

Oracle® Retail Inventory Planning Optimization Cloud Service-Inventory Optimization User Guide



Release 24.1.201.0

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Oracle Retail Inventory Planning Optimization Cloud Service-Inventory Optimization User Guide, Release 24.1.201.0

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A Appendix: Oracle Retail AI Foundation Cloud Services Overview

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Preface

This guide describes the Oracle Retail Inventory Planning Optimization Cloud Service-Inventory Optimization user interface. It provides step-by-step instructions to complete most tasks that can be performed through the application.

Audience

This User Guide is intended for retailers and analysts.

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Related Documents

For more information, see the following documents in the Oracle Retail AI Foundation Cloud Services documentation set:

- *Oracle Retail AI Foundation Cloud Services Administration Guide*
- *Oracle Retail AI Foundation Cloud Services Implementation Guide*
- *Oracle Retail AI Foundation Cloud Services Security Guide*
- *Oracle Retail AI Foundation Cloud Services Release Notes*
- *Oracle Retail Analytics and Planning Cloud Services Data Interface*
- *Oracle Retail AI Foundation Cloud Services User Guide*
- *Oracle Retail AI Foundation Cloud Services Assortment and Space Optimization User Guide*
- *Oracle Retail Inventory Planning Optimization Cloud Service-Inventory Optimization User Guide*
- *Oracle Retail Lifecycle Pricing Optimization Cloud Service User Guide*

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- Detailed step-by-step instructions to re-create
- Exact error message received
- Screen shots of each step you take

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<https://docs.oracle.com/en/industries/retail/index.html>

An updated version of the applicable Oracle AI Foundation document is indicated by Oracle part number, as well as print date (month and year). An updated version uses the same part number, with a higher-numbered suffix. For example, part number E123456-02 is an updated version of a document with part number E123456-01.

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Oracle Retail AI Foundation Cloud Services Documentation on the Oracle Help Center

Oracle Retail AI Foundation Cloud Services product documentation is available on the following web site:

<https://docs.oracle.com/en/industries/retail/index.html>

(Data Model documents are not available through Oracle Help Center. You can obtain these documents through My Oracle Support.)

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.
<code>monospace</code>	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1

Inventory Planning Optimization-Inventory Planning

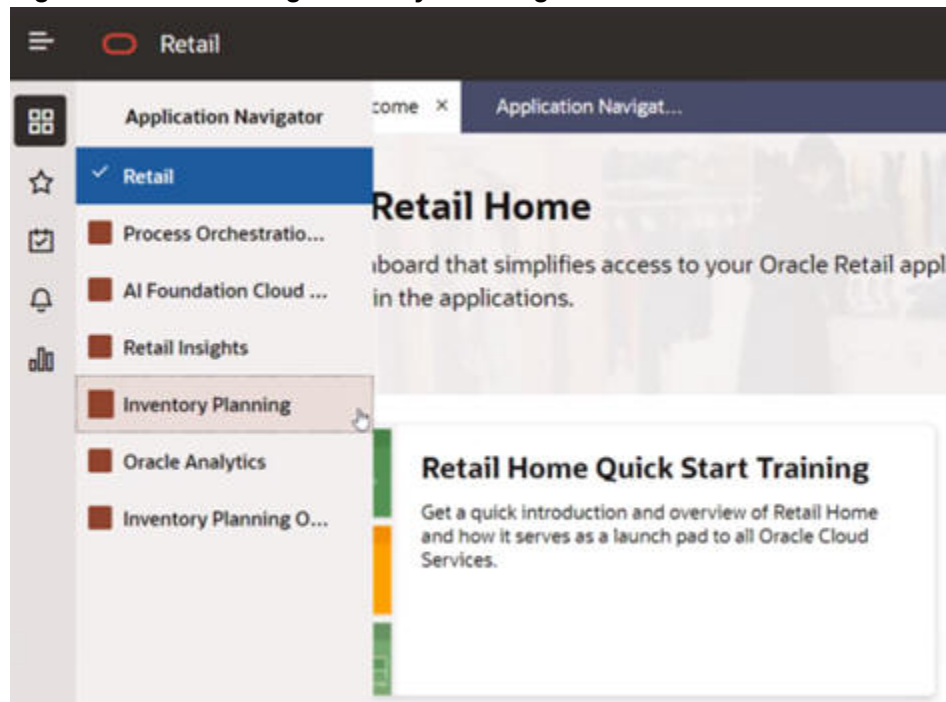
This guide describes the use of Inventory Planning Optimization-Inventory Planning (IPO-IP). For details about the implementation of IPO-IO, see *Oracle Retail AI Foundation Cloud Services Implementation Guide*.

Launching the Application

Complete the following steps to launch the application.

1. Open Retail Home.
2. Click **Application Navigator**, located in the left menu.
3. Click **Inventory Planning**.

Figure 1-1 Launching Inventory Planning



Overview

The retailer's most significant investment is the retailer's inventory. Inventory Planning Optimization Cloud Service (IPO) offers the retailer the ability to best predict how much demand there will be and to deploy the inventory to optimize the demand throughout the course of an item's life cycle. Throughout an item's life cycle, the application reacts to

changes in consumer behavior in order to right size inventory deployment and demand methodologies. The end result allows the retailer to manage the current and future inventory at scale to ensure the right products and quantiles are in the right place for the right customers at the right time, in an automated and intelligent way, via the user interface.

Inventory Planning allows the user to view a Forecast Plan, which displays a set of products that are stocked at a set of locations during a specific time frame. Any alerts that occur during this period are highlighted. The user can then make tactical policy overrides that can then affect any future stock forecasts.

Main Filter

Use the Main filter to restrict the scope of the Plan View to a subset of products and locations.

To access the Main Filter, click the **Filter** button in the top left of the Plan View.

Figure 1-2 Filter Button



The Main Filter provides a launching area providing access to the Product and Locations filters and the sub-filter Purchase Orders.

Click a card to open the corresponding filter panel.

Figure 1-3 Filter Panel Card

The screenshot shows a 'Filters' panel with a close button (X) in the top right corner. Below the title, there is a 'Saved Filters' dropdown menu, a 'Delete' button, and a 'Save' button. The main area contains two filter cards: 'Products' with a pencil icon, showing '20 Included', and 'Locations' with a pencil icon, showing '1 Included'. Below these is a 'Purchase Orders' section with the value '2305061000' and a '1' in a dark box. At the bottom, there are 'Clear', 'Cancel', and 'Apply' buttons.

Products Filter

The Products filter is used to select those products that must be included in the Plan View.

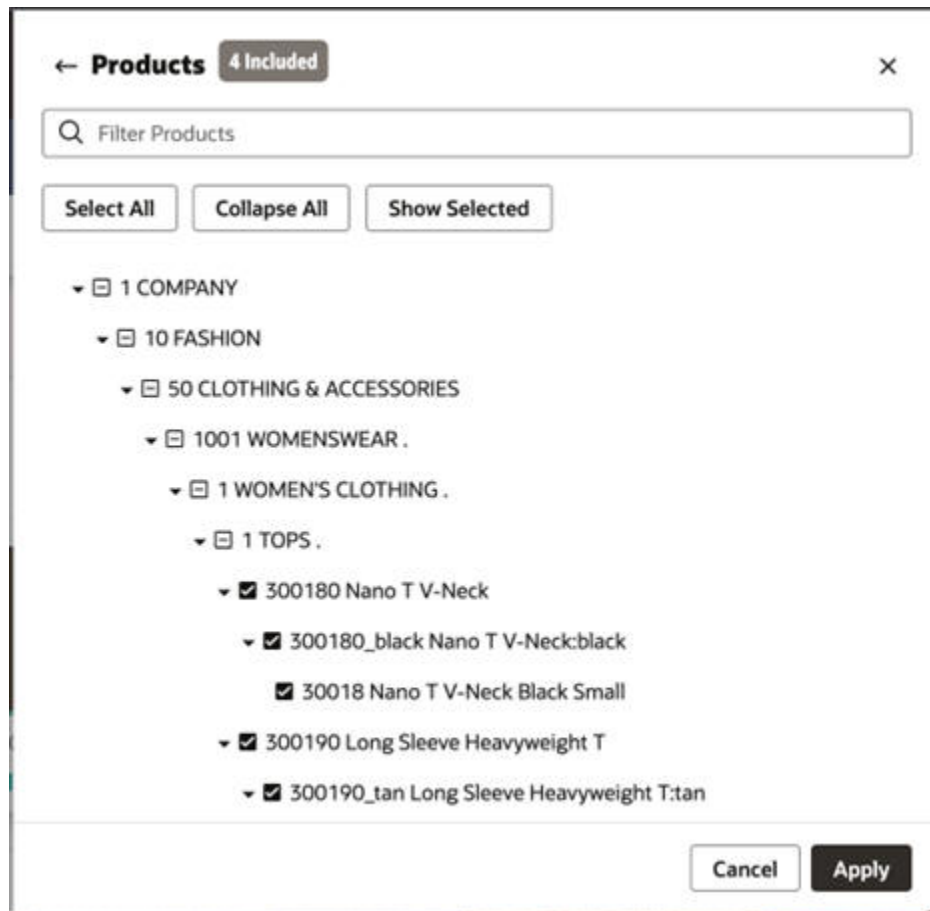
Selection can occur at the individual product level or by selecting a higher level in the tree that includes all products below it at lower levels. Higher level selections are retained so that when you re-enter Inventory Planning your view will refresh to include any newly introduced products. For example, if you select a subclass, then three new products are set up on replenishment. When the products are visible to Inventory Planning, the view can be refreshed to see the additional products with no further filter selection required.

You can enter text in the Filter field at the top of the Products filter to reduce the list to those that contain that text.

Buttons are provided above the data to Select/Deselect All, Collapse/Expand All, and Show Selected/All.

The Select All button selects all visible entries, so it is the most useful after entering search text.

Figure 1-4 Products Filter



Locations Filter

Use the Locations filter to select those locations that must be included on the Plan View.

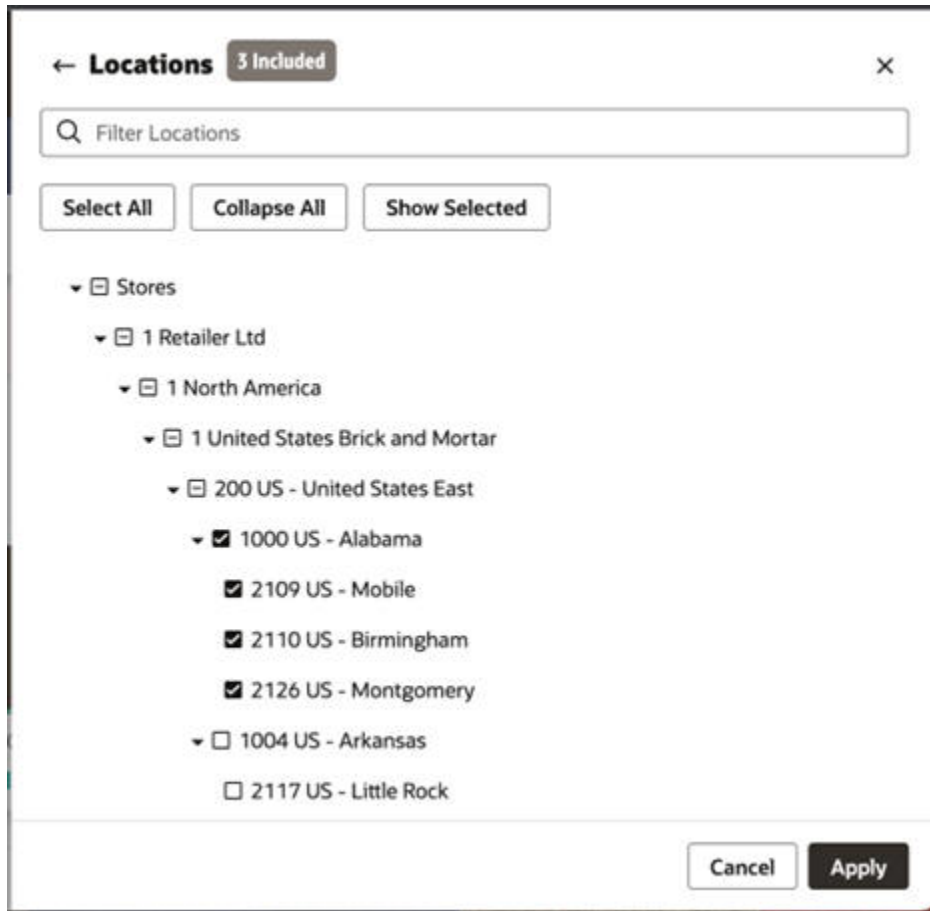
Selection can occur at the individual Store or Warehouse level or by selecting a higher level in the tree that includes all locations below it at lower levels. Higher level selections are retained so that when you re-enter Inventory Planning your view will refresh to include any newly introduced locations. For example, if you select a district, then three new stores are set up on replenishment. When the stores are visible to Inventory Planning, the view can be refreshed to see the additional stores with no further filter selection required.

You can enter text in the Filter field at the top of the Locations filter to reduce the list to those that contain that text.

Buttons are provided above the data to Select/Deselect All, Collapse/Expand All and Show Selected/All.

The Select All button selects all visible entries, so it is the most useful after entering search text.

Figure 1-5 Locations Filter



Purchase Orders

Use the Purchase Orders sub-filter to select purchase orders whose products and locations will be included on the Main filter.

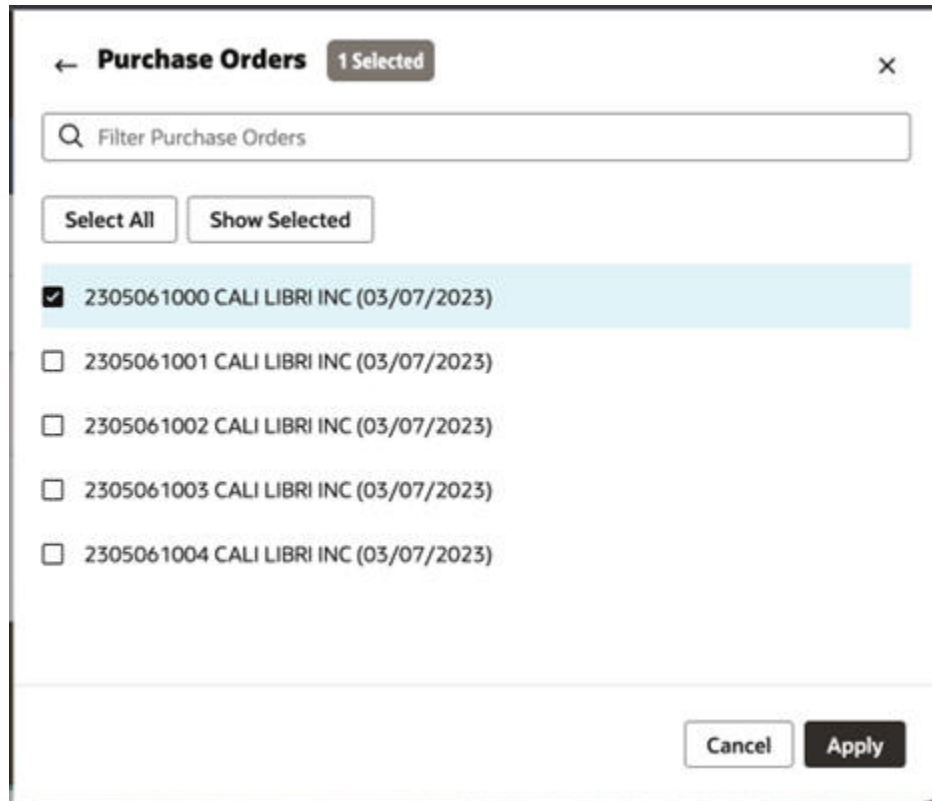
Enter text in the Filter field at the top of the Purchase Orders filter to reduce the list to those that contain the specified text.

Buttons are provided above the data to Select/Deselect All and Show Selected/All.

Use Select All to select all visible entries. This is most useful after entering search text.

Use Apply a Purchase Order to automatically select the related products and locations on the Main Filter.

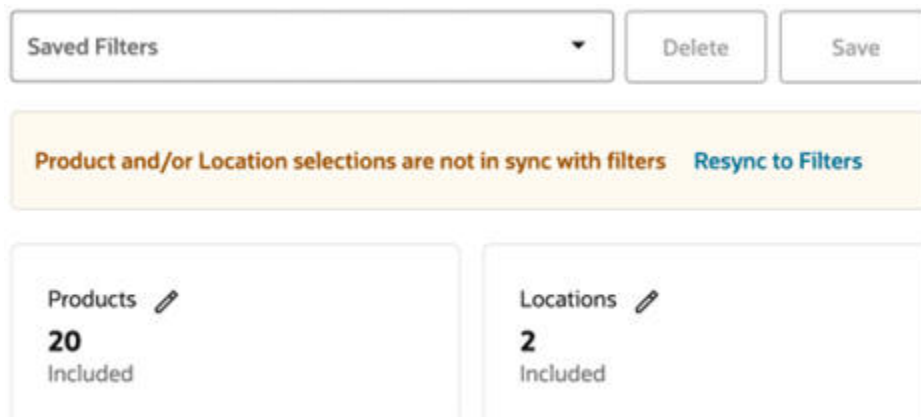
Figure 1-6 Purchase Orders



If a purchase order has been selected, and then additional products or locations are selected, then a Resync message will be displayed on the Main Filter.

If this is not what you intended, click **Resync to Filters** to reset both products and locations to those matching the purchase order selections.

Figure 1-7 Resync to Filters



Saving Your Filters

The entire set of filter selections can be stored for later retrieval. This is useful for creating watch lists of top items, bottom items, new locations, new product introductions, and so on.

To save a filter, enter a name into the Saved Filters field, then click the **Save** button.

Previously saved filter sets can be selected from the drop-down list. This will reload those saved filter selections in the Main Filter.

Use the **Delete** button to permanently remove the filter set that is currently selected in the drop-down list.

Figure 1-8 Saved Filters



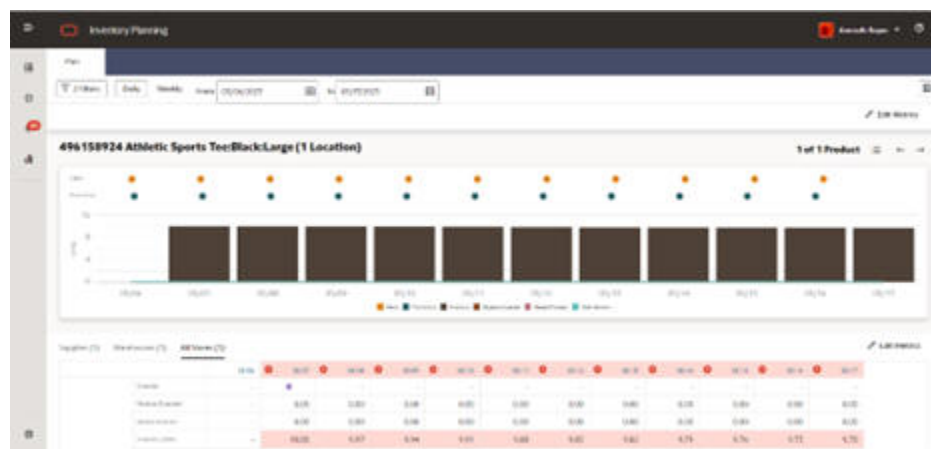
Plan View

The Plan View displays information about a chosen product for a set of included locations over a time frame.

The scope of the Plan View can be adjusted using the Main Filter.

Use the controls in the cycle area to alter the focus of the Plan View to a different product.

Figure 1-9 Plan View

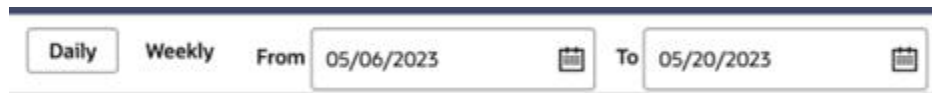


Time Frame

The time frame of the Plan View can be set using the **From** and **To** date fields at the top.

Select **Daily** to display each individual day in the plan; select **Weekly** to show information for each week.

Figure 1-10 Time Frame



Cycle Area

The Plan View focuses on one product at any time. You can use the Cycle Area to traverse through the individual products that are included in the filter selection.

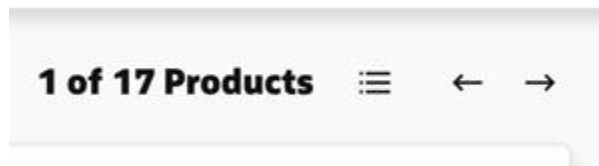
The product that is currently in focus is shown on the top left of the Plan View, along with how many of the included locations replenish it.

Figure 1-11 Current Product in Focus

98863495 Abstract Print Silk Top - Almond (2 Locations)

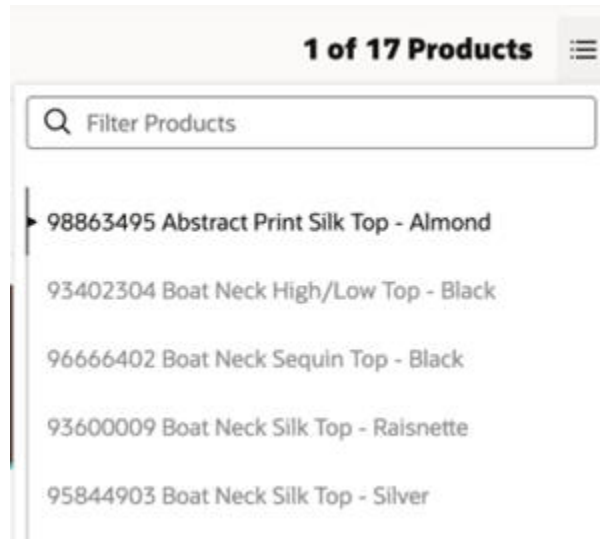
The Previous and Next buttons can be used to move sequentially through the list of included products.

Figure 1-12 Cycle Area



Click the Product Selection control (to the left of the arrow buttons) to display a list of products to select from. Use the search filter at the top to reduce the product list to those that contain the search term.

Figure 1-13 Product Selection

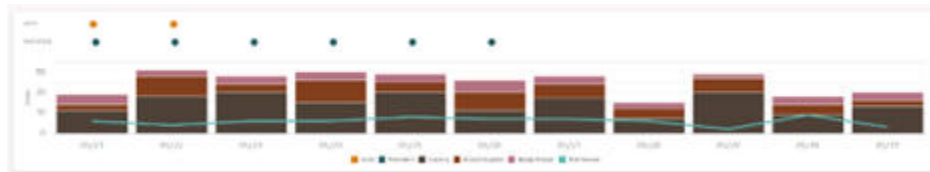


Chart

The chart area shows aggregate store information that is based upon the scope of the Plan View (Filter Selection and Time Frame).

The chart is unaffected by the Edit Metrics selection.

Figure 1-14 Plan Chart



Alerts

If at least one alert exists for a given date, then an Alert disc will appear above the chart.

Promotions

If at least one promotion exists for a given date, then a Promotions disc will appear above the chart. Click the **Promotions** disc to show the Promotions Details and Offers to the right of the Plan.

Edit Metrics

Use the Edit Metrics button to control which metrics rows appear in the Plan View tables.

Figure 1-15 Edit Metrics



Click the **Edit Metrics** button to display the Edit Metrics panel where you can select metrics.

For each metric, the aggregation method is shown beneath the metric name. Some metrics do not have an aggregation method and will not appear in the aggregate area tables.

Figure 1-16 Metrics Selection

Edit Metrics 3 Selected

Filter Metrics

Information

- Override Sum

Replenishment

- Order Point (OP) No Aggregation
- Order Up To Level (OUTL) No Aggregation
- Safety Stock No Aggregation
- Safety Stock % of Demand No Aggregation
- Promotions Count
- Presentation Stock No Aggregation
- Demo Stock No Aggregation

Demand

- Total Demand

Clear Cancel Apply

Metrics

Many different metrics can be displayed in the Plan View.

- The Promotions metric shows the number of promotions for that time period.
- The Override metric shows a disc at the start of any period indicating that an override has been specified by any user in Inventory Planning.
- Definitions of the other standard metrics are included in the Inventory Planning glossary.

All Locations Table

The All Locations table aggregates data from the individual locations to display a summarized, supply chain view. As with the rest of the Plan View, this area restricts information to those locations included in the filter that replenish the product currently in focus. Only metrics related to inventory, demand, and order quantities are shown in the aggregate table. Safety stock and other target stock level metrics are reviewed in the individual location tables.

The supply chain can be reviewed through the provided tabs:

- Supplier
- Warehouses
- Store

Data for the selected metrics will be shown in the tables either for each day (if Daily is selected) or each business week (if Weekly is selected).

Figure 1-17 Aggregate Area

Supplier (1)	Warehouse Level 1 (2)	Warehouse Level 2 (1)	All Stores (3)								
			06/03	06/04	06/05	06/06	06/07	06/08	06/09	06/10	06/11
All Stores	Quantity										
	Reorder Forecast		7.00	8.00	0.00	4.00	7.00	8.00	5.00	6.00	1.00
	Reorder Forecast		2.00	5.00	1.00	5.00	2.00	4.00	2.00	4.00	4.00
	Inventory (QTY)		19.00	5.00	16.00	4.00	10.00	10.00	14.00	8.00	7.00
Total Demand		8.00	5.00	3.00	5.00	3.00	8.00	3.00	6.00	1.00	

Suppliers

The Supplier tab displays information about those suppliers that provide the product into the supply chain.

Warehouses

The Warehouse tabs displays information about those warehouses that handle the product for all the included stores. If the product passes through multiple warehouses on the way to the store, then multiple warehouse tabs will be displayed.

As this is the aggregate area, information about all warehouses listed in any individual table is combined into this table. Not all metrics apply at the Warehouse level. These metrics will not be displayed in this area.

Click a cell or the column header to open the Advanced Options (AO) panel for all the locations listed in the table for that week.

Stores

The Stores tabs show information about those stores that replenish the product.

As this is an aggregate area, information about all stores listed in any individual table are combined into this table.

Click the table data to open the AO Panel for all the locations listed in the table for that week.

No Data to Display

Each metric is only relevant at specific supply chain levels. If a product is stocked at a supply chain level but no relevant metrics are selected, then the message No Data to Display will be shown.

Figure 1-18 No Data to Display



All Locations Table Alerts

If any alerts are present for a given date column, then an icon will be displayed in the column header.

- An up arrow will be displayed for an Overstock Alert.
- A down arrow will be displayed for a Low Stock or Out of Stock Alert.
- A double ended arrow will be displayed if both up and down can be shown.

Figure 1-19 Table Alerts Icons

Supplier (1)		Warehouses (2)		All Stores (19)											
				06/10	06/11	06/12	06/13	06/14	06/15	06/16	06/17	06/18	06/19		
27 Product and Cost 27 Item	Overline														
	Reorder Expense	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	Reorder Forecast	0.00	0.00	0.00	0.00	0.00	129.00	0.00	0.00	0.00	0.00	0.00	0.00		
	Inventory (00)	0.00	0.00	0.00	0.00	0.00	129.00	106.92	100.92	95.52	92.52	92.52	92.52		
	Unit Sales	5.12	0.00	18.85	27.14	0.00	0.00	-8.00	-8.40	0.00	-18.01				
	New Demand	0.00	129.00	129.00	129.00	129.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	Committed Demand	0.00	0.00	0.00	0.00	0.00	17.08	0.00	5.40	0.00	0.00	0.00	18.01		
Demand	5.12	0.00	18.85	27.14	0.00	17.08	0.00	0.00	0.00	0.00	0.00	0.00			
Order Forecast	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
28 Product and Cost 28 Item	Overline														
	Reorder Expense	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	Reorder Forecast	0.00	0.00	0.00	0.00	0.00	54.00	0.00	0.00	0.00	0.00	0.00	0.00		
	Inventory (00)	0.00	0.00	0.00	0.00	0.00	54.00	47.00	31.84	31.84	19.97				
	Unit Sales	0.00	18.85	0.00	4.98	0.00	0.00	-18.04	0.00	-18.04	0.00				
	New Demand	0.00	129.00	129.00	129.00	129.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
	Committed Demand	0.00	0.00	0.00	0.00	0.00	17.08	0.00	5.40	0.00	0.00	0.00	18.01		

Individual Locations Table

A table is displayed for each of the lowest level replenished locations (typically a store) that fall within the filter criteria. The primary supply chain into that location is also shown so that you can review the order projections and inventory levels throughout. The tables share a common layout to the All Locations table, including access to the supply chain. See [All Locations Table](#).

Click the table data to open the AO Panel for all the locations listed in the table for the week that was selected.

Figure 1-20 Individual Area

Category	01/01	01/02	01/03	01/04	01/05	01/06	01/07	01/08	01/09	01/10	01/11	01/12	01/13	01/14
Revenue	11.00	12.00	15.00	14.00	11.00	14.00	17.00	16.00	19.00	19.00	10.00	11.00	11.00	0.00
Revenue (Excl)	15.00	14.00	15.00	14.00	11.00	14.00	17.00	16.00	19.00	19.00	10.00	11.00	11.00	0.00
Revenue (Incl)	26.00	26.00	30.00	28.00	22.00	28.00	34.00	32.00	38.00	38.00	20.00	22.00	22.00	0.00
Revenue (Net)	15.00	14.00	15.00	14.00	11.00	14.00	17.00	16.00	19.00	19.00	10.00	11.00	11.00	0.00

Promotion Details

When a promotion exists, then a Promotions disc is shown above that time slot in the chart.

To view information about promotions, click the Promotions disc.

Figure 1-21 Promotions Discs

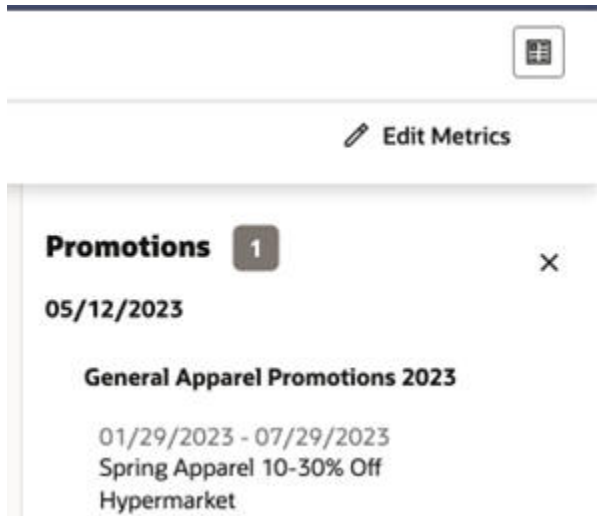


Any promotions that overlap with that time will be shown in a panel on the right.

Each promotion will also display its offers and their details.

Click the **Details** button (located on the right of the header) to show or hide the Promotions panel.

Figure 1-22 Promotions Details



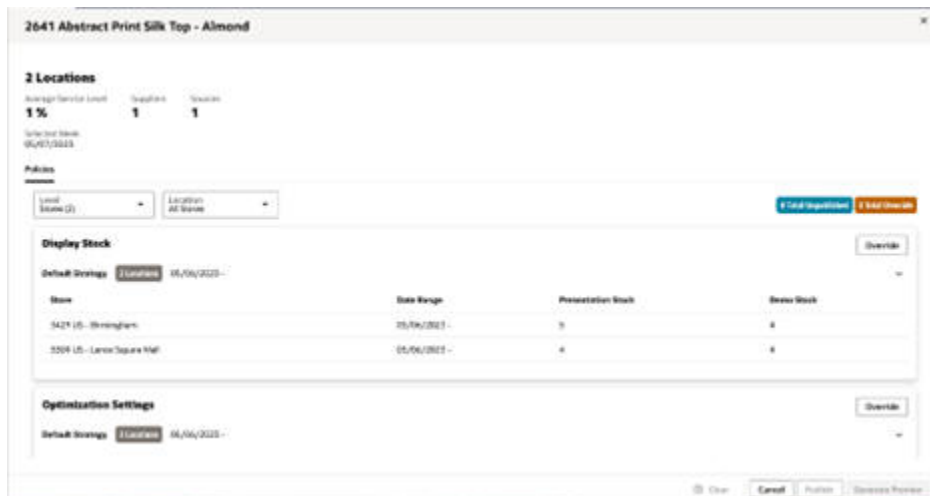
Advanced Options Panel

The Advanced Options (AO) panel displays more details about the product and locations for a selected week.

It always displays data based upon the entire week of the cell that you selected to launch it.

It includes information about locations, average service level, number of suppliers, number of sources and selected week, and relevant policies.

Figure 1-23 AO Panel



Summary Area

The Summary area displays information that applies to the entire AO Panel.

This includes information about locations, average service level, number of suppliers, number of sources and selected week, and relevant policies.

All navigation in the AO Panel will be within the supply chain of these locations and selected week.

Policies Tab

The Policies tab displays all policies that are defined in the Strategies application for the product, selected week, and locations, as set by the Level and Location field.

Level and Location

The Level and Location fields permit navigation up and down the supply chain for the product and selected week.

The Level field provides selection of the supply chain tier, for example, Warehouses or Stores.

You can select an individual or all of the locations within the selected level in the Location field.

Figure 1-24 Level and Location Fields



Policy Table

Each policy type (as defined in the Strategies application) will have a card on the Policies tab.

If policy types are defined or overridden, then they are displayed in a table. If none are defined, then an Override button is still available.

All tables share a common layout, including columns for:

Columns	Explanation
Stores/Warehouses	The locations that have defined policies.
Data Range	The dates for when the policy applies. Note that it is possible to not specify an end date if the policy is continual.
Policy Values	One column is provided for each field that is part of the policy (e.g., Presentation Stock).

Policies from the Strategies Application

All data directly from the Strategies application are displayed within the white Default Strategy tables.

Overridden Policies

All policy changes that have been made and published in the Inventory Planning application will be displayed in the table.



Note:

Only data that is after today's date can be deleted or edited.

Figure 1-25 Overrides Table

Location	Store	Date Range	Presentation Stock	Demo Stock
34415 - Asst		05/05/2023 - 05/15/2023	-	13

Unpublished Policies

Policy changes that have not yet been published in the AO Panel will be shown in the blue Unpublished table.

This data will be discarded if you close without publishing or generating a preview.

Data in this table can be deleted or edited.

Figure 1-26 Unpublished Table

Location	Store	Date Range	Presentation Stock	Demo Stock
34415 - Southpark HUB		05/05/2023 - 05/15/2023	-	22

Override

Use the Override button to input new policy overrides for the locations selected in the Locations field.

Click the Override button to display an edit area.

Figure 1-27 Override Button

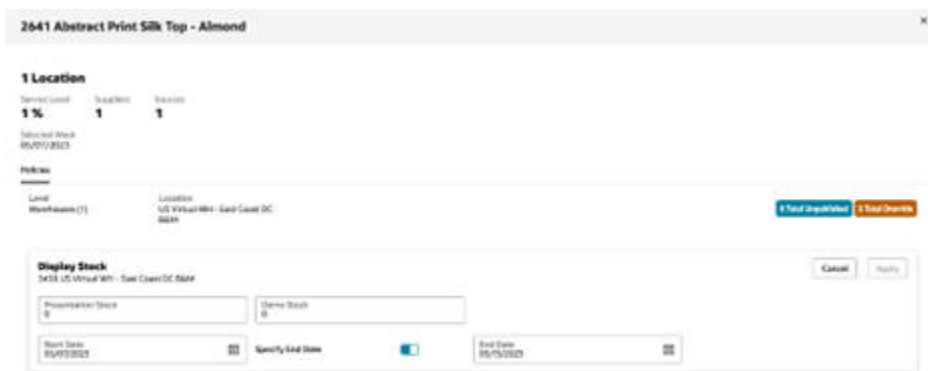


The Edit Area displays a number of fields that can be specified for the relevant policy type, including:

- **Policy Fields:** Fields that can each be altered.
- **Start Date:** The first date of the alteration.
- **Specify End Date:** A switch that allows no end date to be specified.
- **End Date:** The last date of the alteration (not displayed if the Specify End Date is toggled off).

All alterations must overlap with the AO Panel's Selected Week.

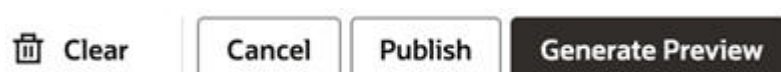
Figure 1-28 Edit Area



AO Panel Main Buttons

The main set of buttons are positioned at the bottom of the AO Panel. These perform operations upon the entire AO Panel.

Figure 1-29 AO Panel Buttons



Clear

Click the Clear button at the bottom of the AO Panel to clear all data from the tables on the AO Panel.

Only data after today's date is cleared.

Note that all alterations will be lost unless either the Publish or Generate Preview buttons are used.

Publish

When you use the Publish button, all alterations on the AO Panel will be used to adjust the plan.

This sends all AO Panel alterations to the Science application for integration into the plan.

A notification is created when any Publish action is completed or fails.

Generate Preview

When you use the Generate Preview Publish button, all alterations on the AO Panel are used to create a preview. The preview displays what will happen to the plan if the alterations are made.

This sends all AO Panel alterations to the Science application for the calculation of the preview.

A notification is created when any preview creation completes or fails.

Preview

A Preview displays a what if scenario, based upon the application of a set of alterations from an AO Panel to the plan.

Use the Preview Success Notification to open a preview.

A preview is based upon a single product for a set of locations; it opens in a new tab within the IP application.

Their design is similar to a Plan View, with many common features such as:

- Aggregate chart
- Aggregate area with supply chain navigation
- Individual area with supply chain navigation
- Promotions
- Edit metrics

Reject

Click the **Reject** button to discard and delete the preview. The preview can not be reopened once this action is complete.

Notifications

When the application performs an asynchronous operation that may take some time, it often creates a notification when it successfully completes or fails.

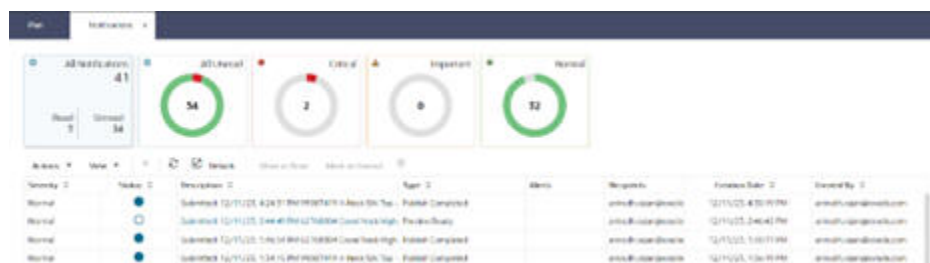
Some key notifications include:

- **Publish Completed.** A publish operation has successfully completed.
- **Review Ready.** A preview has successfully completed its calculations and is ready to be viewed. Clicking on this kind of notification will show the generated preview.
- **Failure.** Failure notifications are created when something errors during the calculation process. These often include the functionality that when clicked they retry the failed operation again.

Notifications Table

When you display the list of notifications in the left navigator, you can click **See All** (located at the bottom of the Notifications panel) to see the Notifications table. This provides a full list of the current notifications as well as further details.

Figure 1-32 Notifications Table



Workflows

This section describes the workflows.

View a Plan

Use the main plan view to perform the major part of your analysis. This view helps to break down the components of the inventory and provides insights into the calculated target stock levels (Order Point (OP) and Order Up to Level) that drive ordering. In this view you see receipts increasing inventory but also see the order recommendations on the order date. These order recommendations create demand on the source that can be viewed in the warehouse or supplier tab, depending on the location's source.

To view a plan, complete the following steps:

1. Launch the Inventory Planning application (see [How To Launch](#)).
2. Enter your time frame (see [Time Frame](#)).
3. Define the products and locations using the filter (see [Main Filter](#)).
4. Click **Apply** on the Main Filter to update the Plan View based on your choices.
5. Use the Cycle area arrows in the top right to navigate through the products (see [Cycle Area](#)).
6. The chart and tables always display information about the product that is in focus.
7. Use the Supply Chain tabs to inspect metrics from the supplier, warehouses, or stores (see [All Locations Table](#)).

Override Safety Stock Levels for Set of Stores

To override safety stock levels, complete the following steps:

1. View a plan that contains the desired product, locations, and time frame (see [View a Plan](#)).
2. Click the **Aggregate** table, in the Stores Tab column header for a week that overlaps the time that you wish to update.
3. The AO Panel is displayed. The level and location do not require updating (see [Advanced Options Panel](#)).
4. Scroll down until the Optimization Setting policy type is visible.
5. Click the **Override** button to the right of the Optimization Settings table (see [Policy Tables](#)).
6. The Edit Area is displayed.
7. Update the Min and Max fields as desired, along with the start and end dates for the time period for the changes.
8. Click **Apply** to redisplay the policy tables with the updates.
9. A new row appears in a unpublished table for the optimization settings.
10. Click the **Publish** button at the bottom of the AO Panel (see [AO Panel Main Buttons](#)).
11. When the processing is completed, a Publish Completed notification is created (see [Notifications](#)).
12. To see a plan that contains the updates, view a plan that contains the same product, locations, and time frame (see [View a Plan](#)).

Override Service Levels

To override Service Levels, complete the following steps:

1. View a plan that contains the desired product, locations, and time frame (see [View a Plan](#)).
2. Click the **Aggregate** table in the Stores Tab column header for a week that overlaps the time that you want to alter.
3. The AO Panel is displayed. The level and location do not require updating (see [Advanced Options Panel](#)).

4. Scroll down until the Service Level policy type is visible.
5. Click the **Override** button to the right of the Service Level table (see [Policy Tables](#)).
6. The Edit Area is displayed.
7. Update the Service Level field as desired, along with the start and end dates for the time period for which you want to make the changes.
8. Click **Apply** to redisplay the Policy tables with the updates.
9. A new row is displayed in an unpublished table for the Service Level.
10. Click the **Publish** button at the bottom of the AO Panel (see [AO Panel Main Buttons](#)).
11. When the processing is completed, a Publish Completed notification is created (see [Notifications](#)).
12. To see a plan that contains the updates, view a plan that contains the same product, locations, and time frame (see [View a Plan](#)).

Override Inventory Selling Days

To override Inventory Selling Days, complete the following steps:

1. View a plan that contains the desired product, locations, and time frame (see [View a Plan](#)).
2. Click the **Aggregate** table, in the Stores Tab column header for a week that overlaps the time that you want to update.
3. The AO Panel is displayed. The level and location do not require updating (see [Advanced Options Panel](#)).
4. Scroll down until the Optimization Settings policy type is visible.
5. Click the **Override** button to the right of the Optimization Settings table (see [Policy Table](#)).
6. The Edit Area is displayed.
7. Update the Inventory Selling Days field as desired, along with the start and end dates for the time period you want to update.
8. Click **Apply** to redisplay the Policy tables with the updates.
9. A new row appears in a Unpublished table for the Optimization Settings.
10. Click the **Publish** button at the bottom of the AO Panel (see [AO Panel Main Buttons](#)).
11. When the processing is complete, a Publish Completed notification is created (see [Notifications](#)).
12. To see a plan that contains the updates, view a plan that contains the same product, locations, and time frame (see [View a Plan](#)).

Generate a Preview

To generate a preview, complete the following steps:

1. View a plan that contains the desired product, locations, and time frame (see [View a Plan](#)).
2. Click the **Aggregate** table in the Stores Tab column header for a week that overlaps the time that you want to update.

3. The AO Panel is displayed. The level and location do not require updating (see [Advanced Options Panel](#)).
4. Scroll down until the policy type that you want to update is visible.
5. Click the **Override** button to the right of the Policy Type table (see [Policy Tables](#)).
6. The Edit Area is displayed.
7. Update the Policy fields as desired, along with the start and end dates for the time period you want to update.
8. Click **Apply** to redisplay the Policy tables with the updates.
9. A new row appears in a Unpublished table for the policy that you updated.
10. Click the **Generate Preview** button at the bottom of the AO Panel. These changes are made in a new preview only. This preview shows what happens if the updates are made (see [Generate Preview](#)).
11. When the processing is completed, a Preview Ready notification is created (see [Notifications](#)).
12. Click the **Notification** to launch the newly created preview that shows what the plan looks after the updates are published.
13. You can now inspect the preview to see the impact of the updates, then either reject, save and close, or publish (see [Preview Main Buttons](#)).

View Alerts

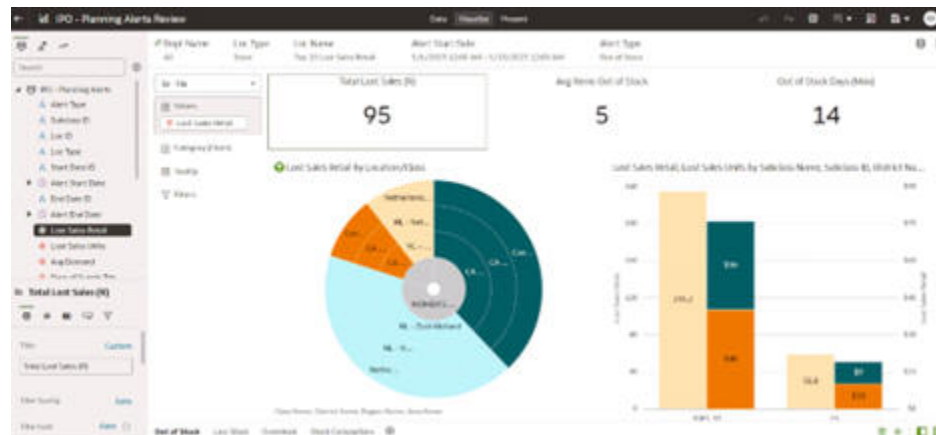
To view which alerts are current, complete the following steps:

1. Launch Retail Home.
2. Use the Application Navigator to launch OAS (Oracle Analytics).
3. Click **Catalog, Shared Folders**.
4. Click **IPO - Optimization**.
5. Open report **Inventory Alerts**

 **Note:**

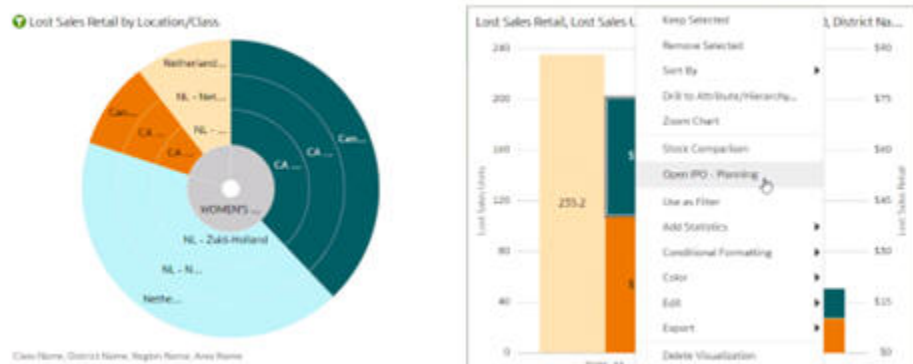
Depending on your implementation, this report may not be available. If it is available, it may be customized for your company's precise business process.

Figure 1-33 Alerts Reports



6. All current alerts will be shown.
7. To see these alerts in Inventory Planning, right-click the bar chart on the right and select **Open IPO - Planning**.

Figure 1-34 Launch into Inventory Planning



8. The Inventory Planning application will launch already filtered to the products and locations from the report.
9. Use the Cycle Area to select the desired product.
10. The Plan View will update to show information about that product.
11. Any alerts will be highlighted in the tables.

Resolve Alerts

Many inventory issues result from a difference in sales compared to the forecast. These issues tend to be resolved reactively with substitutions, manual inventory transfers, or even markdowns because the forecast is not perfect. Other issues arise from unplannable factors outside of your control such as product recalls, manufacturing issues, or shipping delays or errors. Similar manual resolutions ensue.

However, several potential issues can be seen when inventory projections are made into the future. These potential issues can be resolved proactively before they manifest into an actual shortage or overstock.

- Effectively defined alert thresholds ensure that these issues will be highlighted for you.
- Other key items, hot buys, or new product introductions that are on your daily or weekly to-watch list may not break the alert thresholds but can follow the same analysis to adjust inventory to a more suitable level.

While each situation requires expert knowledge of the business goal, use the following recommendations to get started considering the best resolution to projected inventory issues. These recommendations may resolve a particular problem; however, the same frequently occurring inventory issue will require additional analysis of the supply chain inventory levels, supplier compliance, and potential shipping issues before resorting to a long term policy override.

1. Use the Plan View to review the forecasted sales and inventory.
2. Where an inventory issue is identified, use the Order Point (OP) and Order Up to Level (OUTL), on or just before the problem occurs, to identify when the minimum (OP) and target inventory levels (OUTL) do not align with forecast sales and desired service level.
3. When OP or OUTL requires adjusting, open the AO Panel by clicking in the cell of the review day/item/location(s) that require adjustment.
4. When an issue occurs in a large concentration of stores, the warehouse stock levels could be an issue. Consider reviewing the warehouse replenishment policies and follow the same recommendations.

Issue	Replenishment Method	Policy Adjustment
Out of Stock	Min/Max	<ul style="list-style-type: none"> • Create a Stock Level Override, set Increment % to a value greater than 1 to increase OP / OUTL to align with increased forecasted sales.
	Time Supply	<ul style="list-style-type: none"> • Ensure that Max Safety Stock Units/Days is not constraining OP, allowing inventory to get too low before re-ordering. • Create an Optimization Setting override, increase Inventory Selling Days (relative to Max Time Supply) to increase OUTL.
	Dynamic	<ul style="list-style-type: none"> • Ensure that Max Safety Stock Units/Days is not constraining OP, allowing inventory to get too low before re-ordering. • Create an Optimization Setting override, increase Inventory Selling Days to increase OUTL
Low Stock	Min/Max	<ul style="list-style-type: none"> • Create a Stock Level Override, set Increment % to a value greater than 1 to increase OP / OUTL to align with increased forecasted sales.

Issue	Replenishment Method	Policy Adjustment
	Time Supply	<ul style="list-style-type: none"> • Ensure that Max Safety Stock Units/Days is not constraining OP, allowing inventory to get too low before re-ordering. • Optionally, <ul style="list-style-type: none"> – create an Optimization Setting override, increase Inventory Selling Days (relative to Max Time Supply) to increase OUTL. This creates a fixed target for inventory days of supply. – or create an Optimization Setting override, set Min Safety Stock Units or Days to a value that helps to carry extra stock for volatile sales or shipping delays. This allows inventory days of supply to more flexibly adjust while ensuring a minimum level of safety stock is achieved to reduce the chance of an out of stock.
	Dynamic	<ul style="list-style-type: none"> • Ensure that Max Safety Stock Units/Days is not constraining IP, allowing inventory to get too low before re-ordering. • Optionally, <ul style="list-style-type: none"> – create an Optimization Setting override, increase Inventory Selling Days to increase OUTL. This creates a fixed target for inventory days of supply. – or create an Optimization Setting override, set Min Safety Stock Units or Days to a value that helps to carry extra stock for volatile sales or shipping delays. This allows inventory days of supply to more flexibly adjust while ensuring a minimum level of safety stock is achieved to reduce the chance of an out of stock • In rare cases, create a Service Level override to increase Service Level for key in-stock periods e.g. holiday
Overstock	Min/Max	<ul style="list-style-type: none"> • Create a Stock Level Override, set Increment % to a value less than 1 to decrease OP / OUTL to align with a slow period of forecasted sales.
	Time Supply	<ul style="list-style-type: none"> • Ensure that Min Safety Stock Units/Days is not increasing OP undesirably. • Optionally, <ul style="list-style-type: none"> – create an Optimization Setting override, decrease Inventory Selling Days (relative to Min Time Supply) to decrease OUTL. This creates a fixed target for inventory days of supply. – or create an Optimization Setting override, set Max Safety Stock Units or Days to a value that helps limit the ordering frequency by helping to limit OP.

Issue	Replenishment Method	Policy Adjustment
	Dynamic	<ul style="list-style-type: none"> • Ensure that Min Safety Stock Units/Days is not increasing OP undesirably. • Optionally, <ul style="list-style-type: none"> – create an Optimization Setting override, decrease Inventory Selling Days to decrease OUTL. This creates a fixed target for inventory days of supply. – or create an Optimization Setting override, set Max Safety Stock Units or Days to a value that helps limit the ordering frequency by helping to limit OP. • In rare cases, or nearing end of life, create a Service Level override to decrease Service Level. This will reduce inventory but could increase risk of out of stocks if actual sales increase.

**can only take affect for review days

Glossary of Inventory Planning Terms

This table provides definitions for many of the terms that are used in this documentation and the Inventory Planning UI.

Term	Definition
Alert	Alerts are defined in the Strategies application. Each Alert has trigger conditions (e.g., stock level dropping below a threshold) that also includes the set of products and locations to which it applies. See Strategies User Guide for further details.
AO Panel	The abbreviation for the Advanced Options Panel.
Average Service Level	The average of the service levels during the selected week.
Backorder	Inventory that was already sold but could not be fulfilled due to there being no physical inventory at the time of sale.
Constrained Demand	Total constrained demand used by the Distribution Engine to calculate inventory positions (and order boundaries within lead time). For stores this is the forecast demand. For warehouses this is constrained demand from destinations.
Demand	The total amount of forecasted demand.
Demo Stock	Stock that cannot be sold.
Filter Selection	The Main filter allows the scope of the Plan View to be restricted to a subset of products and locations. This is also known as the Filter Selection.

Term	Definition
Inventory (BOP)	Beginning of day inventory at a location. It is Stock on Hand, or yesterday's Inventory (BOP) + all inbounds yesterday - all demands yesterday. Inventory is never negative.
Lost Sales	day's inventory + inbound available - demand
Lost Sales % of Demand	Lost Sales / Total Demand
Order Forecast	Constrained demand on source (including supplier). Calculated based on the (constrained) Receipt Forecast, the Order Forecast shows when users can expect their transaction to be generated.
Order Point (OP)	Order Point.
Order Up To Level (OUTL)	Order up to level.
Plan View Scope	The filter selection and the time frame that restrict the results on the Plan View.
Presentation Stock	Input to Replenishment engine from strategies/RMS.
Receipts Expected	On-Order Inventory at the destination location shown on the day that it should arrive.
Receipts Forecast	Forecasted Inventory that is constrained by the Order and Distribution Plan. This inventory does not live on a transaction yet. The Forecasted Receipts are shown on the day that they should arrive at the destination location.
Safety Stock	Based on the identified need and the volatility in sales for this is additional units that are needed to ensure lost sales do not occur.
Safety Stock % of Demand	Safety stock units as a % of demand (total demand) over review time.
Selected Week	This is the week that the AO Panel is focused upon. The AO Panel always displays data based upon the entire week of the cell that was selected to launch it.
Time Frame	The period between the from and to dates. These are shown at the top of the Plan View.
Total Demand	Total or all unconstrained demand used by the Distribution Engine to calculate safety stock and order boundaries.

2

Inventory Planning Optimization-Inventory Optimization

This guide describes the use of Inventory Planning Optimization-Inventory Optimization (IPO-IO). For details about the implementation of IPO-IO, see *Oracle AI Foundation Cloud Services Implementation Guide*.

Overview

Inventory Planning Optimization-Inventory Optimization (IPO-IO) determines the optimal time-phased replenishment plan that consists of the replenishment policies, that is, the reorder point (RP) and receive up-to level (RUTL), and the recommended order quantity for PO and transfers at item/location/day level for the configurable planning horizon. The optimal plan is generated using simulation and optimization methods and considers inputs such as supply chain network, replenishment attributes, and business rules. Moreover, the optimization engine uses machine learning methods and simulation-based optimization to calculate the trade-offs between the service level and the inventory cost for different replenishment policies. The trade-off analysis is leveraged to generate the optimal replenishment policies for achieving a desired target service level. In addition to the replenishment plan, IPO-IO recommends optimal rebalancing transfers between stores to increase sell-through and to avoid markdowns. This type of recommendation can be turned off when not applicable (for example, for grocery categories).

The data-driven replenishment policies, PO/transfers, and rebalancing transfers are pushed to Oracle Retail Merchandising System (RMS) to execute purchase orders and transfers. Optionally, the retailer can choose to send only the replenishment policies to RMS and have the final order quantity and PO/transfers be calculated and generated in RMS.

IPO-IO leverages historical sales, inventory positions, replenishment attributes such as lead time and review schedule, business requirements such as store priorities for shortfall reconciliation, and the demand forecast to generate the optimal time-phased replenishment plan. The demand forecast that is generated by the forecast engine within AI Foundation considers different factors such as price effect, holidays, and promotions, and variation across customer segments.

Users

User roles are used to set up application user accounts through Oracle Identity Management (OIM). See *Oracle Retail AI Foundation Cloud Services Administration Guide* for details.

User roles are used to set up application user accounts through Oracle Identity Management (OIM). See *Oracle Retail Advanced Science Cloud Services Administration Guide* for details. User must have the following roles assigned.

- ADMINISTRATOR_JOB in order to access Control & Tactical Center.
- INVENTORY_ANALYST_JOB in order to access IPO-IO application.

In addition to above roles, verify the following:

- Access to Innovation Workbench and/or Data Visualizer. This is necessary in order to query or visualize the data and verify that the data loaded matches the desired expectations.
- Access to POM to execute ad hoc and batch jobs. The POM UI url is something like <host>/POMJetUI. If the user cannot access the POM UI, contact the administrator to obtain the relevant access/user roles.

What is a Run

A Run is the execution of a set of system calculations to generate recommendations based on the latest available inputs.

IPO-IO supports two kinds of runs: user runs and batch runs. Batch runs are scheduled to run automatically at regular intervals (for example, weekly or daily). By default, the batch runs are scheduled for daily execution. User runs are typically created by the user to do what-if analysis and/or to override the recommendations generated by the latest batch run. IPO-IO runs generate recommendations at the item-location level. The items that are included in a run can be selected by specifying one, a multiple, or all of the nodes at a higher merchandise level, such as department. This level is configurable. Similarly, the locations that are to be included in a run can be selected by specifying one, a multiple, or all the nodes at a higher location level, such as area. This level is configurable.

Output of IPO-IO Run Results

IPO-IO runs generate one or multiple type of recommendations, as described below. The type of analysis to be done in a run is selected in the UI (for ad-hoc runs) or determined by configurable flags (for batch runs).

Time-Phased Planning

Time-phased planning is the main type of analysis that must run as part of the batch, so the replenishment policies and PO/transfers are generated daily. The time-phased planning optimizes the distribution of inventory through the life cycle for every SKU and throughout the entire supply chain network. It provides point-in-time and time-phased purchase orders and transfers (warehouse-to-store and warehouse-to-warehouse),

The number of item-locations that are processed in each run can vary, based on the retailer's review schedule. During each run, only the item-locations that are due for review for replenishment on the next day are processed. For example, a run that is scheduled for a nightly batch on Sunday 01/08/2024 would generate optimal replenishment plan for item-locations that have a next review date of Monday 01/09/2024 in the retailer's replenishment system. This allows the end user to review and approve the policies and/or PO/transfers that were not auto-approved on Monday before they are pushed to the replenishment system for generating and executing orders.

The replenishment policies are characterized by two parameters: re-order point (RP) and receive up-to level (RUTL). These parameters are optimized and generated at the sku-location and can be reviewed and approved by the user or may be auto-approved. The auto/user approved policies can be exported to the MFCS to generate and execute transfers and purchase orders. If the user approves the recommended PO/

transfers within IPO-IO, the approved orders can be exported to the MFCS. There are separate jobs for the export of replenishment policies, PO, and transfers so they can be enabled based on the business requirements.

**Note:**

Truck scaling is executed by default after the time-phased planning run finishes. There is no option to enable/disable the truck scaling process.

Trade-Off Analysis

These curves show the trade-off between metrics such as inventory cost and sales revenue for different target service levels. Trade-off curves are generated at the sku-location as well as the aggregate level of merchandise and location.

The trade-off analysis is not the kind of process that must be run daily because the changes in sales patterns, replenishment rules, and supply chain network are not that frequent. Therefore, it is typically recommended that the optimal trade-off curves updated quarterly or when there is a major change in one of the factors mentioned above.

Rebalancing Transfers

Rebalancing transfers are the transfers between stores. The goal of rebalancing transfers is to shift unproductive inventory and place it in locations that have a higher likelihood of selling and with a better margin, while minimizing the total cost of transfers (for example, shipping costs and any up-charges). Rebalancing transfers are generated at the sku-origin-destination level. The user can review the recommended rebalancing transfers and approve them. The approved transfers are pushed to the retailer's execution system.

Workflow

The IPO-IO workflow starts with the completion of a scheduled run or by the manual creation of a new run. Once a run has completed, you can view the recommendations of the run in the Run Output screen.

You can review recommendations that have not met automatic approval rules (auto-approve applies to replenishment policies only) and you can override the order quantity and/or approve the PO, transfers, and rebalancing transfers. Use Forecast Overview and Inventory Overview to support your analysis of the recommendations.

Figure 2-1 shows an overview of the IPO-IO UI workflow, which consists of the following:

- **Run Overview:** This is the dashboard for the IPO-IO runs. In this tab, the user can see a list of all existing runs, along with details that describe each run.

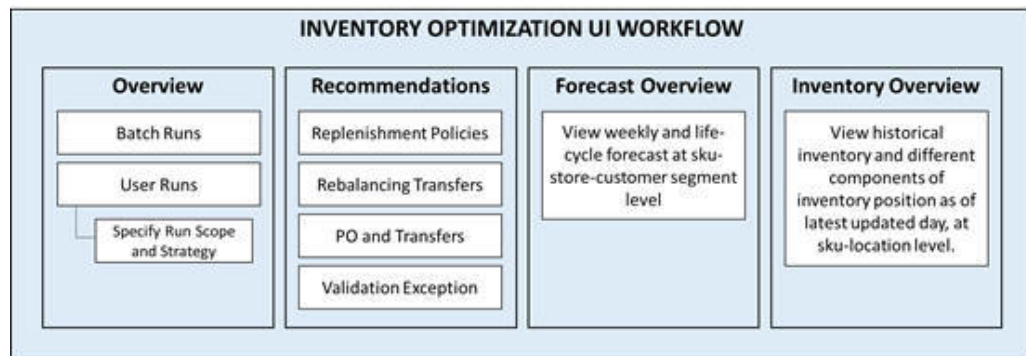
From the run overview table, the user can create a run, copy a run, open a run, or delete a run. When the user clicks on a successful run, it is opened in a new tab with three sub-tabs to show replenishment policies, rebalancing transfers, and PO and transfers, as well as a sub-tab to show the summary of inputs of the run. For a failed run, only the input summary sub-tab is displayed. To create a run, the user must specify the run scope, that is, the merchandise and location nodes for the run and the type of analysis to be performed.

- **Recommendations:** This is the main screen where the user can view, override, and approve different types of recommendations. This screen shows the recommendations

for each product from the latest successful run. If the user approves a different recommendation (from another run in the run output screen), it will override the recommendation of latest successful run and will appear in the recommendations tab. This screen consists of five sections.

- **Overview.** A calendar view that shows the summary of different type of recommendations and provides a link for the user to open and view the details of recommendations for each date.
 - **Replenishment Policies.** Used to review and approve replenishment policies.
 - **Rebalancing Transfers.** Used to review, override, and submit/approve rebalancing recommendations.
 - **PO/Transfers.** Used to review, override, and submit recommended PO and transfers. These include warehouse/supplier to store and warehouse/supplier to warehouse.
 - **Validation Exception.** When the user overrides the recommended order quantity for rebalancing, PO, or transfers, the overridden value may exceed the available supply at the origin or may be more or less than the quantity needed at the destination. In the validation exception section, the user can see these types of warnings and revert the override if desired.
- **Inventory Overview:** Used to view the inventory levels and the historical trend of the inventory at the item-location level.
 - **Forecast Overview:** Used to view the demand forecast of the item-locations and the historical trend of sales across all customers as well as for each customer segment.

Figure 2-1 IPO-IO UI Workflow

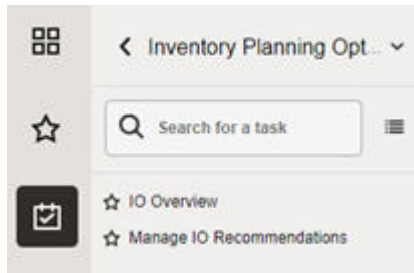


Overview of the User Interface

The IPO-IO interface can be accessed through the AI Foundations Cloud Service Task menu. This opens the IPO-IO application interface.

Within the Task Menu in the main dashboard, the IO Overview and IO Recommendations links are available, as shown in the following figure.

Figure 2-2 Task Menu



IPO-IO Overview

From Inventory Optimization, select IO Overview to access the Run Overview screen, shown in Figure 2-3. Use this screen to examine the list of runs, open the Run Output screen to review the details of a run's output, and create a new run.

You see tiles for Run Overview, Recommendations, Inventory Overview, and Forecast Overview, as well as a panel on the right that lists Recent Successful Runs.

Run Overview

When you click on the Run Overview tile, the Run Overview table is displayed. The Run Overview table provides information described in the table below.

Figure 2-3 Run Overview

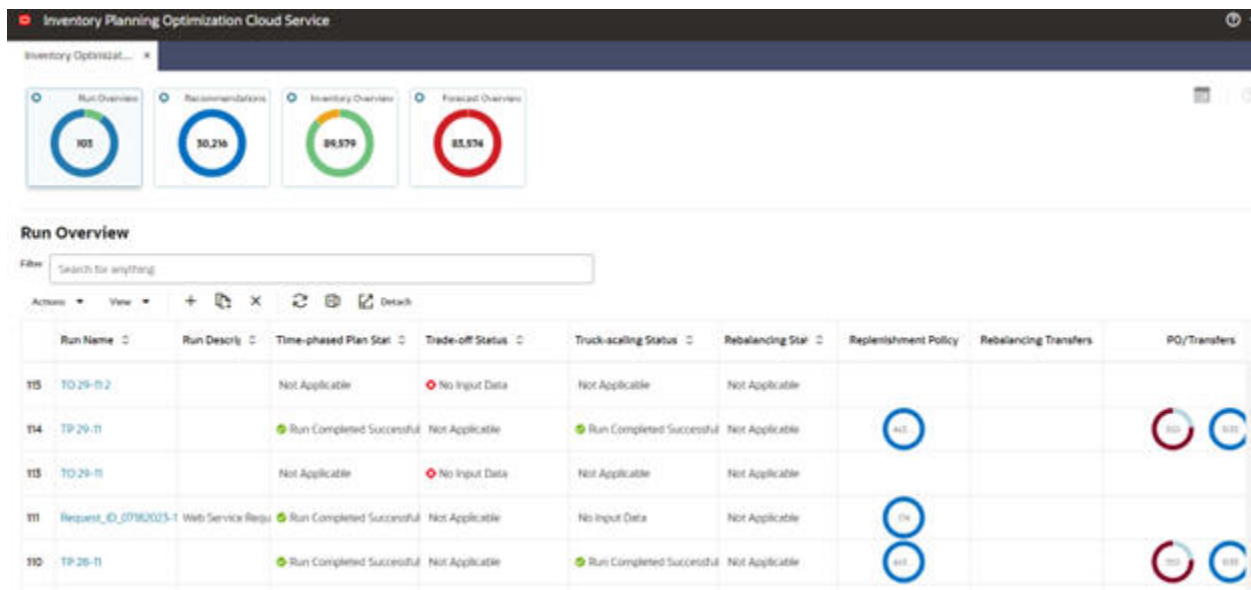
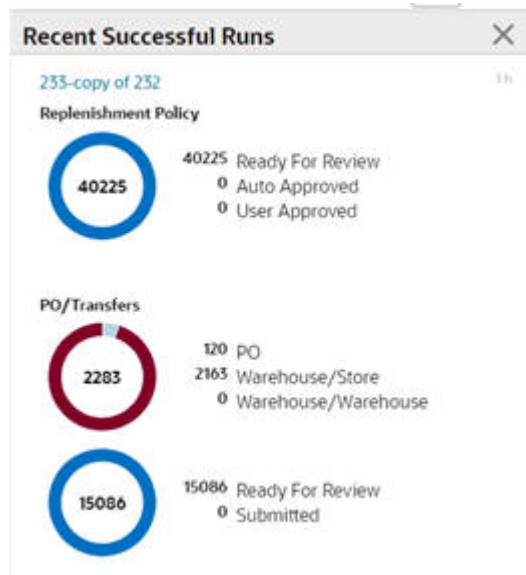


Table 2-1 Run Overview Table

Column	Description
Run Name	Click the run name to open the run and see the run details.
Time-phased Plan Status	The status of the time phased analysis within that run. Values are Not Applicable, Setup, Preparing Data, Run in Progress, Run Completed Successfully, Partially Successful, Run Failed.
Trade-off Status	The status of the trade-off analysis within that run. Values are Not Applicable, Setup, Preparing Data, Run in Progress, Run Completed Successfully, Partially Successful, Run Failed.
Truck-scaling Status	The status of the truck scaling which runs after time-phased planning becomes successful/partially successful. Values are Not Applicable, Setup, Preparing Data, Run in Progress, Run Completed Successfully, Run Failed.
Rebalancing Status	The status of the inventory rebalancing within that run. Values are Not Applicable, Setup, Preparing Data, Run in Progress, Run Completed Successfully, Run Failed.
Replenishment Policy	Displays the total number of recommendations for replenishment policies at the SKU/location level, with a breakdown by approval status (auto-approved, user-approved, ready for review).
Rebalancing Transfers	Displays the total number of rebalancing recommendations at the SKU-origin/destination level, with a breakdown by approval status (user-approved, ready for review).
PO/Transfers	Displays the total number of PO/transfer recommendations with a breakdown by approval status (user-approved, ready for review), as well as a breakdown by recommendation (PO, warehouse-to-store, warehouse-to-warehouse).
Run Description	User-provided information.
Created On	Date the run was created.
Created By	User login name of person creating the run.

Recent Successful Run

This panel, shown in [Figure 2-4](#), provides a graphic representation summarizing the results for recent successful runs that were completed in the last X days (determined by configuration RECENT_RUNS_DAYS_BACK in RSE_CONFIG). The numbers shown in the contextual area are same as the numbers shown in the run overview table. See [Table 2-1](#) for description of these numbers.

Figure 2-4 Recent Successful Runs

Run Output

To see the output of a run, click a run name in the All Runs table or the contextual area in the Run Overview screen. The run output opens in a new tab with four sub-tabs. The first three sub-tabs show the three types of recommendations generated by the run. These sub-tabs are counterparts to the three sections (Replenishment Policy, Rebalancing Transfers, and PO/Transfers) in the Recommendations screen. In the Recommendation screen, for each product you can see the recommendations from the latest successful run. In the Run Output screen, the recommendations specific to a certain run are shown. When you approve a recommendation (replenishment policy, PO, or transfer) in a run, it replaces the previously approved recommendation. Details regarding the four sub-tabs in the Run Output screen are explained below.

Replenishment Policies Tab

The Replenishment Policies tab provides information about replenishment policies, which are characterized by two parameters: re-order point (RP) and receive up-to level (RUTL). These parameters are optimized and generated at the sku-location level.

In this screen you can review the parameters and select one or multiple policies from the table and click the Approve button to approve them. If there is already an approved replenishment policy for the selected SKU/locations, it will be replaced by this new policy. In order to approve replenishment policies for all SKU/locations that match the selected filters, click the Approve All button.

The following columns are displayed in the Replenishment Policies tab. For a description of many of these columns, see [Glossary of Inventory Optimization Terms](#)

- SKU Name
- Location
- Loc. Type
- Replenishment Method

- Presentation Stock
- Demo Stock
- Safety Stock
- RP
- RUTL
- FCST LT
- Fcst. Coverage Per.
- Coverage Per. Start DT
- Coverage Per. End DT
- Lead Time
- Review Time
- Target Service Level
- Primary Source
- Actual Sales Units W-1
- Actual Sales Units W-2
- Actual Sales Units W-3
- Actual Sales Units W-4
- Fcst. Sales Units W+0
- Fcst. Sales Units W+1
- Fcst. Sales Units W+2
- Fcst. Sales Units W+3
- Approved On
- Approved By
- Run
- Calculation Date

Rebalancing Transfers Tab

The Rebalancing Transfers are transfers between stores You can use the **Table View** and the **Map View** buttons to change the presentation in this tab. The Map View and Table View are explained in the Recommendations Section and shown in Figures **12.9** and **12-10**.

The following columns are displayed in the Rebalancing Transfers tab. For a description of many of these columns, see [Glossary of Inventory Optimization Terms](#)

- Recommendation ID
- Date
- Origin
- Destination
- SKU
- Color

- User Quantity
- System Quantity
- Shipping Cost
- Forecast Sales Units at Destination
- Fcst. Deficit at Destination
- On-Hand Quantity at Destination
- In-Transit Quantity at Destination
- On-Order Quantity at Destination
- Back-Order Quantity at Destination
- Forecast Sales Units at Origin
- Forecast Surplus Units at Origin
- On-Hand Quantity at Origin
- In-Transit Quantity at Origin
- On-Order Quantity at Origin
- Back-Order Quantity at Origin
- Approved On
- Approved By

PO/Transfers Tab

The purchase orders and transfers are the recommended purchase orders and transfers that are generated based on the optimal replenishment policies, inventory positions, and primary and secondary sources of replenishment for the store and other factors.

The following columns are displayed in the PO/Transfers tab. For a description of many of these columns, see [Glossary of Inventory Optimization Terms](#)

- Origin
- Destination
- SKU
- System Order Qty
- Truck Scale Qty
- User Order Qty
- Submitted Order Qty
- Unconst, Need
- Presentation Stock
- Demo Stock
- Safety Stock
- RP
- RUTL
- Fcst. LT (fcst_lt)

- Fcst. Coverage Per. (fcst_rt_lt)
- Coverage Per. Start DT (fcst_rt_lt_start_dt)
- Coverage Per. End DT (fcst_rt_lt_end_dt)
- Lead Time
- Review Time
- Target Service Level
- Actual Sales Units W-4
- Actual Sales Units W-3
- Actual Sales Units W-2
- Actual Sales Units W-1
- Fcst. Sales Units W+0
- Fcst. Sales Units W+1
- Fcst. Sales Units W+2
- Fcst. Sales Units W+3
- OH Qty at Dest.
- In-transit Qty at Dest
- On-order Qty at Dest
- Back-order Qty at Dest
- OH Qty at Origin
- In-transit Qty at Origin
- On-order Qty at Origin
- Back-order Qty at Origin
- Date
- Expected Delivery Date
- Activate Date
- Deactivate Date
- Approved On
- Approved By
- Run Name

ScopeTab

The Scope tab provides a summary of scope and strategy that were specified for the run when run was created. It shows selected product/location nodes and type of analysis within that run.

Recommendations

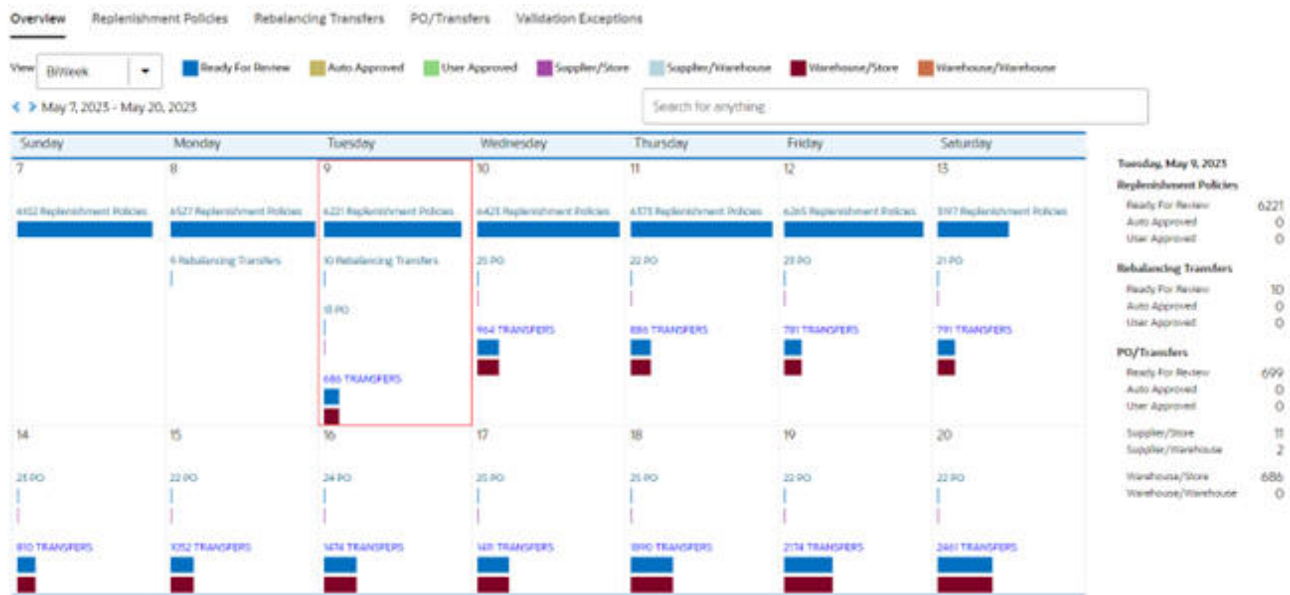
Recommendations are the outputs of a run. In the Overview tab, recommendations are summarized by status and type to help the users prioritize their work.

Next to the Overview tab are tabs for each recommendation type. Use these tabs and their filters to review the specific metrics of each recommendation to decide whether to modify or accept the recommendation.

Overview

The Overview section shows the Calendar. You can change the view for the calendar by selecting Week, Biweek, or 4 Weeks. The calendar provides details about all types of recommendations for the current date and future dates. The user can see the number of recommendations for different types and different submit/approval statuses in the panel on the right. For each day in the calendar, click the link of a recommendation type to open the corresponding panel.

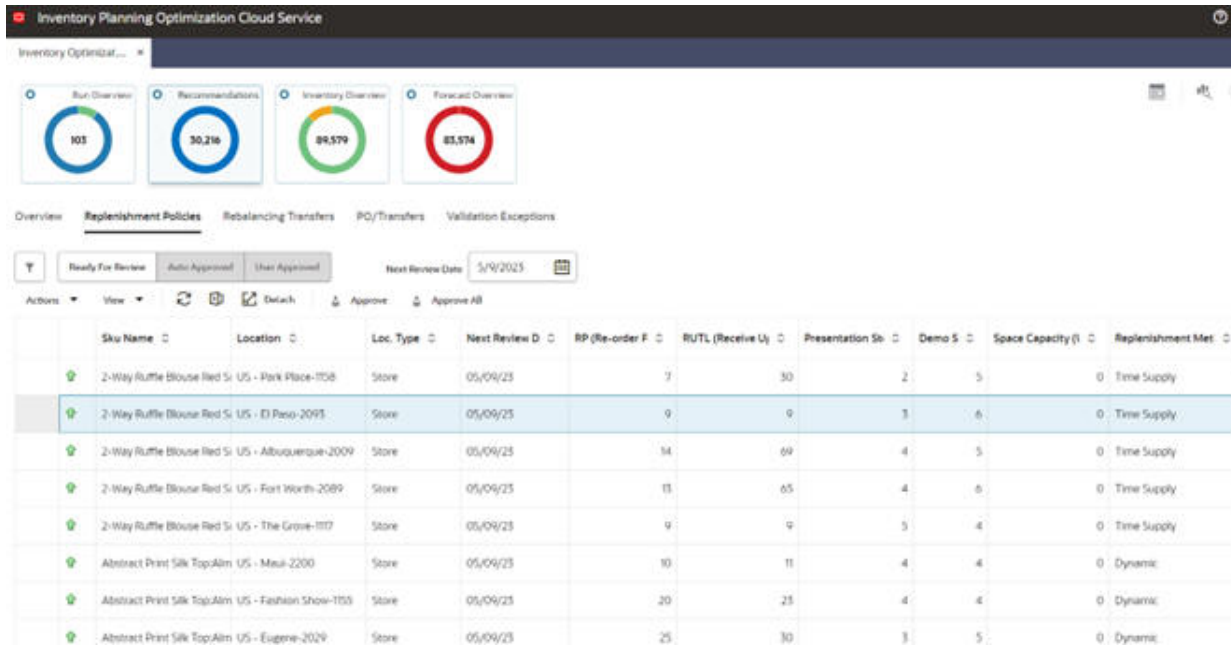
Figure 2-5 Calendar



Replenishment Policies

This section shows the replenishment policies at the sku-store level and the underlying data that is used for the calculations (sales forecast, service level, lead time, and so on).

Figure 2-6 Replenishment Policies



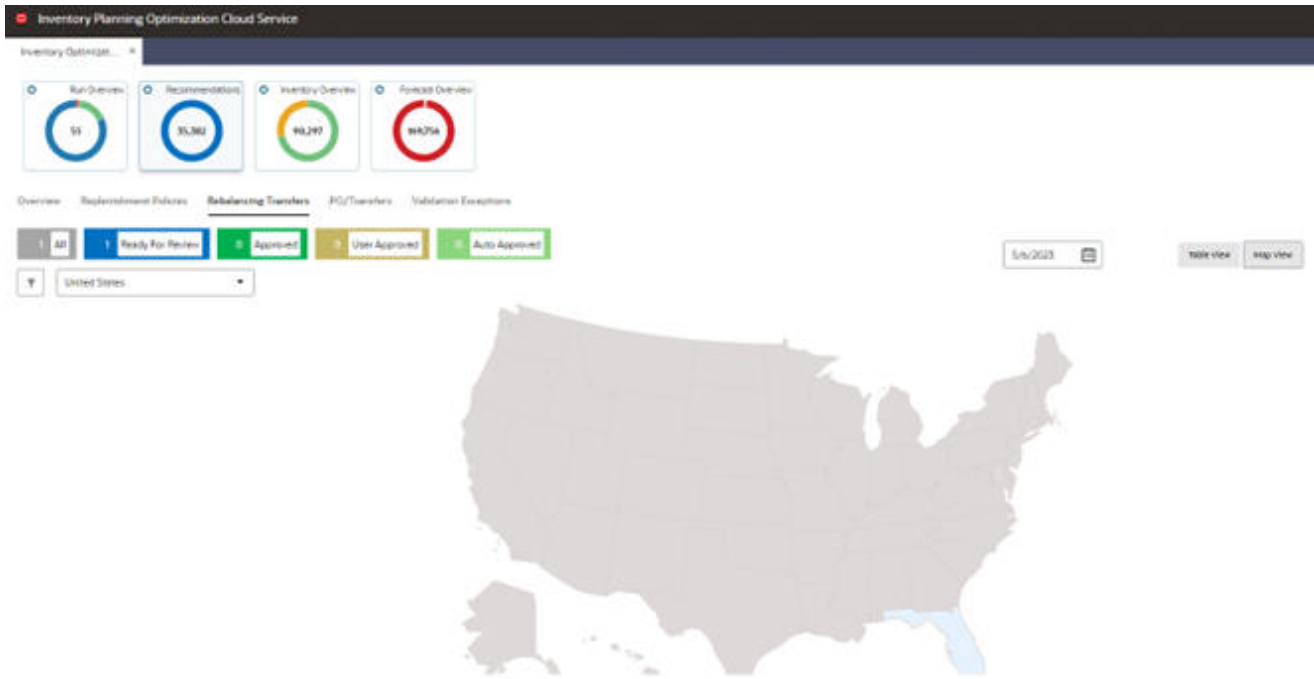
The contextual area displays the trade-off analysis at the sku-store level and higher levels of merchandise and location that are configured during implementation. The trade-off curves indicate how the lost sales and inventory units change for different target service levels. To see the same graphs for amounts rather than units, use the toggle buttons at the top of the contextual area.

Other graphs in the contextual area show historical sales and inventory as well as the historical service level for the sku-store selected in the table.

Rebalancing Transfers

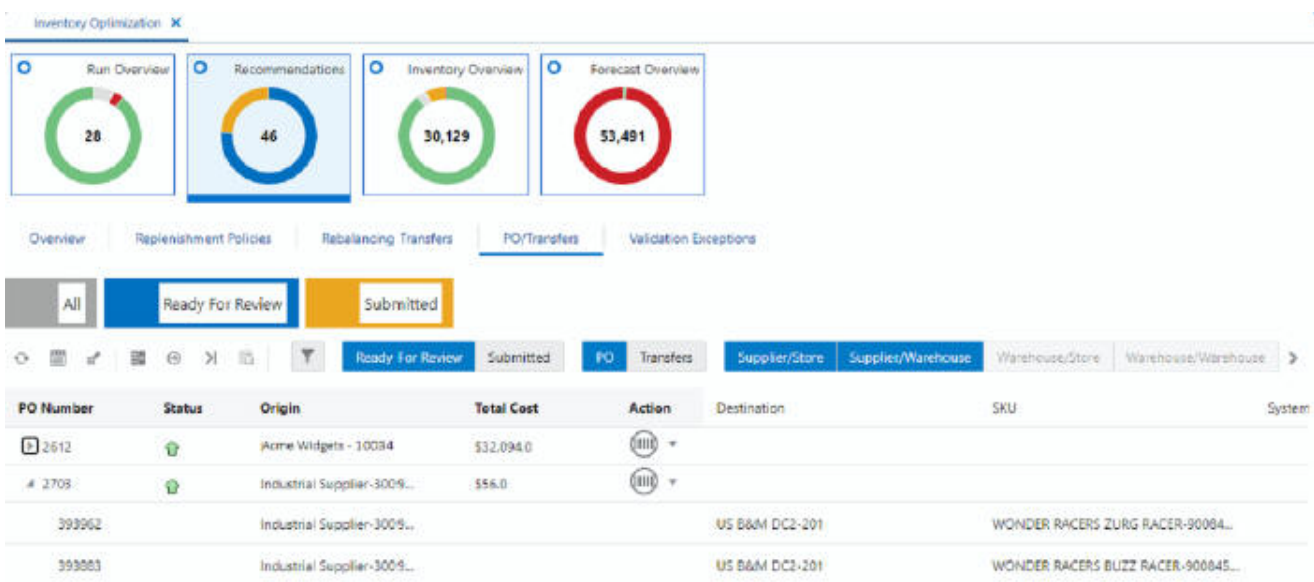
The Rebalancing Transfers section has two views, the Table View and the Map View. To switch between Table View and Map View, use the buttons located in the top right.

Figure 2-7 Rebalancing Transfers Map View



The Table View displays the recommended store-to-store transfers. The user can override the transfer quantity and submit or approve the recommendation. If submitted, the transfers are pushed to the retailer's order execution system and must be approved before they are executed. If approved, the transfers are pushed to the retailer's execution system in approved mode and will be executed on the transfer date.

Figure 2-8 Rebalancing Transfers Table View



The number tiles above the table shows the total number of recommendations with different statuses across all merchandise and locations.

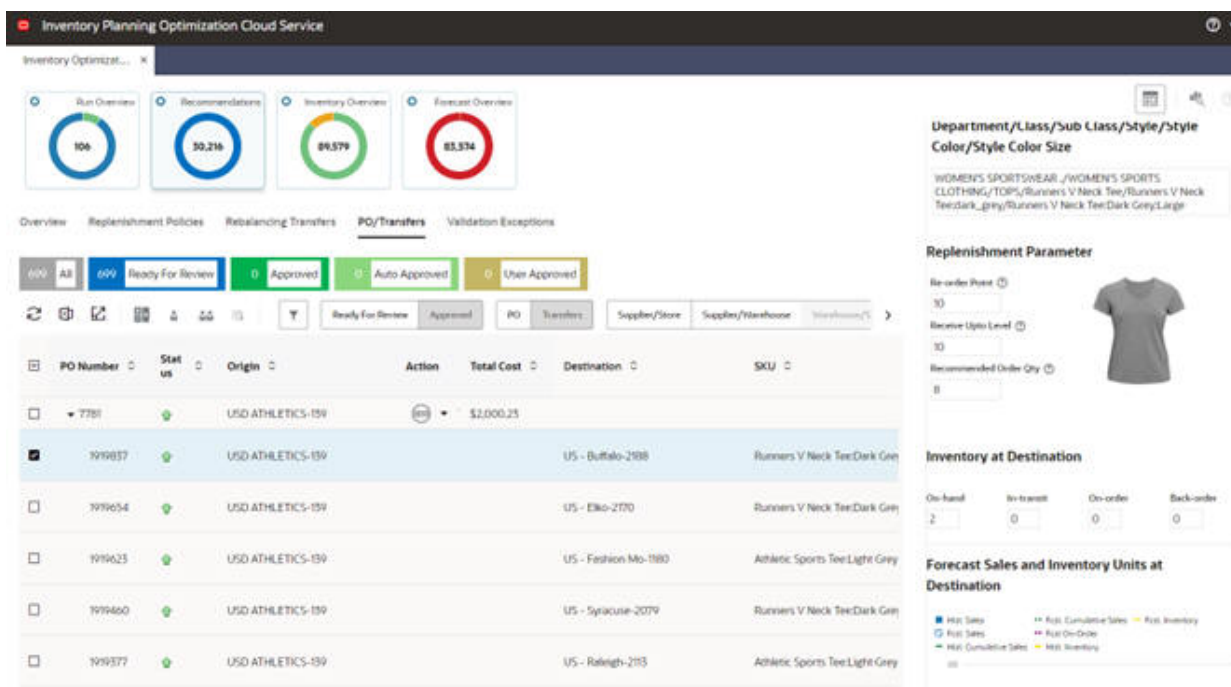
The Map View displays the number of transfers within each area of the map (for example, within each state of the United States). If a transfer is between two different areas, it is only included in the area where the origin is located. Clicking on an area in the map opens a pie chart that shows the breakdown of transfers based on transfer quantity.

In the contextual area of the table view, the top area shows the flow of inventory between the origin and the destination, as well as to and from other origins and destinations. The bottom area in the contextual area shows information such as product image, inventory quantities, and forecast sales at the destination. To see a more detailed view of sales and forecast and both the origin and the destination, you can click the View More Details button at the bottom of the contextual area.

PO and Transfers

The PO and Transfers section displays the recommended purchase orders (supplier-to-warehouse and supplier-to store) and transfers (warehouse-to-warehouse and warehouse-to-store).

Figure 2-9 PO and Transfers



The user can override the order quantity of line items and approve the PO or the transfer.

The number tiles above the table shows the total number of recommendations with different statuses across all merchandise and locations.

The contextual area displays similar data and graphs to the contextual area of rebalancing transfers. (The contextual area is described in detail in “Rebalancing Transfers”.)

 **Note:**

In all screens that show a contextual area for the selected row of a table, you can use the icon at the top right corner of the contextual area to switch between the graph view and the single recommendation view.

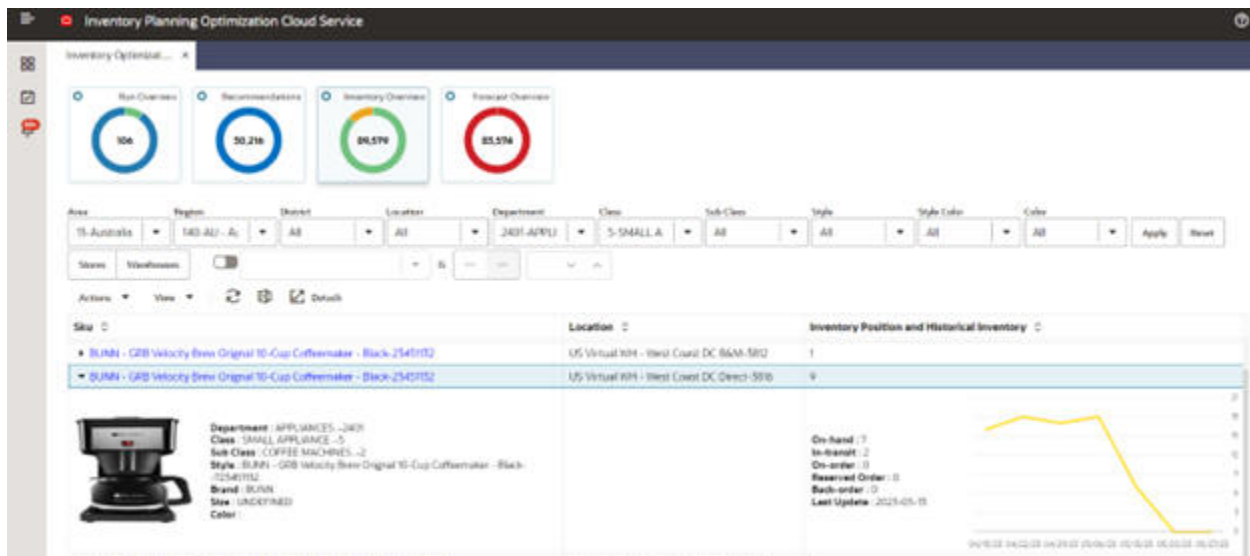
Validation Exception

When the user can override the quantities and approves Po/transfers, it is possible that the overridden quantities result in an over-stock (sending more than required to a destination), under-stock (sending less than required to a destination), or under-supplied (pulling more than available from a warehouse). These exceptions are shown in the Validation Exception tab. The user can disregard the exceptions so that they no longer appear in the table or can revert the quantity to the system quantity for all recommendations that are tied to an exception.

Inventory Overview

The Inventory Overview is a view-only screen that displays historical inventory data at the sku-location level.

Figure 2-10 Inventory Overview



You can filter the data based on the hierarchy or the on-hand, on-order, in-transit, reserved order, or back-order type of inventory quantity. You can select Store or Warehouse or both. You can use the numeric filter by selecting the type of inventory quantity and the type of operation (\leq or \geq), then enter a numeric value and click **Apply**.

You can expand the display at the SKU level. You can see the hierarchy for SKU and location as well as details about the inventory and when the data was last updated.

The donut shows locations that either have stock-outs and/or back-orders or do not have any stock-outs or back-orders.

Forecast Overview

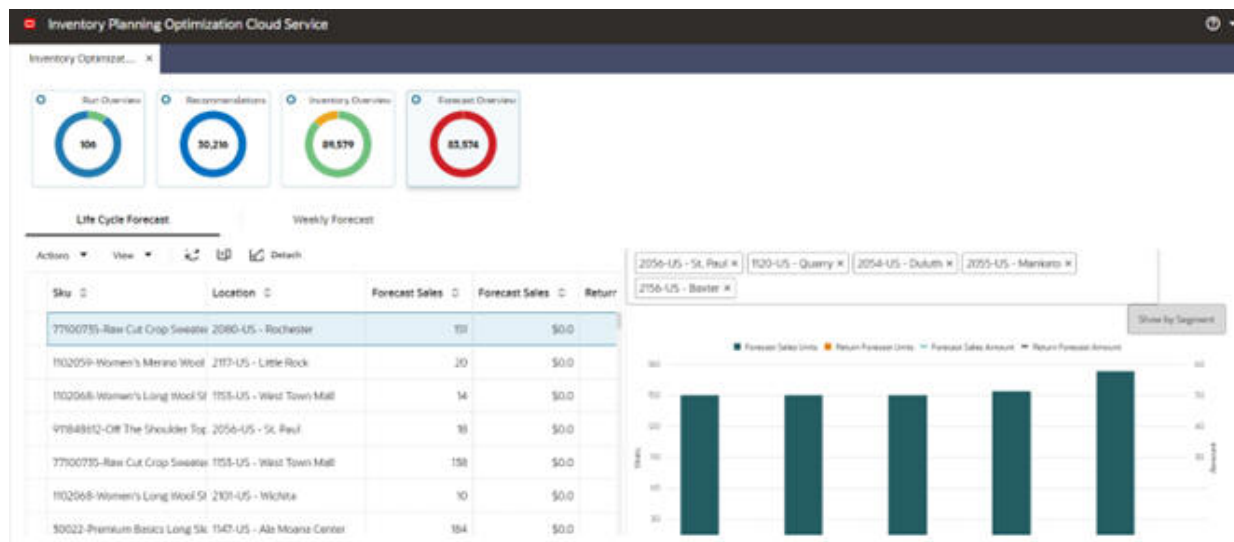
Users can see forecast and historical sales at the sku-store-customer segment level and historical and forecast rate of returns at sku-store level. These metrics can be viewed at the week level or for the life cycle, which are represented by separate tabs.

LifeCycle Forecast Tab

The following columns are displayed in the Lif Cycle Forecast tab. For a description of many of these columns, see [Glossary of Inventory Optimization Terms](#)

- SKU
- Location
- Forecast Sales Units
- Forecast Sales Amount

Figure 2-11 Lifecycle Forecast



Weekly Forecast Tab

Figure 2-12 Weekly Sales and Inventory

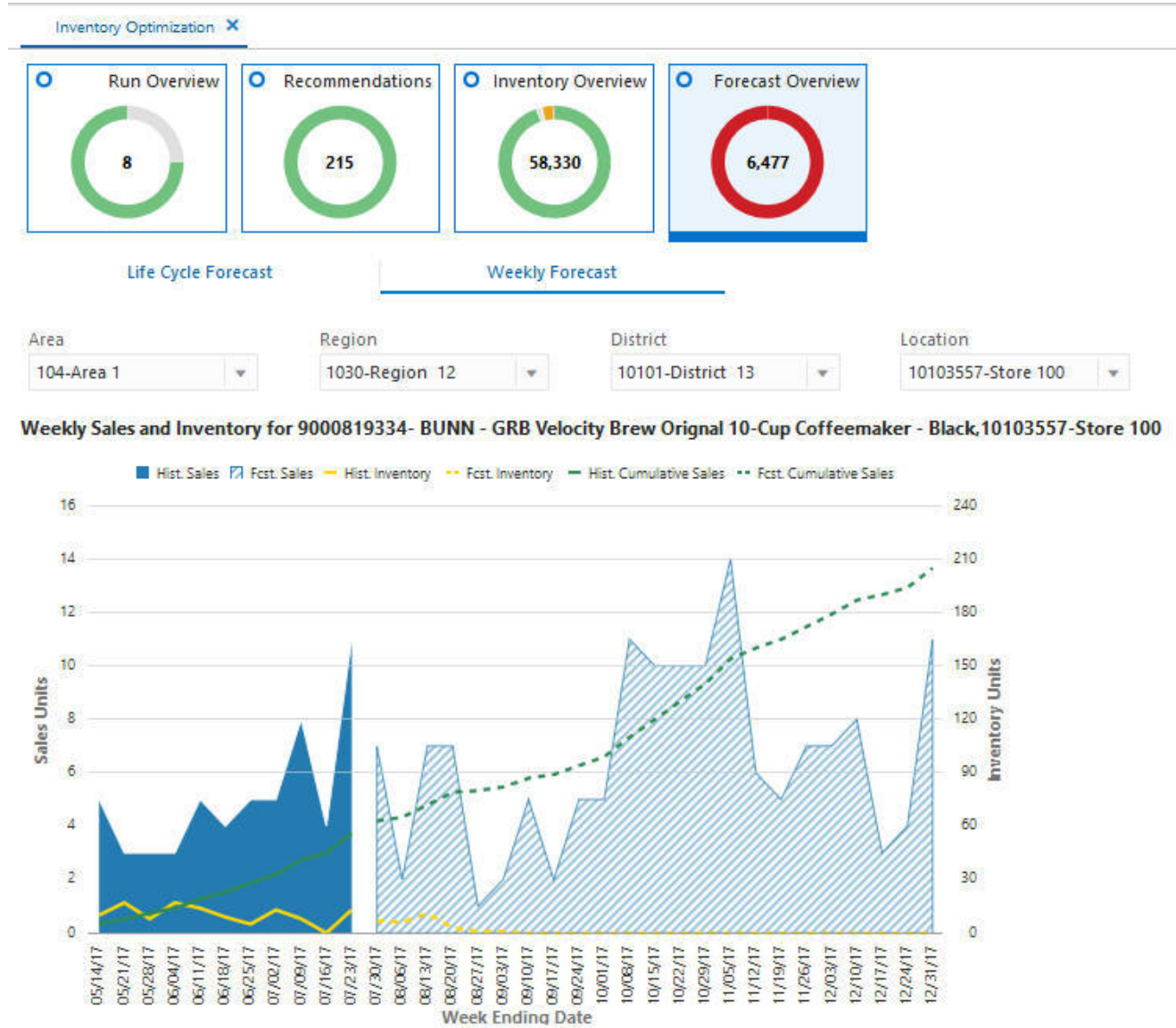


Figure 2-13 Weekly Sales and Inventory Chart

Weekly Sales and Inventory for 9000819334- BUNN - GRB Velocity Brew Original 10-Cup Coffeemaker - Black,10103557-Store 100

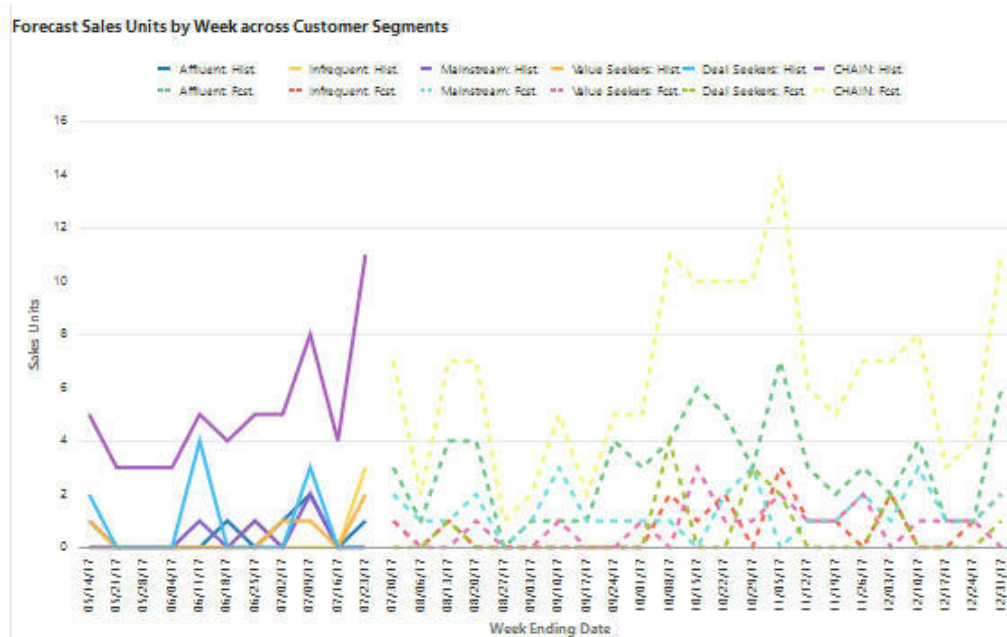
Actions View Detach

Week Ending Date	Hist. Sales	Fcst. Sales	Hist. Inventory	Fcst. Inventory	Hist. Return Units	Fcst. Return Units	Hist. Return %	Fcst. Return %
05/21/17	3	0	17	0	0	0	0%	0%
05/28/17	3	0	8	0	0	0	0%	0%
06/04/17	3	0	17	0	0	0	0%	0%
06/11/17	5	0	14	0	0	0	0%	0%
06/18/17	4	0	9	0	0	0	0%	0%
06/25/17	5	0	5	0	0	0	0%	0%
07/02/17	5	0	13	0	0	0	0%	0%

The following columns are displayed in the Weekly Sales and Inventory tab. For a description of many of these columns, see [Glossary of Inventory Optimization Terms](#)

- Weekly Sales Data
- Historic Sales
- Historic Inventory
- Forecast Inventory

Figure 2-14 Forecast Sales Units by Week



Creating a Run

The runs in IO are primarily batch runs that are executed weekly or daily, based on the configurations of the application. The user can create ad-hoc runs to do what if analysis or to generate recommendations to override the batch runs. To create a new run, user must define the scope and the type of analysis.

To create a new run, click on the plus (+) icon in the All runs table in Run Overview screen.

Figure 2-15 Create Run - Scope

Create Run Scope

To create the run scope, complete the following steps.

1. Enter a run name and description.
2. Select the merchandise and locations to be analyzed in the run. The user can select at a single level for merchandise (for example, department) and at a single level for location (for example, Area). These levels are configurable. (See *Oracle AI Foundation Cloud Services Implementation Guide* for details.) By default, all values under the merchandise and location level are selected.
3. Select the type of analysis that you want to perform as part of this run.

Glossary of IPO-IO Terms

This table provides definitions for many of the terms that are used in the IPO-IO tables in the UI.

Table 2-2 IPO-IO Term Definitions

Term	Definition
Activate Date	For seasonal items and items with a short life cycle, the activate date indicates the date that a given item/location should be considered for replenishment.
Actual Sales Units W-1	Actual sales unit for a given item/location during the last calendar week prior to the date that the inventory optimization ran.
Actual Sales Units W-2	Actual sales unit for a given item/location during the last two calendar weeks prior to the date that the inventory optimization ran.
Actual Sales Units W-3	Actual sales unit for a given item/location during the last three calendar weeks prior to the date that the inventory optimization ran.
Actual Sales Units W-4	Actual sales unit for a given item/location during the last four calendar week prior to the date that the inventory optimization ran.
Back-order Qty at Dest.	The back-order quantity at the destination location for a given item.
Back-order Qty at Origin	The back-order quantity at the origin location for a given item. This field will be blank for a PO because the origin is a supplier.
Coverage Per. End DT	Coverage period end date, that is lead time plus review time after recommendation date.
Coverage Per. Start DT	Coverage period start date, that is lead time after recommendation date.
Deactivate Date	For seasonal items and items with a short life cycle, the deactivate date indicates the date that a given item/location should be stopped being considered for replenishment.
Fcst. Coverage Per.	Forecast sales units for the coverage period.
Fcst. LT	Forecast sales unit for the period of lead time.
Fcst. Sales Units W+0	Forecast sales unit for the current week.
Fcst. Sales Units W+1	Forecast sales unit for the next week.
In-transit Qty at Dest.	The in-transit inventory for the destination location for a given item.
In-transit Qty at Origin	The in-transit inventory for the origin location for a given item. This field will be blank for a PO because the origin is a supplier.
Lead Time	The expected number of days required to move the item from the primary source to the destination location.
Loc. Type	Location type can be Store or Warehouse.
Next Review Date	For a given item/location, the next review date is the date that the item is going to be reviewed for replenishment based on its review schedule.
OH Qty at Dest.	The on-hand inventory at the destination location for a given item.
OH Qty at Origin	The on-hand inventory at the origin location for a given item. This field will be blank for a PO because the origin is a supplier.
On-order Qty at Dest.	The on-order inventory at the destination location for a given item.

Table 2-2 (Cont.) IPO-IO Term Definitions

Term	Definition
On-order Qty at Origin	The on-order inventory at the origin location for a given item. This field will be blank for a PO because the origin is a supplier.
Primary Source	The primary source of replenishment for a given item/location. If the item/location has a stock category of warehouse-stocked (or cross-docked), the primary source will indicate the warehouse from which (through which) the item will be sourced. If the item has a stock category of direct to store/warehouse, the primary source will indicate the supplier.
Replenishment Method	The method that was used in calculating the RP/RUTL.
Review Time	Number of days between the day that the inventory optimization runs and the next time that a given item/location is scheduled for review. For example, if an item/location has a daily review schedule, the review time will be one day.
RP (Re-order Point)	Level of inventory that is used as a threshold to recommend an order.
RUTL (Receive Up-to Level)	When the inventory level falls below the re-order point, an order is recommended to raise inventory to this level.
System Order Qty	The recommended order quantity for a PO/Transfer. The system order quantity is calculated by the optimization algorithm and is the quantity that takes into account all constraints such as RP, RUTL, space capacity, and available supply at the origin.
Target Service Level	This is the value of the service level that is used in the safety stock calculation. Service Level is defined as the percentage of unit demand that should be met by inventory. Valid values are between 0 and 1. For example, a service level of 0.9 indicates that RP and RUTL should be optimized such that on average 90% of the demand is met.
Unconst. Need	The unconstrained need is the quantity that is required to bring the inventory up to the RUTL. It does not take into account the shelf space capacity and the potential shortage of supply at the origin.
User Order Qty	This is the user override for the quantity of the recommended PO or transfer order.

A

Appendix: Oracle Retail AI Foundation Cloud Services Overview

Oracle Retail AI Foundation Cloud Services provides advanced analytical insights to drive the end-to-end retail process. The foundation provides out-of-the-box analytics that are purpose built for end business users with a workflow and a user experience. The foundation also provides the ability to create a retailer's own AI/ML models and then invoke and infuse those results into the business process as well as create application extensions with Oracle's Application Express.

For information about the Control and Tactical Center, see the latest AIF User Guide on the Oracle Help Center.

Oracle Retail AI Foundation Cloud Services includes the features described below.

Advanced Clustering utilizes machine learning techniques to cluster stores based upon similar selling patterns, providing a more customer-centric set of clusters to drive assortment decisions. The capability also provides the ability to cluster based upon other metrics and attributes such as space to drive assortment space optimization.

Customer Segmentation provides the ability to utilize historical performance, customer loyalty information, and demographics to segment customers to utilize in downstream processes.

Attribute Extraction automates the attribution process by extracting attributes from product descriptions.

Customer Decision Trees provide the ability to understand exactly how your customer is shopping their assortment. Are they coming in for a specific brand, product, size? This then enables you to utilize these insights within planning as dynamic attributes to pivot from your static merchandise hierarchy to analyze your assortment decisions in the way in which your customer is shopping.

Demand Transference drives insights into the overall uniqueness of items and the potential demand transferable to other items that is then utilized in assortment recommendations for both assortment planning as well as space optimization.

Profile Science helps retailers understand how to break their buys by size, looking at not just historical sales but also where there were stock outs and missed opportunities.

Affinity Analysis identifies associations across products and product types such as halo and cannibalization. These insights can help drive the overall decisioning of process of promotion planning and impact analysis.

Innovation Workbench enables data scientists to create their own AI/ML models with open source programming language as well as SQL.

Each of these capabilities can further fuel data-driven decisions for retailers.