Oracle® Retail Inventory Planning Optimization Cloud Service-Inventory Optimization

User Guide

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Oracle Retail Inventory Planning Optimization Cloud Service-Inventory Optimization User Guide, Release 25.2.301.0

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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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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*
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Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
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monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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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*.

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 asstore 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.

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.

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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.

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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.

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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 or the time-phased inventory plan..

Your core primary tasks are

- Reviewing optimized replenishment policies that have not met automatic approval rules.
- Analyze Alerts to determine if order adjustments are required for today’s orders. Then future inventory issues are analyzed to determine necessary policy adjustments.
- Review and approve orders including rebalancing transfers.

Use the Inventory Planning Alerts view, Forecast Overview and Inventory Overview to support your analysis of the recommendations.

The IPO-IO UI workflow consists of the following:

- **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.
- **Manage 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.

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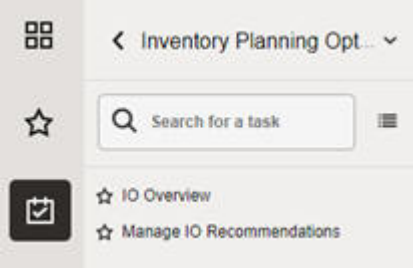
  - **Replenishment Policies**. Used to review and approve replenishment policies.
  - **Rebalancing Transfers**. Used to review, override, and submit/approve rebalancing recommendations.
  - **PO/Transfers**. Used to review, override, and submit recommended PO and transfers. These include warehouse/supplier to store and warehouse/supplier to warehouse.
- **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.

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 1-1 Task Menu



IPO-IO Overview

From Inventory Planning Optimization, select Run Overview to access the Run Overview screen, shown in Figure 1-2. 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.

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Figure 1-2 Run Overview

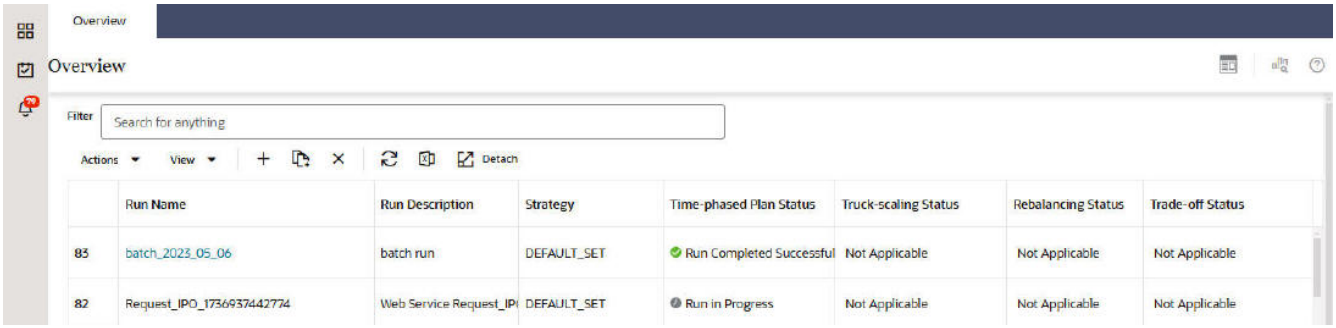

Table 1-1 Run Overview Table

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 1-3, 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 1-1 for description of these numbers.

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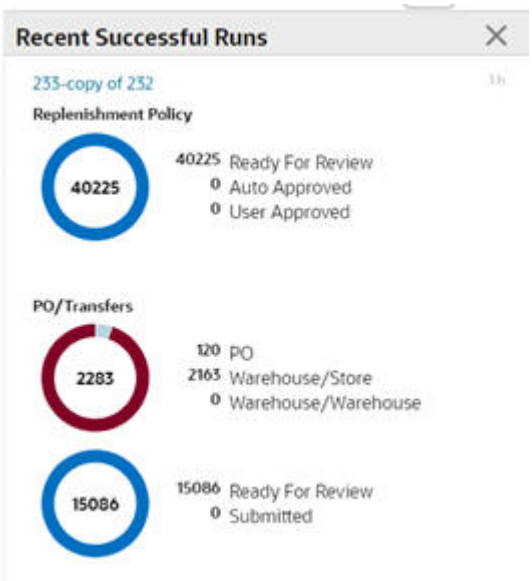
Figure 1-3 Recent Successful Runs



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

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- 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

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- 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)

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- 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.

Manage 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.

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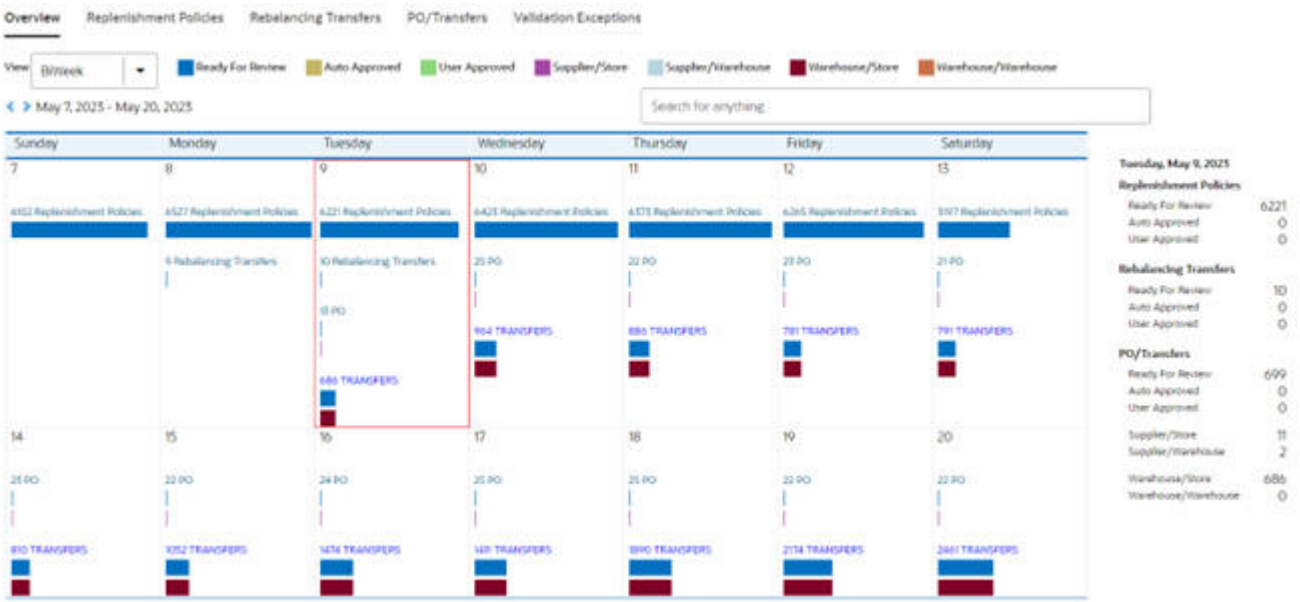
Overview

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.

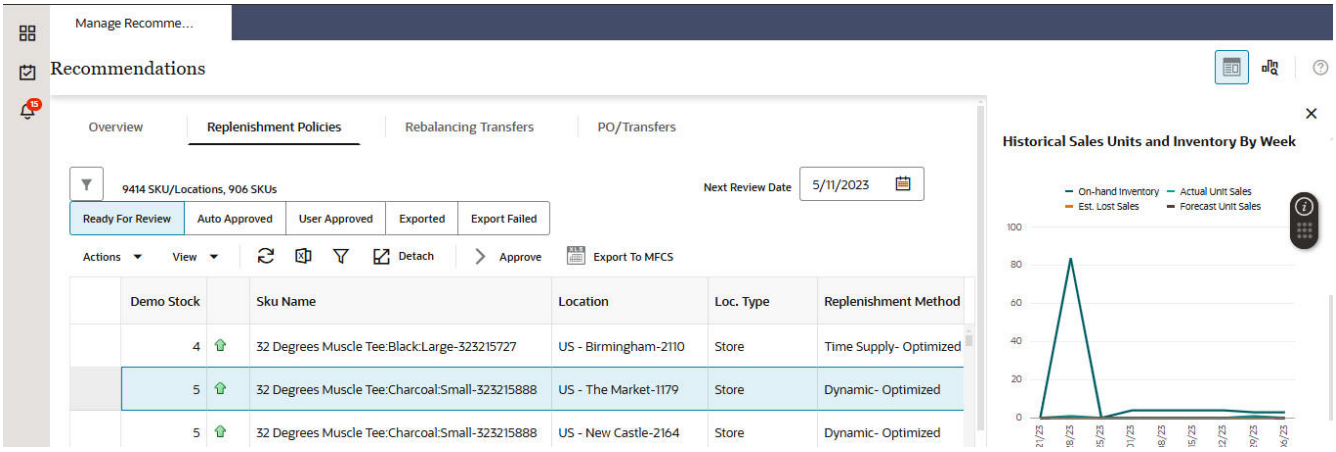
Figure 1-4 Calendar



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 1-5 Replenishment Policies



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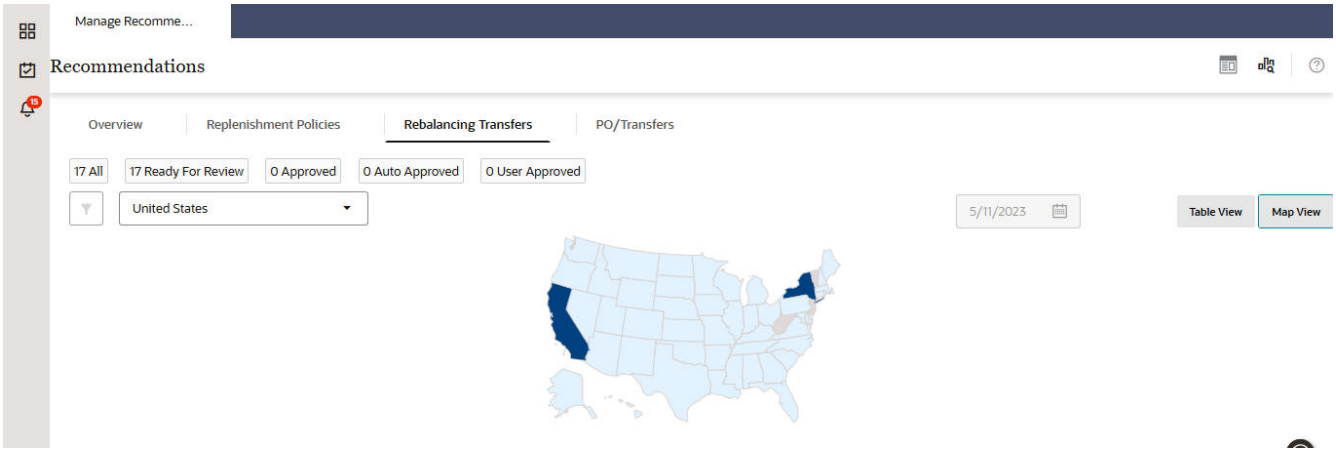
The contextual area displays the trade-off analysis at the sku-store level and higher levels of merchandise and location that are configured during implementation. The trade-off curves indicate how the lost sales and inventory units change for different target service levels. To see the same graphs for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

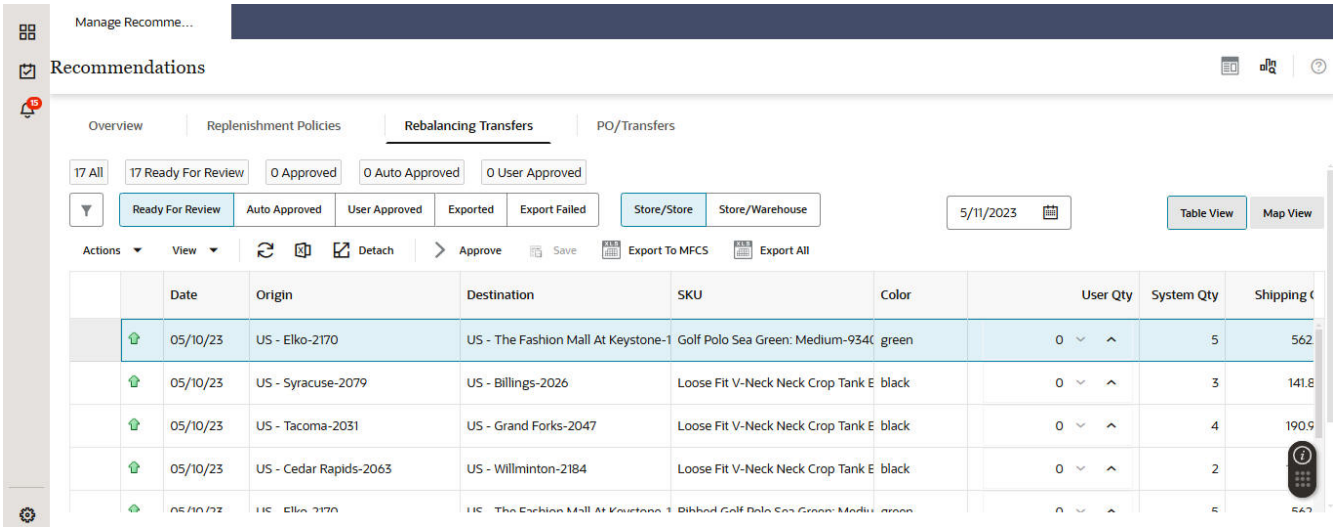
The Rebalancing Transfers section has two views, the Table View and the Map View. To switch between Table View and Map View, use the buttons located in the top right.

Figure 1-6 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 1-7 Rebalancing Transfers Table View



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

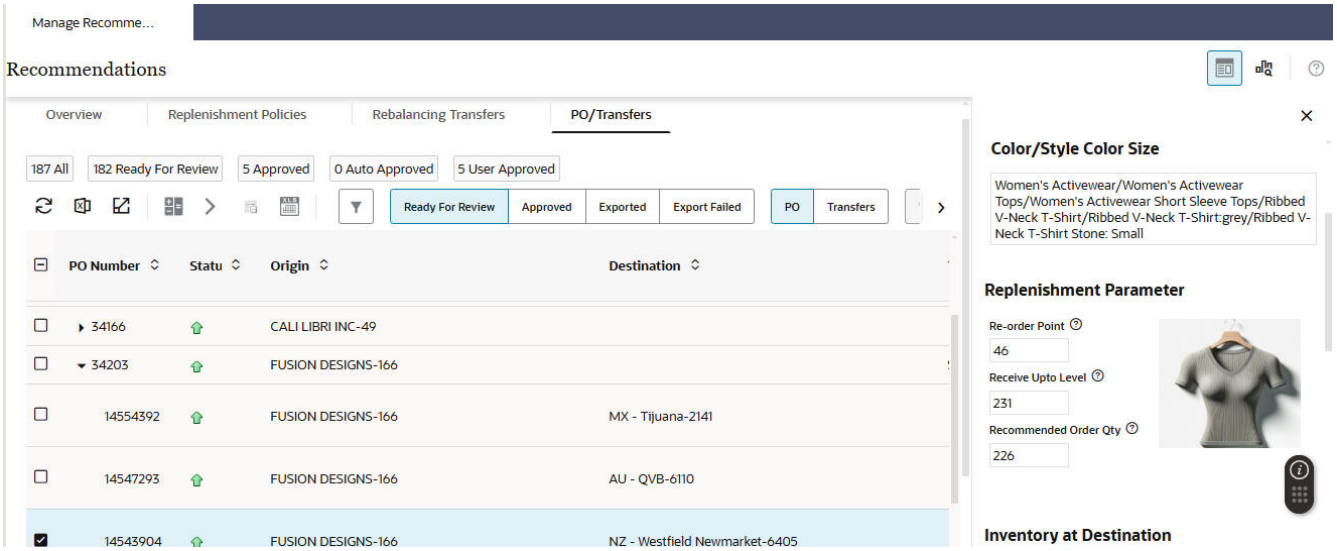
The Map View displays the number of transfers within each area of the map (for example, within each state of the United States). If a transfer is between two different areas, it is only included in the area where the origin is located. Clicking on an area in the map opens a pie chart that shows the breakdown 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 1-8 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”.) When the item highlighted is a pack, use the contextual area to view the component item, pack quantity, and other details of the component item need.

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> **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.

Allocation

Allocation displays the recommended allocations. Allocation type order recommendations can result from various inventory calculations but act differently than a Transfer. A transfer is expected to be executed on as soon as it is exported to MFCS, whereas an allocation acts to ‘reserve’ inventory as it becomes available. Executing on the inventory movement does not begin before a specified release date and the warehouse will wait until the inventory is available—often tied to the arrival of a specific PO.

Use the Allocation review screen to review allocations created to cross-dock POs through a warehouse.

In Allocation view click an allocation to see more details, and override the recommended quantity.

Plan View

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, through the user interface.

The Inventory Plan View allows you to view a projection of inventory and order recommendations during a specific time frame.

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.

Days that exceed Alert thresholds are highlighted so you can visually identify periods of concern. You can then make tactical policy overrides that can then affect any future stock order recommendations.

To view the time-phased plan, complete the following steps:

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

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 1-9 Filter Button

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

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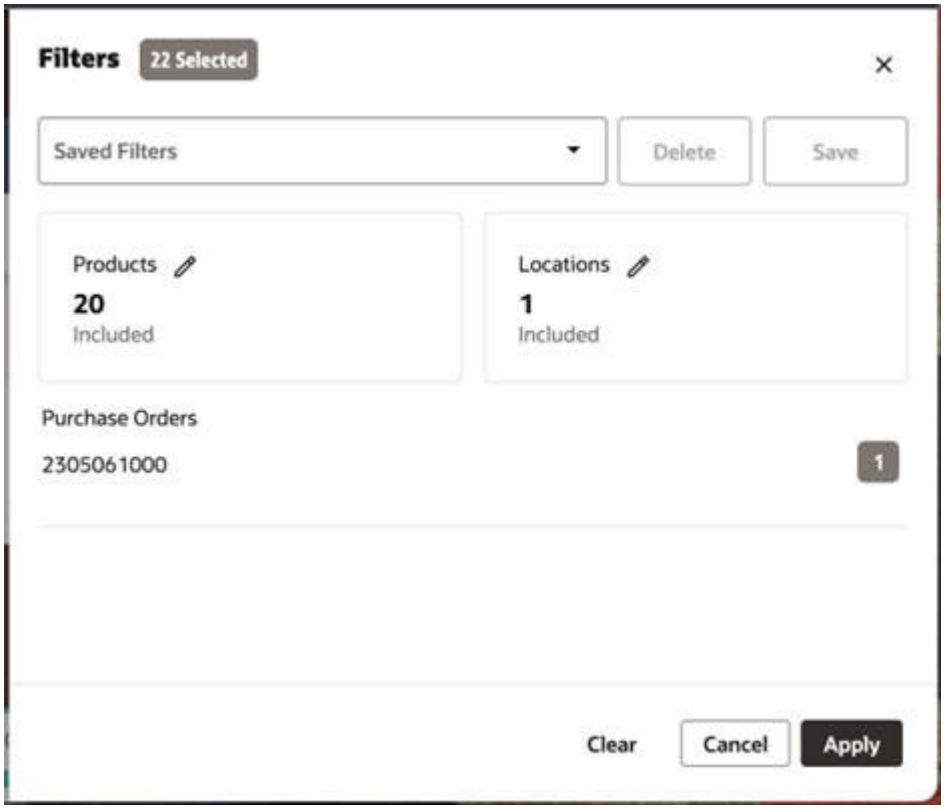
Figure 1-10 Filter Panel Card



Click a card to open the corresponding filter panel.

When making filter selections you can enter text in the filter search field at the top of the filter to reduce the list to thosethat contain that text.

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

- 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.
- Clicking**Resync to Filter**s will reset both products and locations to those matching the purchase order selections.

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.

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Figure 1-11 Saved Filters

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 1-12 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 Previous and Next buttons can be used to move sequentially through the list of included products.

Figure 1-13 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.

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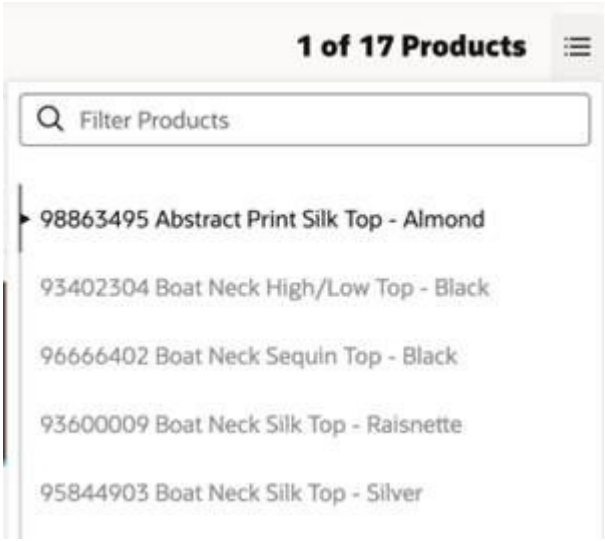
Figure 1-14 Product Selection

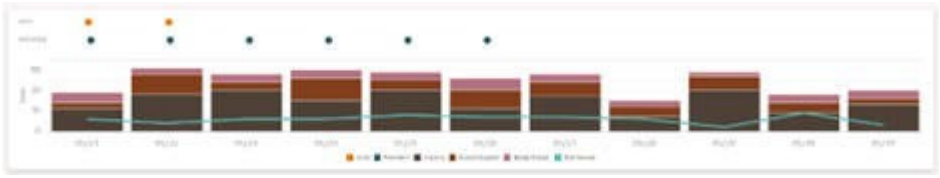


Chart

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 1-15 Plan Chart



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 1-16 Edit Metrics

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

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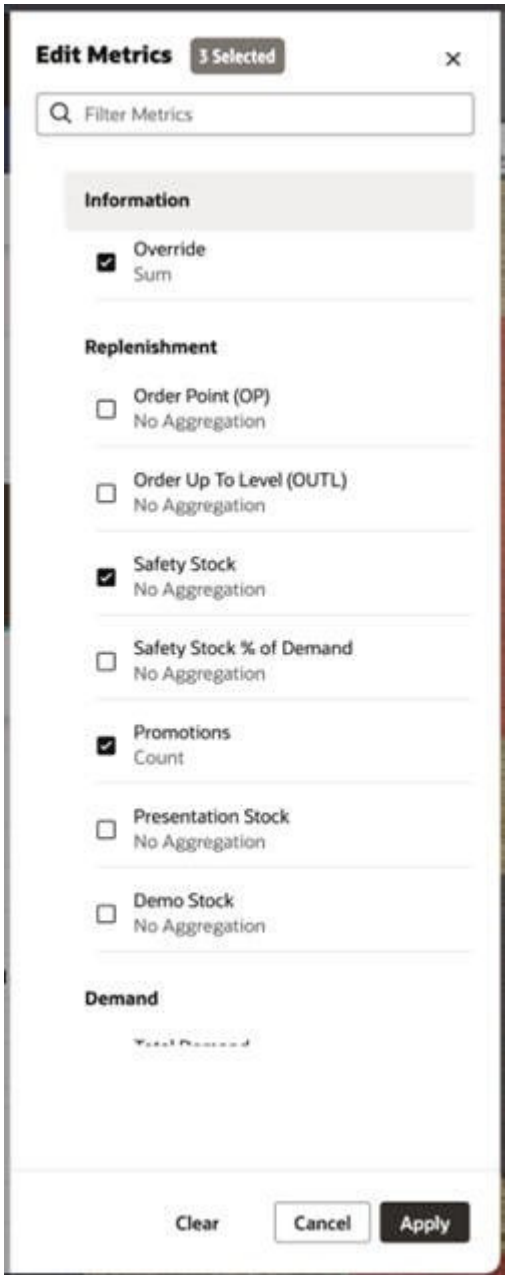
For each metric, the aggregation method is shown beneath the metric name. Some metrics do not have an aggregation method and will not appear in the aggregate area tables.

Figure 1-17 Metrics Selection



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 described below.

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Replenishment Metrics

Replenishment metrics help you understand what order quantity is being recommended and the various inventory targets.

- **Order Point (OP)**
  Order Point is the inventory level that determines at what point an order needs to be placed for an item/location. It contains the minimum number of units you want on hand for the item. When the net available inventory falls below the order point, the item is replenished.

  Order Point (OP) is calculated from the Replenishment Engine

  It has no aggregation method on non-Calendar hierarchy.

  The aggregation method is Average from day to week.

- **Order Up To Level (OUTL)**
  Order Up To Level (OUTL) determines the level to which inventory needs to be ordered – often the maximum quantity for the item/location. It contains the maximum number of units you want on hand for the item/location.

  Order Up To Level (OUTL) is calculated from the Replenishment Engine

  It has no aggregation method on non-Calendar hierarchy.

  The aggregation method is Average from day to week.

- **Safety Stock**
  Based on the identified need and the volatility in future demand, this is the additional units that are needed to meet the desired service level and prevent stock-outs

  It has no aggregation method on non-Calendar hierarchy.

  The aggregation method is Max from day to week.

- **Safety Stock % of Demand??**
  This metric is calculated as the % of Safety Stock units in terms of Total Demand over review time.

  It has no aggregation method on non-Calendar hierarchy.

  The aggregation method is Max from day to week.

- **Promotions**
  The Promotions metric shows the number of promotions for that time period. The Promotions are interfaced from RAP.

  The aggregation method is Count.

- **Presentation Stock**
  Presentation Stock is the minimum amount of stock required to fill a facing in the store. This can be an input from business strategies or interfaced from MFCS.

  It has no aggregation method on non-Calendar hierarchy.

  The aggregation method is Max from day to week.

- **Demo Stock**
  Demo Stock is an extra quantity of an item desired at a location. It is considered sellable.

  Commonly, this is used for a particular product that is made available to customers to demo in the store, but it could be used for other purposes as well. This can be an input from business strategies or interfaced from MFCS.

  It has no aggregation method on non-Calendar hierarchy.

  The aggregation method is Max from day to week.

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Demand Metrics

The demand metrics help you understand what inventory quantity is expected to be consumed from a location—either from forecasted sale, back orders, or planned transfers to other locations.

- **Demand**
  This is the forecasted demand calculated from IPO Demand Forecasting or aggregated from destination's unconstrained order forecast.

  For Stores, this is the approved IPO demand forecast.

  For Warehouses, it is the aggregated order forecast from destinations.

  The aggregation method is Sum.

- **Total Demand**
  Total of all unconstrained demand used to calculate safetystock and forecast based replenishment boundaries.

  For Stores, this is the forecast demand (the same as in **Demand**)

  For warehouses, this is the aggregation of unconstrainted order forecasts from all destinations plus Additional Demand where flagged for inclusion.

  The aggregation method is Sum.

- **Constrained Demand**
  Constrained demand represents the demand that is met by the projected inventory. It is used to calculate inventory positions (and order boundaries within lead time).

  For Stores this is the forecast demand met by the projected inventory.

  For warehouses, this is the destination demand met from the warehouse. It is also the total order qty to destinations in the displayed time period.

  The aggregation method is Sum.

- **Backorder**
  This is the inventory that was already sold but could not be fulfilled due to there being no physical inventory at the time of sale. This is interfaced from MFCS.

  This is expected to be a point-in-time value, so it is not repeated every day. It can be placed on the first day of the time period displayed.

  It has no aggregation method.

- **Pack Unconstrained Demand**

  This is the demand on the warehouse rounded to ideal packs. This is used to calculate replenishment pack need at the warehouse.

- **Pack Constrained Demand**

  This is the actual units given from the warehouse according to the available packs. The difference between Pack Constrained Demand and Constrained demand tells you the Eaches fulfillment from the warehouse.

Inventory Metrics

Inventory metrics show what inventory is expected to arrive from open orders; what IPO recommends receiving; finally, based on forecasts, what the overall inventory levels are projected to be when following the order recommendations.

- **Receipts Expected**
  On-Order Inventory at the destination location shown on the day that it should arrive.

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The aggregation method is Sum.

- **Receipt Forecast**
  Inventory receipt that is that is recommended by IPO and constrainedby source availability. The visibility of this inventory movement is limited to IPO until the order day is reached and the order is approved. The Receipt Forecast shows inventory on the day that it should arrive at the destination location.

  The aggregation method is Sum.

- **Order Forecast**
  Shows the constrained order recommendation on the day the order should be approved within IPO and sent to MFCS for execution. It is identical to Receipt Forecast but shown on the order date rather than receipt date.

  Location order forecasts are also aggregated to Supplier so you can review total recommended supplier purchase order quantities by order date.

- **Inventory (BOP)**
  Beginning of day inventory at a location. It is Stock on Hand, or previous day's **Inventory (BOP)** + all inbound inventory previous day – outbound inventory previous day.

  Inbound inventory is **Receipts Expected** and **Receipts Forecast.**

  Outbound inventory is **Constrained Demand** and open order quantity waiting for shipment (i.e. allocations)

  Inventory is never negative.

  The aggregation method is Sum on non-Calendar hierarchy.

  The aggregation method from Day to Week is First.

- **Net Inventory**
  This is a calculation of the inventory projected to be available to meet the target stock level for a review period. This is an order-day value. It is the inventory compared to OP/OUTL during replenishment.

  There is no aggregation method on non-Calendar hierarchy.

  The aggregation method from day to week is Min.

- **Pack Total Avail. Units**

  This provides the sum of units belonging to a pack. These units cannot be transferred as Eaches.

- **Lost Sales**
  This is today's**Inventory (BOP)** + inbound (**Receipt Forecast, Receipt Forecast**), minus outbound (**Total Demand**).

  The aggregation method is Sum.

- **Lost Sales % of Demand**
  This is calculated as % of: **Lost Sales** divided by **Total Demand**.

  The aggregation method is Recalc.

Location Tables

The top table is the "All Locations" table. This 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 the chart are shown in the aggregate table.

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Figure 1-18 Aggregate Table

For complete analysis of the time phased plan the individual location tables provide the complete set of replenishment metrics such as the Order Point, Order Up To Level, andother target stock level metrics.

The supply chain can be reviewed through the provided tabs:

- Supplier - 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. Warehouse data is not aggregated into a single total
- Store - The Stores tabs show information about those stores that replenish the product.

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). In the Inventory Plan, you will review the warehouse inventory of the sellable SKUs. This allows you to compare forecast demand and store need to the warehouse's availability. Alerts and replenishment needs are also calculated on the sellable SKU.

Click the table date to open the Advanced Options Panel.

- Clicking the date on the All Locations table will open the panel with all locations available
- Clicking the date on a store table or warehouse table will open the panel with that destination and its source warehouse available

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.

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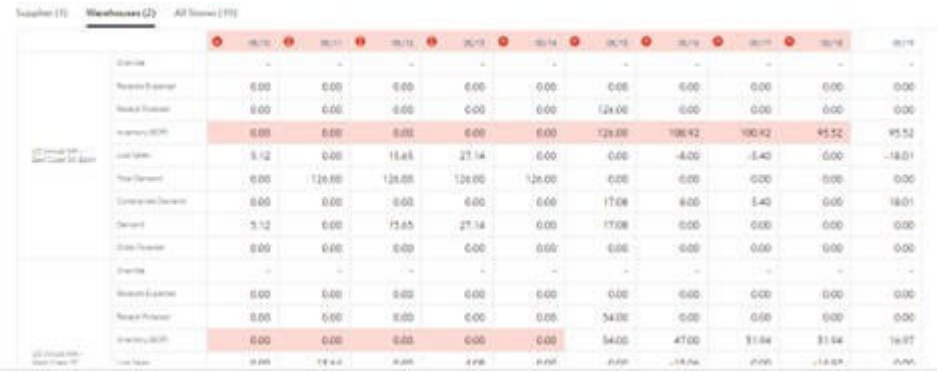
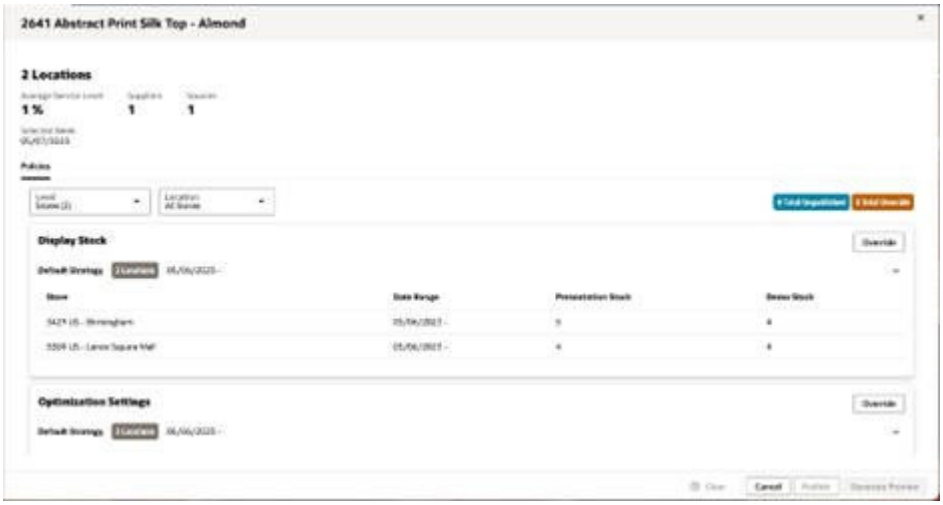
Figure 1-19 Table Alerts Icons



Advanced Options Panel

Use the Advanced Options (AO) panel to create and modify policy overrides and review alert details. The AO panel always displays data based on the entire week of the cell that you selected to launch it; as well as the locations from the table selected to launch it.

Figure 1-20 AO Panel



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. The location selection field is used to not only view policies but also to define the locations to which a policy edit will apply.

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Figure 1-21 Level and Location Fields

Policy Tab

Each policy type 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 providedfor each field that is part of the policy (for example, Presentation Stock).

Default rule values are displayed within the white Default Strategy tables.

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 1-22 Overrides Table

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.

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.

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Figure 1-23 Override Button

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

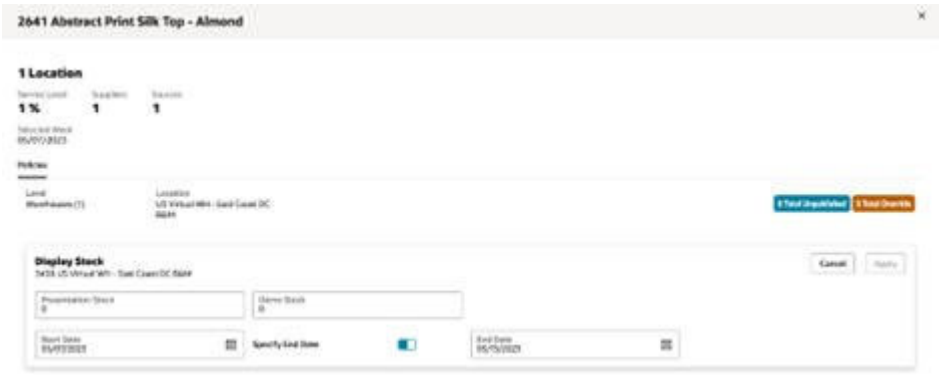
- **Policy Fields:**Fields that can each be altered.
- **Start Date:**The first date of the alteration.
- **Specify End Date:**A switch that allows no end date to be specified.
- **End Date:**The last date of the alteration (not displayed if the Specify End Date is toggled off).

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

To make the same policy overrides to several stores:

- Before creating the override, refine the set of stores receiving the override by setting the Inventory Plan View filters to the desired stores.
- Launch the AO panel from the **All Stores** table.
- Select **All Stores** in the Location field.
- On the policy type to be overridden, click **Override.**
- Fill in the field level changes.
- Click **Apply**. Once an override is created it must be published before it will be effective in the inventory plan calculation.

Figure 1-24 Edit Area



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).

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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.

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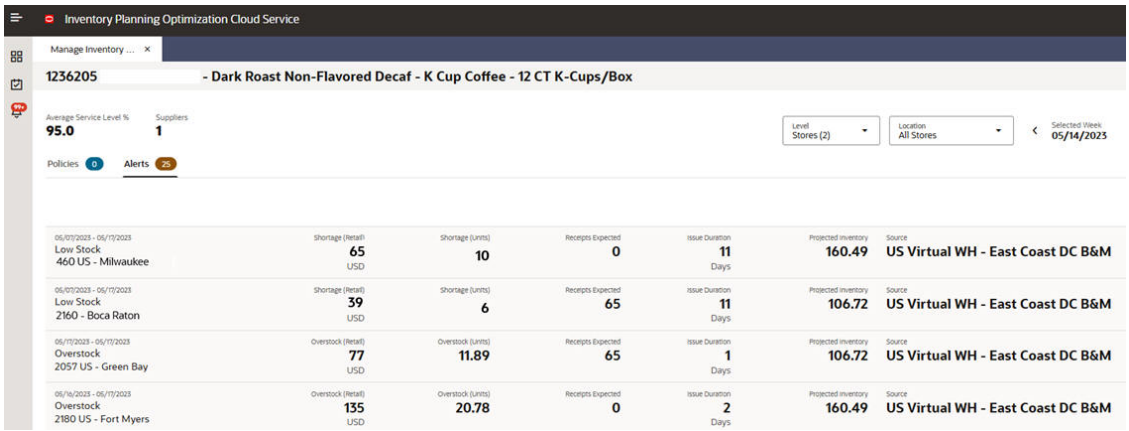
3. The AO Panel is displayed. The level and location do not require updating (see Advanced Options Panel).
4. Scroll down until the Optimization Settings policy type is visible.
5. Click the **Override** button to the right of the Optimization Settings table (see Policy Table).
6. The Edit Area is displayed.
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).

Alerts Tab

The Alerts tab provides the details of each location's alert in terms of retail value, units, and duration. Use the detailed information to help determine where stock might be moved from and to in order to minimize stock issues.

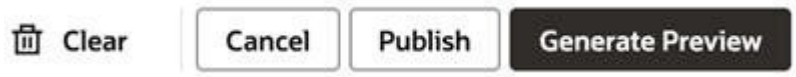
Figure 1-25 Alerts Tab



Advanced Options Actions

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

Figure 1-26 AO Panel Buttons



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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

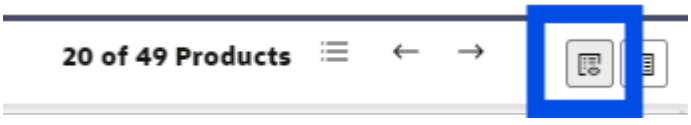
A Preview displays a what if scenario, based upon the application of a set of alterations from an AO Panel to the plan.

Generating a Preview is an asynchronous operation. A notification is generated to inform you 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. The notification is informational. Use the Previews button to reveal a list of previews to select for viewing.

Figure 1-27 Previews Button



- **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.

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

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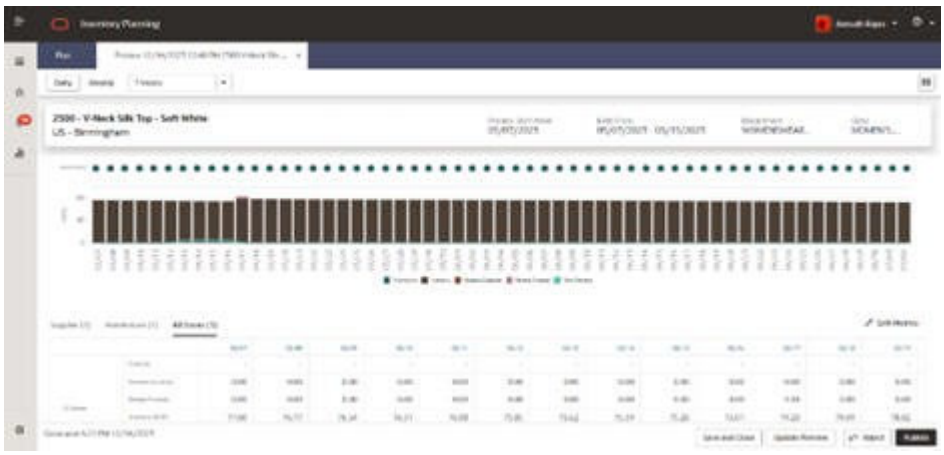
Their design is similar to a Plan View, with many common features such as:

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

Figure 1-28 Preview



Preview Action Buttons

A set of buttons are positioned at the bottom of the Preview. These perform operations upon the entire Preview.

Figure 1-29 Preview Buttons

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.

Update Preview

Click the **Update Preview** button to resend the alterations that you used to make this preview in order to understand how this affects the current plan.

This is useful if changes have occurred since the preview was created and the information must be refreshed.

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A new preview will be created to replace the existing one and can be opened using its Preview Ready notification.

Save and Close

Click the **Save and Close** button to close the preview. The preview can be opened again when required using the Preview Ready notification.

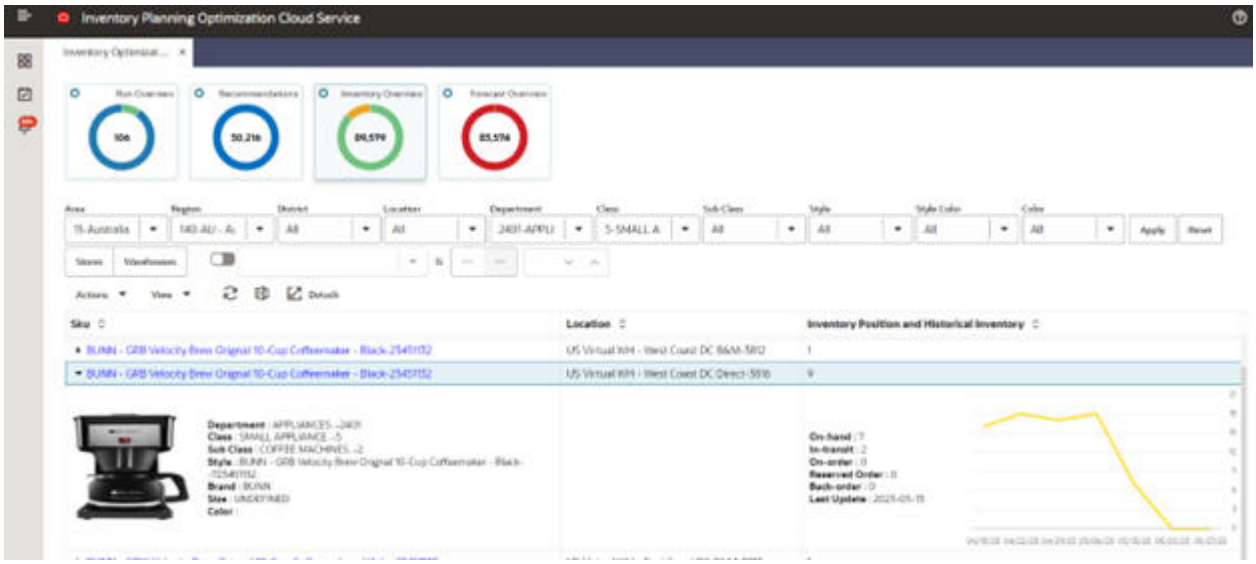
Reject

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

Inventory Overview

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

Figure 1-30 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 (<= or >=). 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.

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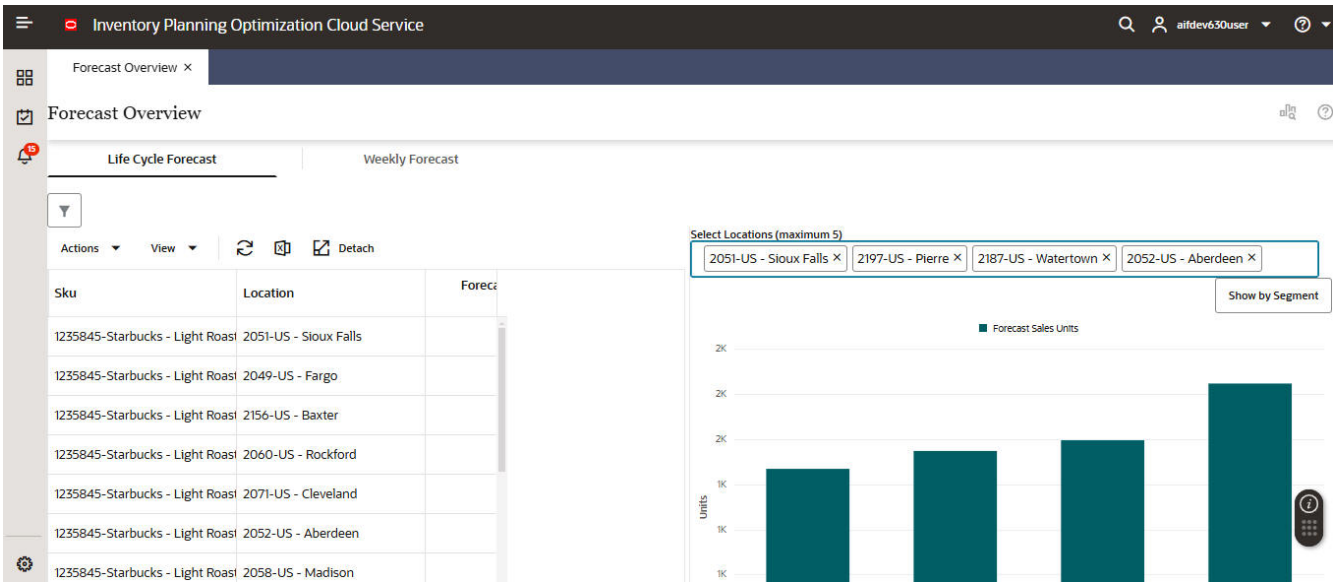
LifeCycle Forecast Tab

The following columns are displayed in the Life 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 1-31 Lifecycle Forecast



Weekly Forecast Tab

Figure 1-32 Weekly Sales and Inventory

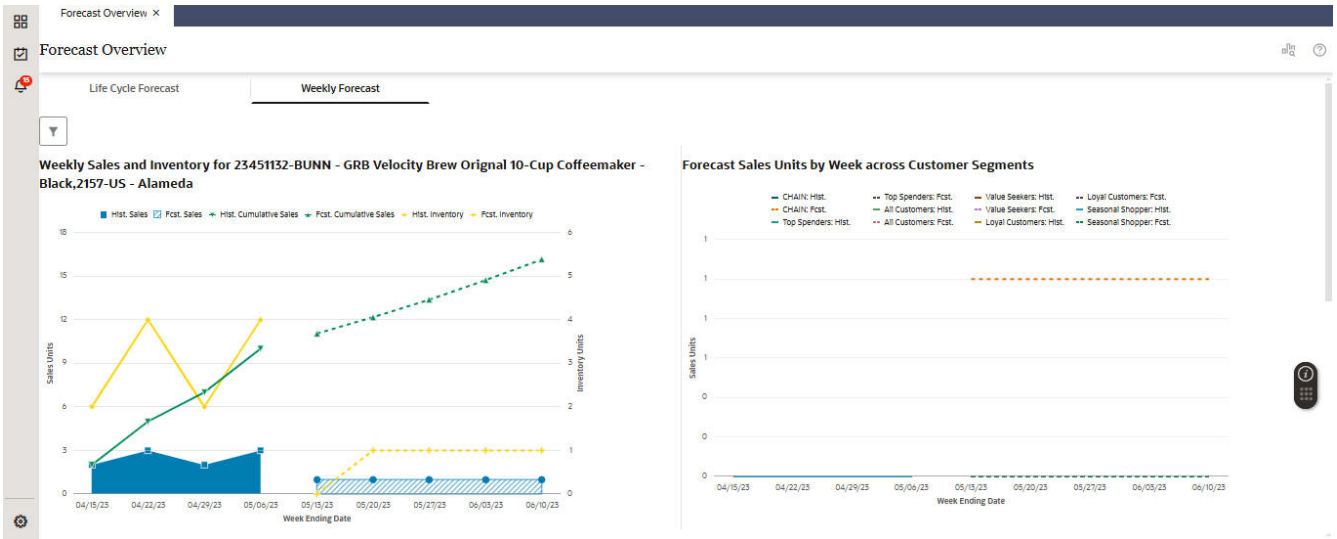


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Figure 1-33 Weekly Sales and Inventory Chart

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

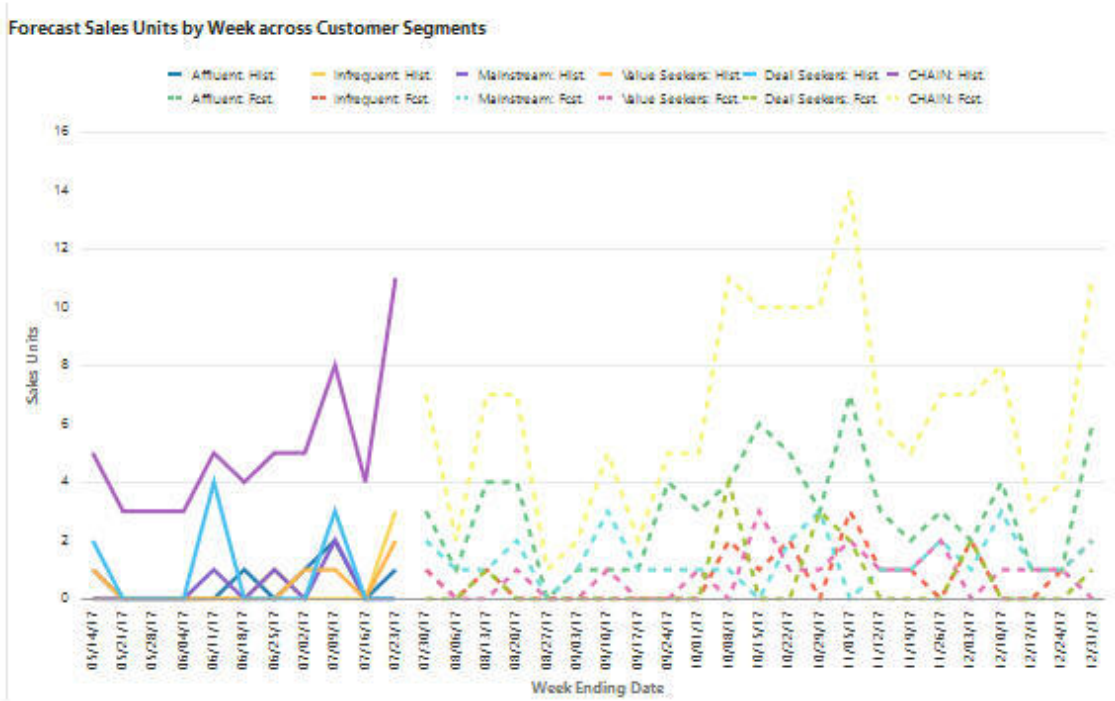
Actions View Detach

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 1-34 Forecast Sales Units by Week



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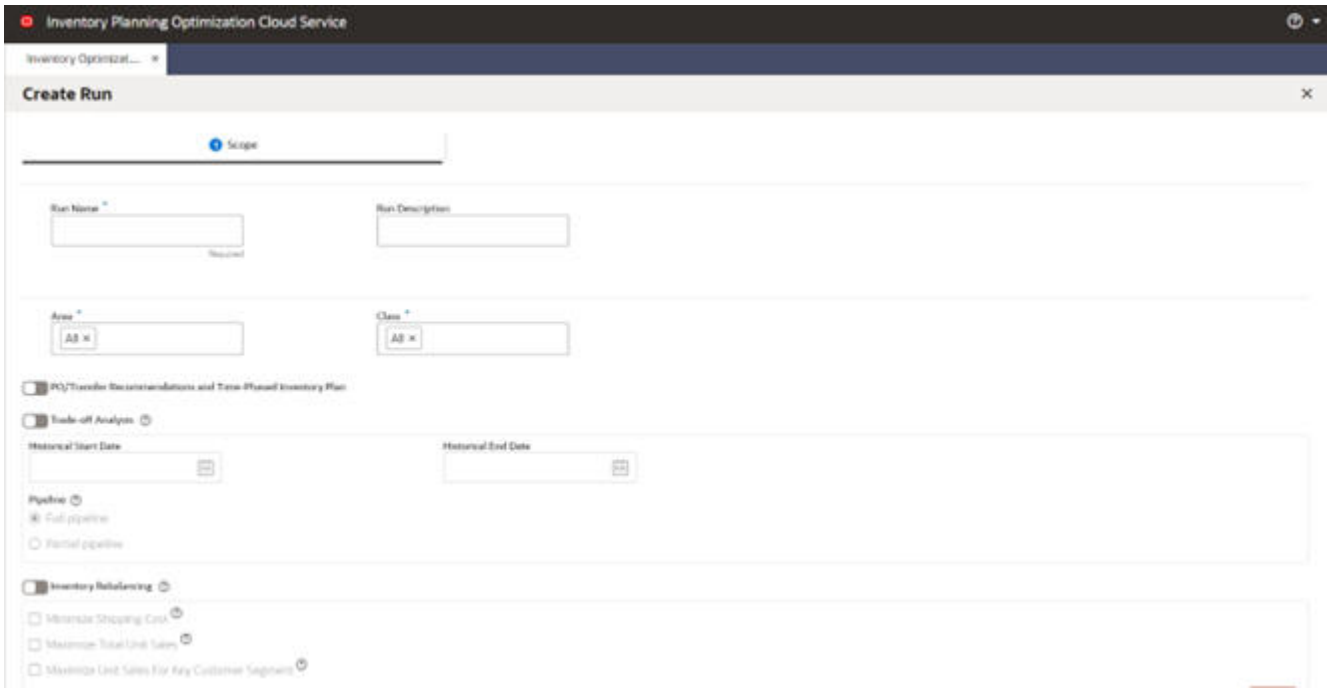
Creating a Run

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 1-35 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.

IPO Alerts

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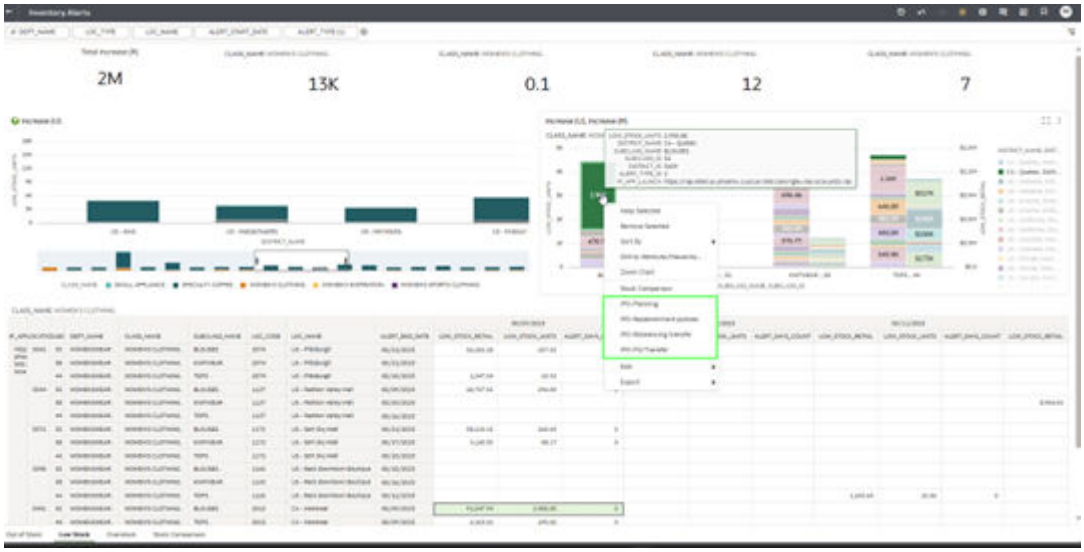
Inventory Alerts Reports

The IPO Alerts functionality is designed to streamline issue identification and resolution within the inventory planning process. It integrates seamlessly with the Data Visualizer system, allowing users to move efficiently from data analysis to exception managemen.

The process begins with a set of reports generated in the Data Visualizer. These reports serve as alerts, highlighting potential issues in inventory management, such as stock shortages, overstock situations, or discrepancies between expected and actual inventory levels. Users can review these reports directly within the Data Visualizer interface and, when necessary, take immediate action by clicking on a specific report. This action automatically redirects the user to the IPO system, where further analysis and resolution steps can be performed.

Once in the report, users can select the specific piece of information or data point that requires attention. By right-clicking on the selected item, a contextual menu will appear, offering the option to choose the relevant section within the IPO system where this information should be displayed. Upon selection, the IPO system will open in a new browser tab. The system is designed to recognize the data selected in the report, applying appropriate filters so that users are immediately presented with the most relevant information.

Figure 1-36 Right Click on Selected Portion of Data



Inventory Alerts Reports are organized in 4 tabs: Out of Stock, Low Stock, Overstock, Stock Comparison. And they are explained in in detail in the below sessions.

> **Note**
>
> The filters and information granularity displayed in the reports are customizable; however, this guide documents the initial predefined configuration of the reports.

To view the alert reports:

1. Launch Retail Home.

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2. Use the Application Navigator to launch OAS (Oracle Analytics).
3. Click **Catalog**, **Shared Folders**.
4. Click AI Foundation
5. Click **Inventory Planning Optimization**.
6. Open report **Inventory Alerts**

Within each report you can launch into Inventory Planning-IO to view the alert information in greater detail.

1. To see these alerts in Inventory Planning, right-click the bar chart on the right and select
2. Click Open IPO - Planning.
3. The Inventory Planning application will launch already filtered to the products and locations from the report.
4. Use the Cycle Area to select the desired product.
5. The Plan View will update to show information about that product.
6. Any alerts will be highlighted in the tables.

Out of Stock

The **Out of Stock** report is structured into a **header section** and **three distinct canvases**, each providing a different perspective on stockout issues to support comprehensive analysis and informed decision-making.

This alert identifies when a critical threshold of lost sales has been met. For this alert the thresholds can be exceeded over any number of concurrent days, it is not limited to each individual day exceeding a threshold. This allows the business to set more meaningful (financially significant) thresholds.

It's considered Out of Stock (OOS) the occurrences triggered by the Shortage Alert according to the rules set in Alert Management tool.

Figure 1-37 Inventory Alerts - Out of Stock

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Header Section

At the top of the report, there is a header featuring **three key performance tiles** that summarize critical metrics related to out-of-stock situations:

- **Total Lost Sales (R):** Displays the total value of lost sales in retail currency (R) due to stockouts across all relevant products and locations within the selected time frame.
- **Average Items Out of Stock:** Shows the average number of distinct items that were out of stock, providing an indicator of the overall breadth of stockout issues.
- **Out of Stock Days (Max):** Indicates the maximum number of consecutive days an item was out of stock, helping to identify severe or prolonged stock availability issues.

These tiles serve as quick, high-level indicators of the overall impact of stockouts on business performance based on the filter selected by the user.

Canvas 1 – Lost Sales (Retail) by Class and Location

The first canvas provides a visual representation of lost sales in retail value segmented by product class and location. A radial chart (or circular chart) is displayed on the top-left side of the canvas.

The chart illustrates Lost Sales (R), broken down by Class and Location (store or distribution center), allowing users to quickly identify where the highest financial losses due to out-of-stock situations are occurring.

Canvas 2 – Lost Sales (Unit and Retail) by Subclass and District

The second canvas offers a comparative analysis of lost sales, focusing on both unit and retail value metrics:

A bar chart is used to display:

- Lost Sales (U): Total quantity of units lost due to stockouts.
- Lost Sales (R): Total retail value of the lost sales.

These metrics are segmented by District and Subclass.

District represents the higher-level grouping above the Location level at location hierarchy, and Subclass the higher-level grouping above Style level.

This view helps users analyze how different geographical areas and product segments contribute to lost sales, supporting more targeted inventory management strategies.

Canvas 3 – Detailed Data Table

The third canvas contains a comprehensive data table that provides detailed, time-phased metrics for in-depth analysis:

The table includes the following key metrics:

- LOST_SALES_RETAIL: The monetary value of sales lost due to out-of-stock situations.
- LOST_SALES_UNITS: The number of units that could not be sold because of stockouts.
- ALERT_DAYS_COUNT: The number of days during which the stockout condition was active.

Data is presented in a time-phased format, showing the specific days when lost sales occurred, allowing users to identify patterns, trends, or recurring issues over time.

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Additionally, the table displays the hierarchical structure above the Subclass level (Class and Department)

This detailed breakdown enables users to perform granular analyses of stockout events, understanding not only when they occurred but also how they relate to the broader organizational structure of products and locations.

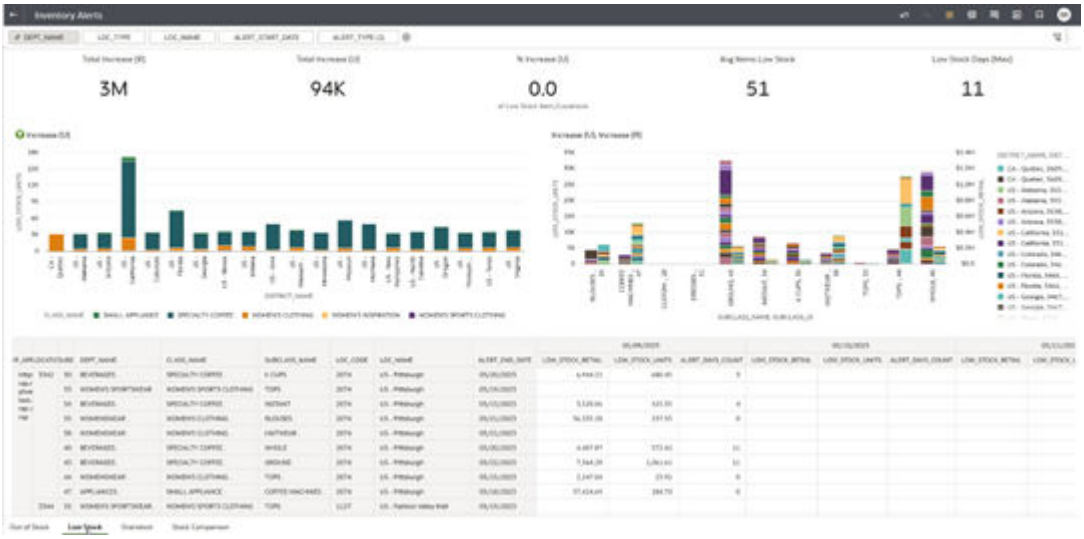
Low Stock

The **Low Stock** report is structured into a header section and three distinct canvases, each offering a different perspective on Low Stock occurrences to support comprehensive analysis and informed decision-making.

This alert will begin by calculating average forecast demand for each week until the lesser of (planning horizon, # of days to review) from Today. Then determine which days' inventory falls below (Days of supply x Average Forecast Demand). In order for an item/location/day to be Low Stock it must not be triggered by Out of Stock alert. An item/location cannot be alerted for both Out of Stock and Low Stock. A day may have lost sales and does not meet the rules for OOS alert, but does meet the Low Stock rules. This means Out of Stock checks must be completed for item/location/day before Low Stock checks.

In this context, a Low Stock event refers to any occurrence triggered by the Low Stock Alert, based on the rules defined within the Alert Management tool.

Figure 1-38 Inventory Alerts – Low Stock



Header Section

At the top of the report, a header displays five key performance tiles summarizing critical metrics related to low level of stock situations:

- **Total Increase (R):** Represents the total value of Low Stock, expressed in retail currency (R), across all relevant products and locations within the selected time frame.
- **Total Increase (U):** Represents the total quantity of Low Stock, measured in units (U), across all relevant products and locations within the selected period.
- % Increase (U): Shows the percentage of Low Stock units relative to average demand, highlighting the significance of the stock shortage in relation to item demand.

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- Avg Items Low Stock: Displays the average number of distinct items categorized as Low Stock, providing insight into the overall breadth of stock issues.
- Low Stock Days (Max): Indicates the maximum number of consecutive days an item was out of stock, helping to identify severe or prolonged stock level problems.

These tiles offer quick, high-level indicators of the overall impact of Low Stock on business performance, tailored to the filters selected by the user.

Canvas 1 – Low Stock (Unit) by Class and District

The first canvas offers a visual representation of Low Stock quantities, segmented by product class and district. A bar chart, positioned in the top-left corner of the canvas, illustrates Low Stock (U) broken down by both class and district, enabling users to quickly identify where the highest concentrations of Low Stock are occurring.

Canvas 2 – Low Stock (Unit and Retail) by Subclass and District

The second canvas offers a comparative analysis of Low Stock, focusing on both unit and retail value metrics.

A bar chart is used to display:

- Low Stock Units (U): Represents the total number of product units flagged as Low Stock within the reporting period, based on the predefined thresholds set in the Alert Management tool. This metric helps quantify the physical extent of inventory shortages across subclasses and districts.
- Low Stock Retail (R): Represents the total retail value of all products classified as Low Stock, calculated by multiplying the unit retail price by the corresponding quantity of Low Stock units. This metric provides a financial perspective on the potential revenue at risk due to Low Stock conditions.

These metrics are segmented by District and Subclass.

This view helps users analyze how different geographical areas and product segments contribute to the low level of stock, supporting more targeted inventory management strategies.

Canvas 3 – Detailed Data Table

The third canvas contains a comprehensive data table that provides detailed, time-phased metrics for in-depth analysis:

The table includes the following key metrics:

- LOW_STOCK_RETAIL: The monetary value of low level of invetory.
- LOW_STOCK_UNITS: The total number of product units classified as Low Stock based on their relationship to the demand forecast. This metric indicates instances where available inventory falls below the expected demand threshold, signaling potential risks of stockouts and unmet customer deman.
- ALERT_DAYS_COUNT: The number of days during which the Low Stock condition was active.

Data is presented in a time-phased format, showing the specific days when low stock occurred, allowing users to identify patterns, trends, or recurring issues over time.

Additionally, the table displays the hierarchical structure above the Subclass level (Class and Department)

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This detailed breakdown enables users to perform granular analyses of Low Stock events, understanding not only when they occurred but also how they relate to the broader organizational structure of products and locations.

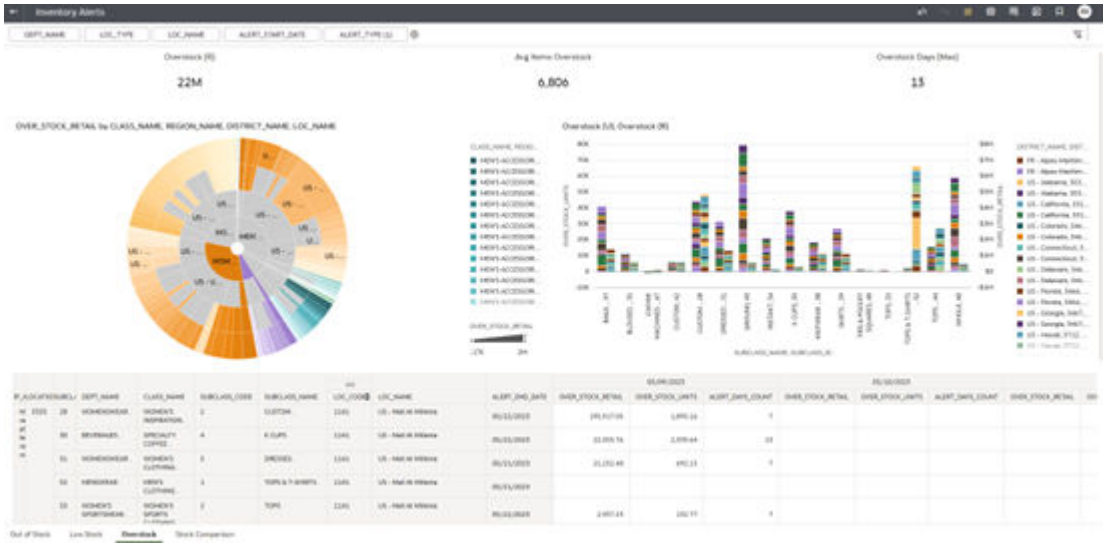
Overstock

The **Overstock** report is structured with a header section and three distinct analytical canvases, each delivering a specific perspective on overstock conditions to facilitate thorough analysis and support data-driven decision-making.

This alert type is indicating that stock exceeds what is needed for the next review period (ordering opportunity). Due to the way this alert has been approached it does not attempt to validate the replenishment policies themselves, rather alert users when stock is greater than the target stock level as defined by the replenishment policy; meaning the safety stock/target stock levels are assumed to be accurate and representative of the business' need.

In this context, an **Overstock** event is defined as any occurrence activated by the Overstock Alert, in accordance with the parameters and rules configured within the Alert Management tool.

Figure 1-39 Inventory Alerts - Overstock



Header Section

At the top of the report, a header presents three key performance indicators (KPIs) that encapsulate essential metrics related to overstock situations:

- **Overstock (R):** Displays the total value of overstock in retail currency (R) across all relevant products and locations within the selected time frame.
- **Average Items Overstock:** Shows the average number of distinct items that were overstock, providing an indicator of the overall breadth of overstock issues.
- **Overstock Days (Max):** Indicates the maximum number of consecutive days an item was overstock, helping to identify severe or prolonged high level of stock.

These tiles serve as quick, high-level indicators of the overall impact of overstock on business performance based on the filter defined by the user.

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Canvas 1 – Overstock (Retail) by Class and Location

The first canvas provides a visual representation of overstock in retail value segmented by product class and location. Positioned in the top-left corner of the screen, a radial (circular) chart illustrates **Overstock (R)**, broken down by both class and location (store or distribution center) enabling users to quickly identify areas with the greatest financial impact resulting from overstock situations.

Canvas 2 – Overstock (Unit and Retail) by Subclass and District

The second canvas offers a comparative analysis of overstock, focusing on both unit and retail value metrics:

A bar chart is used to display:

- Overstock (U): Total quantity of units classified as overstock.
- Overstock (R): The total retail value of units classified as overstock, calculated by multiplying the quantity of overstocked items by their respective retail prices.

These metrics are segmented by District and Subclass.

Canvas 3 – Detailed Data Table

The third canvas contains a comprehensive data table that provides detailed, time-phased metrics for in-depth analysis.

The table includes the following key metrics:

- OVER_STOCK_RETAIL: The monetary value of inventory classified as overstock, representing the total retail worth of surplus stock exceeding the defined thresholds.
- OVER_STOCK _UNITS: The total number of units exceeding the predetermined stock level, indicating the quantity of inventory above the acceptable stock limits.
- ALERT_DAYS_COUNT: The number of days during which the overstock condition persisted.

Data is presented in a time-phased format, showing the specific days when overstock occurred, allowing users to identify patterns, trends, or recurring issues over time.

Additionally, the table displays the hierarchical structure above the Subclass level (Class and Department).

This detailed breakdown enables users to perform granular analyses of alert events, understanding not only when they occurred but also how they relate to the broader organizational structure of products and locations.

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 markdowns. 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.

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- 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.

- Use the Plan View to review the forecasted sales and inventory.
- 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.
- 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.
- 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	• 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	• 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	• 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	• 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	Ensure that Max SafetyStockUnits/Days is not constraining OP, allowing inventory to get too low before re-ordering. • Optionally: – 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.

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Issue	Replenishment Method	Policy Adjustment
	Dynamic	Ensure that Max SafetyStockUnits/Days is not constraining IP, allowing inventory to get too low before re-ordering. • Optionally: – 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 (for example, holiday)
Overstock	Min/Max	• Create a StockLevelOverride, set Increment % to a value less than 1 to decrease OP / OUTL to align with a slow period of forecastedsales.
	Time Supply	• Ensure that Min SafetyStockUnits/Days is not increasing OP undesirably. • Optionally: – 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.
	Dynamic	• Ensure that Min SafetyStockUnits/Days is not increasing OP undesirably. • Optionally: – 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.

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.

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Table 1-2 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.
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.

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Table 1-2 (Cont.) IPO-IO Term Definitions

Term	Definition
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.

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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.

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