers Summer
301Peanut Butter	medium sellers Summer	medium sellers Summer	medium sellers Summer	high sellers Summer
303Perry's	high sellers Winter	heavily promoted	basic merchandise	medium sellers Summer
304Easter Basket	medium sellers Winter	medium sellers Winter	medium sellers Winter	medium sellers Winter

Measures: Group Assignment View

The Group Assignment view contains the following measures:

Group Assignment

Use these measures to specify the group that certain product/location combinations belong to. Note that multiple Group Assignment measures are available. Consider a red shirt selling at a large store at the outskirts of a large metro area. This item/store combination can be part of a certain group where the clustering is done by merchandise. It could potentially be grouped together with other basic fashion items. A different clustering can be done by price tier and store format. There it could be grouped together with other medium priced items selling at a large store.

Group Label Override View

Typically, the groups and their labels are handled outside the solution. However, if no proper labels were specified, they can be overwritten in this view.

Figure 6–15 Group Label Override View

	Time Series Group	Time Series Group 112	Time Series Group 113
Group Label	Fast fashion -	Spring fashion - Southeast	High sellers - Winter
Group Label	Fashion - mega	Fashion - large store	Basic merchandise - Urban

Measures: Group Label Override View

The Group Label Override view contains the following measures:

Group Label

These measures allow you to specify labels that describe grouping criteria of item and locations combinations that are assigned to it. There are as many Group Label measures as there are Group Assignment measures.

Estimation Setup Long Lifecycle Task

This chapter describes the Estimation Setup Long Lifecycle for RDF Cloud Service.

Estimation Setup LLC Workspaces, Steps, and Views

The following table lists the workspaces, steps, and views for the Estimation Setup Long Lifecycle task.

Workspace	Step	Views
General Estimation Setup LLC Workspace	Seasonality Step	Seasonality Global Parameters View Seasonality Level Parameters View Seasonality Level Parameters Override View
	Pooling Step	Pooling Global Parameters View Pooling Level Parameters View Pooling Intermediate Parameters View Promotion Model Type View Ridge Regression Parameters View Pooling Level Parameters Override View
	Escalation Path Step	Seasonality Escalation Path View Seasonality Escalation Path Override View Pooling Escalation Path View Pooling Escalation Path Override View
	Pruning Step	Seasonality Pruning Parameters View Seasonality Pruning Parameters Override View Pooling Pruning Parameters View Minimum Time Series View
	Group Assignment Step	Group Assignment View Group Label Override View

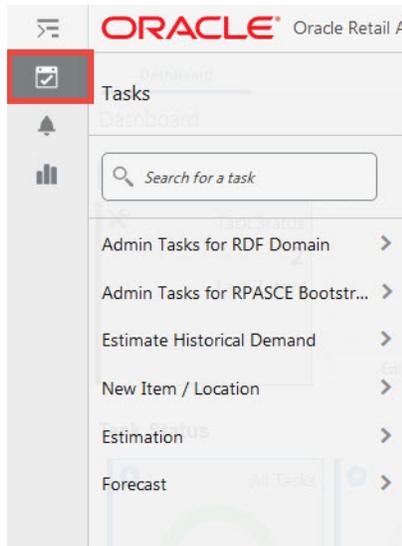
General Estimation Setup LLC Workspace

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

To build the General Estimation Setup LLC workspace, perform these steps:

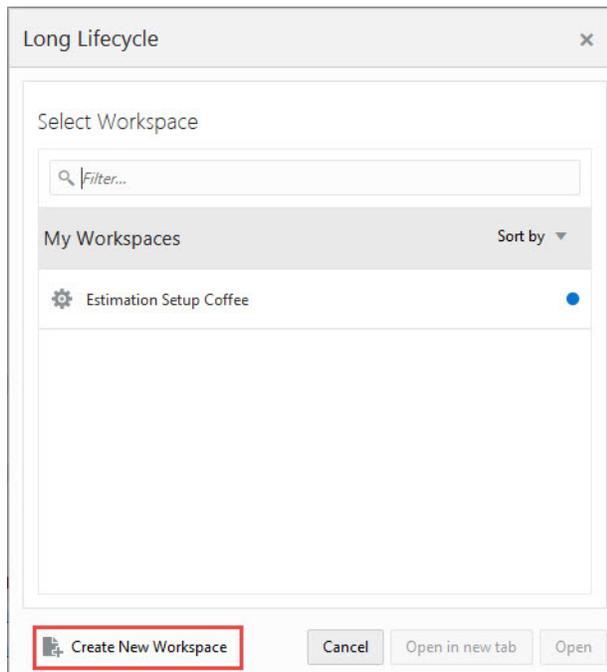
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 7-1 Task Module

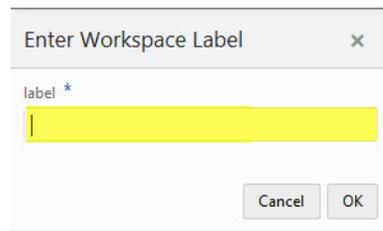


2. Click the **Estimation** activity and then click **Setup** to access the available workspaces.
3. Click **Long Lifecycle**. The Long Lifecycle wizard opens.
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 7-2 Long Lifecycle Wizard



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

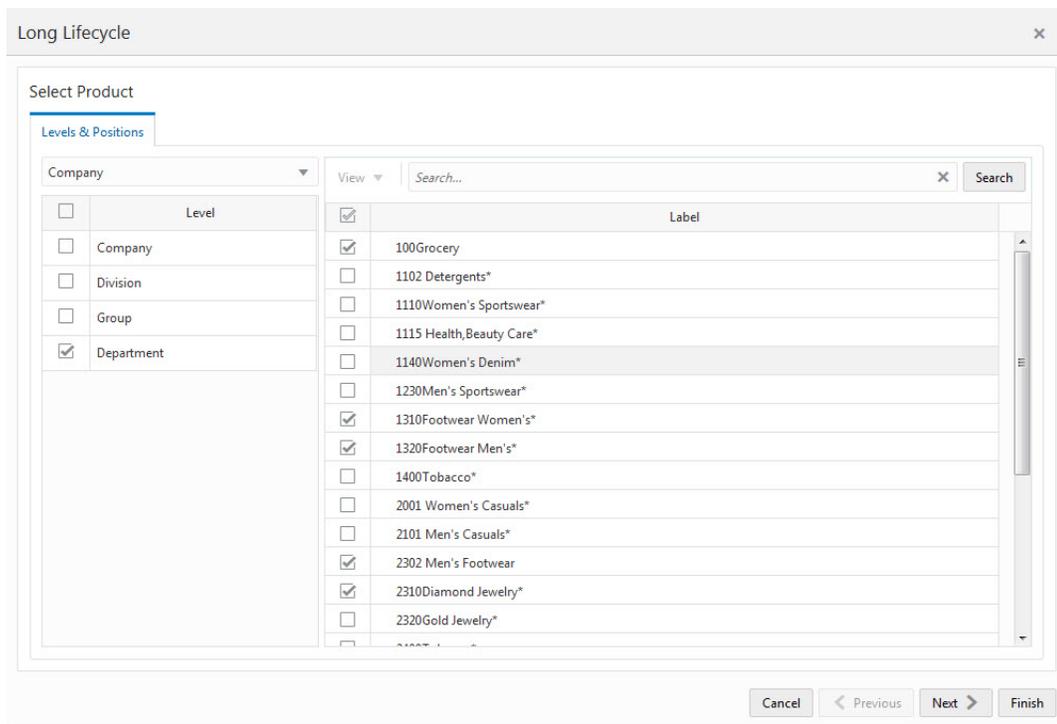
Figure 7-3 Enter Workspace Label

Enter Workspace Label

label *

Cancel OK

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

Figure 7-4 Workspace Wizard: Select Products

Long Lifecycle

Select Product

Levels & Positions

Company

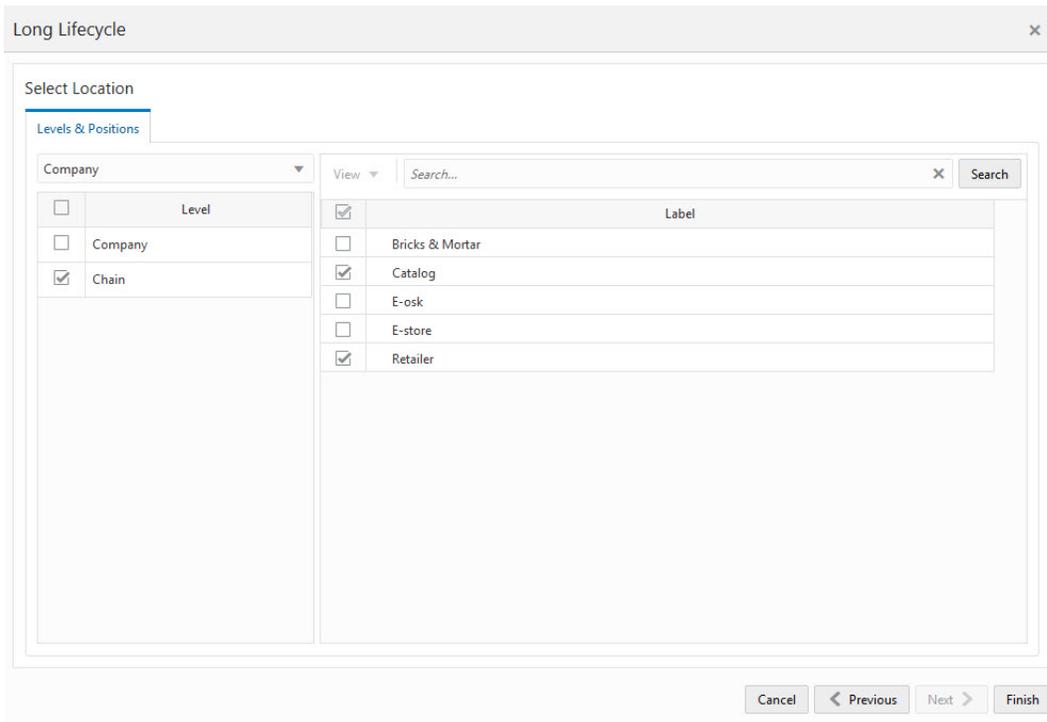
View Search...

Level	Label
<input type="checkbox"/>	<input checked="" type="checkbox"/> 100Grocery
<input type="checkbox"/> Company	<input type="checkbox"/> 1102 Detergents*
<input type="checkbox"/> Division	<input type="checkbox"/> 1110Women's Sportswear*
<input type="checkbox"/> Group	<input type="checkbox"/> 1115 Health,Beauty Care*
<input checked="" type="checkbox"/> Department	<input type="checkbox"/> 1140Women's Denim*
	<input type="checkbox"/> 1230Men's Sportswear*
	<input checked="" type="checkbox"/> 1310Footwear Women's*
	<input checked="" type="checkbox"/> 1320Footwear Men's*
	<input type="checkbox"/> 1400Tobacco*
	<input type="checkbox"/> 2001 Women's Casuals*
	<input type="checkbox"/> 2101 Men's Casuals*
	<input checked="" type="checkbox"/> 2302 Men's Footwear
	<input checked="" type="checkbox"/> 2310Diamond Jewelry*
	<input type="checkbox"/> 2320Gold Jewelry*

Cancel < Previous Next > Finish

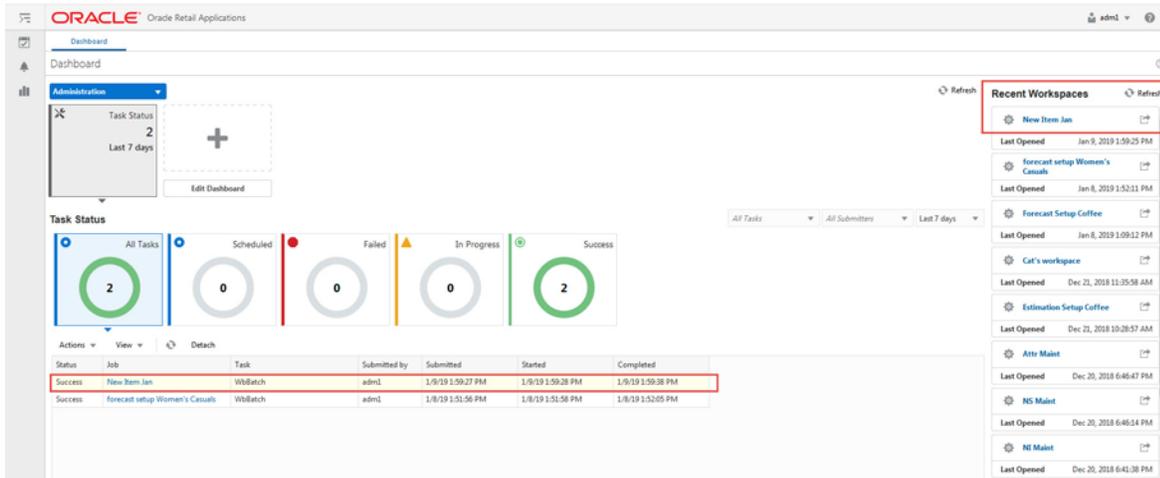
6. Select the locations you want to work with and click **Finish**.

Figure 7-5 Workspace Wizard: Select Locations



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

Figure 7-6 Successful Workspace Build



Seasonality Step

In this step, you can adjust parameters that determine the strategy around how to create seasonality curves. For example, you can decide which estimation method to use and tweak certain parameters that are relevant to the estimation method.

This step includes these sub-steps:

- [Seasonality Default Parameters Sub-step](#)
- [Seasonality Override Parameters Sub-step](#)

Seasonality Default Parameters Sub-step

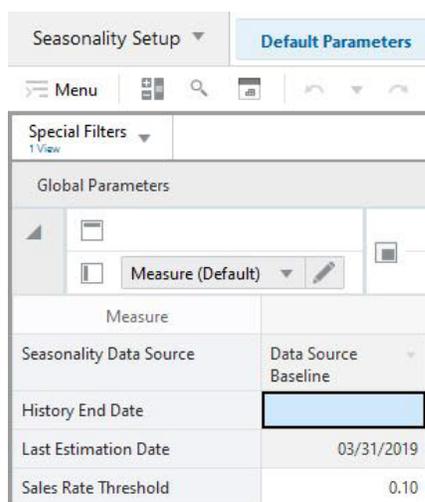
This sub-step includes the:

- [Seasonality Global Parameters View](#)
- [Seasonality Level Parameters View](#)

Seasonality Global Parameters View

The measures in the Global Parameters view are level or intersection specific. For example, for a certain intersection; the estimation method can be Auto_Seasonal, while for other levels it can be set to Blend_Seasonal.

Figure 7-7 Global Parameters View



Measures: Global Parameters View

The Global Parameters view contains the following measures:

Seasonality Data Source

This measure displays the name of the data source used to create seasonality curves.

History End Date

In this measure the user can specify the most recent period to be used in estimation. For instance if today's date is 1/1/2025, and the user sets the History End Date to be 12/1/2024, the sales from December 2024 are not used during estimation.

Last Estimation Date

This measure displays the last time estimation was run. The date can be an indication if the forecast parameters should be refreshed by rerunning estimation.

Sales Rate Threshold

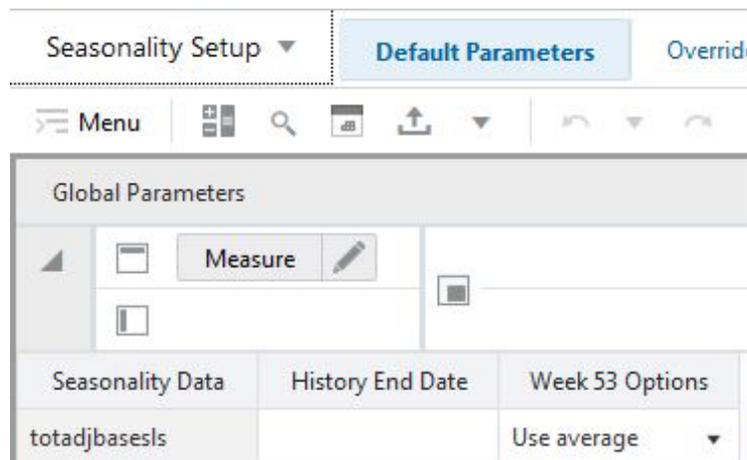
In this measure you can specify the sales rate that determines if the demand should be de-seasonalized or if the step should be skipped.

For items selling on average more than the threshold value, the demand is de-seasonalized before the base rate of demand is calculated. However, for slow selling items, de-seasonalizing the demand can lead to inflated forecast. Hence, if an item is selling less than the value listed in this measure, the base rate of demand is calculated based on the demand, skipping the de-seasonalizing step.

Seasonality Level Parameters View

The measures in the Level Parameters view are at a very high intersection and can be overwritten at a more granular level.

Figure 7–8 Level Parameters View



Measures: Level Parameters View

The Level Parameters view contains the following measures:

History Start Date

This field indicates to the system the point in the historical sales data at which to use in the forecast generation process. If no date is indicated, the system defaults to the first date in your calendar. It is also important to note that the system ignores leading zeros that begin at the history start date. For example, if your history start date is January 1, 2017 and an item/location does not have sales history until February 1, 2017, the system considers the starting point in that item/location's history to be the first data point where there is a non-zero sales value.

Estimate Method

Use this measure to specify the method used in the seasonality estimation. The choices are:

- ORACLE_AWINTERS
- REGULAR_AWINTERS
- ORACLE_MWINTERS
- REGULAR_AWINTERS
- AUTO_SEASONAL
- BLEND_SEASONAL

Winters Max Alpha

In the Winters (SeasonalES) model-fitting procedure, alpha (a model parameter capturing the level) is determined by optimizing the fit over the time series. This field displays the maximum value (cap value) of alpha allowed in the model-fitting process. An alpha cap value closer to one (1) allows more reactive models (alpha = 1, repeats the last data point), whereas alpha cap closer to zero (0) only allows less reactive models. The default is one (1).

Minimum Winters Data Points

The value in this field is the minimum number of periods of historical data necessary for Winters to be considered as a potential forecast method. If not enough years of data are available for a given time series, Winters is not used. The system default is two years of required history, which corresponds two full sales cycles. The value must be set based on the calendar dimension of the level. For example, if the calendar dimension is week, the value is 104.

Seasonal Smooth Index

This parameter is used in the calculation of seasonal index. The current default value used within forecasting is 0.80. Changes to this parameter impacts the value of seasonal index directly and impact the level indirectly. When seasonal smooth index is set to one (1), seasonal index is closer to the seasonal index of last year sales. When seasonal smooth index is set to zero (0), seasonal index is set to the initial seasonal indexes calculated from history.

Winters Max Gamma

In the Winters (SeasonalES) model-fitting procedure, gamma (a model parameter capturing the trend) is determined by optimizing the fit over the time series. This field displays the maximum value (cap value) of gamma allowed in the model-fitting process.

Seasonality Override Parameters Sub-step

This step contains this view:

- [Seasonality Level Parameters Override View](#)

Seasonality Level Parameters Override View

The Seasonality Level Parameters Override view allows you to override the parameters at each position of any level. For instance, if the level is department, the for one department the estimation method may be AUTO_SEASONAL, and for others it may be BLEND_SEASONAL.

Figure 7–9 Seasonality Level Parameters Override View

Seasonality Level Parameters Override week/department/group	
	100Grocery
History Start Date Override	
Estimate Method Override	No Override
Winters Max Alpha Override	0.00
Minimum Winters Data Points	0
Seasonal Smooth Index	0.00
Winters Max Gamma Override	0.00

Measures: Seasonality Level Parameters Override View

The Seasonality Level Parameters Override view contains the following measures:

History Start Date Override

This parameter represents the first point in time from which the Forecasting Engine begins training and modeling (that is, if there are two years of history, but you only want to use one year, you set the start date to a year ago). This parameter overrides the History Start Date to the desired item/location intersection. For example, if you have a large spike in the first three weeks of sales for an item on sale, you can set the Historical Start Date to one week past that period, and those first few weeks are not used when generating the forecast.

It is also important to note that the system ignores leading zeros that begin at the history start date. For example, if your history start date is January 1, 2003, and an item/location does not have sales history until February 1, 2003, the system considers the starting point in that item/location's history to be the first data point where there is a non-zero sales value.

If this parameter is set into the future, there would be no forecast, as the history training window is read as zero.

Estimate Method Override

Use this measure to override the method used in the seasonality estimation. The choices are:

- ORACLE_AWINTERS
- REGULAR_AWINTERS
- ORACLE_MWINTERS
- REGULAR_AWINTERS
- AUTO_SEASONAL
- BLEND_SEASONAL

Winters Max Alpha Override

This is the override of the default Winters Max Alpha value.

Minimum Winters Data Points Override

This is the override of the default Minimum Winters Data Points value.

Seasonal Smooth Index Override

This is the override of the Seasonal Smooth Index value.

Winters Max Gamma Override

This is the override of the Winters Max Gamma value.

Pooling Step

This step includes these sub-steps:

- [Pooling Default Parameters Sub-step](#)
- [Ridge Regression Parameters Sub-step](#)
- [Pooling Override Parameters Sub-step](#)

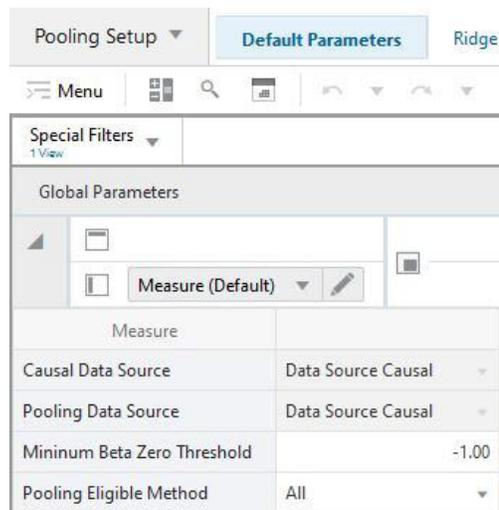
Pooling Default Parameters Sub-step

The available views are:

- [Pooling Global Parameters View](#)
- [Pooling Level Parameters View](#)
- [Pooling Intermediate Parameters View](#)
- [Promotion Model Type View](#)

Pooling Global Parameters View

The Global Parameters view allows you to specify the strategy for estimating promotion and price effects. The strategy can be defined at a high, or global level, and can be overwritten at more granular levels

Figure 7–10 Global Parameters View**Measures: Global Parameters View**

The Global Parameters view contains the following measures:

Causal Data Source

This measure displays the name of the data source used to calculate promotion effects at the final level.

Pooling Data Source

This measure displays the name of the data source used to calculate promotion effects at the pooling levels. The measure may be different than the causal data source, because at the pooling levels the data source can be normalized, something that is not recommended for the final level.

Minimum Beta Zero Threshold

This parameter specifies the minimum value of the intercept calculated during regression. If a number is less than the threshold, the estimates are considered unstable.

Pooling Eligible Method

This measure allows you to control which time series are used to estimate promotion effects at pooling levels.

The available options are

- **All:** all time series are used to estimate promotion effects at pooling levels. Note that time series that were not promoted in history are automatically excluded from the estimation.
- **Relevant Only:** only time series that have relevant promotion effects at the final level are used in the estimation at pooling levels. These time series have final effects determined by the blending of pooling and final level effects. Time series without relevant effects at the final level will use pooling effects.
- **Custom:** The third option is to write custom rules to determine which time series should contribute to the pooling levels estimation.

For instance, you can specify that all low sellers are excluded from the estimation. Or you can reject all time series that are promoted more than 90% of the time. Or time series that sell only when they are promoted..

Pooling Level Parameters View

The Level Parameters view allows you to specify the promotion and price estimation strategy at the pooling level.

Figure 7–11 Level Parameters View

Escalation Levels	07 Long Lifecycle	08 week/subclass /district
Measure		
Estimate Method	Causal	Causal
Regress Engine Type	Stepwise	Stepwise
Data Source Threshold	0.00	0.00

Measures: Level Parameters View

The Level Parameters view contains the following measures:

Estimate Method

This measure allows you to specify if parameters should be estimated or not. The choices are

- Causal: in which case parameters will be estimated
- No Estimate: no promotion-related parameters will be estimated

A common reason why a user may not want to estimate promotion effects for certain item/locations is because the effects are still up to date, and do not need to be refreshed.

Regress Engine Type

This measure allows you to specify the mode of the regression engine. The options are:

- Stepwise: Step-wise regression is used to estimate promotion and price effects
- Ridge: Ridge regression is used to estimate promotion and price effects.

The Step-wise regression is a good candidate when promotions and price change instances are infrequent, such as at the item/store level. The step-wise first discards the events that it finds insignificant, and estimates effects for the significant ones.

The Ridge regression is a good candidate for the pooling levels where instances of events and price changes are plenty. The method is emphasizing stable events and punishing less significant.

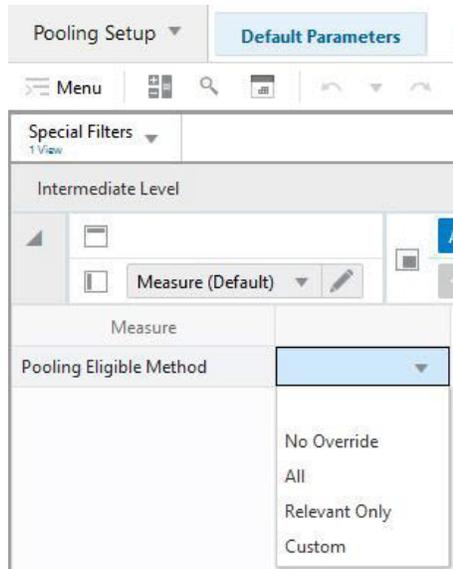
Data Source Threshold

This measure allows you to specify the minimum value of the data source that is used in the calculations. It is recommended that the value is at least 1, so the estimation of events and price effect is robust and correctly reflects the impact on demand.

Pooling Intermediate Parameters View

This view allows you to determine the pooling eligibility method at an intersection that is lower than global.

Figure 7–12 Pooling Intermediate Parameters View



Measures: Pooling Intermediate Parameters

The Pooling Intermediate Parameters view contains the following measure:

Pooling Eligible Method

This measure allows you to control which time series are used to estimate promotion effects at pooling levels.

The available options are

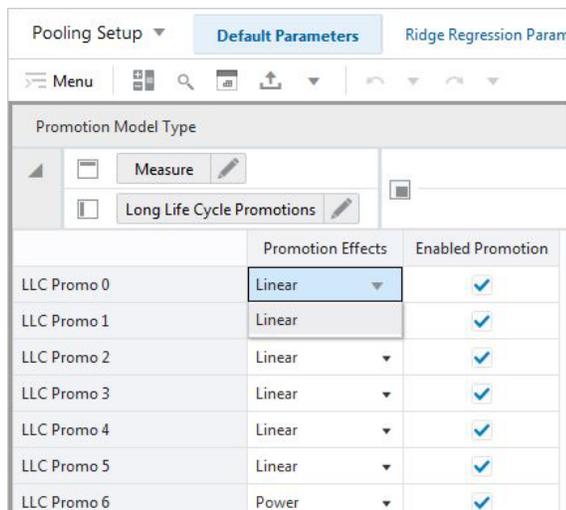
- **All:** all time series are used to estimate promotion effects at pooling levels. Note that time series that were not promoted in history are automatically excluded from the estimation.
- **Relevant Only:** only time series that have relevant promotion effects at the final level are used in the estimation at pooling levels. These time series have final effects determined by the blending of pooling and final level effects. Time series without relevant effects at the final level will use pooling effects.
- **Custom:** The third option is to write custom rules to determine which time series should contribute to the pooling levels estimation.

For instance, you can specify that all low sellers are excluded from the estimation. Or you can reject all time series that are promoted more than 90% of the time. Or time series that sell only when they are promoted.

Promotion Model Type View

The Promotion Model Type view allows you to enable or disable promotions effect estimation and determine the type of promotions.

Figure 7–13 Promotion Model Type View



	Promotion Effects	Enabled Promotion
LLC Promo 0	Linear	<input checked="" type="checkbox"/>
LLC Promo 1	Linear	<input checked="" type="checkbox"/>
LLC Promo 2	Linear	<input checked="" type="checkbox"/>
LLC Promo 3	Linear	<input checked="" type="checkbox"/>
LLC Promo 4	Linear	<input checked="" type="checkbox"/>
LLC Promo 5	Linear	<input checked="" type="checkbox"/>
LLC Promo 6	Power	<input checked="" type="checkbox"/>

Measures: Promotion Model Type View

The Promotion Model Type View view contains the following measures:

Promotion Effects Type

This measure allows you to view and select the type of promotion effects. If a promotion, for instance, front cap, is defined as real, the type is displayed as linear. If another event is defined as real, such as price discount, you can decide to estimate it using an exponential model or using the power law.

Enabled Promotion

This measure indicates if an event is enabled or not. If it is enabled, the system will attempt to quantify its effect on demand during the estimation task

Ridge Regression Parameters Sub-step

This step contains this view:

- [Ridge Regression Parameters View](#)

Ridge Regression Parameters View

The Ridge Regression Parameters view allows you to select settings relevant to ridge regression.

Figure 7–14 Ridge Regression Parameters View

	08 week/subclass/district	09 week/class/district
Data Points for Pooling	2	2
Ridge Penalty Factor	0.10	0.10
Enable Ridge Cross Validation	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Ridge Cross Validation Sets	5	5
Ridge Ensemble Runs	6	6

Measures: Ridge Regression Parameters View

The Ridge Regression Parameters view contains the following measures:

- Data Points for Pooling
- Ridge Penalty Factor
- Enable Ridge regression Cross Validation
- Ridge Regression Validation Sets
- Ridge Ensemble Runs

These measures are fully detailed in the My Oracle Support white paper, *Effects Estimation*.

Pooling Override Parameters Sub-step

This step contains this view:

- [Pooling Level Parameters Override View](#)

Pooling Level Parameters Override View

The Pooling Level Parameters Override view allows you to override the promotion effect estimation strategy at more granular levels.

Figure 7–15 Pooling Level Parameters Override View

	10000359Private Label Chicken Noodle S	10000360Private Label Cream
Causal Estimation Method	No Override	No Override

Measures: Pooling Level Parameters Override View

The Pooling Level Parameters Override view contains the following measures:

Causal Estimation Method Override

This measure allows you to override the causal estimation method. The options are:

- No override: default setting applies
- Causal: effect estimation is performed
- No estimate: effect estimation is not performed

Escalation Path Step

This step includes these sub-steps:

- [Seasonality Escalation Sub-step](#)
- [Pooling Escalation Sub-step](#)

Seasonality Escalation Sub-step

The available views are:

- [Seasonality Escalation Path View](#)
- [Seasonality Escalation Path Override View](#)

Seasonality Escalation Path View

The Seasonality Escalation Path view allows you to specify the priority of each escalation level. Escalation levels with low intersections, such as subclass, usually capture more detailed seasonality patterns, but are less stable because the lower number of data points used for estimation.

Escalation levels with high intersections, such as department, usually capture more generic seasonality patterns, but are very stable because of the large number of data points used for estimation.

Figure 7–16 Seasonality Escalation Path View

	07 Long Lifecycle	12 week/subclass	13 week/subclass	14 week/department/region
Level Intersection	▲	▲	▲	▲
Escalation Path	2	4	5	6

Measures: Seasonality Escalation Path View

The Seasonality Escalation Path view contains the following measures:

Level Intersection

This measure displays the intersections of the escalation levels. This can be helpful for the business user when assigning priorities in the escalation path.

Escalation Path

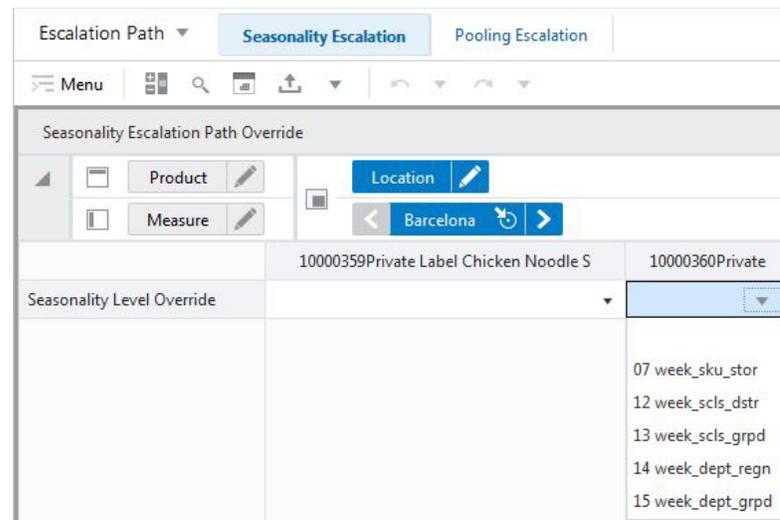
The user can specify the priority in which the system searches escalation levels for seasonality curves. For instance, suppose there are three escalation levels available. The path may be defined as follows:

- Escalation Level #1: priority 3
- Escalation Level #2: priority 4
- Escalation Level #3: priority 2

In this case, when generating the forecast, the system will first look to get parameters from Escalation Level #3 (highest priority). If they are available, they are used. If they are not available, because they were deemed unreliable and pruned, the system will go to Escalation Level #1 (second highest priority). Finally, if the search is not successful, the search continues at Escalation Level #2.

Seasonality Escalation Path Override View

The Seasonality Escalation Path Override view allows you to override the escalation path for seasonality estimation.

Figure 7–17 Seasonality Escalation Path Override View**Measures: Seasonality Escalation Path Override View**

The Seasonality Escalation Path Override view contains the following measures:

Escalation Path Override

In this field the user can override the default escalation path selections. She can enter the preferred Escalation Level, and that will become the top priority. However, if the forecast parameters for that level were deemed unreliable and pruned, the search will follow the default escalation path.

Pooling Escalation Sub-step

This step contains these views:

- [Pooling Escalation Path View](#)
- [Pooling Escalation Path Override View](#)

Pooling Escalation Path View

The Pooling Escalation Path view allows you to specify the priority of each escalation level. Escalation levels with low intersections, such as subclass, usually capture more detailed pooled effects, but are less stable because the lower number of data points used for estimation.

Escalation levels with high intersections, such as department, usually capture more generic pooling effects, but are very stable because of the large number of data points used for estimation.

Figure 7–18 Pooling Escalation Path View

	08 week/subclass/district	09	10 week/department
Level Intersection	⚠	⚠	⚠
Escalation Path	2	3	4

Measures: Pooling Escalation Path View

The Pooling Escalation Path view contains the following measures:

Level Intersection

This measure displays the intersections of the pooling levels. This can be helpful for the business user when assigning priorities in the escalation path.

Escalation Path

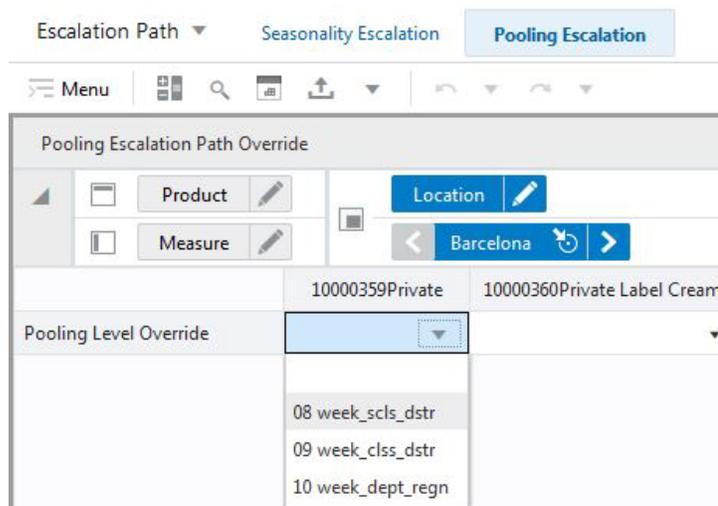
The user can specify the priority in which the system searches pooling levels for promotion effects. For instance, suppose there are three escalation levels available. The path may be defined as follows:

- Pooling Level #1: priority 3
- Pooling Level #2: priority 4
- Pooling Level #3: priority 2

In this case, when generating the forecast, the system will first look to get parameters from Escalation Level #3 (highest priority). If they are available, they are used. If they are not available, because they were deemed unreliable and pruned, the system will go to Escalation Level #1 (second highest priority). Finally, if the search is not successful, the search continues at Escalation Level #2.

Pooling Escalation Path Override View

The Pooling Escalation Path Override view allows you to override the escalation path for pooling estimation.

Figure 7–19 Pooling Escalation Path Override View**Measures: Pooling Escalation Path Override View**

The Pooling Escalation Path Override view contains the following measures:

Escalation Path Override

In this field the user can override the default escalation path selections. She can enter the preferred Pooling Level, and that will become the top priority. However, if the forecast parameters for that level were deemed unreliable and pruned, the search will follow the default escalation path.

Pruning Step

This step includes these sub-steps:

- [Pruning Sub-step](#)
- [Override Pruning Sub-step](#)
- [Promotion Effect Pruning Sub-step](#)
- [Minimum Time Series Sub-step](#)

Pruning Sub-step

The available views are:

- [Seasonality Pruning Parameters View](#)
- [Seasonality Pruning Parameters Override View](#)

Seasonality Pruning Parameters View

After seasonality estimation is performed, the seasonality curves are undergoing a rigorous check to make sure they are suitable for forecasting. Using the Seasonality Pruning Parameters view, you can set the thresholds for various filters.

Figure 7–20 Seasonality Pruning Parameters View

	07 Long Lifecycle	12 week/subclass	13 week/subclass
Minimum Seasonality Value	0.00	0.00	0.00
Maximum Seasonality Value	20.00	20.00	20.00
Standard Deviation Threshold	2.00	2.00	2.00
Sparsity Threshold	1	1	1
Correlation Threshold	0.80	0.80	0.80

Measures: Seasonality Pruning Parameters View

The Seasonality Pruning Parameters view contains the following measures:

Minimum Seasonality Value

This number holds the minimum allowed seasonality value.

Maximum Seasonality Value

This number holds the maximum allowed seasonality value.

Standard Deviation Threshold

This measure holds the maximum allowed standard deviation of the curve.

Sparsity Threshold

Seasonality curves with the number of consecutive periods with indices equal to zero equal to or less than the sparsity threshold will be pruned.

Correlation Threshold

This measure holds the minimum allowed value of the correlation between the seasonality curve and the data source.

Override Pruning Sub-step

This step contains this view:

- [Seasonality Pruning Parameters Override View](#)

Seasonality Pruning Parameters Override View

The Seasonality Pruning Parameters Override view allows you to override the threshold values for the pruning filters.

Figure 7–21 Seasonality Pruning Parameters Override View

Seasonality Pruning Parameters Override week/department/group	
	100Grocery
Minimum Seasonality Value Override	0.00
Maximum Seasonality Value Override	20.00
Standard Deviation Threshold Override	2.00
Sparsity Threshold Override	1
Correlation Threshold Override	0.00

Measures: Seasonality Pruning Parameters Override View

The Seasonality Pruning Parameters Override view contains the following measures:

Minimum Seasonality Value Override

Override of the Minimum Seasonality value.

Maximum Seasonality Value Override

Override of the Maximum Seasonality value.

Standard Deviation Threshold Override

Override of the Standard Deviation Threshold value.

Sparsity Threshold Override

Override of the Sparsity Threshold value.

Correlation Threshold Override

Override of the Correlation Threshold value.

Promotion Effect Pruning Sub-step

This step contains this view:

- [Pooling Pruning Parameters View](#)

Pooling Pruning Parameters View

After pooling estimation is performed, the promotion effects are undergoing a check to make sure they are suitable for forecasting. The Pooling Pruning Parameters allows you to set the thresholds for various filters.

Figure 7-22 Pooling Pruning Parameters View

Long Life Cycle Promotions	all [Long Life Cycle Promotions]	LLC Promo 0	LLC Promo 1	LLC Promo 2
Minimum Promo Effect	0.00	0.00	0.00	0.00
Maximum Promo Effect	10.00	10.00	10.00	10.00
Pruning Type	All	---	---	---

Measures: Pooling Pruning Parameters View

The Pooling Pruning Parameters view contains the following measures:

Maximum Promo Effect

This measure holds the maximum allowed promo effect.

Minimum Promo Effect

This measure holds the minimum allowed promo effect.

Pruning Type

This measure specifies how pruning should work for the set of promotions at a given pooling level. The options are:

Single: If at a given pooling level, one particular effect does not pass the criteria of minimum or maximum allowed effects, it is pruned.

All: If at a given pooling level, one or more effects do not pass the criteria of minimum or maximum allowed effects, the effects of all promotions at that pooling level are pruned.

Note: Since this measure is set for all promotions at a pooling level, you need to roll up to all promotions to be able to edit the measure.

Minimum Time Series Sub-step

This step contains this view:

- [Minimum Time Series View](#)

Minimum Time Series View

The Minimum Time Series view allows you to specify the minimum number of time series necessary to perform robust pooling estimation.

Figure 7-23 Minimum Time Series View

	08 week/subclass	09 week/class	10 week/department/region
Minimum Time Series	100	10000	20000

Measures: Minimum Time Series View

The Minimum Time Series view contains the following measures:

Minimum Time Series

This measure allows you to specify the minimum number of times necessary to perform robust pooling estimation.

Group Assignment Step

The available views are:

- [Group Assignment View](#)
- [Group Label Override View](#)

Group Assignment View

Typically, escalation and pooling levels are intersections along the product, location and calendar hierarchies, such as subclass/region/week. However, RDFCS also offers the ultimate flexibility where any item at any store can be grouped together. For instance rain gear in the Southeast region, may be grouped together with snow shovels in the Midwest region, something that would not be possible if the levels are tied to the hierarchies. Determining what item/locations is meaningful to be grouped together can be achieved in several ways. First, the analysis can be done outside of RDFCS, and the groups can be imported using Load Measure. A second option is to implement logic in RDFCS thru the extensibility framework. Finally, the Group Assignment view allows you to manually assign time series to such groups.

Figure 7–24 Group Assignment View

	Continental Europe	Great Britain	North America	South America
1Canned	high sellers Summer	high sellers Summer	high sellers Winter	heavily promoted
81Chips	heavily promoted	heavily promoted	high sellers Winter	basic merchandise
201Canned P&B	basic merchandise	basic merchandise	high sellers Winter	high sellers Summer
301Peanut Butter	medium sellers Summer	medium sellers Summer	medium sellers Summer	high sellers Summer
303Perry's	high sellers Winter	heavily promoted	basic merchandise	medium sellers Summer
304Easter Basket	medium sellers Winter	medium sellers Winter	medium sellers Winter	medium sellers Winter

Measures: Group Assignment View

The Group Assignment view contains the following measures:

Group Assignment

Use these measures to specify the group that certain product/location combinations belong to. Note that multiple Group Assignment measures are available. Consider a red shirt selling at a large store at the outskirts of a large metro area. This item/store combination can be part of a certain group where the clustering is done by merchandise. It could potentially be grouped together with other basic fashion items. A different clustering can be done by price tier and store format. There it could be grouped together with other medium priced items selling at a large store.

Group Label Override View

Typically, the groups and their labels are handled outside the solution. However, if no proper labels were specified, they can be overwritten in this view.

Figure 7–25 Group Label Override View

	Time Series Group	Time Series Group 112	Time Series Group 113
Group Label	Fast fashion -	Spring fashion - Southeast	High sellers - Winter
Group Label	Fashion - mega	Fashion - large store	Basic merchandise - Urban

Measures: Group Label Override View

The Group Label Override view contains the following measures:

Group Label

These measures allow you to specify labels that describe grouping criteria of item and locations combinations that are assigned to it. There are as many Group Label measures as there are Group Assignment measures.

Estimation Review Short Lifecycle Task

This chapter describes the Estimation Review Short Lifecycle for RDF Cloud Service. In this workspace you can review the seasonality curves and price elasticities at various intersections. This is also the place where, if available, the user adjusted, or loaded parameters are displayed.

Estimation Review SLC Workspaces, Steps, and Views

The following table lists the workspaces, steps, and views for the Estimation Review Short Lifecycle task.

Workspace	Step	Views
General Estimation Review SLC Workspace	Estimation Summary Step	SLC Preprocess View SLC Estimation Count View
	Price Elasticity Step	SLC Price Elasticity View
	Seasonality Curve Step	SLC Seasonality Curve View

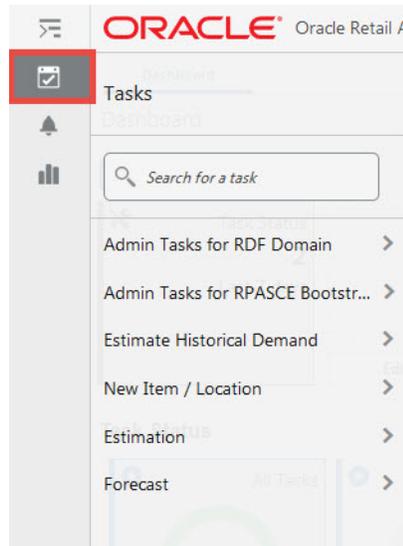
General Estimation Review SLC Workspace

The General Estimation Review SLC workspace allows you access to all of the views listed in [Estimation Review SLC Workspaces, Steps, and Views](#). It displays important information about the data that was processed during the estimation step. For the estimation results to be robust it is necessary to remove unreliable data points from the calculations. This step shows the original data points and the number of data points still available after each filter.

To build the General Estimation Review SLC workspace, perform these steps:

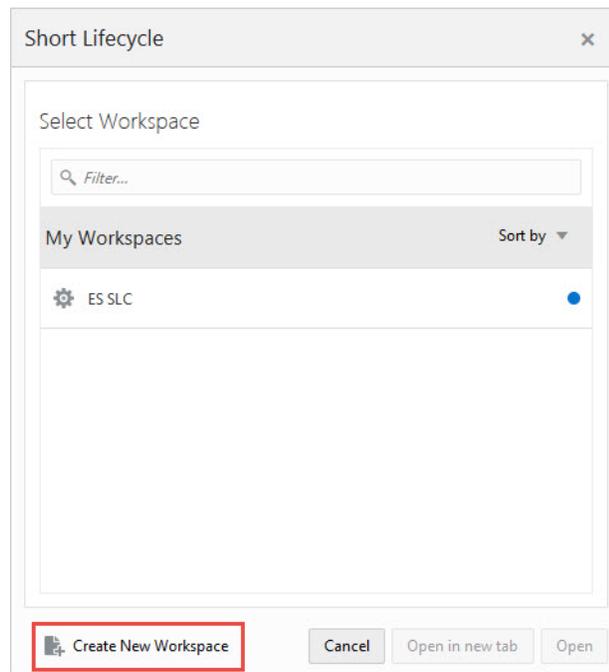
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 8–1 Task Module

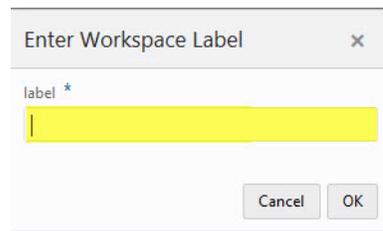


2. Click the **Estimation** activity and then click **Review** to access the available workspaces.
3. Click **Short Lifecycle**. The Short Lifecycle wizard opens.
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 8–2 Short Lifecycle Wizard



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

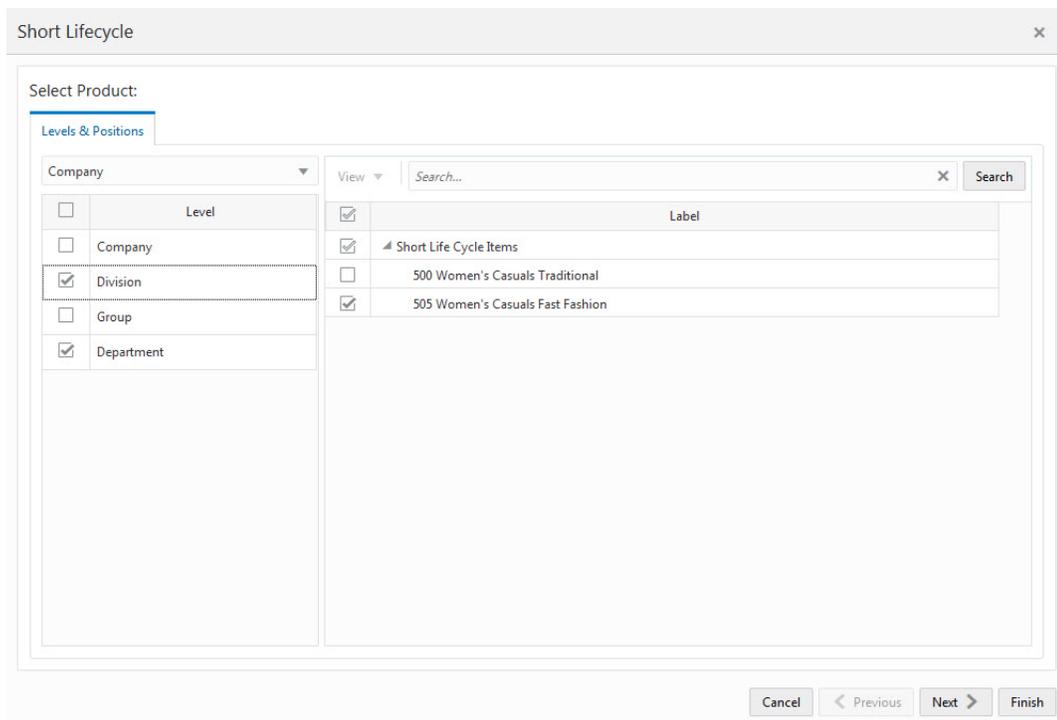
Figure 8–3 Enter Workspace Label

Enter Workspace Label

label *

Cancel OK

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

Figure 8–4 Workspace Wizard: Select Products

Short Lifecycle

Select Product:

Levels & Positions

Company

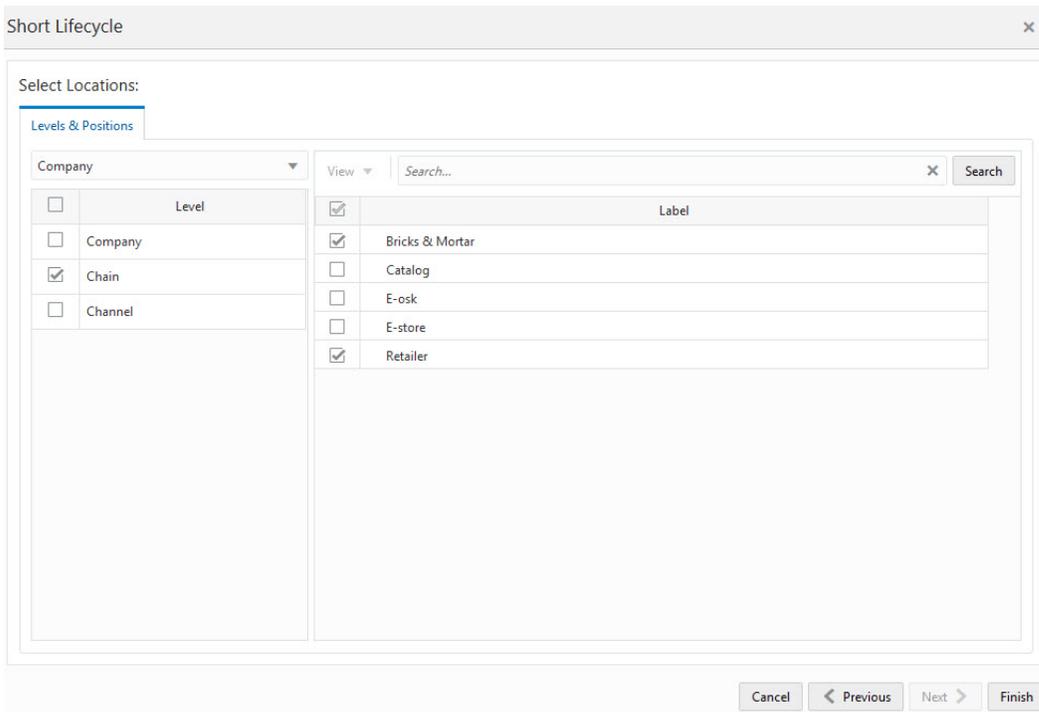
View Search...

Level	Label
<input type="checkbox"/>	Short Life Cycle Items
<input type="checkbox"/>	500 Women's Casuals Traditional
<input checked="" type="checkbox"/>	505 Women's Casuals Fast Fashion

Cancel < Previous Next > Finish

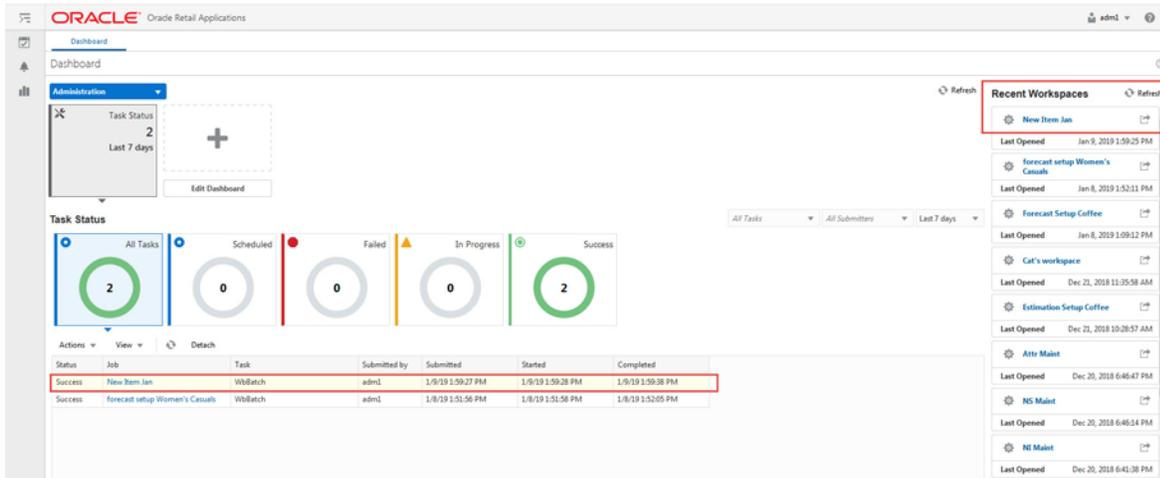
6. Select the locations you want to work with and click **Finish**.

Figure 8–5 Workspace Wizard: Select Locations



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

Figure 8–6 Successful Workspace Build



Estimation Summary Step

The available views are:

- [SLC Preprocess View](#)
- [SLC Estimation Count View](#)

SLC Preprocess View

The SLC Preprocess view shows a summary of the SLC preprocessing.

Figure 8–7 SLC Preprocess View

The screenshot shows a software interface with a 'Summary' dropdown menu set to 'Estimation Summary'. Below the menu is a toolbar with icons for menu, zoom, search, and refresh. The main content area is titled '1. SLC Preprocess' and contains a table with the following data:

Measure	Value
0.Total Number of Time Series	39
0.Total Amount	598651.00
1. Number of Time Series After Average Sales Filter	39
1.Amount After Average Sales Filter	598651.00
2. Number of Time Series After Season Length Filter	39
2. Amount After Season Length Filter	598651.00
3. Number of Time Series After Minimum Number of Units Filter	39
3. Amount After Minimum Number of Units Filter	598651.00
4. Number of Time Series After Markdown Filter	17
4. Amount After Markdown Filter	159688.50

Measures: SLC Preprocess View

The SLC Preprocess view contains the following measures:

0. Total Number of Time Series

Total number of product/location combinations with short lifecycle.

0. Total Amount

Total amount generated by product/locations with short lifecycle.

1. Number of Time Series After Average Sales Filter

Number of product/location combinations with short lifecycle that passed the average sales filter.

1. Amount After Average Sales Filter

Amount generated by product/location combinations with short lifecycle that passed the average sales filter

2. Number of Time Series After Season Length Filter

Number of product/location combinations with short lifecycle that passed the season length filter.

2. Amount After Season Length Filter

Amount generated by product/location combinations with short lifecycle that passed the season length filter.

3. Number of Time Series After Number of Units Filter

Number of product/location combinations with short lifecycle that passed the number of units filter.

3. Amount After Number of Units Filter

Amount generated by product/location combinations with short lifecycle that passed the number of units filter.

4. Number of Time Series After Markdown Filter

Number of product/location combinations with short lifecycle that passed the markdown filter.

4. Amount After Markdown Filter

Amount generated by product/location combinations with short lifecycle that passed the markdown filter.

SLC Estimation Count View

The SLC Estimation Count view shows a summary of the count of forecast parameters.

Figure 8–8 SLC Estimation Count View

	01 Short Lifecycle	02 week of year/subclass/store	03 week of year/subclass/district	04 week of year/class/district	05 week of year/department/district	06 week of year/department/channel/group
Raw Elasticity Count	4	3	3	1	1	10
Elasticity Count after Pruning	3	1	1	0	0	1
Raw Seasonality Curve Count	17	5	5	1	1	10
Seasonality Curve Count after Pruning	17	5	5	1	1	10

Measures: SLC Estimation Count View

The SLC Estimation Count view contains the following measures:

Raw Elasticity Count

Total number of price elasticities before pruning.

Elasticity Count after Pruning

Number of price elasticities after pruning.

Raw Seasonality Curve Count

Total number of seasonality curves before pruning.

Seasonality Curve Count after Pruning

Number of seasonality curves after pruning.

Price Elasticity Step

This step includes the [SLC Price Elasticity View](#).

SLC Price Elasticity View

The SLC Price Elasticity view reviews the price elasticities at several escalation levels.

Figure 8–9 SLC Price Elasticity View

500 Women's Casuals Traditional	
Calculated Price Elasticity	0.00
Approved Price Elasticity	0.00
Price Elasticity Override	0.00
Total Data Points	2760
Number of Valid Data Points	0

Measures: SLC Price Elasticity View

The SLC Price Elasticity view contains the following measures:

Calculated Price Elasticity

This measure shows the value of the price elasticity calculated by the system.

Approved Price Elasticity

This measure shows the value of the approved price elasticity.

Price Elasticity Override

This measure shows the override value of the price elasticity. This can be loaded, or can be manually entered.

Total Data Points

Total number of data points in this escalation level.

Number of Valid Data Points

Number of data points in the escalation level that passed pruning and were used to calculate price elasticities.

Seasonality Curve Step

This step includes the [SLC Seasonality Curve View](#).

SLC Seasonality Curve View

The SLC Seasonality view reviews the seasonality curves at several escalation levels.

Figure 8–10 SLC Seasonality Curve View

The screenshot shows the 'Seasonality Curves' view in a software application. The interface includes a top navigation bar with 'Seasonality' and 'Seasonality Curves' tabs. Below this is a toolbar with 'Menu', search, and refresh icons. The main area is titled 'Curves for 12 week/subclass/district' and contains a table with columns for 'Calendar', 'Week 01' through 'Week 07', and 'Measure'. The table displays three measures: 'Approved Curve', 'System Curve', and 'Adjusted Curve', with numerical values for each week. The 'Ground' and 'Illinois' buttons are visible above the table.

Calendar	Week 01	Week 02	Week 03	Week 04	Week 05	Week 06	Week 07
Approved Curve	1.56	1.56	1.55	1.51	1.44	1.39	1.30
System Curve	1.56	1.56	1.55	1.51	1.44	1.39	1.30
Adjusted Curve	1.56	1.56	1.55	1.51	1.44	1.39	1.30

Measures: SLC Seasonality View

The SLC Seasonality view contains the following measures:

System Curve

This measure shows the seasonality curves calculated by the system.

Approved Curve

This measure shows the approved seasonality curves.

Adjusted Curve

This measure can be used to load seasonality curves generated outside of RDFCS. If loaded curves exist, they display, if no load occurred, then the system values display. You can change values and click **Calculate** so that the values are normalized and copied into the Approved Curve measure.

Note: If you choose to override a seasonality curve, the values entered by you are normalized to 52, and become the approved curve. The approved curve is not a merge between the seasonality calculated by the system and the override values.

Specifically, if you enter one value in week 42 of the override measure, the approved seasonality curve will be all zeros, except for week 42 where the index is 52.

Estimation Review Long Lifecycle Task

This chapter describes the Estimation Review Long Lifecycle for RDF Cloud Service. In this workspace you can review the seasonality curves and promotion at various intersections. This is also the place where, if available, the user adjusted, or loaded parameters are displayed.

Estimation Review LLC Workspaces, Steps, and Views

The following table lists the workspaces, steps, and views for the Estimation Review Long Lifecycle task.

Workspace	Step	Views
General Estimation Review LLC Workspace	Summary Step	Causal Effects Statistics View Sales Statistics View Seasonality Curve Count View
	Seasonality Step	Curves View
	Effects Step	Causal Effects Final View Causal Effects Pool View

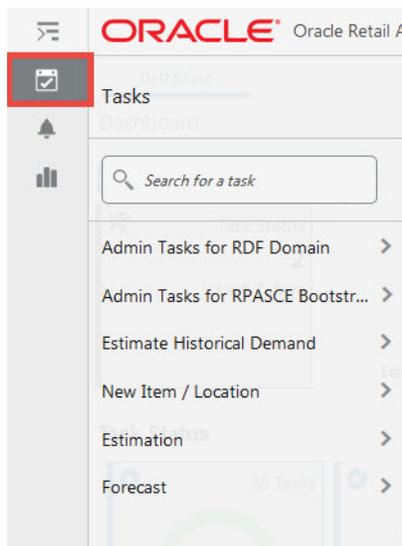
General Estimation Review LLC Workspace

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

To build the General Estimation Review LLC workspace, perform these steps:

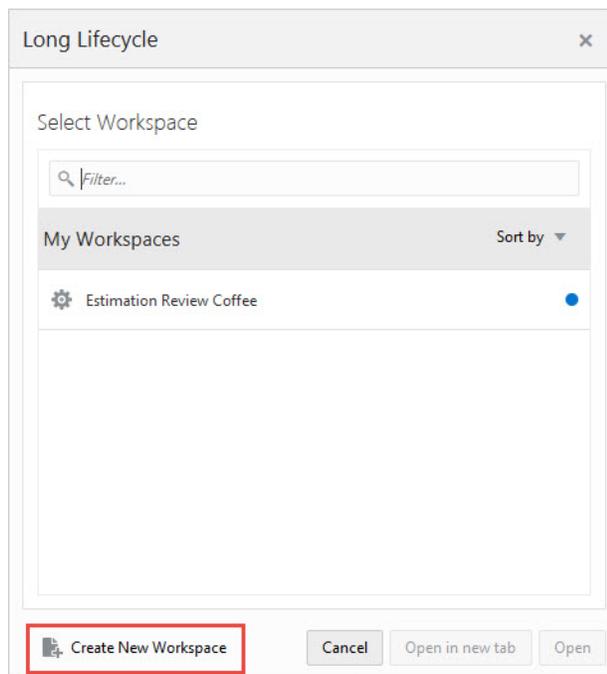
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 9–1 Task Module



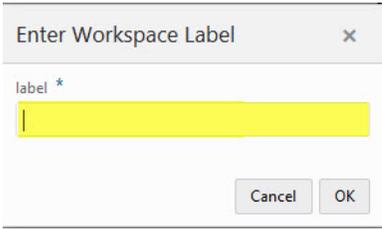
2. Click the **Estimation** activity and then click **Review** to access the available workspaces.
3. Click **Long Lifecycle**. The Long Lifecycle wizard opens.
You can open an existing workspace, but to create a new workspace, click **Create New Workspace**.

Figure 9–2 Long Lifecycle Wizard



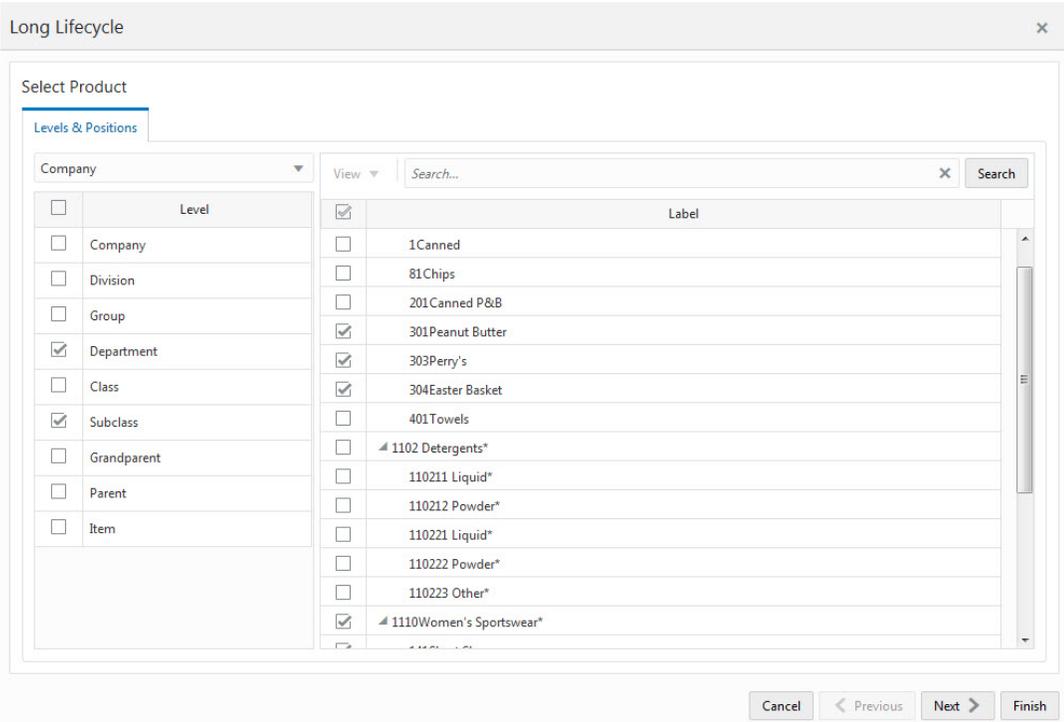
4. Enter a name for your new workspace in the label text box and click **OK**.

Figure 9-3 Enter Workspace Label



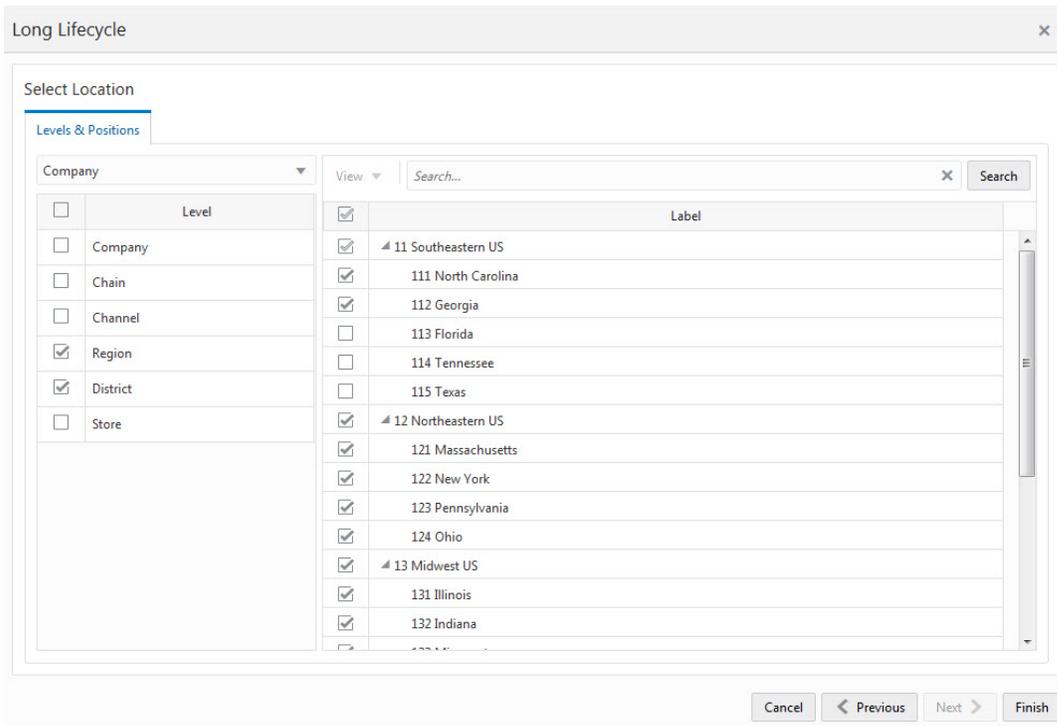
- 5. The Workspace wizard opens. Select the products you want to work with and click **Next**.

Figure 9-4 Workspace Wizard: Select Products



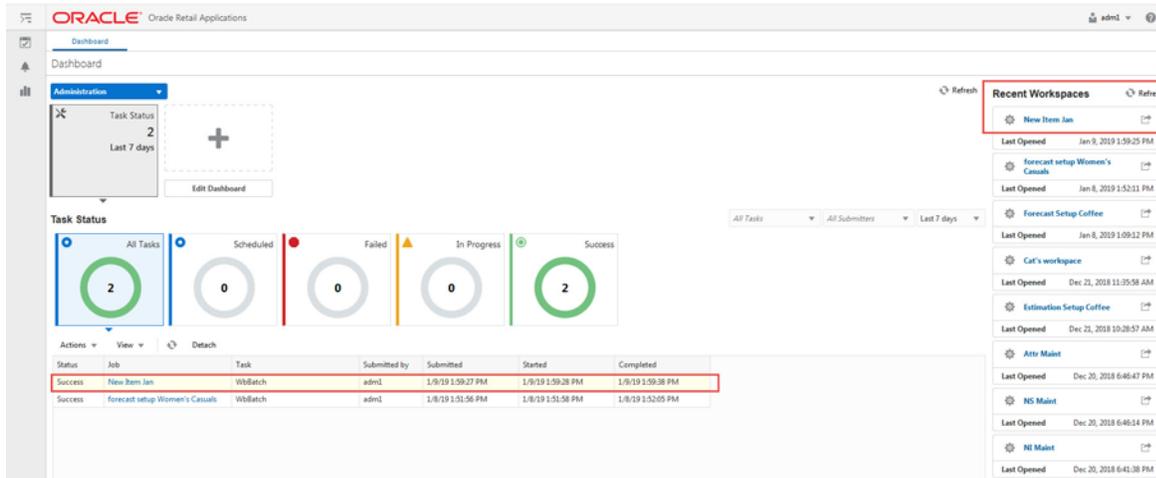
- 6. Select the locations you want to work with and click **Finish**.

Figure 9–5 Workspace Wizard: Select Locations



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

Figure 9–6 Successful Workspace Build



Summary Step

The available views are:

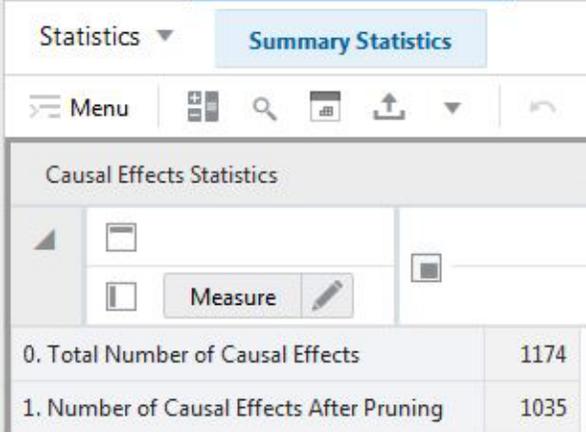
- [Causal Effects Statistics View](#)
- [Sales Statistics View](#)

- [Seasonality Curve Count View](#)

Causal Effects Statistics View

The Causal Effects Statistics view shows a summary of promo effects count.

Figure 9–7 Causal Effects Statistics View



Causal Effects Statistics	
0. Total Number of Causal Effects	1174
1. Number of Causal Effects After Pruning	1035

Measures: Causal Effects Statistics View

The Causal Effects Statistics view contains the following measures:

0. Total Number of Causal Effects

This measure shows the total number of calculated promo effects.

1. Number of Causal Effects After Pruning

This measure shows the number of promo effects that passed pruning.

Sales Statistics View

The Sales Statistics view shows a summary of demand metrics.

Figure 9–8 Sales Statistics View

Sales Statistics	
Lost Sales Dollars	0.00
Lost Sales Units	0.00
Promo Sales Dollars	0.00
Promo Sales Units	0.00
Total Sales Dollars	0.00
Total Sales Units	2115797

Measures: Sales Statistics View

The Sales Statistics view contains the following measures:

Lost Sales Dollars

This measure shows the total amount of lost sales.

Lost Sales Units

This measure shows the total lost sales units.

Promo Sales Dollars

This measure shows the total amount of sales driven by promotions or price discounts.

Promo Sales Units

This measure shows the total sales units driven by promotions or price discounts.

Total Sales Dollars

This measure shows the total sales amount.

Total Sales Units

This measure shows the total sales units.

Seasonality Curve Count View

The Seasonality Curve Count view shows a summary of seasonality curves count.

Figure 9–9 Seasonality Curve Count View

	07 Long Lifecycle	12 week/subclass	13 week/subclass	14 week/department/region
0. Total Number of Curves	856	4	10	1
1. Number of Curves Passing Low Threshold	856	4	10	1
2. Number of Curves Passing High Threshold	856	4	10	1
3. Number of Curves Passing Jerky Check	856	4	10	1
4. Number of Curves Passing Sparsity Check	856	4	10	1
5. Number of Curves Passing Correlation Check	854	4	10	1

Measures: Seasonality Curve Count View

The Seasonality Curve Count view contains the following measures:

0. Total Number of Curves

This measure shows the total number of calculated seasonality curves.

1. Number of Curves Passing Low Threshold

This measure shows the number of seasonality curves that passed the check for low seasonality indices.

2. Number of Curves Passing High Threshold

This measure shows the number of seasonality curves that passed the check for large seasonality indices.

3. Number of Curves Passing Jerky Check

This measure shows the number of seasonality curves that passed the check for jerky curves.

4. Number of Curves Passing Sparsity Check

This measure shows the number of seasonality curves that passed the check for sparse curves.

5. Number of Curves Passing Correlation Check

This measure shows the number of seasonality curves that correlate well with demand.

Seasonality Step

This step includes the [Curves View](#).

Curves View

The Curves view allows you to review the seasonality curves at several escalation levels

Figure 9–10 Curves View

Calendar	Week 01	Week 02
Approved Curve	n nn	n nn
System Curve	n nn	n nn
Adjusted Curve	n nn	n nn
Pruned At Step		

Measures: Curves View

The Curves view contains the following measures:

System Curve

These are the seasonality curves calculated by the system.

Approved Curve

These are the approved seasonality curves.

Adjusted Curve

This measure can be used to load seasonality curves generated outside of RDFCS. If loaded curves exist, they display, if no load occurred, then the system values display. You can change values and click **Calculate** so that the values are normalized and copied into the Approved Curve measure.

Note: If you choose to override a seasonality curve, the values entered by you are normalized to 52, and become the approved curve. The approved curve is not a merge between the seasonality calculated by the system and the override values.

Specifically, if you enter one value in week 42 of the override measure, the approved seasonality curve will be all zeros, except for week 42 where the index is 52.

Pruned At Step

If a seasonality curve has all zeros there can be two reasons:

- First, seasonality indices were generated, but one of the pruning checks have deemed the numbers unreliable. If this is the case, the measure displays the step in the pruning during which the seasonality curve was discarded.
- The second reason for an empty curve is that seasonality indices were not generated to start with. For instance, because the historical demand was all zeros (new merchandise) or not long enough, typically 104 periods at the week level. If this is the case, the measure won't display anything, because it was not the pruning process responsible for the seasonality values to be all zeros.

Effects Step

The available views are:

- [Causal Effects Final View](#)
- [Causal Effects Pool View](#)

Causal Effects Final View

The Causal Effects Final view shows the promo effects at the final level.

Figure 9–11 Causal Effects Final View

The screenshot shows the 'Causal Effects' interface for 'Long Life Cycle Promotions'. The table displays the following data:

Measure	Escalated Effects Final	Override Effects	Approved Effects	Calculated Effects	Promotion Type
Long Life Cycle Promotions					
LLC Promo 0	0.00		0.00	0.00	Automatic
LLC Promo 1	0.25		1.29	1.29	Automatic
LLC Promo 2	0.17		0.00	0.00	Automatic
LLC Promo 3	0.00		0.00	0.00	Automatic
LLC Promo 4	0.00		0.00	0.00	Automatic
LLC Promo 5	0.00		0.00	0.00	Automatic
LLC Promo 6	2.97		3.23	3.23	Automatic

Measures: Causal Effects Final View

The Causal Effects Final view contains the following measures:

Escalated Effects Final

This measure displays the effects calculated at pooling levels, which were determined during the escalation search.

Override Effects

This measure allows you to manually override the promo effect. The promotion type needs to be set to Override for the override to take effect.

Approved Effects

The approved effects are a combination between the override and calculated values. The logic is:

If override value exists, use it. Otherwise use the calculated value.

Calculated Effects

This measure displays the effects calculated at the final level

Promotion Type

Causal variable types define how causal variables are treated in the causal model-fitting process (which includes a call to the lower-level regression engine) and the forecast generation process where the model is used to extend the forecast over the forecast horizon.

The options are

- Automatic: The system provides the effect.
- Override: You can specify what value is used to determine the effect the event has on demand.

Causal Effects Pool View

The Causal Effects Pool view shows the promo effects at the pooling levels.

Figure 9–12 Causal Effects Pool View

	Approved Effects	Calculated Effects	Override Effects	Promotion Type
LLC Promo 0	0.00	0.00	0.00	Automatic
LLC Promo 1	0.00	0.14	0.00	Automatic
LLC Promo 2	0.00	0.08	0.00	Override
LLC Promo 3	0.00	0.00	0.00	Automatic
LLC Promo 4	0.00	-0.05	0.00	Automatic
LLC Promo 5	0.00	-0.06	0.00	Automatic
LLC Promo 6	0.00	4.63	0.00	Automatic

Measures: Causal Effects Pool View

The Causal Effects Pool view contains the following measures:

Override Effects

This measure allows the user to manually override the promo effect.

Approved Effects

This measure stores the approved effect at the pooling level. It is merging the calculated and the override values as follows: If there is no override value, use the calculated effects, otherwise use the override.

Calculated Effects

This measure shows the values of the calculated promo effects.

Promotion Type

Causal variable types define how causal variables are treated in the causal model-fitting process (which includes a call to the lower-level regression engine) and the forecast generation process where the model is used to extend the forecast over the forecast horizon.

Forecast Setup Short Lifecycle Task

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

Forecast Setup SLC Workspaces, Steps, and Views

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

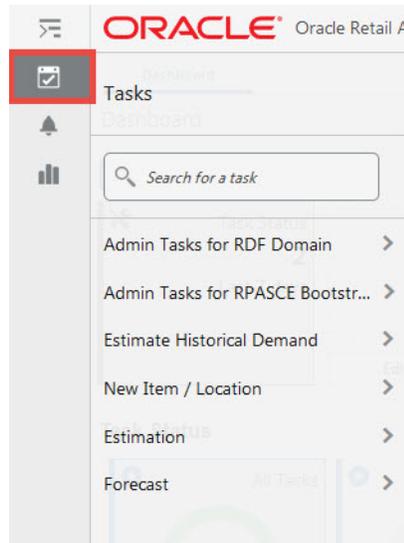
Workspace	Step	Views
Forecast Setup SLC Workspace	General Step	Basic Parameters View Advanced Parameters View Intermediate Level View Final Parameters View
	Escalation Path Step	Escalation Path View Escalation Path Override View
	In Season Step	Basic Parameters View Intermediate Level View

Forecast Setup SLC Workspace

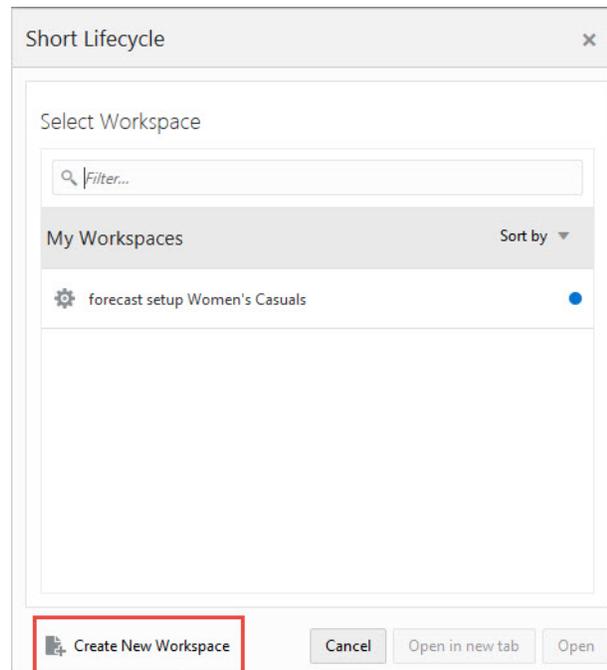
The Forecast Setup SLC workspace allows you access to all of the views listed in [Forecast Setup SLC Workspaces, Steps, and Views](#).

To build the Forecast Setup SLC workspace, perform these steps:

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

Figure 10–1 Task Module

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

Figure 10–2 Short Lifecycle Wizard

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

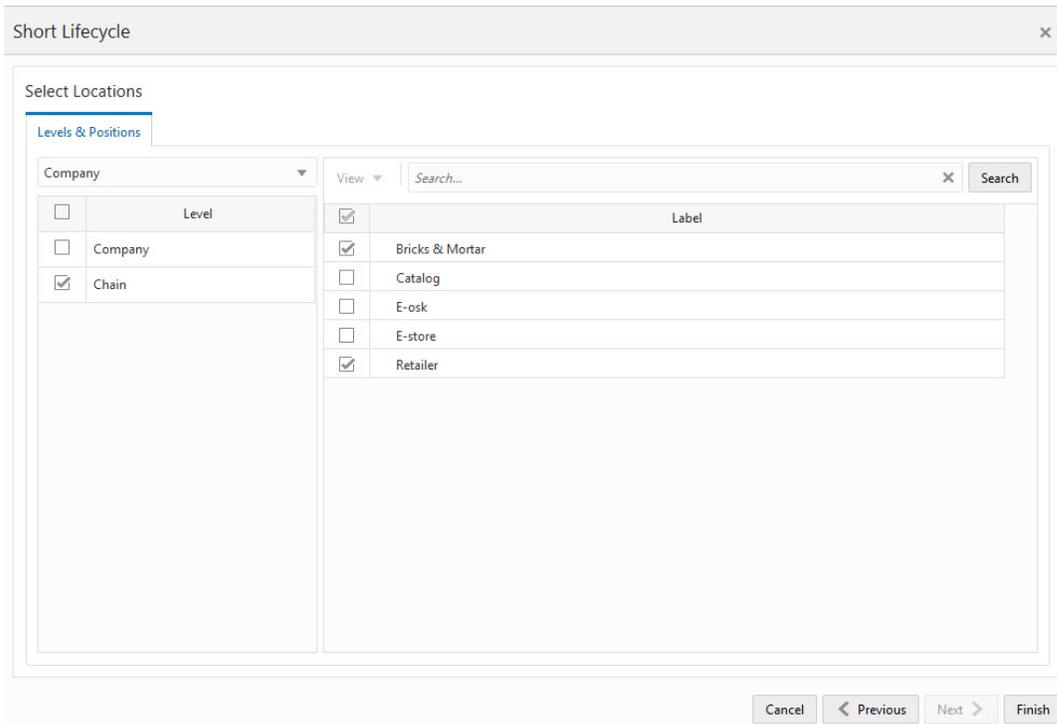
Figure 10–3 Enter Workspace Label

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

Figure 10–4 Workspace Wizard: Select Products

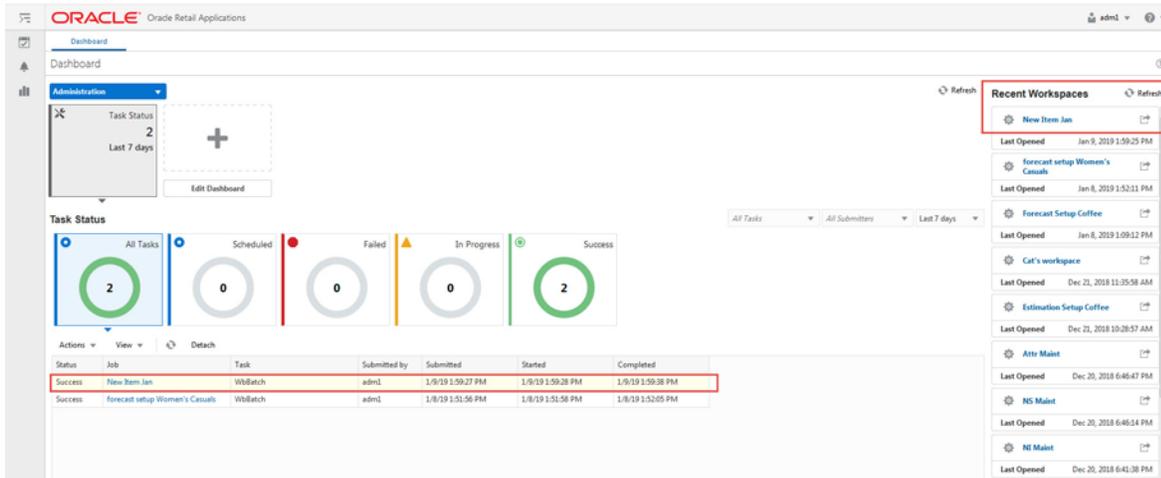
6. Select the locations you want to work with and click **Finish**.

Figure 10–5 Workspace Wizard: Select Locations



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

Figure 10–6 Successful Workspace Build



This workspace contains these steps:

- General Step
- Escalation Path Step
- In Season Step

General Step

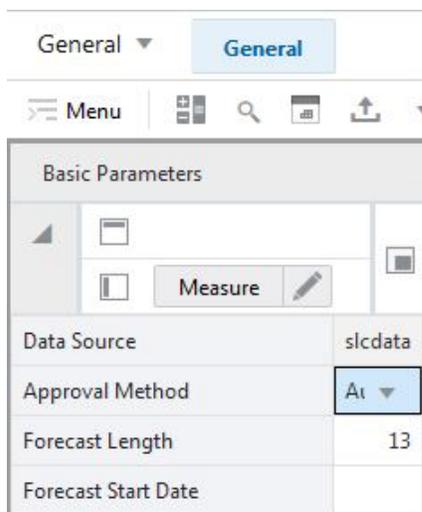
The available views are:

- [Basic Parameters View](#)
- [Advanced Parameters View](#)
- [Intermediate Level View](#)
- [Final Parameters 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 10–7 Basic Parameters View



Measures: Basic Parameters View

The Basic Parameters view contains the following measures:

Data Source

This measure displays the name of the data source used to create the forecast.

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 workspace
- 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.

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).

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, the value stays and serves as the forecast start date of next batch. It is your responsibility to update it after every forecast batch.

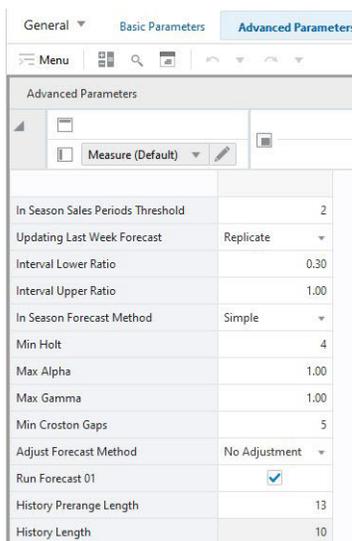
Note: Oracle recommends that you leave this field empty so that forecast start date is rolled forward automatically by the system time when the batch is executed. This field is really for special purposes such as an Acceptance Test. Make sure it is cleared so that the system returns to a normal schedule.

Advanced Parameters View

The Advanced Parameters view allows you to set default values for parameters affecting the algorithm and forecasting techniques used to generate base demand.

Base demand is the only forecast component updated during the forecasting step. The other components, such as price effect or seasonality are calculated in the estimation step.

Figure 10–8 Advanced Parameters View



Parameter	Value
In Season Sales Periods Threshold	2
Updating Last Week Forecast	Replicate
Interval Lower Ratio	0.30
Interval Upper Ratio	1.00
In Season Forecast Method	Simple
Min Holt	4
Max Alpha	1.00
Max Gamma	1.00
Min Croston Gaps	5
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:

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.

The following tables detail the calculation for measures by the option selected in Forecast Setup.

Table 10–1 Option Selected in Forecast Setup: Keep Last Change

Measure in Forecast Review Workbook	Calculation
Adjusted Forecast	= Adjusted Baseline + Adjusted Peak No change to Adjusted Forecast unless the promo calendar has changed (occurs when promos have been enabled or disabled for some weeks). In that case, it adds the System Peak in.
Adjusted Baseline	Either: <ul style="list-style-type: none"> ■ Last Approved Baseline (if there is a change to the baseline forecast) ■ System Baseline (if there is no change to the baseline forecast)
Adjusted Peak	Either: <ul style="list-style-type: none"> ■ Last Approved Peak (if there is a change to the peak and if system peaks exist*; if they do not exist, the adjusted peak will be zero), ■ System Peak (if there is no change to the peak, or last approved peak is 0) * promotion was found significant

Table 10–2 Option Selected in Forecast Setup: Keep Last Baseline

Measure in Forecast Review Workbook	Calculation
Adjusted Forecast	= Adjusted Baseline + Adjusted Peak
Adjusted Baseline	Either: <ul style="list-style-type: none"> ■ Last Approved Baseline (if there is a change to the baseline forecast) ■ System Baseline (if there is no change to the baseline forecast)
Adjusted Peak	System Peak

Table 10–3 Option Selected in Forecast Setup: Keep Last Peak

Measure in Forecast Review Workbook	Calculation
Adjusted Forecast	= Adjusted Baseline + Adjusted Peak
Adjusted Baseline	System Baseline
Adjusted Peak	Either: <ul style="list-style-type: none"> ■ Last Approved Peak (if there is a change to the peak and if system peaks exist*; if they do not exist, the adjusted peak will be zero), ■ System Peak (if there is no change to the peak, or last approved peak is 0) * promotion was found significant

History Length

This measure determines how many data points prior to RPAS_TODAY are used to generate 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:

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

In Season Sales Periods Threshold

This measure displays the number of periods elapsed from the first sale of an item before it is considered in season. Only after this number of periods, the base demand of the item is calculated its own sales.

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.

In Season Forecast Method

This is a complete list of available forecast methods from which you can select the primary forecast method that is used to generate the forecast. (For methods refer to Doc ID: 2492295.1 for the *Oracle Retail Demand Forecasting Cloud Service Seasonality Estimation Methods White Paper*).

Min Holt

Min Holt is the minimum number of periods of historical data necessary for the system to consider Holt (TrendES) as a potential forecasting method.

Max Alpha

The system default is 13 periods. The value must be set based on the calendar dimension of the level. For example, if the value is to be 13 weeks, the setting for a final-level at day is 91 (13x7days) and a source-level at week is 13.

Max Gamma

In the Holt (TrendES) model-fitting procedure, gamma (a model parameter capturing the trend) is determined by optimizing the fit over the time series. This field displays the maximum value (cap value) of gamma allowed in the model-fitting process. The allowable range is [0, 1]

Min Croston Gaps

The Croston's Min Gaps is the default minimum number of gaps between intermittent sales for the batch forecast to consider Croston's (Simple/IntermittentES) as a potential AutoES forecasting method for a time series. If there are not enough gaps between sales in a given product's sales history, the Croston's model is not considered a valid candidate model. The system default is five minimum gaps between intermittent sales. The value must be set based on the calendar dimension of the level. For example, if the value is to be 5 weeks, the setting for a final-level at day is 35 (5x7days) and a source-level at week is 5.

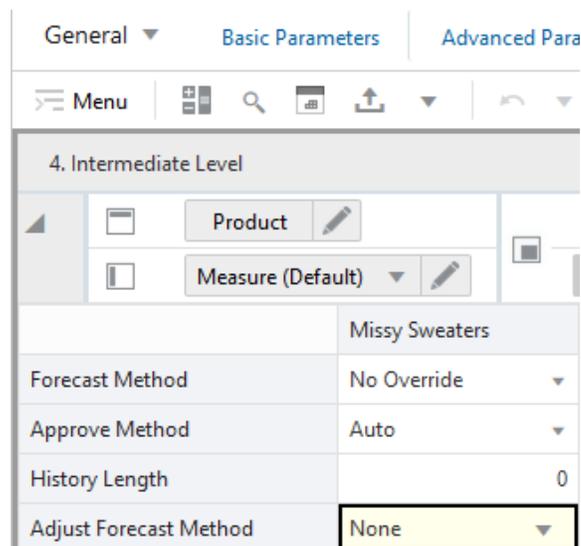
Run Forecast

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 beneath the global settings. For instance, you can select the approval policy or determine the history length used to calculate base demand.

Figure 10–9 Intermediate Level View



Measures: Intermediate Level View

The Intermediate Level view contains the following measures:

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).

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

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

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.

- **Demand Transference**

If Demand Transference is enabled in the plug-ins, and the necessary data is interfaced to RDFCS, and significant demand transference effects are detected, this options incorporates demand transference effects in the adjusted forecast. If demand transference effects are not zero, the system and adjusted forecasts will be different.

Note: The Demand Transference effects are calculated outside RDFCS. A good candidate is ORASE, the Oracle Retail science platform

Note: Tables 10–1, 10–2, and 10–3 provide details for measure calculations for options selected in Forecast Setup.

Final Parameters View

The Final Parameters view allows you to override some default measures, such as forecast method or override the approval policy. It also displays some measures that require a lower intersection than escalation level, like the plan start and end dates.

Figure 10–10 Final Parameters View

	In Season Forecast	Plan Start Date	Plan End Date	Approval Method
1001058 High/Low Jersey Tank Dress Coral	Auto Baseline Pick Best	03/04/2017	05/27/2017	Adjusted Vs Approved
1001059 High/Low Jersey Tank Dress Black	Auto Baseline Blend	03/11/2017	07/01/2017	My Exception

Measures: Final Parameters View

The Final Parameters view contains the following measures:

In Season Forecast Method Override

This is the override of the In Season Forecast Method available in the Advanced Parameters view.

Approval Method Override

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

- No Override
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.

Plan Start Date

This represents the date when the item starts selling.

Plan End Date

This represents the date when the item stops selling.

History Length Override

Override of the number of data points in history used to estimate the base demand.

Escalation Path Step

The available views are:

- [Escalation Path View](#)
- [Escalation Path Override View](#)

Escalation Path View

The Escalation Path view shows the available escalation levels for short lifecycle items, and allows you to set priorities for each level.

Figure 10–11 Escalation Path View

	01 Short Lifecycle	02 week of year/subclass/store	03 week of year/subclass/district
4111 Tops	2	3	4
4112 Bottoms	2	3	4
4138 Dresses	2	3	4

Measures: Escalation Path View

The Escalation Path view contains the following measures:

Escalation Path

The user can specify the priority in which the system searches escalation levels for forecast parameters like seasonality curves and/or promotion effects. For instance, suppose there are three escalation levels available. The path may be defined as follows:

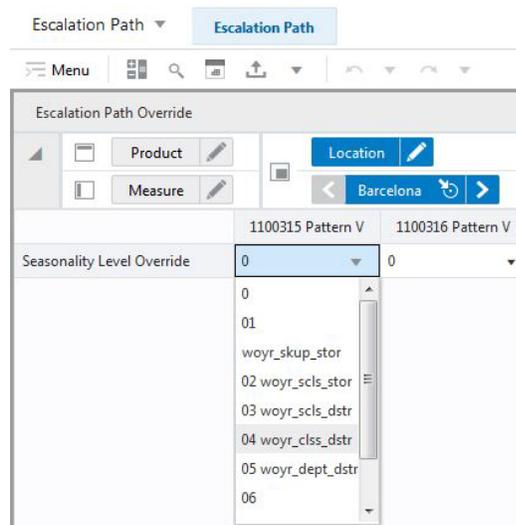
- Escalation Level #1: priority 3
- Escalation Level #2: priority 4
- Escalation Level #3: priority 2

In this case, when generating the forecast, the system will first look to get parameters from Escalation Level #3 (highest priority). If they are available, they are used. If they are not available, because they were deemed unreliable and pruned, the system will go to Escalation Level #1 (second highest priority). Finally, if the search is not successful, the search continues at Escalation Level #2.

Escalation Path Override View

The Escalation Path Override view allows you to choose to bypass the escalation search, by suggesting a level from which the forecast parameters are used.

However, if the forecast parameters for that level were deemed unreliable and pruned, the search will follow the default escalation path.

Figure 10–12 Escalation Path Override View**Measures: Escalation Path Override View**

The Escalation Path Override view contains the following measures:

Escalation Path Override

In this field the user can override the default escalation path selections. She can enter the preferred Escalation Level, and that will become the top priority. However, if the forecast parameters for that level were deemed unreliable and pruned, the search will follow the default escalation path.

In Season Step

This step includes the [Basic Parameters View](#).

Basic Parameters View

The Basic Parameters view contains metrics used in short lifecycle exceptions calculations

Figure 10–13 Basic Parameters View

In Season	
Alert - Average Sales Threshold	0.01
Alert - Calculation Periods	5
Alert - Error Threshold	0.01
Recent Sales Window	52

Measures: Basic Parameters View

The Basic Parameters view contains the following measures:

Alert – Average Sales Threshold

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

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.

Recent Sales Window

This field determines the time frame over which recent sales are considered in the exception calculations. The time frame is defined starting today and going back the specified number of periods.

Intermediate Level View

The Intermediate Level view contains metrics used in short lifecycle exceptions calculations at a more granular level than the In Season [Basic Parameters View](#).

Figure 10–14 Intermediate Level View

	Missy Sweaters	Missy Tops
Alert - Average Sales Threshold		
Alert - Calculation Periods		
Alert - Error Threshold		
Recent Sales Window		

Measures: Intermediate Level View

The Intermediate Level view contains the following measures:

Alert – Average Sales Threshold

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

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.

Recent Sales Window

This field determines the time frame over which recent sales are considered in the exception calculations. The time frame is defined starting today and going back the specified number of periods.

Forecast Setup Long Lifecycle Task

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

Forecast Setup LLC Workspaces, Steps, and Views

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

Workspace	Step	Views
Forecast Setup LLC Workspace	General Step	Basic Parameters View Advanced Parameters View Final Parameters View Intermediate Level View
	Baseline Step	Basic Parameters View Bayesian Plan View Advanced Parameters View Final Level View Intermediate Level View
	Causal Events Step	Basic Parameters View Aggregation Profile View Spread Profile View Advanced Parameters View Final View Intermediate Level View
	Escalation Path Step	Seasonality Escalation Path View Seasonality Escalation Path Override View Pooling Escalation Path View Pooling Escalation Override Path View
	Exception Management Step	Base Demand View Promotions View Intermediate Level View

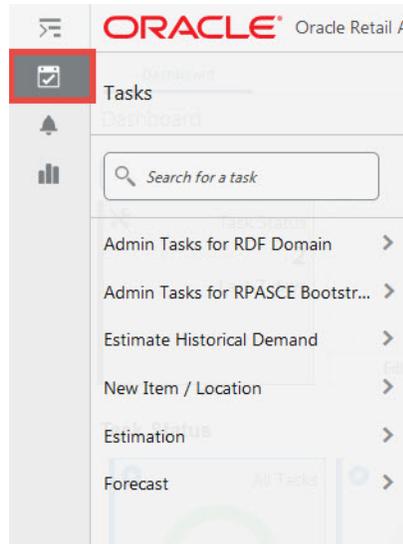
Forecast Setup LLC Workspace

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

To build the Forecast Setup LLC workspace, perform these steps:

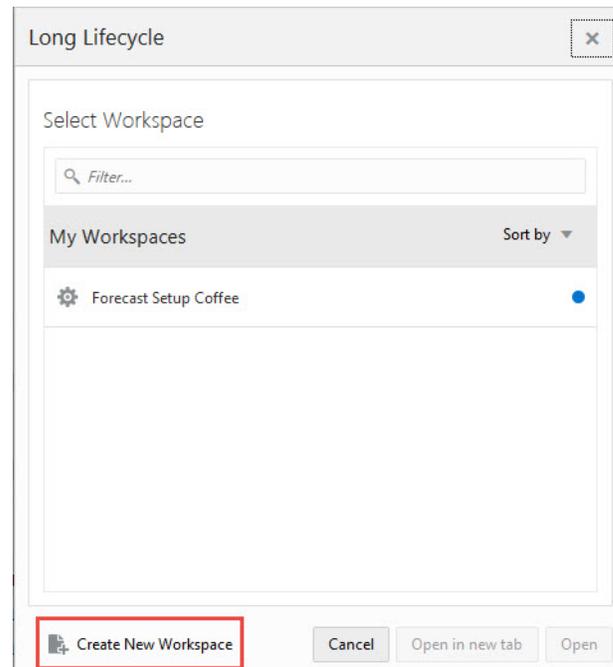
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 11–1 Task Module

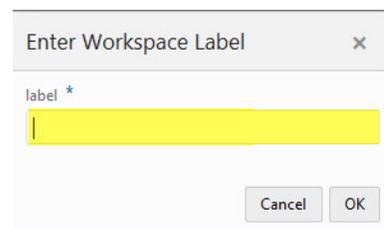


2. Click the **Forecast** activity and then click **Setup** to access the available workspaces.
3. Click **Long Lifecycle**. The Long Lifecycle wizard opens.

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

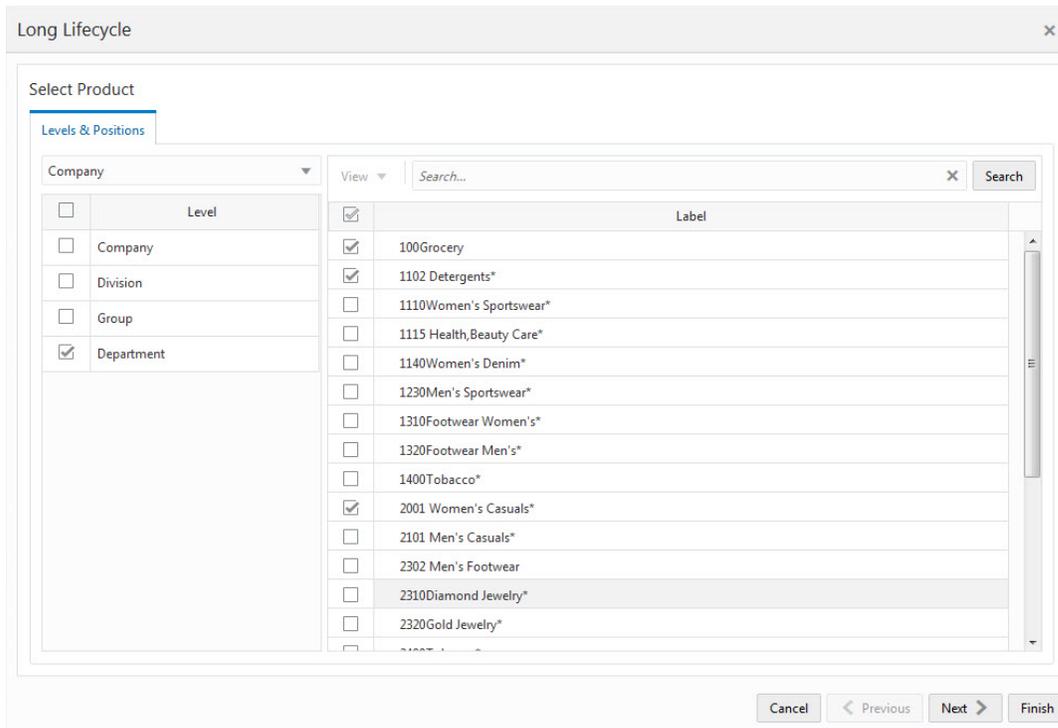
Figure 11–2 Long Lifecycle Wizard

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

Figure 11–3 Enter Workspace Label

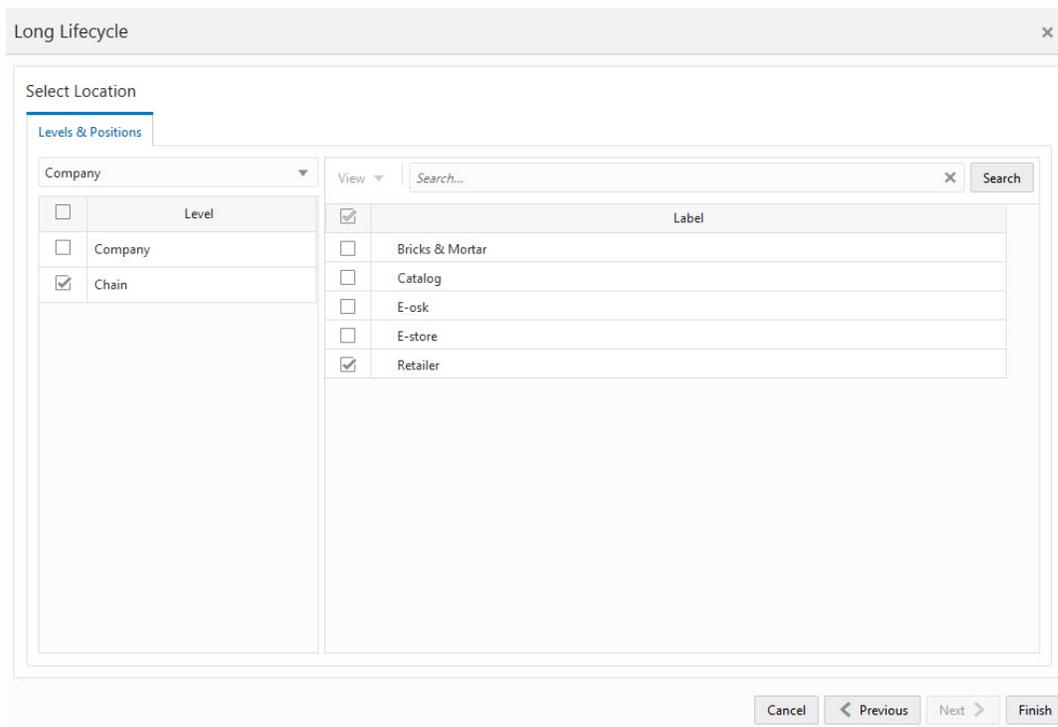
5. The Workspace wizard opens. Select the products you want to work with and click **Next**.

Figure 11–4 Workspace Wizard: Select Products



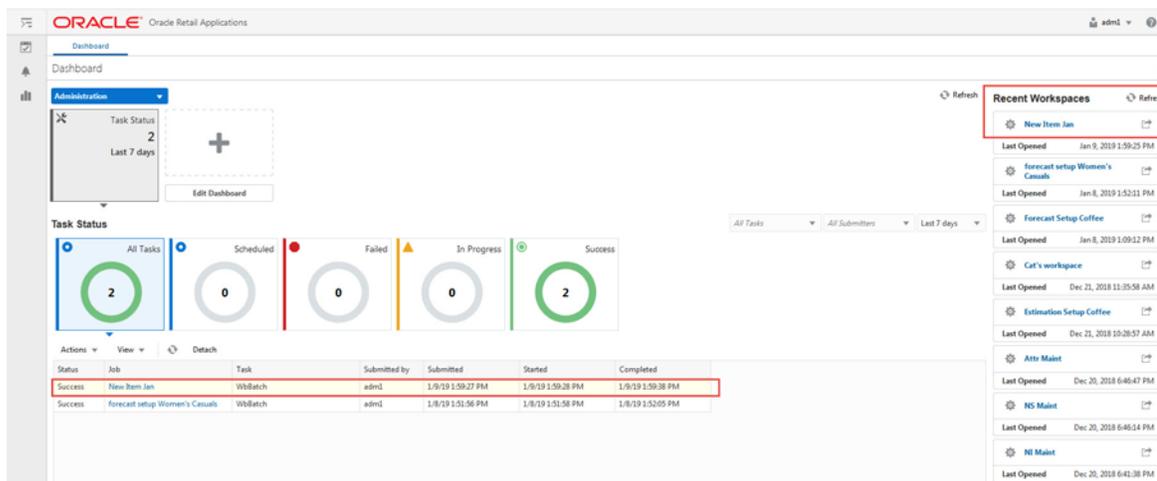
6. Select the locations you want to work with and click **Finish**.

Figure 11–5 Workspace Wizard: Select Locations



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

Figure 11–6 Successful Workspace Build



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

- [General Step](#)
- [Baseline Step](#)
- [Causal Events Step](#)
- [Escalation Path Step](#)
- [Exception Management Step](#)

General Step

The available views are:

- [Basic Parameters View](#)
- [Advanced Parameters View](#)
- [Final Parameters View](#)
- [Intermediate 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 11–7 Basic Parameters View

Basic Parameters	
Measure (Default) [edit icon]	
Forecast Start Date	01/01/2029
Forecast Length	13
Approval Method	Current Vs Approved [dropdown arrow]

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

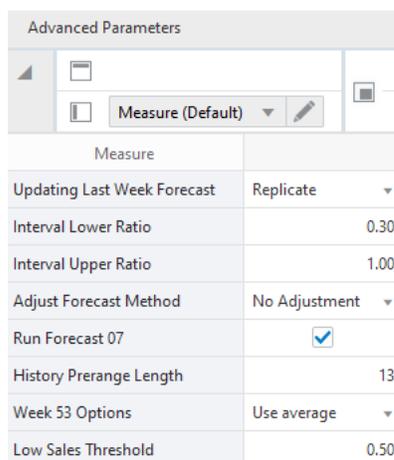
The system-generated quantity is automatically approved as is.
- By Alert

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 startdate or measures affecting cumulative interval calculations.

Figure 11–8 Advanced Parameters View



Advanced Parameters	
Measure (Default)	
Measure	
Updating Last Week Forecast	Replicate
Interval Lower Ratio	0.30
Interval Upper Ratio	1.00
Adjust Forecast Method	No Adjustment
Run Forecast 07	<input checked="" type="checkbox"/>
History Prerange Length	13
Week 53 Options	Use average
Low Sales Threshold	0.50

Measures: Advanced Parameters View

The Advanced Parameters view contains the following measures:

History Prerange Length

This measure lets you control how many calendar positions are shown 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:

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

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.

- **Low Sales Threshold**

In this measure you can specify the sales rate that determines if the demand should be de-seasonalized or if the step should be skipped.

- **Demand Transference**

If Demand Transference is enabled in the plug-ins, and the necessary data is interfaced to RDFCS, and significant demand transference effects are detected, this options incorporates demand transference effects in the adjusted forecast. If demand transference effects are not zero, the system and adjusted forecasts will be different.

Note: The Demand Transference effects are calculated outside RDFCS. A good candidate is ORASE, the Oracle Retail science platform

Note: Tables 10–1, 10–2, and 10–3 provide details for measure calculations for options selected in Forecast Setup.

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.

Final Parameters View

The Final Parameters view allows you to override some default measures, such as forecast method or override the approval policy. It also displays some measures that require a lower intersection than escalation level, like the plan start and end dates.

Figure 11-9 Final Parameters View

Final Level	
Product	Location
Measure (Default)	3 Crystal
	10000359Private Label
Forecast Start Date Override	
Forecast End Date Override	
Forecast Length Override	0
Approval Method Override	Current Vs Approved
Adjust Forecast Method Override	Demand Transference

Measures: Final Parameters View

The Final Parameters view contains the following measures:

Forecast Start Date Override

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 Override

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

Forecast End Date Override

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

Adjust Forecast Method Override

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

Approval Method Override

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

- No Override
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.

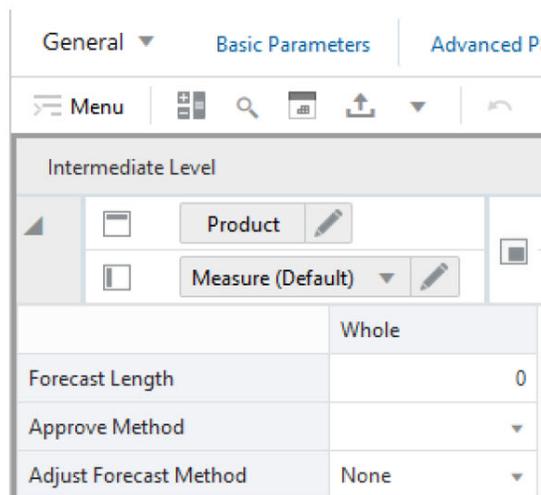
By Alert

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.

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 11–10 Intermediate Level View



Measures: Intermediate Level View

The Intermediate Level view contains the following measures:

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).

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

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

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.

- **Demand Transference**

If Demand Transference is enabled in the plug-ins, and the necessary data is interfaced to RDFCS, and significant demand transference effects are detected, this options incorporates demand transference effects in the adjusted forecast. If demand transference effects are not zero, the system and adjusted forecasts will be different.

Note: The Demand Transference effects are calculated outside RDFCS. A good candidate is ORASE, the Oracle Retail science platform

Note: Tables 10–1, 10–2, and 10–3 provide details for measure calculations for options selected in Forecast Setup.

Baseline Step

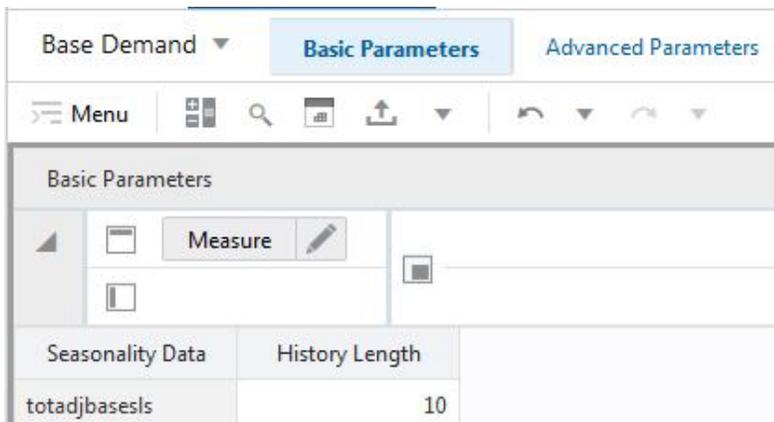
The available views are:

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

Basic Parameters View

The Basic Parameters view allows you to view and set high level information for calculating base demand.

Figure 11–11 Basic Parameters View



Measures: Basic Parameters View

The Basic Parameters view contains the following measures:

Seasonality Data Source

This measure displays the name of the data source used to create seasonality curves.

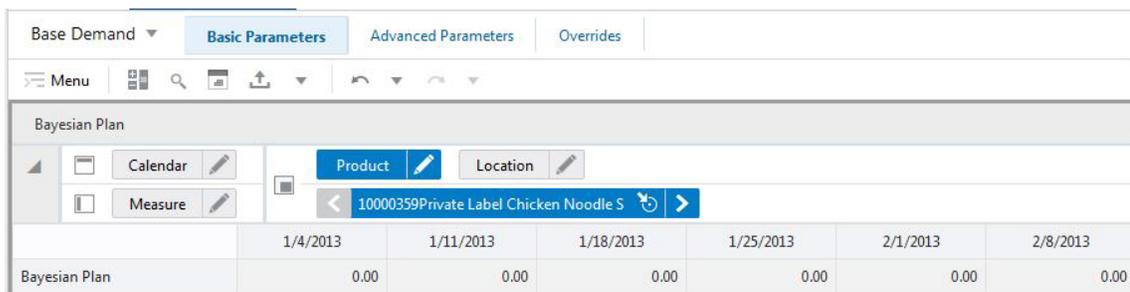
History Length

The value entered in this field determines how many data points looking back from today are used to generate base demand.

Bayesian Plan View

The Bayesian Plan view allows you to view and also manually change a Bayesian plan measure.

Figure 11–12 Bayesian Plan View



The screenshot shows the 'Bayesian Plan' view in a software application. At the top, there are tabs for 'Base Demand', 'Basic Parameters', 'Advanced Parameters', and 'Overrides'. Below the tabs is a menu bar with icons for 'Menu', search, and other functions. The main area is titled 'Bayesian Plan' and contains a table with columns for dates and a row for 'Bayesian Plan' values. The table shows values of 0.00 for all dates listed.

	1/4/2013	1/11/2013	1/18/2013	1/25/2013	2/1/2013	2/8/2013
Bayesian Plan	0.00	0.00	0.00	0.00	0.00	0.00

Measures: Bayesian Plan View

The Bayesian Plan view contains the following measures:

Bayesian Plan

This measure displays the Bayesian plan at the final forecast level. The measure is either interfaced into RDF Cloud Service, or you can key in values and commit to the database.

Advanced Parameters View

The Advanced Parameters view allows you to view a Base Demand - Advanced Parameters measure.

Figure 11–13 Advanced Parameters View

Advanced Parameters	
Measure (Default) [Pencil Icon]	
Forecast Method	Auto Baseline Blend
Max Alpha	1.00
Max Gamma	1.00
Min Holt	4
Min Croston Gaps	5
Trend Damping Factor	0.50
Bayesian Alpha	1.00
Bayesian Horizon	13
Bayesian Cap Ratio	1.50

Measures: Advanced Parameters View

The Advanced Parameters view contains the following measures:

Forecast Method

This measure is a complete list of available forecast methods available to generate base demand. A summary of methods is provided in White paper.

Max Alpha

In the Simple or Holt (TrendES) model-fitting procedure, alpha (a model parameter capturing the level) is determined by optimizing the fit over the time series. This field displays the maximum value (cap value) of alpha allowed in the model-fitting process.

An alpha cap value closer to one (1) allows, but does not guarantee, more reactive models (alpha = 1, repeats the last data point). An alpha cap closer to zero (0) only allows less reactive models. The default is one (1).

The value for the optimized alpha parameter will be in the range 0.001 to Max Alpha.

Max Gamma

In the Winters (SeasonalES) and Holt (TrendES) model-fitting procedures, gamma (a model parameter capturing the trend) is determined by optimizing the fit over the time series.

Min Holt

This measure displays displays the maximum value (cap value) of gamma allowed in the model-fitting process. The value for the optimized gamma parameter will be in the range 0.001 to Max Gamma

Min Croston Gaps

The Crostons Min Gaps is the default minimum number of transitions from non-zero sales to zero sales. Thus, if Croston's Min Gap is set to five, then the method may fit if you have five or more transitions from non-zero sales to zero sales.

If there are not enough gaps between sales in a given product's sales history, the Croston's model is not considered a valid candidate model.

The system default is five minimum gaps between intermittent sales. The value must be set based on the calendar dimension of the level. For example, if the value is to be 5 weeks, the setting for a final-level at day is 35 (5x7days) and a source-level at week is 5.

Trend Damping Factor

This measure determines how reactive the forecast is to trending data. A value close to zero (0) is a high damping, while a value of one (1) implies no damping. The default is 0.5.

Bayesian Alpha

When using the Bayesian forecasting method, historic data is combined with a known sales plan in creating the forecast. As POS data comes in, a Bayesian forecast is adjusted so that the plan's magnitude is a weighted average between the original plan's scale and the scale reflected by known history

This measure displays the value of alpha (the weighted combination parameter). An alpha value closer to one (or infinity) weights the sales plan more in creating the forecast, whereas alpha closer to zero (0) weights the known history more. The default is one (1).

Bayesian Horizon

This measure determines for how many periods in the forecast horizon Bayesian formula is applied. For the rest of the forecast horizon the forecast is equal to the plan.

Let's assume the Bayesian Horizon is set to 3, and the forecast horizon is 10 periods. Then the first 3 periods of the forecast horizon the forecast is the combination of the plan and recent sales, as defined by the Bayesian formula. For the remaining 7 periods, the forecast equals the plan. If the Bayesian Horizon is set to 0 or a negative number, the Bayesian formula is used for the entire forecast horizon.

Bayesian Cap Ratio

This measure is used to cap the resulting Bayesian forecast if it deviates significantly from the sale plan. The Bayesian Cap ratio is used as follows:

Example 11-1 Bayesian Cap Ratio

```
If forecast I > Bayesian Cap ratio * Max value of Past Sales AND
forecast I > Bayesian Cap ratio * Max value of Past Plan AND
forecast I > Bayesian Cap ratio * Plan I
then
forecast I = Plan I
```

Final Level View

The Final Level View allows you to view a Base Demand - Final measure.

Figure 11–14 Final Level View

Overrides	
Product	1234582 - Folgers - Breakfast Roast Non-Flavored Decaf - Ground - 12 oz Can
Measure (Default)	
Forecast Method Override	Auto Baseline Blend
Bayesian Alpha Override	0.00
History Length Override	0

Measures: Final Level View

The Final Level View contains the following measures:

Forecast Method Override

Set at the final the Forecast Method Override is a list from which you can select a different forecast method to generate base demand.

No Override appears in this field if the system default is to be used.

Bayesian Alpha Override

This is the override of the Bayesian Alpha parameter that is specified in the Advanced Parameters sub-step.

An alpha value closer to one (or infinity) weights the sales plan more in creating the forecast, whereas alpha closer to zero (0) weights the known history more. The default is one (1).

History Length Override

This is the override of the History Length parameters that is specified in the Basic Parameter sub-step.

The value entered in this field determines how many data points looking back from today are used to generate base demand.

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 11–15 Intermediate Level View

	Whole
Forecast Method	No Override ▾
Bayesian Alpha	0.00
History Length	0

Measures: Intermediate Level View

The Intermediate Level view contains the following measures:

Forecast Method Override

Set at the final the Forecast Method Override is a list from which you can select a different forecast method to generate base demand.

No Override appears in this field if the system default is to be used.

Bayesian Alpha Override

This is the override of the Bayesian Alpha parameter that is specified in the Advanced Parameters sub-step.

An alpha value closer to one (or infinity) weights the sales plan more in creating the forecast, whereas alpha closer to zero (0) weights the known history more. The default is one (1).

History Length Override

This is the override of the History Length parameters that is specified in the Basic Parameter sub-step.

The value entered in this field determines how many data points looking back from today are used to generate base demand.

Causal Events Step

The available views are:

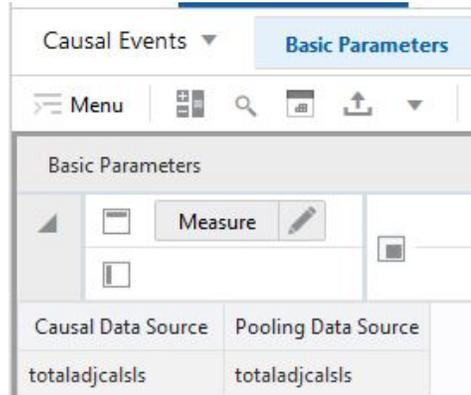
- [Basic Parameters View](#)
- [Aggregation Profile View](#)
- [Spread Profile View](#)
- [Advanced Parameters View](#)
- [Final View](#)

- [Intermediate Level View](#)

Basic Parameters View

The Basic Parameters view displays the data sources used to calculate causal effects at the final and pooling levels.

Figure 11–16 Basic Parameters View



Measures: Basic Parameters View

The Basic Parameters view contains the following measures:

Causal Data Source

This measure displays the name of the data source used to calculate promotion effects at the final level.

Pooling Data Source

This measure displays the name of the data source used to calculate promotion effects at the pooling levels. The measure may be different than the causal data source, because at the pooling levels the data source can be normalized, something that is not recommended for the final level.

Aggregation Profile View

The Aggregation Profile view allows you to view and edit a day of week profile. The profile can be used to aggregate events from the day to the week level.

Figure 11–17 Aggregation Profile View

	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday
Promo Aggregation Profile	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Measures: Aggregation Profile View

The Aggregation Profile view contains the following measures:

Promo Aggregation Profile

Used only for Daily Promotions, the Promo Aggregation Profile is the measure name of the profile used to aggregate promotions defined at day up to the week. The value entered in this field is the measure name of profile. Note that the only aggregation of promotion variables being performed here is along the Calendar hierarchy. RDF Cloud Service does not support aggregation of promotion variables along other hierarchies such as product and location hierarchies.

Spread Profile View

The Spread Profile view allows you to view and edit a day of week profile. The profile can be used to spread week level forecast to day.

Figure 11–18 Spread Profile View

	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday
Forecast Spread Profile	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Measures: Spread Profile View

The Spread Profile view contains the following measures:

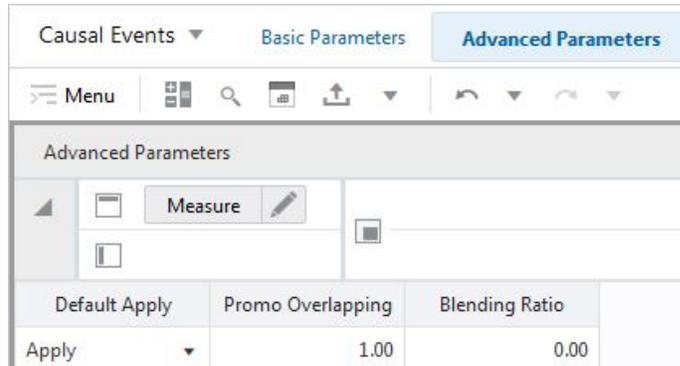
Forecast Spread Profile

Used only for Daily Causal Forecasting, the Forecast Spread Profile is the profile used to spread the baseline forecast from week to day level.

Advanced Parameters View

The Advanced Parameters view gives access to causal-related information that is accessed less frequently.

Figure 11–19 Advanced Parameters View



Measures: Advanced Parameters View

The Advanced Parameters view contains the following measures:

Default Apply Causal

In this measure the user specifies if promotion effects are applied on top of the baseline or not. The choices are:

- Apply
Promotion effects are applied
- Do Not Apply
Promotion effects are not applied

Promo Overlapping Factor

This adjustment factor specifies at a high level how the individually calculated promotions interact with each other when they are overlapping in the forecast horizon. This parameter serves as a global setting, but can be overridden at lower levels. The default value is 1.

A value greater than 1 means the promotion effects will be compressed when applied in the model, instead of linearly summing up to get the total promotion effect. The larger the value is, the larger the compression effect will be, meaning the smaller the total effect will be.

A value between 0 and 1 means the promotion effects will be amplified when applied in the model, instead of linearly summing up to get the total promotion effect. The smaller the value is, the larger the amplification effect will be, meaning the larger the total effect will be.

Blending Ratio

This parameter sets the weights for combining the Final and Pooling Level promotion effects, when calculating the blended effect. The range of the parameter is 0 to 1. A value closer to 1 will yield a blended effect closer to the Pooling Level effect. A value closer to zero yields an effect closer to the Final Level effect.

Final View

The Final view allows you to override at a more granular level some default measures related to promotions and promotion effects.

Figure 11–20 Final View

	10000359Private	10000360Private	10000361Private
Apply Causal	No Override	No Override	No Override
Promo Overlapping Factor	0.00	0.00	0.00

Measures: Final View

The Final view contains the following measures:

Apply Causal

In this measure the user can override the default behavior around applying promotion effects on top of the baseline or not. The choices are:

- No Override
Default behavior is applied
- Apply
Promotion effects are applied
- Do not Apply
Promotion effects are not applied

Promo Overlapping Factor

This adjustment factor specifies at the product/location level how the individually calculated promotions interact with each other when they are overlapping in the forecast horizon. The default value is 0, meaning no override.

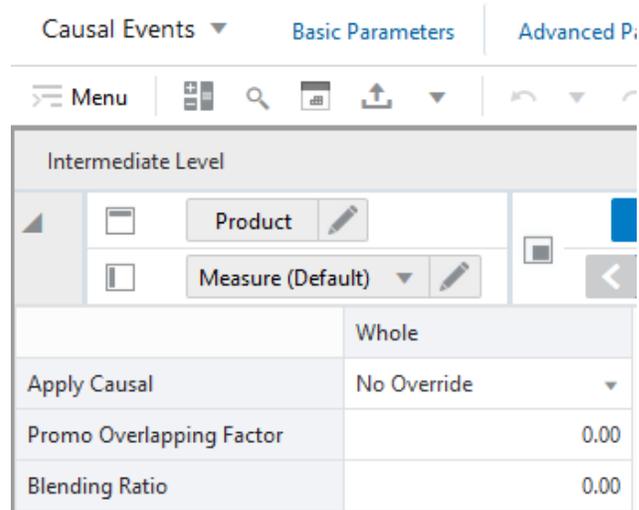
A value greater than 1 means the promotion effects will be compressed when applied in the model, instead of linearly summing up to get the total promotion effect. The larger the value is, the larger the compression effect will be, meaning the smaller the total effect will be.

A value between 0 and 1 means the promotion effects will be amplified when applied in the model, instead of linearly summing up to get the total promotion effect. The smaller the value is, the larger the amplification effect will be, meaning the larger the total effect will be.

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 11–21 Intermediate Level View



Measures: Intermediate Level View

The Intermediate Level view contains the following measures:

Apply Causal

In this measure, you can override the default behavior around applying promotion effects on top of the baseline or not. The choices are:

- No Override
Default behavior is applied
- Apply
Promotion effects are applied
- Do not Apply
Promotion effects are not applied

Promo Overlapping Factor

This adjustment factor specifies at the product/location level how the individually calculated promotions interact with each other when they are overlapping in the forecast horizon. The default value is 0, meaning no override.

A value greater than 1 means the promotion effects will be compressed when applied in the model, instead of linearly summing up to get the total promotion effect. The larger the value is, the larger the compression effect will be, meaning the smaller the total effect will be.

A value between 0 and 1 means the promotion effects will be amplified when applied in the model, instead of linearly summing up to get the total promotion effect. The

smaller the value is, the larger the amplification effect will be, meaning the larger the total effect will be.

Blending Ratio

This parameter sets the weights for combining the Final and Pooling Level promotion effects, when calculating the blended effect. The range of the parameter is 0 to 1. A value closer to 1 will yield a blended effect closer to the Pooling Level effect. A value closer to zero yields an effect closer to the Final Level effect. Blending the effects from pooling and final levels is combining the robustness of the effects estimated at the pooling levels with the richness of the effects estimated at the final level.

In general the pooled effects are more conservative than the final level effects. If an effect for an item/store is high, because the item is very responsive to promotions, expect its corresponding pooling effect to be less. Conversely, if an item's demand is not affected at all by promotions, you can expect the effect estimated at the pooling level to be different from zero, if other items, in the same pooling level, are responsive to promotions.

Escalation Path Step

The available views are:

- [Seasonality Escalation Path View](#)
- [Seasonality Escalation Path Override View](#)
- [Pooling Escalation Path View](#)
- [Pooling Escalation Override Path View](#)

Seasonality Escalation Path View

The Seasonality Escalation Path view shows the available escalation levels for long lifecycle items, and allows you to set priorities for each level.

Figure 11–22 *Seasonality Escalation Path View*

	07 Long Lifecycle	12 week/subclass	13 week/subclass
Escalation Path	2	4	5
Global Escalation Path	⚠	⚠	⚠

Measures: Seasonality Escalation Path View

The Seasonality Escalation Path view contains the following measures:

Seasonality Escalation Path

The user can specify the priority in which the system searches escalation levels for forecast parameters like seasonality curves and/or promotion effects. For instance, suppose there are three escalation levels available. The path may be defined as follows:

- Escalation Level #1: priority 3
- Escalation Level #2: priority 4
- Escalation Level #3: priority 2

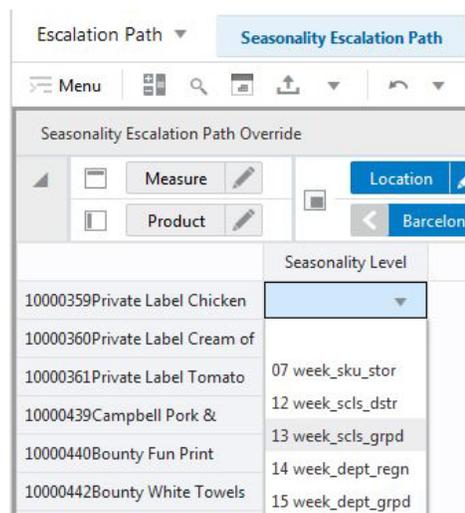
In this case, when generating the forecast, the system will first look to get parameters from Escalation Level #3 (highest priority). If they are available, they are used. If they are not available, because they were deemed unreliable and pruned, the system will go to Escalation Level #1 (second highest priority). Finally, if the search is not successful, the search continues at Escalation Level #2.

Seasonality Escalation Path Override View

The Seasonality Escalation Path Override view allows you to choose to bypass the escalation search, by suggesting a level from which the seasonality is used.

However, if the forecast parameters for that level were deemed unreliable and pruned, the search will follow the default escalation path.

Figure 11–23 Seasonality Escalation Path Override View



Measures: Seasonality Escalation Path Override View

The Seasonality Escalation Path Override view contains the following measures:

Seasonality Escalation Path Override

In this field the user can override the default escalation path selections. The user can enter the preferred Escalation Level, and that will become the top priority. However, if the forecast parameters for that level were deemed unreliable and pruned, the search will follow the default escalation path.

Pooling Escalation Path View

The Pooling Escalation Path view shows the available pooling levels for long lifecycle items, and allows you to set priorities for each level.

Figure 11–24 Pooling Escalation Path View

	08 week/subclass	09 week/class/district	10 week/department/region
Escalation Path	2	3	4
Global Escalation Path	⚠	⚠	⚠

Measures: Pooling Escalation Path View

The Pooling Escalation Path view contains the following measures:

Pooling Escalation Path

The user can specify the priority in which the system searches escalation levels for forecast parameters like seasonality curves and/or promotion effects. For instance, suppose there are three escalation levels available. The path may be defined as follows:

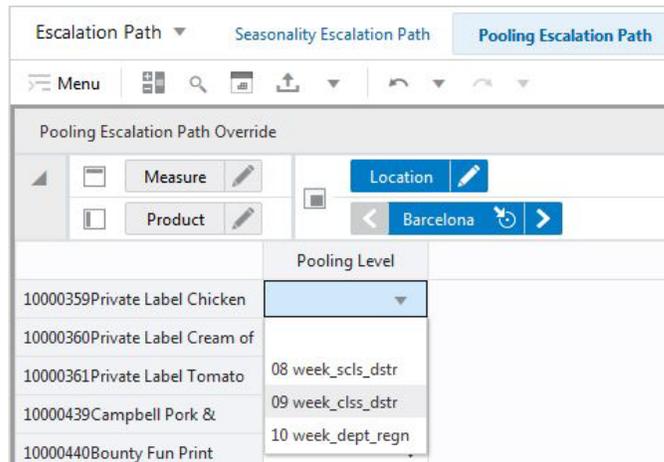
- Escalation Level #1: priority 3
- Escalation Level #2: priority 4
- Escalation Level #3: priority 2

In this case, when generating the forecast, the system will first look to get parameters from Escalation Level #3 (highest priority). If they are available, they are used. If they are not available, because they were deemed unreliable and pruned, the system will go to Escalation Level #1 (second highest priority). Finally, if the search is not successful, the search continues at Escalation Level #2.

Pooling Escalation Override Path View

The Pooling Escalation Override Path view allows you to choose to bypass the escalation search, by suggesting a level from which the promotion effects are used.

However, if the forecast parameters for that level were deemed unreliable and pruned, the search will follow the default escalation path.

Figure 11–25 Pooling Escalation Override Path View**Measures: Pooling Escalation Override Path View**

The Pooling Escalation Override Path view contains the following measures:

Pooling Escalation Override Path

In this field the user can override the default escalation path selections. She can enter the preferred Escalation Level, and that will become the top priority. However, if the forecast parameters for that level were deemed unreliable and pruned, the search will follow the default escalation path.

Exception Management Step

The available views are:

- [Base Demand View](#)
- [Promotions View](#)
- [Promotions View](#)

Base Demand View

The Base Demand view allows you to view and edit threshold for exceptions relevant to baseline demand.

Figure 11–26 Base Demand View

Base Demand	
Alert - Calculation Periods	5
Alert - Error Threshold	0.01
Alert - Average Sales Threshold	0.01
Recent Sales Window	52
Current Service Level Window	4
Historic Service Level Window	26

Measures: Base Demand View

The Base Demand 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.

Recent Sales Window

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

Current Service Level Window

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.

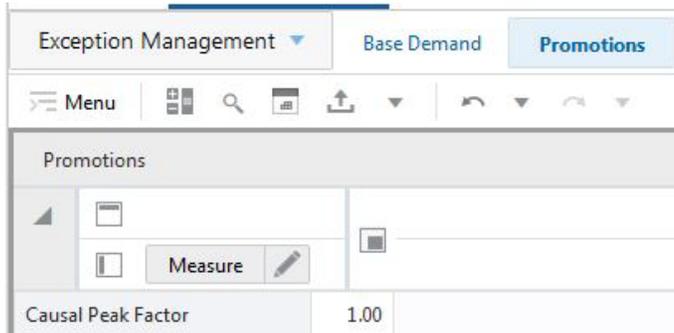
Historic Service Level Window

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.

Promotions View

The Promotions view allows you to view and edit threshold for exceptions relevant to promotional demand.

Figure 11–27 Promotions View



Measures: Promotions View

The Promotions view contains the following measures:

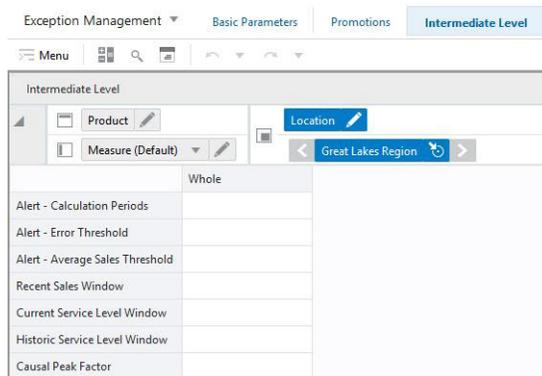
Causal Peak Factor

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.

Intermediate Level View

The Intermediate Level view allows you to view and edit the threshold for exceptions that are relevant to baseline and promotional demand at a more granular level than the other two views; [Base Demand View](#) and [Promotions View](#).

Figure 11–28 Intermediate Level View



Measures: Intermediate Level View

The Intermediate Level View contains the following measures:

Alert – Average Sales Threshold

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

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.

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.

Current Service Level Window

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 Service Level Window

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

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

Forecast Review Short Lifecycle Task

This chapter describes the Forecast Review Short Lifecycle for RDF Cloud Service.

Forecast Review SLC Workspaces, Steps, and Views

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

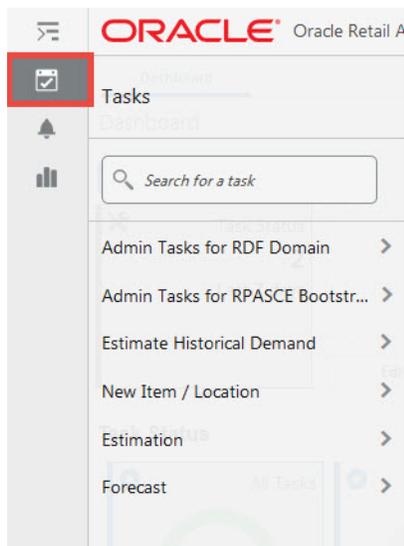
Workspace	Step	Views
Forecast Review SLC Workspace	Approve Step	Approve Information View Forecast Results View What-If Parameters View Causal Effects View
	Promo Calendars Step	Promotion Calendar View

Forecast Review SLC Workspace

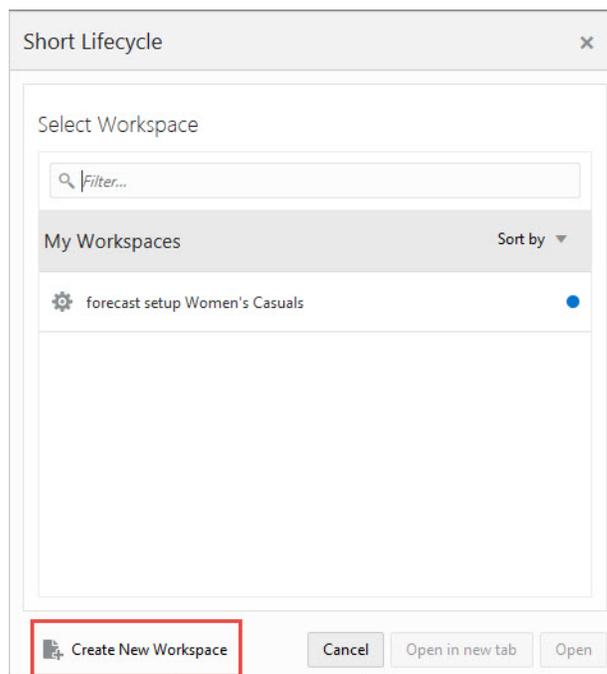
The Forecast Review SLC workspace allows you access to all of the views listed in [Forecast Review SLC Workspaces, Steps, and Views](#).

To build the Forecast Review SLC workspace, perform these steps:

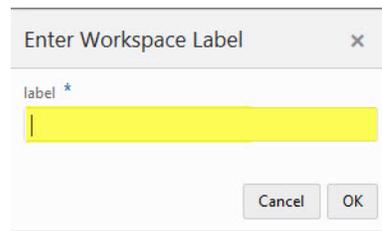
1. From the left sidebar menu, click the Task Module to view the available tasks.

Figure 12–1 Task Module

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

Figure 12–2 Short Lifecycle Wizard

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

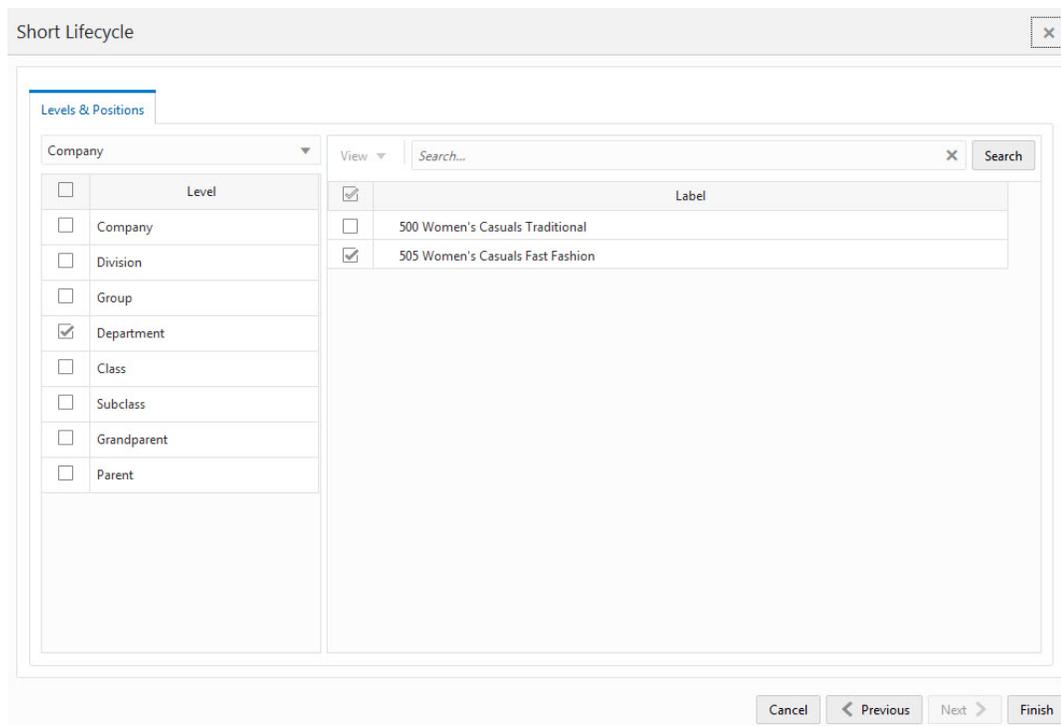
Figure 12–3 Enter Workspace Label

Enter Workspace Label

label *

Cancel OK

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

Figure 12–4 Workspace Wizard: Select Level

Short Lifecycle

Levels & Positions

Company

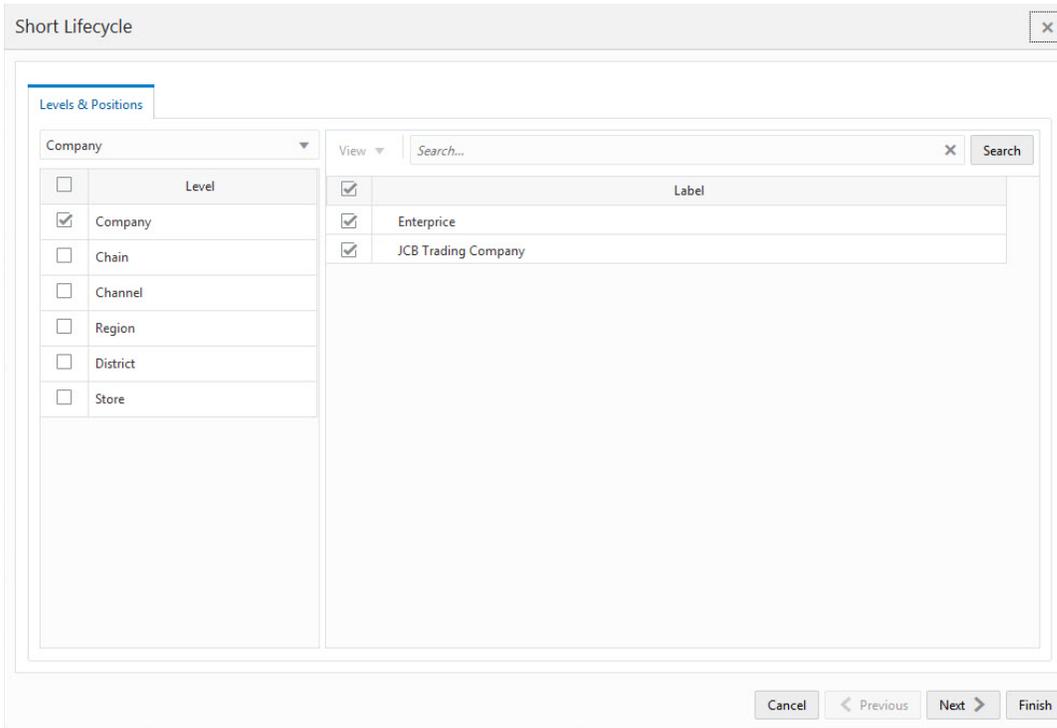
View Search

View	Label
<input type="checkbox"/>	500 Women's Casuals Traditional
<input checked="" type="checkbox"/>	505 Women's Casuals Fast Fashion

Cancel < Previous Next > Finish

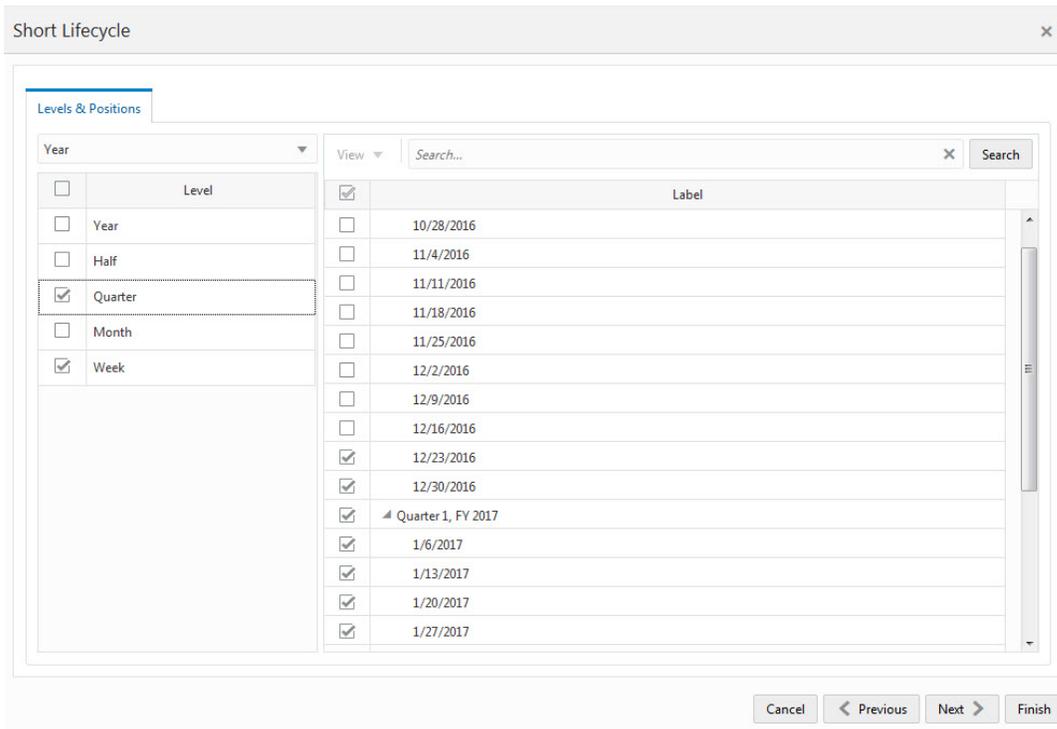
6. Select the locations you want to work with and click **Next**.

Figure 12–5 Workspace Wizard: Select Levels & Positions



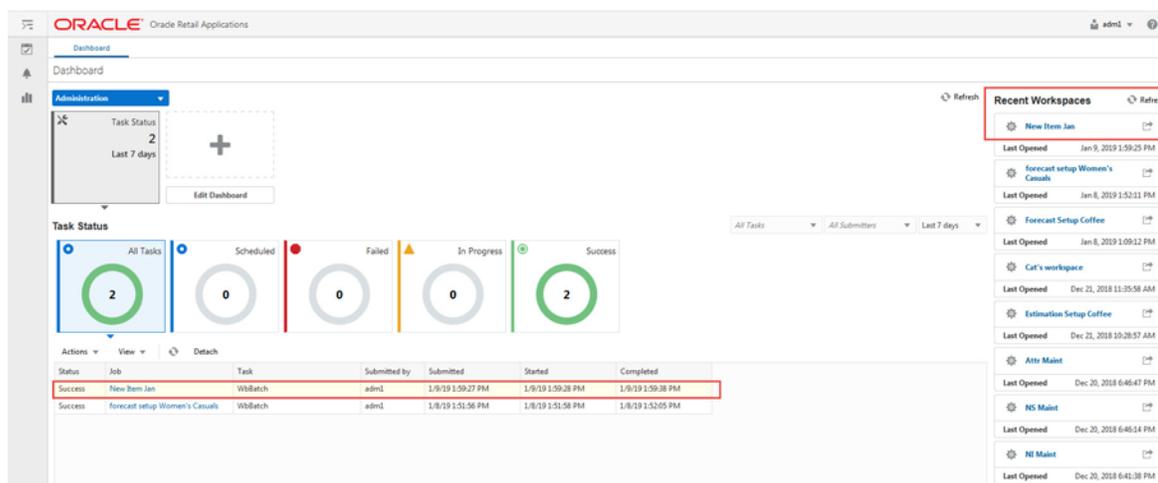
7. Select the time periods you want to work with and click **Finish**.

Figure 12–6 Workspace Wizard: Select Available Calendar Positions



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

Figure 12–7 Successful Workspace Build



The Forecast Review SLC workspace is built. This workspace contains these steps:

- [Approve Step](#)
- [Promo Calendars Step](#)

Approve Step

The available views are:

- [Approve Information View](#)
- [Forecast Results View](#)
- [What-If Parameters View](#)
- [Causal Effects View](#)

Approve Information View

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

Figure 12–8 Approve Information View

	Approved By	Approval Comment	Approval Date	Approve
5 pocket capri - Antique 8 Ank	adm1		12/05/2018	<input type="checkbox"/>
5 pocket capri - Antique 10 An	adm1		12/05/2018	<input type="checkbox"/>
5 pocket capri - Antique 12 An				<input type="checkbox"/>

Measures: Approve Information View

The Approve Information view contains the following measures:

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.

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.

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 - that is intended to show the information in chart 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 12–9 Forecast Results View

	12/30/2016	1/6/2017	1/13/2017	1/20/2017	1/27/2017	2/3/2017	2/10/2017	2/17/2017		
Adjusted Forecast	0.00	7.15	7.15	0.72	0.72	0.72	0.72	0.72		
Adjusted Baseline	0.00	0.72	0.72	0.72	0.72	0.72	0.72	0.72		
Adjusted Peak	0.00	6.42	6.42	0.00	0.00	0.00	0.00	0.00		
Approved Forecast	37.10	6.15	6.15	0.72	0.72	0.72	0.72	0.72		
Approved System Forecast	40.10	7.15	7.15	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Sales History	8.00	5.00	4.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
System Forecast	0.00	7.15	7.15	0.72	0.72	0.72	0.72	0.72	0.72	0.72
System Baseline	0.00	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
System Peak	0.00	6.42	6.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sales Price	12.40	12.40	12.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted Cumint	0.00	2.14	3.03	3.12	3.20	3.28	3.36	3.44	3.51	3.59
Approved Cumint	14.77	2.14	3.03	3.12	3.20	3.28	3.36	3.44	3.51	3.59
merged promo bits	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Measures: Forecast Results View

The Forecast Results view contains the following measures:

Adjusted Forecast

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

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.

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 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

Sales History

Sales History (a read-only measure) is the demand data used to generate the forecast. This allows you to compare Actuals to forecast values. When the task is created, the Data Source measure is copied into Sales History.

Sales Price

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

System Forecast

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

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 Peak

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

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.

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.

What-If Parameters View

The What-If Parameters view allows you to adjust 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 seasonality.

Figure 12–10 What-If Parameters View

3. What-if Parameters	
Product	Location
Measure (Default)	1000 C
What-if	<input checked="" type="checkbox"/> 50334589 - Short
What-if Seasonality Level	
What-if Base Demand Method	
What-if Seasonality Level Requested	
What-if Seasonality Level Picked	
What-if Base Demand Method Requested	
What-if Base Demand Method Picked	
System Seasonality Level Picked	04 week of
System Base Demand Method Requested	Simple
System Base Demand Method Picked	SIMPLE

Measures: What-If Parameters View

The What-If Parameters view contains the following measures:

What-if

This Boolean measure 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 Seasonality Level
- What-if Base Demand Method

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

What-if Seasonality Level

This measure lets you specify a certain escalation level from which the seasonality curve will be used during What-if.

What-if Base Demand Method

This measure lets you override the forecast method for the base demand to be used during What-if. The choices are all the methods available for base demand in the forecast setup task.

What-if Seasonality Level Requested

This measure displays the requested seasonality level. This can be different from the What-if Seasonality Level Picked, because the requested level may be pruned. In this case escalation is performed to pick the next intersection.

What-if Seasonality Level Picked

This measure displays the picked seasonality level. This can be different from the What-if Seasonality Level Requested, because the requested level may be pruned. In this case escalation is performed to pick the next intersection.

What-if Base Demand Method Requested

This measure displays the requested base demand method. This can be different from the What-if Base Demand Method Picked. For instance, if the requested method is Auto Baseline Pick Best, the method picked will show the actual winner of the Auto Baseline competition.

What-if Base Demand Method Picked

This measure displays the picked base demand method. This can be different from the What-if Base Demand Method Requested. For instance, if the requested method is Auto Baseline Pick Best, the method picked will show the actual winner of the Auto Baseline competition, like Holt.

System Seasonality Level Picked

This measure displays the escalation level used in generating the system forecast.

System Base Demand Method Requested

This measure displays the requested base demand method to generate the system forecast. This can be different from the System Base Demand Method Picked. For instance, if the requested method is Auto Baseline Pick Best, the method picked will show the actual winner of the Auto Baseline competition.

System Base Demand Method Picked

This measure displays the picked base demand method when generating the system forecast. This can be different from the System Base Demand Method Requested. For instance, if the requested method is Auto Baseline Pick Best, the method picked will show the actual winner of the Auto Baseline competition, like Holt.

Causal Effects View

The Causal Effects view displays the effects generated by the system for the short lifecycle items.

Figure 12–11 Causal Effects View

Causal Effects	Calculated Effects
SLC Promo 1	0.00
SLC Promo 2	0.00
SLC Promo 3	0.00
SLC Promo 4	0.00
SLC Promo 5	0.00
SLC Promo 6	0.00

Measures: Causal Effects View

The Causal Effects view contains the following measures:

Calculated Effects

The Calculated Effect is a read-only measure indicating the lift effect generated by the system.

Promo Calendars Step

This step includes the [Promotion Calendar View](#).

Promotion Calendar View

The Promotion Calendar view allows you to view the time periods when the merchandise is promoted. You can also modify the calendar by enabling and disabling certain periods, and the results are reflected in the Forecast Results view.

Figure 12–12 Promotion Calendar View

	3/3/2017	2/10/2017	2/17/2017	2/24/2017	3/3/2017	3/10/2017
SLC Promo 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SLC Promo 2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SLC Promo 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SLC Promo 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SLC Promo 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SLC Promo 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Measures: Promotion Calendar View

The Promotion Calendar view contains the following measures:

SLP1

Measure that displays if an event is active for a certain period at a given location and product.

SLP2

Measure that displays if an event is active for a certain period at a given location and product.

Forecast Review Long Lifecycle Task

This chapter describes the Forecast Review Long Lifecycle for RDF Cloud Service.

Forecast Review SLC Workspaces, Steps, and Views

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

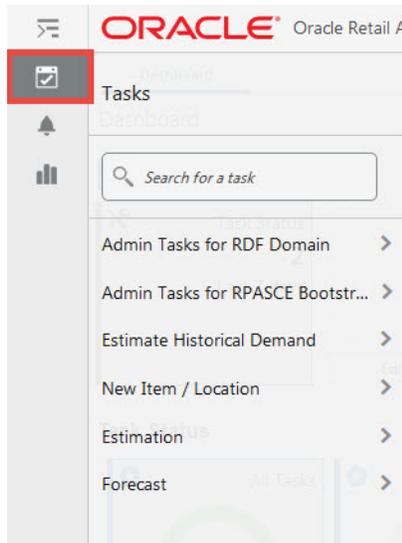
Workspace	Step	Views
Forecast Review LLC Workspace	Approve Step	Approve Information View Forecast Results View What-If Parameters View Causal What-If View Daily Forecast Results View
	Causal Parameters Step	Causal What-if Effects View Promotion Calendar View

Forecast Review LLC Workspace

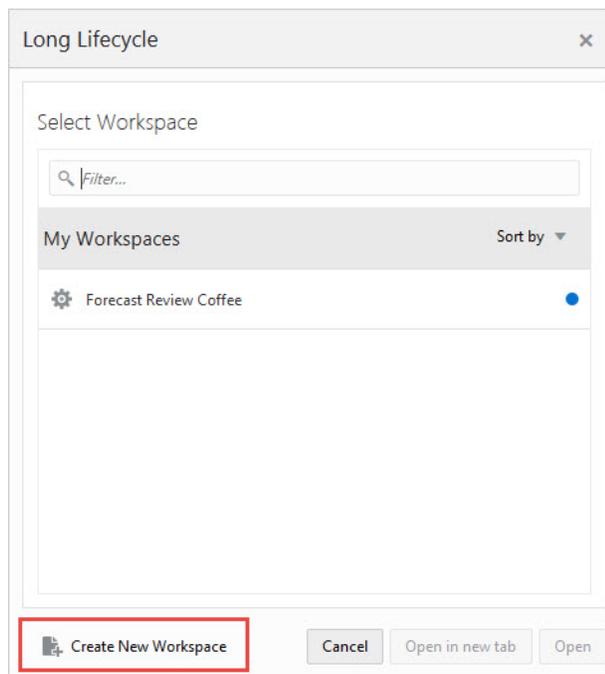
The Forecast Review LLC workspace allows you access to all of the views listed in [Forecast Review SLC Workspaces, Steps, and Views](#).

To build the Forecast Review LLC workspace, perform these steps:

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

Figure 13–1 Task Module

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

Figure 13–2 Long Lifecycle Wizard

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

Figure 13–3 Enter Workspace Label

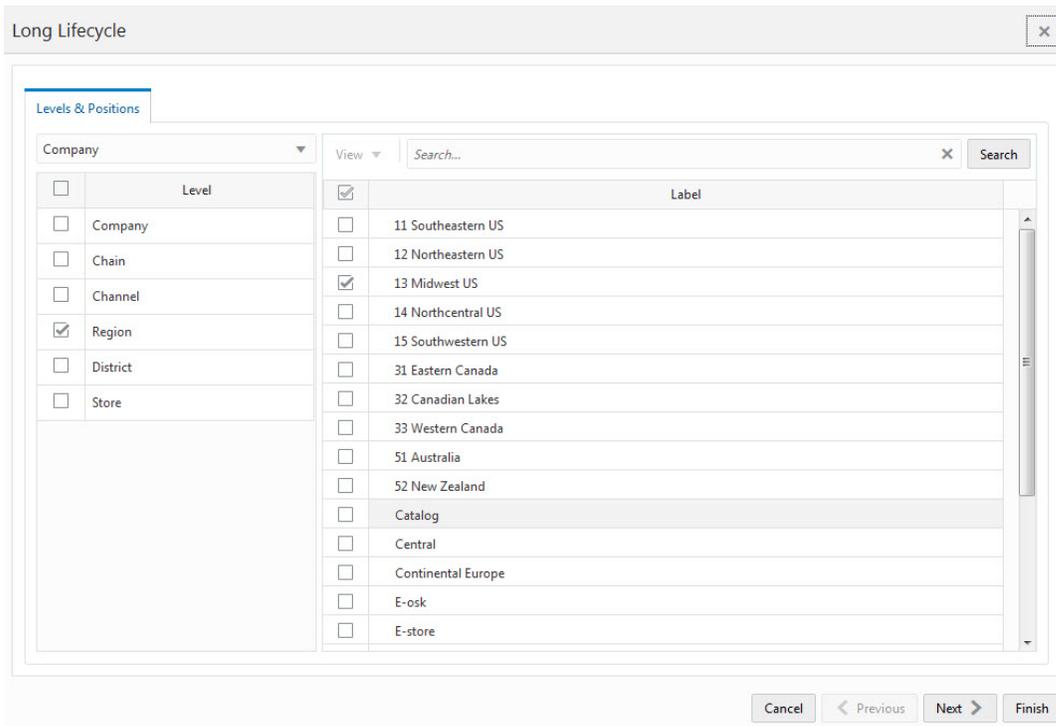
5. The Workspace wizard opens. Select the products you want to work with and click **Next**.

Figure 13–4 Workspace Wizard: Select Products

Level	Label
<input type="checkbox"/>	<input checked="" type="checkbox"/> 1 Canned
<input type="checkbox"/> Company	<input checked="" type="checkbox"/> 3 Whisky
<input type="checkbox"/> Division	<input checked="" type="checkbox"/> 8 to 100 disc chang
<input type="checkbox"/> Group	<input checked="" type="checkbox"/> 81 Chips
<input type="checkbox"/> Department	<input checked="" type="checkbox"/> 100+ disc changer
<input type="checkbox"/> Class	<input type="checkbox"/> 111 Fashion
<input checked="" type="checkbox"/> Subclass	<input type="checkbox"/> 112 Basic
<input type="checkbox"/> Grandparent	<input type="checkbox"/> 113 Percale 200
<input type="checkbox"/> Parent	<input type="checkbox"/> 121 Roll-On
<input type="checkbox"/> Item	<input type="checkbox"/> 122 Loafer
	<input type="checkbox"/> 124 Studs
	<input checked="" type="checkbox"/> 131 Sports Jacket
	<input checked="" type="checkbox"/> 132 Communication
	<input type="checkbox"/> 141 Short Sleeve
	<input type="checkbox"/> 142 Long Sleeve

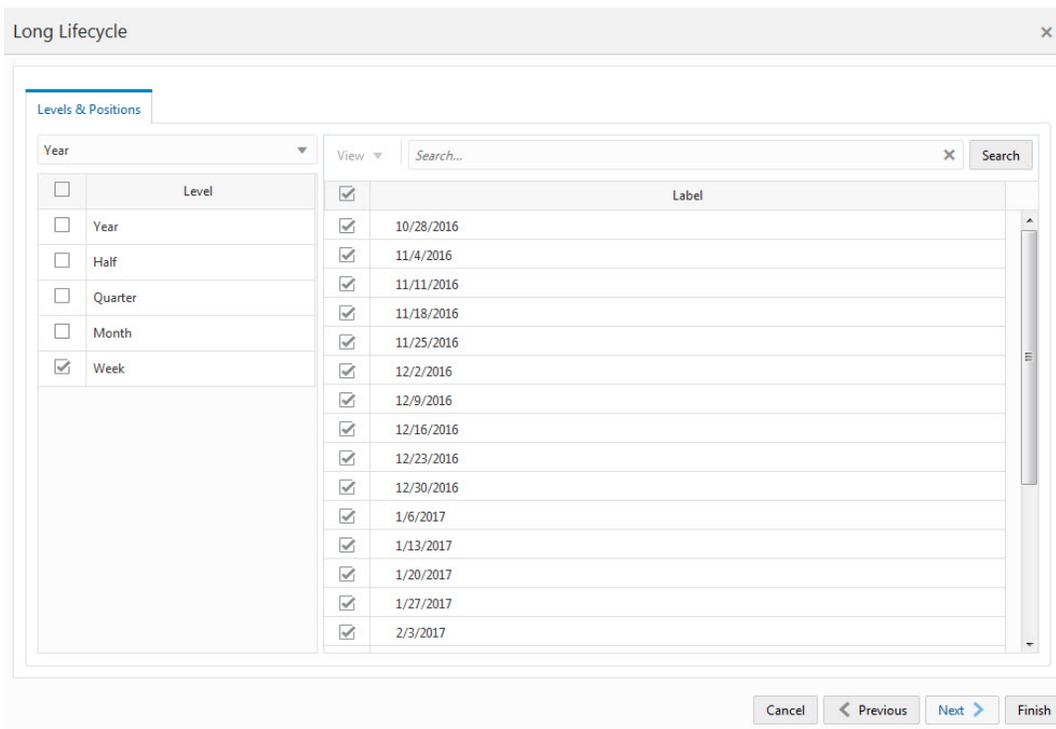
6. The Workspace wizard opens. Select the locations you want to work with and click **Next**.

Figure 13–5 Workspace Wizard: Select Locations



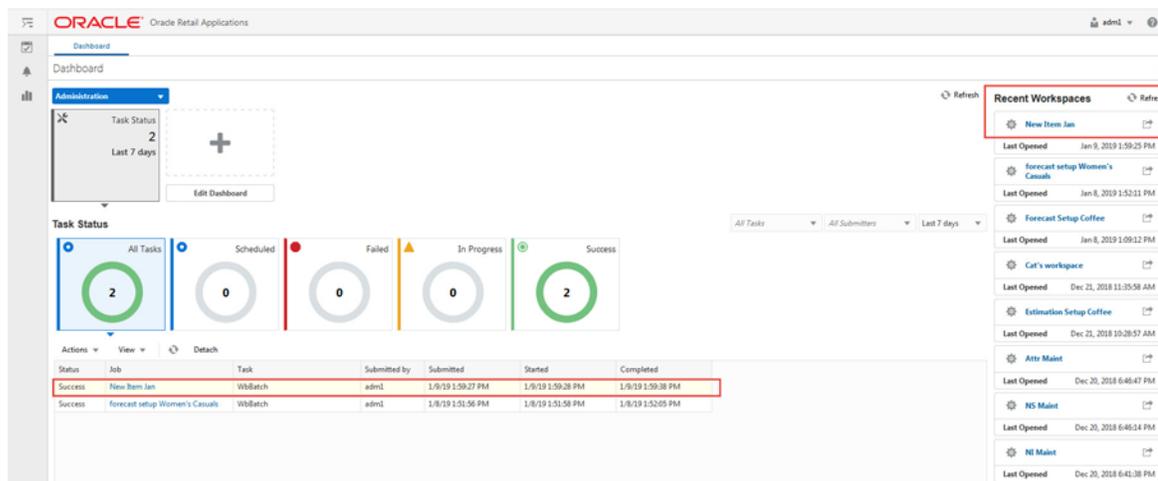
7. Select the time periods you want to work with and click **Finish**.

Figure 13–6 Workspace Wizard: Select Available Calendar Positions



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

Figure 13–7 Successful Workspace Build



Approve Step

The available views are:

- [Approve Information View](#)
- [Forecast Results View](#)
- [What-If Parameters View](#)
- [Causal What-If View](#)
- [Daily Forecast Results View](#)

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 13–8 Approve Information View

	Approved By	Approval Comment	Approval Date	Approve
5 pocket capri - Antique 8 Ank	adm1		12/05/2018	<input type="checkbox"/>
5 pocket capri - Antique 10 An	adm1		12/05/2018	<input type="checkbox"/>
5 pocket capri - Antique 12 An				<input type="checkbox"/>

Measures: Approve Information View

The Approve Information view contains the following measures:

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.

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.

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 - that is intended to show the information in chart 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 13–9 Forecast Results View

1. Forecast Results			
	1/6/2017	1/13/2017	1/20/2017
Adjusted Baseline	2.46	3.64	3.54
Adjusted Forecast	2.46	3.64	3.54
Approved Forecast	4.27	6.33	6.16
DT Units	0.00	0.00	0.00
System Baseline	2.46	3.64	3.54
System Forecast	2.46	3.64	3.54
System Peak	0.00	0.00	0.00
Adjusted Cumint	0.74	1.32	1.69
Adjusted Peak	0.00	0.00	0.00
Approved Baseline	4.27	6.33	6.16
Approved Cumint	3.69	4.15	4.54
Approved System Forecast	4.27	6.33	6.16
Sales History	1.00	3.00	6.00

Measures: Forecast Results View

The Forecast Results view contains the following measures:

Adjusted Forecast

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

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 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 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.

DT Units

This measure stores the forecasted demand due to assortment changes.

In order to see non-zero values, two conditions need to be met. First, the Demand Transference option needs to be specified in the Automatic Adjustment measure in the Forecast Setup workbook.

Second, demand transference effects need to be available. These effects are calculated outside of RDFCS in a science type of application, such as ORASE, Oracle Retail's science platform.

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

Sales History

Sales History (a read-only measure) is the demand data used to generate the forecast. This allows you to compare Actuals to forecast values. When the task is created, the Data Source measure is copied into Sales History.

Sales Price

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

System Forecast

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

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 Peak

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

Adjusted Cum int

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 Cum int

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.

Merged Promo Indicator

This measure indicates if any event is active for the given period. An event can be any promotion or a non-zero discount.

What-If Parameters View

The What-If Parameters view allows you to adjust 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 seasonality and promotional peaks.

Figure 13–10 *What-If Parameters View*

3. What-if Parameters	
Product	1234582 - Folgers -
Measure (Default)	1000
What-if	<input type="checkbox"/>
What-if Seasonality Level	
What-if Base Demand Method	
What-if Pooling Level	
What-if Blending Ratio	
What-if Seasonality Level Requested	
What-if Seasonality Level Picked	
What-if Base Demand Method Requested	
What-if Base Demand Method Picked	
What-if Pooling Level Requested	
What-if Pooling Level Picked	
What-if Blending Ratio Picked	
System Seasonality Level Picked	07 Long Lifecycle
System Base Demand Method Requested	Simple
System Base Demand Method Picked	SIMPLE
System Pooling Level Picked	08 week/subclass
System Blending Ratio Picked	0.00

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 Seasonality Level](#)
- [What-if Base Demand Method](#)
- [What-if Pooling Level](#)
- [What-if Blending Ratio](#)

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

What-if Seasonality Level

This measure lets you specify a certain escalation level from which the seasonality curve will be used during What-if.

What-if Base Demand Method

This measure lets you override the forecast method for the base demand to be used during What-if. The choices are all the methods available for base demand in the forecast setup task. When this measure is empty, it means that the base demand method specified during What-if cannot be fit or the item is not sold at this particular store.

What-if Pooling Level

This measure lets you specify a certain pooling level from which the causal effects will be used during what-if.

What-if Blending Ratio

This measure lets you specify a certain blending ratio to be used during what-if.

What-if Seasonality Level Requested

This measure displays the requested seasonality level. This can be different from the What-if Seasonality Level Picked, because the requested level may be pruned. In this case escalation is performed to pick the next intersection.

What-if Seasonality Level Picked

This measure displays the picked seasonality level. This can be different from the What-if Seasonality Level Requested, because the requested level may be pruned. In this case escalation is performed to pick the next intersection.

What-if Base Demand Method Requested

This measure displays the requested base demand method. This can be different from the What-if Base Demand Method Picked. For instance, if the requested method is Auto Baseline Pick Best, the method picked will show the actual winner of the Auto Baseline competition.

What-if Base Demand Method Picked

This measure displays the picked base demand method. This can be different from the What-if Base Demand Method Requested. For instance, if the requested method is Auto Baseline Pick Best, the method picked will show the actual winner of the Auto Baseline competition, like Holt.

What-if Pooling Level Requested

This measure displays the requested pooling level. This can be different from the What-if Pooling Level Picked, because the requested level may be pruned. In this case escalation is performed to pick the next intersection.

What-if Seasonality Level Picked

This measure displays the picked pooling level. This can be different from the What-if Pooling Level Requested, because the requested level may be pruned. In this case escalation is performed to pick the next intersection.

What-if Blending Ratio Picked

This measure displays the blending ratio used in what-if according to What-if Blending Ratio.

System Seasonality Level

This measure displays the escalation level used in generating the system forecast.

System Base Demand Method Requested

This measure displays the requested base demand method to generate the system forecast. This can be different from the System Base Demand Method Picked. For instance, if the requested method is Auto Baseline Pick Best, the method picked will show the actual winner of the Auto Baseline competition.

System Base Demand Method Picked

This measure displays the picked base demand method when generating the system forecast. This can be different from the System Base Demand Method Requested. For instance, if the requested method is Auto Baseline Pick Best, the method picked will show the actual winner of the Auto Baseline competition, like Holt.

System Pooling Level Picked

This measure displays the pooling level used in generating the system forecast.

System Blending Ratio Picked

This measure displays the blending ratio used in generating the system forecast.

Causal What-If View

The Causal What-If view shows all necessary information to determine the promotional strategy for long lifecycle items. All flavors of effects as well as the promo types are available.

Figure 13–11 Causal What-If View

4. Causal What-if Effects	
Long Life Cycle Promotions	All Dir
Measure (Default)	<
LLC Promo 1	
What-if Override Effects	
What-if Promotion Type	
What-if Override Effects Requested	3.00
What-if Promotion Type Requested	Override
What-if Blended Effects Requested	3.00
System Blended Effects	0.17
Approved Effects	3.00

Measures: Causal What-If View

The Causal What-If view contains the following measures:

What-if Override Effects

The user-specified lift effect. This user-entered effect is active if used in conjunction with the Override All and Override Future Only Promotion Effect Types. Otherwise, it equals 1.00.

What-if Promotion Type

Causal variable types define how causal variables are treated in the causal model-fitting process (which includes a call to the lower-level regression engine) and the forecast generation process where the model is used to extend the forecast over the forecast horizon. The options are Automatic and Override:

- Automatic

The inclusion of the Promo Effect is decided by regression. If the Promo Effect is found to be significant on the training set, it is included in the model. Otherwise, it is rejected. Automatic is the system default Promotion Effect Type.

- Override

If override is selected, the calculated effects are ignored and the override values are used. Do not forget to select an appropriate effect value in the Override Effects measure.

What-if Override Effects Requested

If effects were overridden in the What-if Override Effects, and What-if custom menu was run, the result is displayed in this measure.

What-if Promotion Type Requested

If the type of a promotion was specified in the What-if Promotion type, and the What-if custom menu was run, the result is displayed in this measure.

Approved Effects

This measure displays the approved effects. The approved effects are a combination between the override and calculated values. If override value exists, use it. Otherwise use the calculated value.

What-if Blended Effects

This measure displays the blended causal effect after overriding the causal effects and running the What-if custom menu.

System Blended Effects

This measure displays the blended causal effects calculated by the system.

Daily Forecast Results View

The Daily Forecast Results view displays the day version of the forecast and its components. All adjustments are done at the week level and spread to day where they are read-only.

Figure 13–12 Daily Forecast Results View

Daily Forecast Results							
	Calendar	Location	Product				
	Measure	Sandy Springs, GA					
	18/2017	3/19/2017	3/20/2017	3/21/2017	3/22/2017	3/23/2017	3/24/2017
Daily Forecast	6.84	8.36	3.80	4.18	4.56	4.94	5.32
Daily Peak	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Daily Cumint	2.32	2.40	2.47	2.54	2.61	2.68	2.75

Measures: Daily Forecast Results View

The Daily Forecast Results view contains the following measures:

Daily Forecast

This measure the daily version of the approved weekly forecast.

Daily Peak

This measure the daily version of the approved weekly peaks.

Daily Cumint

This measure the daily version of the approved weekly cumulative intervals.

Causal Parameters Step

The available views are:

- [Causal What-if Effects View](#)
- [Promotion Calendar View](#)

Causal What-if Effects View

In the Causal What-If Effects view, you can select the promo effect type. Depending on the type selected, an override value needs to be specified as well.

Figure 13–13 Causal What-if Effects View

The screenshot shows the 'Causal What-if Effects week/class/district' view. At the top, there are tabs for 'Measure' (selected) and 'Product'. Below the tabs, there are filters for 'Long Life Cycle Promotions' and '70031 Shelf Stable Beverages'. The main table has the following data:

	Approved Effects	Override Effects	Promotion Type
LLC Promo 0	0.00	0.00	Automatic
LLC Promo 1	0.00	0.00	Automatic
LLC Promo 2	0.00	0.00	Automatic
LLC Promo 3	0.00	0.00	Automatic
LLC Promo 4	0.00	0.00	Automatic
LLC Promo 5	0.00	0.00	Automatic
LLC Promo 6	0.00	0.00	Automatic

Measures: Causal What-if Effects View

The Causal What-if Effects view contains the following measures:

Approved Effects

This measure displays the effects that are applied to create the forecast. Initially they are what is calculated by the system. If the user overrides the effects, the What-if values are copied in the approved version of the effects as well.

Override Effects

The user-specified lift effect. This user-entered effect is active if used in conjunction with the Override All and Override Future Only Promotion Effect Types. Otherwise, it equals 1.00.

Promotion Type

Causal variable types define how causal variables are treated in the causal model-fitting process (which includes a call to the lower-level regression engine) and the forecast generation process where the model is used to extend the forecast over the forecast horizon. The options are Automatic and Override:

- Automatic:

The inclusion of the Promo Effect is decided by regression. If the Promo Effect is found to be significant on the training set, it is included in the model. Otherwise, it is rejected. Automatic is the system default Promotion Effect Type.

- Override:

If override is selected, the calculated effects are ignored and the override values are used. Do not forget to select an appropriate effect value in the Override Effects measure.

Promotion Calendar View

The Promotion Calendar view allows you to review and enable or disable promotions for item/locations for desired periods.

Note: Multiple Promotion Calendar views are possible. Namely, there is one view for every distinct promotion intersection. Promotions with identical intersections are displayed in the same view.

Figure 13–14 Promotion Calendar View

The screenshot shows the 'Promotion Calendar 1' view. At the top, there are filters for 'Calendar', 'Location' (set to '3 Crystal'), and 'Product'. Below the filters is a table with the following data:

	10/7/2016	10/14/2016	10/21/2016	10/28/2016
LLC Promo 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LLC Promo 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LLC Promo 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LLC Promo 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LLC Promo 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LLC Promo 6		0.00	0.00	0.00

Measures: Promotion Calendar View

The Promotion Calendar view contains the following measures:

Promo 1

Measure that displays if an event is active for a certain period at a given location and product.

Promo 2

Measure that displays if an event is active for a certain period at a given location and product.

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

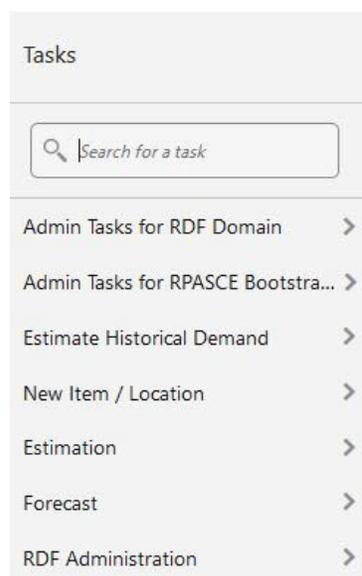
Batch Flow Administration Workspace

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 14–1 Task Module



- 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 estimation, by default the task runs estimation for all available final levels. However, if in the Batch Flow Management you enable Run Estimate 07, and disable Run Estimate 01, the OAT will only run estimation for final level 07.

The reason why many of these steps may be skipped has to do with the tuning of the system during the implementation. If one step is optimized, for instance preprocessing, for the sake of saving time, the implementer may want to skip this step, and concentrate on tuning the subsequent steps, for example, parameter estimation, pruning, forecasting, and so on.

Figure 14–2 *Batch Flow Management View*

The screenshot shows the 'Batch Flow Management' view in a software application. At the top, there is a 'Batch Flow Control' dropdown menu and a 'Batch Flow Control' button. Below this is a 'Menu' bar with various icons. The main content area is titled 'Batch Flow Management' and contains a table with a 'Measure' column and a checkbox column. The table lists various measures and their status (checked or unchecked).

Measure	Status
Load RMS data	<input type="checkbox"/>
Calculate Promotion Indicator	<input checked="" type="checkbox"/>
Run Preprocess	<input checked="" type="checkbox"/>
Run NewItem Batch	<input checked="" type="checkbox"/>
Rebuild Dashboard	<input checked="" type="checkbox"/>
Normalize Profile	<input checked="" type="checkbox"/>
Run Export	<input checked="" type="checkbox"/>
Run Estimate 01	<input checked="" type="checkbox"/>
Cross Domain Causal Estimation Thread Count 01	0
Run Forecast 01	<input checked="" type="checkbox"/>
Clear Curve 01	<input checked="" type="checkbox"/>
Run Estimate 07	<input checked="" type="checkbox"/>
Cross Domain Causal Estimation Thread Count 07	0
Corrupt Data Correction 07	<input checked="" type="checkbox"/>
Run Forecast 07	<input checked="" type="checkbox"/>
Clear Curve 07	<input checked="" type="checkbox"/>
Include New Item Recommendation 07	<input checked="" type="checkbox"/>

Measures: Batch Flow Management

The Batch Flow Management view contains the following measures:

Calculate Promotion Indicator

If enabled, this task allows the calculation of the merged promotion indicator. This is basically an OR of all promotions.

Clear Curve 01

If enabled, the previously calculated seasonality curves are cleared out.

If disabled, previously calculated seasonality curves are overwritten by newly calculated curves. However, if new curves can not be generated, for instance due to lack of data, then the old ones are still available.

Clear Curve 07

If enabled, the previously calculated seasonality curves are cleared out.

If disabled, previously calculated seasonality curves are overwritten by newly calculated curves. However, if new curves can not be generated, for instance due to lack of data, then the old ones are still available

Cross Domain Causal Estimation Thread Count 01

If the measure is 0, RPAS controls the number of parallel threads.

If you enter a value other than 0, then this becomes the number of allowed parallel threads

Include New Item Recommendation 07

If enabled, forecast for New Items is generated.

Load RMS data

This task is enabled only if HSA is available.

Normalize Profile

If enabled, the profile will be normalized. This step can be skipped when a custom profile is configured and the normalization was already taken care of.

Rebuild Dashboard

If enabled, this step rebuilds the dashboard when the batch is run.

Reset Preprocessing Data Promo

If enabled, this forces all preprocessing adjustments to be cleared out as well as all promotional effects.

Reset Preprocessing Data Seasonality

If enabled, this forces all preprocessing adjustments to be cleared out as well as all seasonality curves.

Run New Item Batch

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

If disabled, this step is skipped.

Run Estimate 01

When enabled allows estimation of forecast parameters for that final level.

Run Estimate 07

When enabled allows estimation of forecast parameters for that final level.

Run Forecast 01

If enabled, the forecast for final level 01 is generated.

Run Forecast 07

If enabled, the forecast for final level 07 is generated.

Run New Item Batch

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

If disabled, this step is skipped.

Run Preprocess

If disabled, this step is not run.

Run Export

If enabled, the GA export is run.

If disabled, the export step is skipped and it can be replaced by a more customized data export.

Appendix: Forecast Exceptions & Alerts

This appendix provides the complete list of alerts defined for the GA version of RDFCS. While some alerts are only valid for short lifecycle or long lifecycle merchandise only, others are used for all type of merchandise.

The exception management framework available in RPAS CE works on different levels. First there is the dashboard component. The exception profiles allow the user to view the hit count for every exception, and enable the in-context launch of the Forecast Review workspace.

Once in the workspace, the user can use the workspace alerts to navigate to the item/location/weeks that have been flagged. Every dashboard exception has a workspace alert counterpart. The calculation expressions are not identical, because the dashboard exceptions are at the production/location intersection, while the workspace alerts also have the time dimension.

Finally, every defined exception can be used in the approval logic. 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.

Dashboard and the Workspace Alerts Process

The way the dashboard and the workspace alerts can be used together, is detailed in the following steps. For example purposes, we will use the Forecast versus Recent Sales alert, for both dashboard and workspace.

1. First the user selects the Forecast versus Recent Sales as the choice for the Approval method.
2. Then the batch is run. After the forecast is generated, it is compared to the recent sales. For item/stores for which the two values are different with respect to attached thresholds, the exception is triggered, and the time series is not approved.

3. The user reviews the exception dashboard, and decides which items and locations she wants to review. From the dashboard she launches in the Forecast Review which is ranged down to the item and locations filtered in the dashboard.
4. Once in the workspace, the user can use the workspace alert to navigate to flagged time periods. She makes changes or approves the forecast directly, and commits.
5. The dashboard needs to be refreshed, and the hit count for the exception, in this case Forecast versus Recent Sales, will go down according to the adjust and approve actions of the user

Forecast versus Recent Sales

This exception is defined for both short and long lifecycle merchandise.

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

This exception is defined for both short and long lifecycle merchandise.

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:

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

&&

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

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

This exception is defined for long lifecycle merchandise.

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:

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

$$\parallel$$

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

$$\&\&$$

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

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

This exception is defined for long lifecycle merchandise.

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:

$$Adjusted\ Peak > Max\ Sales\ History * Causal\ Peak\ Factor$$

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.

Transition Items Count

This exception is defined for short lifecycle merchandise.

This exception is only available for the dashboard, and is meant to give the user a heads-up of the number of items that will start selling in the near future.

The following is the alert expression:

Forecast Startdate < Today + Calculation Periods

Where the *Calculation Periods* is an adjustable parameter.

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.

$$BIAS = \frac{1}{n} \sum_{today-1}^{today-n} (F_t - A_t)$$

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.

Appendix: Preprocessing Methods

Preprocessing is a filtering module that automatically adjusts historical data to correct data points that do not represent general demand pattern. Essentially, it smooths out spikes and dips in historical sales data, replacing stock-out data and data from short term events, such as promotions and temporary price changes, with data points that more accurately represent typical sales for that period. By adjusting the historical sales, Preprocessing can provide smarter data to the RDF Causal Engine, thus creating a smarter baseline forecast.

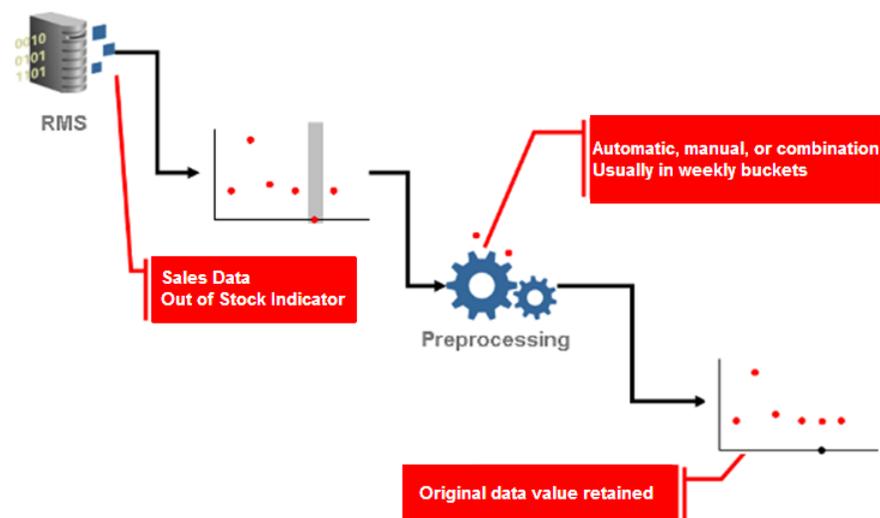
Note: There are no workspaces associated with Preprocessing - it is available as a configuration option.

Common Preprocessing corrections are:

- Out of stock - Interfaced from RMS, weekly or daily
- Outliers - Indicator not required, depends on method
- Short term events - Promotions, temporary price changes

For example, [Figure C-1](#) illustrates how Preprocessing adjusts for stock-outs.

Figure C-1 Preprocessing for Stock-outs



In [Figure C-1](#), RMS sends historical sales data to RDFCS. In that sales data, RMS has flagged out-of-stock instances with indicators (the gray portion of the first data set).

Preprocessing takes note of that out-of-stock indicator and adjusts the sales for that time period to reflect a more typical sales quantity that better reflects unconstrained demand. Note in [Figure C-1](#) that Preprocessing has removed the dip in sales in the second data set and has replaced it with a new data point.

Preprocessing Methods

Note: In order to run any preprocessing method, there needs to be at least three periods with non-zero data in the preprocessing window. If there are less than three periods with non-zero data, then the time series is skipped.

Preprocessing uses several methods to massage historical data. The following sections detail these methods:

- [Standard Median](#)
- [Oracle Retail Median](#)
- [Standard Exponential Smoothing](#)
- [Override](#)
- [Increment](#)
- [DePrice](#)
- [Clear](#)
- [No Filtering](#)

Standard Median

Standard Median calculates baselines on long time ranges.

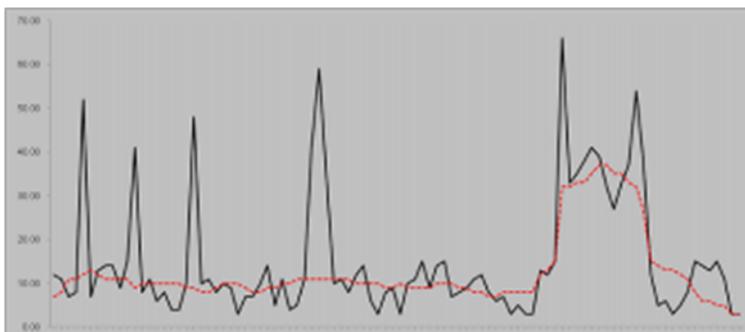
Input: None

Optional parameter: Window length

Figure C-2 Standard Median Formula

$$LSOVER(t) = \text{median value over} \left(t - \frac{\text{window}}{2}, t + \frac{\text{window}}{2} \right)$$

Figure C-3 Standard Median Example



When data points for the full window are not available, Preprocessing pads the beginning and end of the time series with the first and the last data points, respectively, so that there are values for the full window.

Oracle Retail Median

Retail Median calculates baselines on long time ranges and improves side effects by making five standard median filter passes.

Input: none

Optional parameter: window length

Figure C–4 Retail Median Formula

$$\text{Median1} = \text{StdMedian}(\text{Src})$$

$$\text{Median2} = \text{StdMedian}(\text{Median1})$$

$$\text{Diff1}(t) = \text{Median2}(t) - \text{Median2}(t-1)$$

$$\text{Median_Diff1} = \text{StdMedian}(\text{Diff1})$$

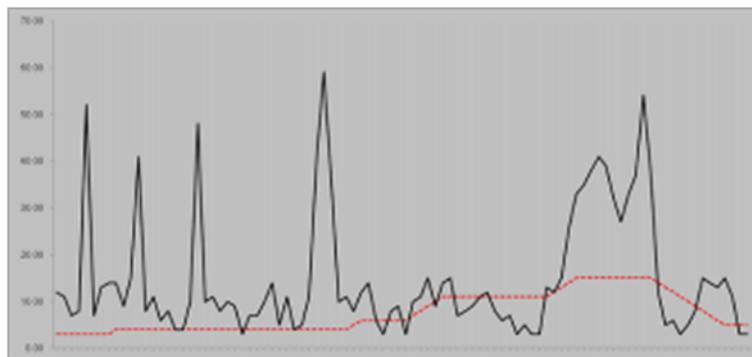
$$\text{Smooth1}(t) = \text{Smooth1}(t-1) + \text{Median_Diff1}(t)$$

$$\text{Diff2}(t) = \text{Smooth1}(t) - \text{Smooth1}(t-1)$$

$$\text{Avg_Diff2} = \text{StdMedian}(\text{Diff2})$$

$$\text{Smooth2}(t) = \text{Smooth2}(t-1) + \text{Avg_Diff2}(t)$$

Figure C–5 Retail Median Example



Standard Exponential Smoothing

Standard Exponential Smoothing removes spikes (such as promotional promo, temporary price changes, and so on), as well as filling the gaps (out of stock, unusual events such as a fire or hurricane).

Input: An Event Indicator that indicates which periods should be preprocessed.

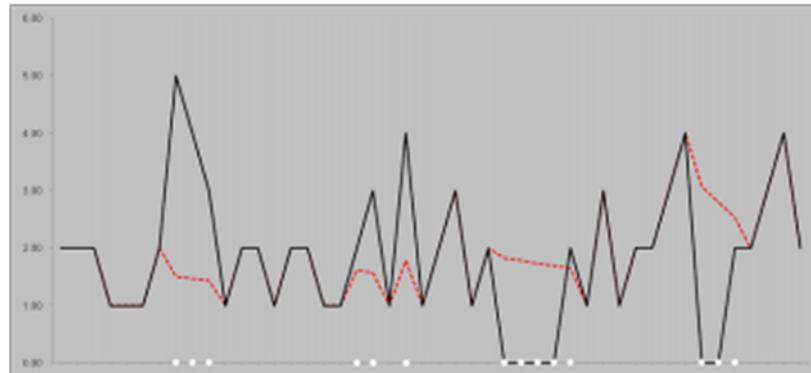
Optional Parameters:

The following table details the optional parameters for Standard Exponential Smoothing.

Optional Parameters	Description
ES (Exponential Smoothing)	The alpha parameter that determines the weight put on observations of periods included in the calculations.
Number of future periods (nfut)	<p>The number of periods after an outage periods that are considered in the calculation of the future velocity.</p> <p>Note that if during these periods an event flag or a event indicator is on, the particular period is excluded from the calculation.</p>
Number of past periods (npast)	<p>The number of periods before an outage periods that are considered in the calculation of the past velocity.</p> <p>Note: When calculating the past velocity and the first period in the preprocessing window is flagged, then the past velocity is calculated using earlier periods outside the preprocessing window.</p> <p>Note that if during these periods an event flag or a event indicator is on, the particular period is excluded from the calculation.</p>
Event flag	This parameter is an additional indicator that determines if a period should be excluded from the calculation of past or future velocities as defined by the number of past and future periods. For instance, if correcting for stock outs, you may not want to consider promoted periods to avoid over-inflating demand.
Stop at event flag	<p>This parameter determines which periods are included in the calculation of past/future velocities.</p> <p>If the flag is set to True, then the algorithm only includes periods before the first event flag or event indicator.</p> <p>If the flag is False, then all available, non-flagged periods, within the windows defined by nfut and npast, are used in the calculation of the past and future velocities.</p> <p>The default setting for the flag is False.</p>
Mode	<p>This parameter decides which adjustments are allowed for a particular run. The options are:</p> <ul style="list-style-type: none"> ■ Positive: only positive adjustments are allowed. This would be the case where the demand would be bumped up during an out-of-stock period. ■ Negative: only negative adjustments are allowed. This would be the case where the promo-driven demand would be subtracted, to generate baseline demand. ■ Both: both positive and negative adjustments are allowed.

Figure C-6 Standard Exponential Smoothing Formula

$$\begin{aligned}
 \text{past velocity} &= \frac{\sum_{i=1}^{np} (1-\alpha)^{i-1} * src(t_f - i)}{\sum_{i=1}^{np} (1-\alpha)^{i-1}} \\
 \text{future velocity} &= \frac{\sum_{i=1}^{nf} (1-\alpha)^{i-1} * src(t_l + i)}{\sum_{i=1}^{nf} (1-\alpha)^{i-1}} \\
 LSOVER(t) &= \text{past velocity} + \frac{\text{future velocity} - \text{past velocity}}{t_l - t_f + 2} * (t - t_f + 1), \text{ where } t \in [t_f, t_l]
 \end{aligned}$$

Figure C-7 Standard Exponential Smoothing Example

When event flags exist within the future and past velocity windows, rather than consider the entire window, Preprocessing only considers unflagged data points after the last event flag in the history window to compute the past velocity. It does a similar process for the future window by using the unflagged data points prior to the first event flag in the future window to compute the future velocity. Consecutive events are smoothed using the same velocities. A data point becomes flagged, and hence not part of the future/past velocity calculation, if either the event indicator or the optional event flag are on.

If future velocities cannot be calculated, then the past velocities, if they exist, are used as future and past velocities, and vice versa. When neither of the velocities can be calculated, there is no adjustment.

If the velocity window contains all zero values, then the calculated velocity is zero. A velocity of zero is a legitimate value if it occurs within the selling window. A velocity of zero is not acceptable if it is calculated based on values outside of the selling window.

Figure C-8 shows an example to better illustrate the use of the Event Flag. The preprocessing run corrects for stock-outs. The first run has the Stop at Event flag turned off, and you can see how more periods are included in the velocities calculations than in the second run when the flag is turned on.

Figure C–8 Using the Event Flag

n_fut	3	sales	2	2	5	2	1	2	1	2	5	2
n_past	3	promo			X						X	
stop_at_event	FALSE	outage					X		X			
		use in velocities		YES	NO	YES		YES	NO	YES		
n_fut	3	sales	2	2	5	2	1	2	1	2	5	2
n_past	3	promo			X						X	
stop_at_event	TRUE	outage					X		X			
		use in velocities		YES	NO	YES		YES	NO	NO		

Override

Override fills gaps in data when a reference measure exists.

Input: reference measure (R(t)) to copy data from

Optional parameter: outage/mask (M(i)), adjustment ratio (a)

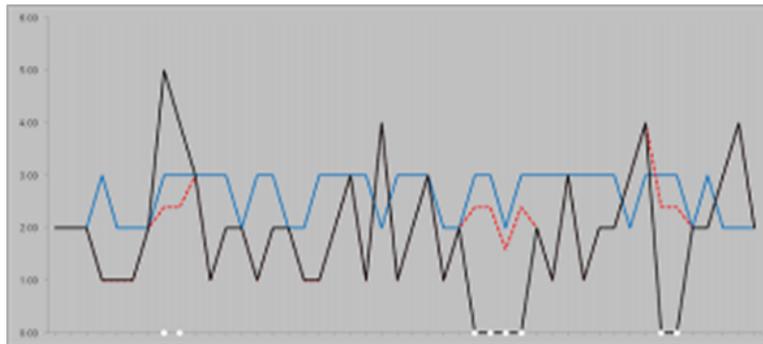
Formula: Overrides *LSOVER* with the Src adjusted by the adjustment ratio according to the mask:

Figure C–9 Override Formula

$$LSOVER(t) = a * R(t) \quad \text{if } M(i) \text{ is true}$$

$$LSOVER(t) = Src(t) \quad \text{if } M(i) \text{ is false}$$

Figure C–10 Override Example



Increment

Increment updates gaps or outliers in data when a reference measure exists.

Input: reference measure (R(t)) to copy data from

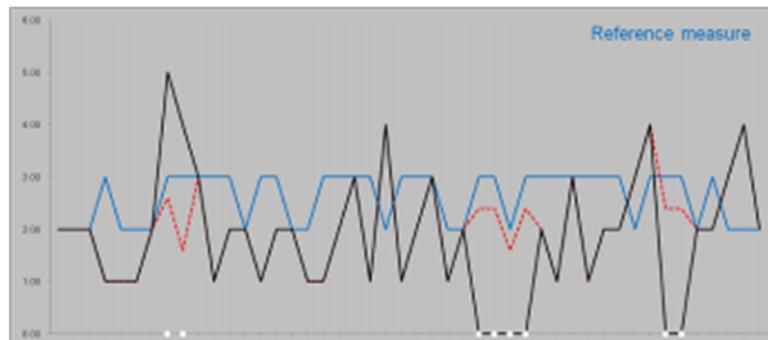
Optional parameter: outage/mask (M(i)), adjustment ratio (a)

Increments the Src with the reference adjusted by the adjustment ratio according to the mask:

Figure C-11 Increment Formula

$$LSOVER(t) = SRC(t) + a * R(t) \quad \text{if } M(i) \text{ is true}$$

$$LSOVER(t) = Src(t) \quad \text{if } M(i) \text{ is false}$$

Figure C-12 Increment Example

DePrice

DePrice removes the pricing effects.

Inputs: price, maximum price

Optional parameters: none

Formula:

$$Smoothed = original * (price/maxprice) ^ 2$$

DePromote

This method can be used for depromoting sales instead of Standard Exponential Smoothing. It is especially beneficial when there are extensive consecutive promoted periods. In such cases interpolating can remove unwanted information, such as seasonality.

DePromote uses promotion effects to remove promo lifts. It is an iterative process that runs preprocessing, then estimation to determine the promotion effects and seasonality a few times until a stable state is reached. Details on how to enable and control this process can be found in the *Oracle Retail Demand Forecasting Cloud Service Implementation Guide*.

Clear

This Preprocessing method clears the Preprocessing adjustments from previous runs and also clears the lsover measure.

$$LSOVER(t) = 0$$

$$LS(t) = 0$$

No Filtering

This Preprocessing method does not filter the source data. The preprocessing adjustments are cleared and lsover is set to the source data.

$$LS(t) = 0$$

$$LSOVER(t) = SRC(t)$$

Preprocessing for Stock-outs

When using Preprocessing to correct for stock-outs, the system expects out-of-stock indicators from a merchandising system like RMS. The system can be set up for automatic adjustment of sales history to correct for stock-outs as well as for manual user overrides under exception cases.

When set to automatically adjust sales history to correct stock-outs, Preprocessing takes into account trending and seasonality and adjusts the sales that were flagged by the out-of-stock indicator to reflect a more typical sales quantity.

Preprocessing for Outliers

When using Preprocessing to correct for outliers, the system expects outlier indicators. These are typically loaded.

Preprocessing for Promotional Forecasting

Preprocessing adjusts promotional data in a similar way that it does stock-outs. Typically, historical data shows a higher rate of sales during promotional periods. Were these spikes in sales to be left in historical sales data and loaded in the RDF Causal Engine, the baseline forecast created from this data would reflect similar spikes in future sales.

Rules to Populate Out-of-Stock and Outlier Indicators

In most RDFCS implementations, the out-of-stock and outlier flags are interfaced into RDF. However, not all retailers keep track of outages and outliers, or they are not very exact.

The following are some rules that populate these indicators. Note that they are a point of view, and you are encouraged to further refine them to fit your business needs.

If we call OOS the *out-of-stock indicator*, and outliers the *outlier flag*, the logic to populate the flags can be:

If the rate of sales of an item is lower than the threshold, then the OOS is false.

Otherwise, make sure the item has been selling for a while and that it does not have extensive periods with zero sales. If it is a New Item, you do not want to start correcting the demand until the patterns become stable/predictable. Also, if the sales history has many zeroes, this may be an indication of a bigger issue, and you may want to correct by taking action in your Source Measure Maintenance workspace.

If these conditions are fulfilled, and the sales are still considered low, then mark the week as out-of-stock.

The pseudocode can look like:

```
If threshold 1a < rate of sales < threshold 1b
  If minimum number of sales periods > threshold 2a
    &&
    number of periods with zero sales < threshold 3a
      &&
      sales < percent 1a * rate of sales
```

```
    then OOS = TRUE
elseif rate of sales > threshold 1b
  If minimum number of sales periods > threshold 2b
    &&
    number of periods with zero sales < threshold 3b
    &&
    sales < percent 1b * rate of sales
  then OOS = TRUE
```

For the outlier creation, the logic can be:

For weeks with regular demand (no event, discount, etc, is active), if the sales are deemed to be too high then mark the period as an outlier.

The pseudocode can look like:

```
If sales > rate of sales * multiplier
  &&
  Period is not promoted
Then outliers = TRUE
```

Troubleshooting

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

Accessing Multiple RPASCE Applications

A user may need to access multiple RPASCE applications, such as MFP, A&IP, 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.

