Oracle® Retail Replenishment Optimization

User Guide

Release 13.0.4

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Oracle Retail Replenishment Optimization User Guide, Release 13.0.4

Primary Author: Barrett Gaines

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Preface

The *Oracle Retail Replenishment Optimization User Guide* describes the application's user interface and how to navigate through it.

Audience

This document is intended for the users and administrators of Oracle Retail Replenishment Optimization. This may include pricing analysts and merchandise category managers.

Related Documents

For more information, see the following documents in the Oracle Retail Replenishment Optimization Release 13.0.4 documentation set:

- *Oracle Retail Replenishment Optimization Installation Guide*
- *Oracle Retail Replenishment Optimization Release Notes*
- *Oracle Retail Replenishment Optimization Implementation Guide*

Customer Support

To contact Oracle Customer Support, access My Oracle Support at the following URL:

`https://metalink.oracle.com`

When contacting Customer Support, please provide the following:

- Product version and program/module name
- Functional and technical description of the problem (include business impact)
- Detailed step-by-step instructions to recreate
- Exact error message received
- Screen shots of each step you take

Review Patch Documentation

If you are installing the application for the first time, you install either a base release (for example, 13.0) or a later patch release (for example, 13.0.2). If you are installing a software version other than the base release, be sure to read the documentation for each patch release (since the base release) before you begin installation. Patch documentation can contain critical information related to the base release and code changes that have been made since the base release.

Oracle Retail Documentation on the Oracle Technology Network

In addition to being packaged with each product release (on the base or patch level), all Oracle Retail documentation is available on the following Web site (with the exception of the Data Model which is only available with the release packaged code):

`http://www.oracle.com/technology/documentation/oracle_retail.html`

Documentation should be available on this Web site within a month after a product release. Note that documentation is always available with the packaged code on the release date.

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.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

1
Introduction

The primary goal of Replenishment Optimization (RO) is to harness the replenishment methods available in the client's replenishment system. To make best use of the available replenishment capabilities, RO balances inventory investments across item/stores to maximize return on investment. Optimization is performed based on business objectives and allows retailers to make inventory investment decisions that are in line with financial goals. The recommendations take into account sales volume, volatility, availability of forecast data, seasonality, client business rules and constraints, and financial objectives to determine the optimized values.

RO automatically monitors item/store demand and supply chain variables to determine optimal inventory for greatest return. It recommends replenishment settings, either automatically approving the changes or raising alerts, for example, alerting higher impact items. The optimal replenishment settings recommended by RO may be used to update Oracle Retail Advanced Inventory Planning (AIP) replenishment parameters or the retailer's legacy replenishment system.

The automated management of replenishment settings based on item/store selling characteristics ensures accurate replenishment and allows the user to focus on maximizing profit rather than the time-consuming business of managing individual item/store level replenishment.

With RO, you can:

- Make informed decisions on inventory investments with customer service-based business goals in mind.
  - You can base your inventory investment decisions on available budget, desired service levels, or a combination of the two.
- Receive optimal replenishment settings for item/stores.
  - Inventory investment trade-offs are performed based on item/store level demand profiles and return on investment.
  - Robust simulation techniques drive product/location return on inventory investment calculations.
  - Once an overall inventory investment decision is made, RO delivers the item/store-specific requirements to help you reach that goal.
- Use item weighting during optimization.
  - RO can consider product importance when assessing return on investment.
  - RO performs optimization and inventory investment recommendations based on the statistical characteristics of the item/store. If an item is important for strategic reasons (for example, the item may be a traffic driver, and therefore it

is important to maintain high service levels for the item), you can specify a higher weight for that item.

- Run optimization dynamically against the latest assortment.
  - RO can consider changing assortments and associated item priorities that result from an assortment rationalization process.

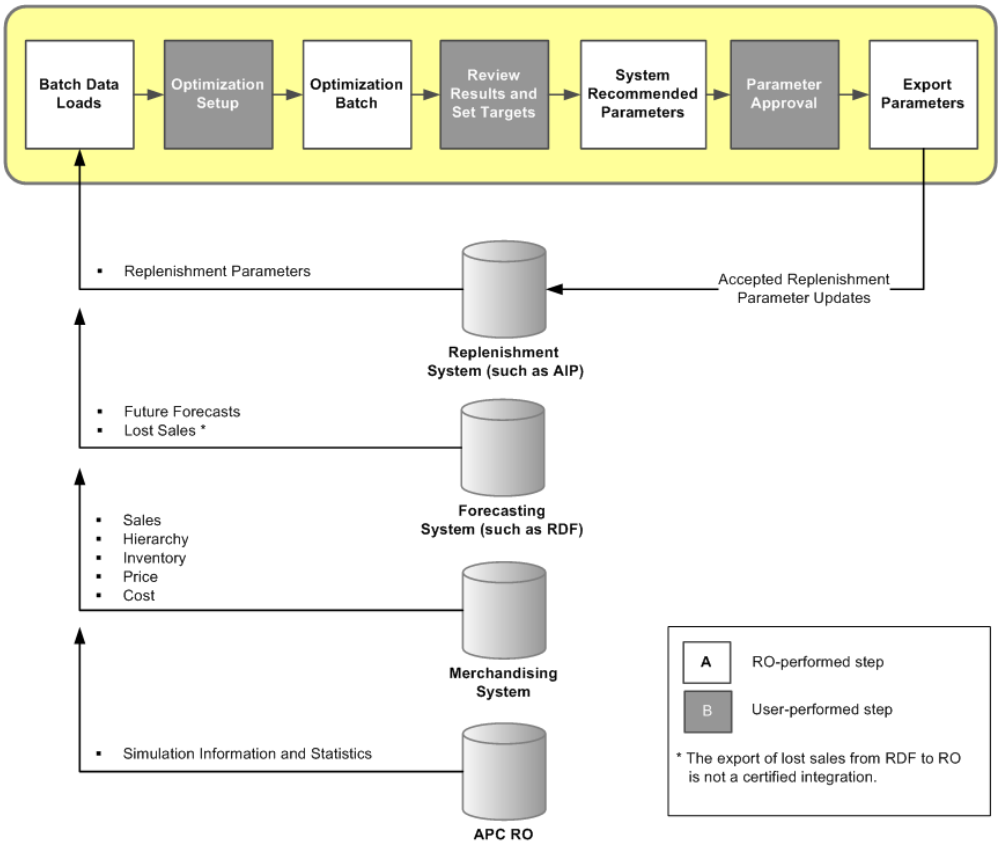
RO Solution Process Overview

The following diagram is a high level view of the RO process flow. Inventory, sales, and replenishment parameters are loaded from the merchandising system and the replenishment system. Forecasts and lost sales information are loaded from the forecasting system. Simulation information and statistics are loaded from Analytic Parameter Calculator Replenishment Optimization (APC RO).

The RO batch process generates the optimal system recommended replenishment settings. Users can perform what-if analysis by changing replenishment settings and determining impact on projected inventory and service levels. Users can restrict this analysis only to altered item/locations. The user then approves the settings by accepting the system recommendations, overriding recommendations with special inputs, or by defaulting to the previously approved or current replenishment settings.

The approved settings are then exported from RO to the replenishment system.

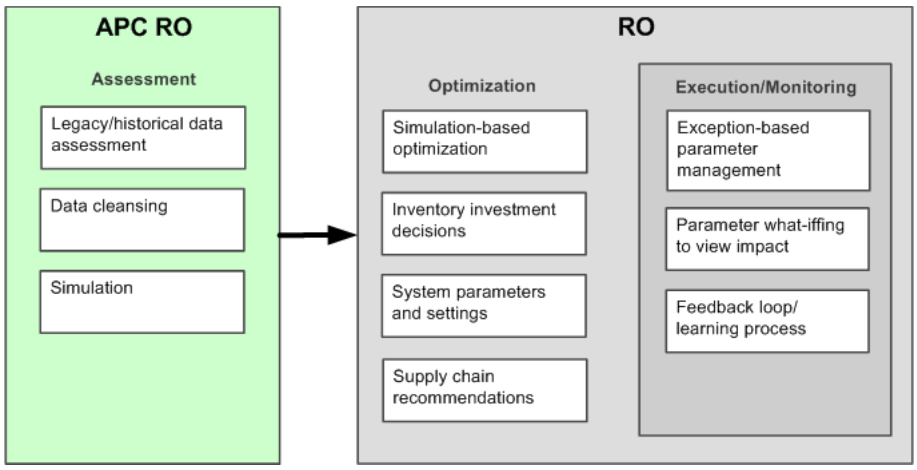
Figure 1–1 RO Solution Process Overview



RO and APC RO

RO receives simulation information and statistics from APC RO and uses these parameters to perform the optimization. This process is described below.

Figure 1–2 RO and APC RO



- APC RO calculates the necessary parameters that drive the optimization within RO.
  - The parameters relate the return on investment information to the statistical characteristics of the item/stores.
  - Parameters are based on robust simulation techniques that capture item/store/day level nuances in demand (such as day-to-day variability and spikes), lead times, pack sizes, review frequencies, warehouse fill rates (for stores running multi-tier), and the impact on the return on inventory investment.
- APC RO exports item/store level characteristics as well as statistical characteristics based on ROI metrics.
- RO performs optimization using the parameters from APC RO. The optimization is based on the following:
  - The latest assortment mix
  - Statistical characteristic-based parameters for new or non-simulated item/stores
  - User-driven optimization metrics such as maximize gross margin, minimize inventory, and so on

Refer to the APC RO documentation for more information.

Keys to Success in Implementing RO

Implementing RO is a business process modification, requiring a thorough understanding of your existing processes relative to replenishment. To understand how you can use RO to automate and improve these processes it is important to get technical training on RO. In addition, we recommend that you take advantage of the knowledge base among Oracle Retail business analysts when deciding to implement RO.

To ensure a successful RO implementation in your business, consider these recommendations:

- Clearly define critical replenishment strategies in place at your business today.
- Understand how RO fits into your business process.
- Involve key business users in the RO implementation process. Make sure they get training in RO and its capabilities.
- Establish technical ownership of the RO implementation and maintenance.
- Validate that you have the resources to take ownership for RO maintenance going forward.
- Commit to support the replenishment targets that fit your aggregate business goals. This may require you to adopt strategies that are quite different from how you replenish today.

Oracle Retail's Analytic Services group has developed RO specialist consultants who can help you learn how to use RO and provide you with process and business consulting services to support anything from initial RO implementation efforts to advanced exception development.

RO Users

The RO users fall into three categories, Replenishment Analysts, Replenishment Managers, and Replenishment Administrators.

Replenishment Analysts are typically responsible for item/location level replenishment settings. They monitor inventory levels and historic lost sales at item/location levels. These users can approve, reject, or override replenishment recommendations. They can perform what-if analysis to determine impact of each of these settings to make informed decisions. Users can restrict their analysis to only alerted item/locations using the Alert Manager.

The Replenishment Managers are responsible for inventory, revenue, and service level targets at aggregate levels of the business. These users are responsible for inventory investment decisions, establishing target service levels, and inventory levels. They may also review and monitor actual inventory and services against targets.

Replenishment Administrators are required to set up RO Replenishment Rule settings that are developed by RO Specialist Consultants. They are not the primary end users of the application.

RO Workbooks

RO contains the following workbooks:

- Optimization Definition Workbook
- Optimization Review Workbook
- Replenishment Admin Workbook
- Replenishment Analyst Workbook
- Replenishment Manager Workbook
- Subgroup Analysis Workbook

2

Optimization Definition Workbook

The Optimization Definition workbook is used to define optimization parameters as well as to specify the mode of the RO batch run. RO batch has 2 primary modes: full mode and refresh mode. In the full mode, RO performs optimization calculations and generates the Inventory/Service Level Trade-off curves, based on user-defined objective functions. In the refresh mode, RO refreshes the replenishment methods and parameters for product/locations based on approved inventory/service level targets from pervious full mode run.

The Optimization Definition workbook contains the following tabs and worksheets:

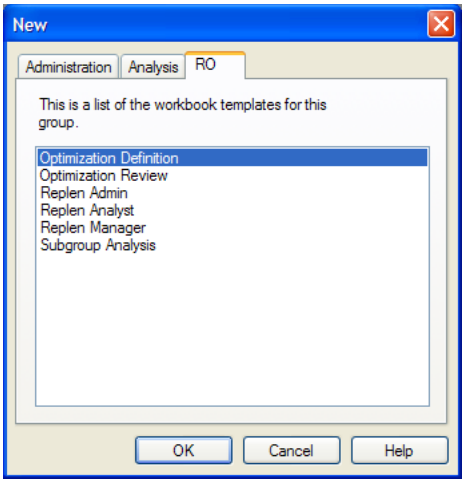
- Optimization Run Setup Tab
  - Basic Setup Worksheet
  - Advanced Setup Worksheet
- Sub-grouping Setup Tab
  - Define Sub-grouping Criteria Worksheet
  - Sub-grouping Labels Worksheet
  - User Break Points Override Worksheet
- Constraints Setup Tab
  - Specify Minimum Constraints Worksheet
  - Specify Maximum Constraint Worksheet
  - Specify Maximum Order Frequency Worksheet

Optimization Definition Wizard

To open an Optimization Definition workbook, perform the following:

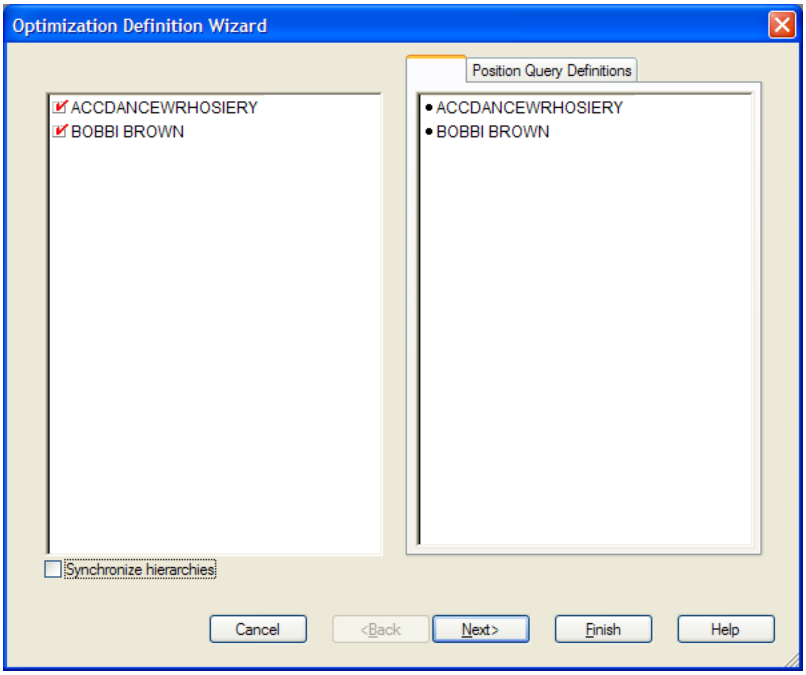
1. Select **File - New** or click the **New** button.
2. On the **RO** tab, select **Optimization Definition** and click **OK**.

Figure 2–1 Creating a New Optimization Definition Workbook



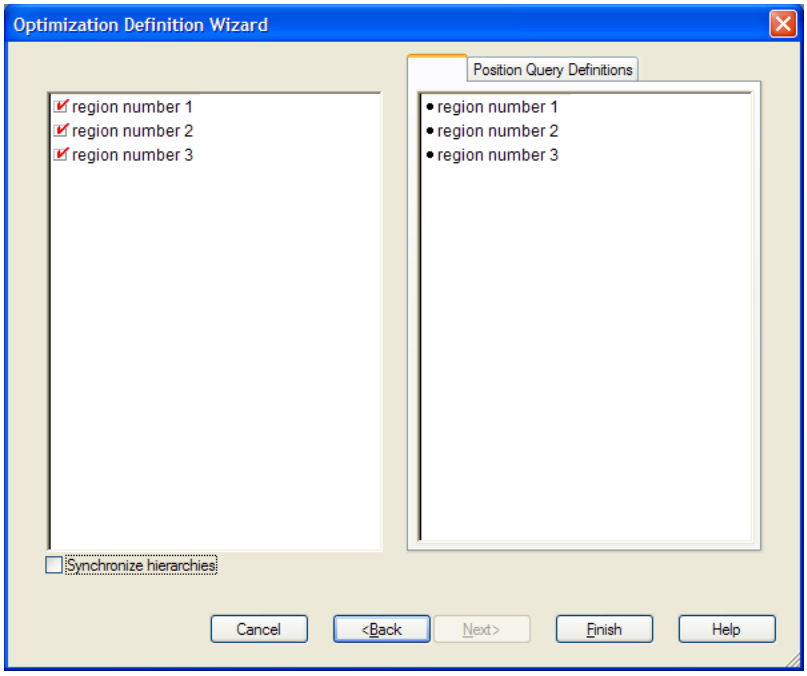
3. The **Select Products** screen appears. Select the departments to appear in the workbook and click **Next**.

Figure 2–2 Creating a New Optimization Definition Workbook - Select Products



4. The **Select Locations** screen appears. Select the locations to appear in the workbook and click **Finish**.

Figure 2–3 Creating a New Optimization Definition Workbook - Select Locations



The Optimization Definition workbook builds.

Optimization Run Setup Tab

The Optimization Run Setup tab contains two worksheets:

- Basic Setup Worksheet
- Advanced Setup Worksheet

Basic Setup Worksheet

The Basic Setup worksheet allows you to set up optimization parameters like maximizing and minimizing metrics and optimization mode. Note that RO determines optimal inventory investment across product/locations that maximizes returns. The inventory investment is considered the minimizing metric for optimization. Choices for the Optimization Minimizing Metric are Inventory Units and Inventory Cost. Return on investment is the maximizing metric in the optimization. Choices for the Optimization Maximizing Metric are Sales Units, Sales Revenue, Gross Margin, and Service Level.

For example, you can choose to run optimization with the goal to maximize sales revenue and at the same time keep the inventory cost as low as possible.

Figure 2–4 Basic Setup Worksheet

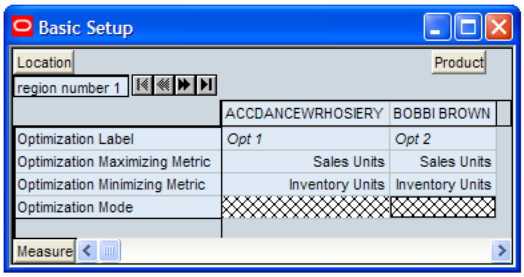


Table 2–1 Basic Setup Worksheet Measures

Measure	Description
Optimization Label	User-defined label of the optimization. This can be viewed in the Optimization Review workbook.
Optimization Maximizing Metric	Used to specify the maximizing metrics in the optimization. This is based on the department/region level. Options are Sales Units, Sales Revenue, Gross Margin, and Service Level.
Optimization Minimizing Metric	Used to specify the minimizing metrics in the optimization. This is based on the department/region level. Options are Inventory Units and Inventory Cost.
Optimization Mode	Used to specify the batch mode: full mode or refresh mode.

Advanced Setup Worksheet

The Advanced Setup worksheet allows you to set the advanced optimization parameters.

Figure 2–5 Advanced Setup Worksheet

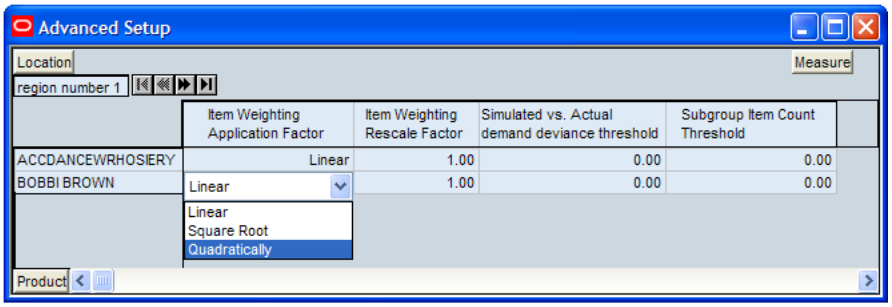


Table 2–2 Advanced Setup Worksheet Measures

Measure	Description
Item Weighting Application Factor	The relationship applied to the item weighting. Options are Linear, Square Root, and Quadratically.
Item Weighting Rescale Factor	A real type measure based on department/region. For example, if IPIs range from 1 to 60, you can input a re-scaling factor of 10 in order to move them on a scale of 1 to 10.
Simulated vs. Actual demand deviance threshold	Used to determine if the demand characteristics of an item/location have deviated significantly from when it was simulated. If this threshold is exceeded, the system uses the statistical grouping level replenishment characteristics rather than the item/location-specific characteristics.
Subgroup Item Count Threshold	When the number of item/locations within a subgroup fall below this threshold, the system assumes that there isn't enough robustness in the item/location-level replenishment characteristics. In those situations, the system uses the statistical grouping level characteristics for all item/locations in the subgroup in order to avoid overfitting.

Sub-grouping Setup Tab

In the Sub-grouping Setup tab, you can define the sub-grouping criteria and specify the metrics to be used when determining the statistically similar item/locations.

RO performs optimization at statistical sub-groupings of item/locations rather than at the item/location level to avoid overfitting. Performing the optimization at the sub-grouping level ensures the optimization results are robust.

Performing Groupings on Multiple Metrics

The sub-grouping is performed in a nested manner: grouping in Grouping Metric 1 first and then further grouping each bucket in Grouping Factor 2, and so on.

The sub-grouping is usually performed based on multiple statistical attributes like selling levels and variability. For example, it is typical to group item/locations based on volume first (using mean as Subgrouping Metric 1). Then, it is typical to further group item/locations within each volume bucket on variability (by specifying CV as Subgrouping Metric 2).

The Sub-grouping Setup tab contains three worksheets:

- Define Sub-grouping Criteria Worksheet
- User Break Points Override Worksheet
- Sub-grouping Labels Worksheet

Define Sub-grouping Criteria Worksheet

This worksheet allows you to define sub-grouping criteria like the number of groupings, sub-grouping metrics, and equalizing metrics. The optimization is performed at the specified optimization level, such as department/region. The sub-grouping criteria is defined for each optimization level.

The number of total subgroupings for the higher level intersection cannot exceed 50. In other words, when entering the values for each of the # of Groups SubGrouping measures, the product of these three numbers cannot exceed 50. The first subgrouping takes priority over the second and third subgroupings, and the second subgrouping takes priority over the third.

If you enter a number in the second or third subgrouping measure that causes the product of the three numbers to exceed 50, an **Out of Range** message appears that suggests a range of acceptable values.

If the values for each of the three subgroupings have already been calculated, and then you change the value of the first subgrouping to a number less than 50 that causes the product of the three measures to exceed 50, an out of range message does not appear. However, once you click **Calculate**, the Subgroup Setup Error Flag measure is checked and an error message appears in the Subgroup Setup Error Message measure.

The screenshot of the worksheet below is at the department/region intersection.

Figure 2–6 Define Sub-grouping Criteria Worksheet

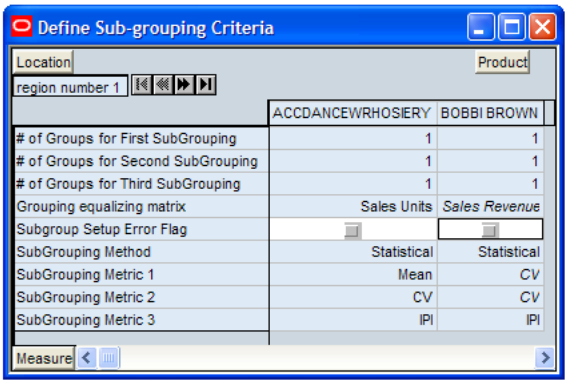


Table 2–3 Define Sub-grouping Criteria Worksheet Measures

Measure	Description
SubGrouping Method	The subgroup method used. Options are Breakpoints or Statistical.
SubGrouping Metric 1	Specify the first grouping factor. Options are Mean, CV, and IPI. Usually the first sub-grouping metric is the selling level (Mean).
SubGrouping Metric 2	Specify the second grouping factor. This cannot be the same as SubGrouping Metric 1 or 3. Options are Mean, CV, and IPI. Usually the second sub-grouping metric is a measure of variability (CV).
SubGrouping Metric 3	Specify the third grouping factor. This cannot be the same as SubGrouping Metric 1 or 2. Options are Mean, CV, and IPI. When using item weights for optimization, the third sub-grouping metric is usually item weights.
# of Groups for First SubGrouping	Specify the number of group for the first group factor. This is an integer measure based on the department/region.
# of Groups for Second SubGrouping	Specify the number of group for the second group factor. This is an integer measure based on the department/region.
# of Groups for Third SubGrouping	Specify the number of group for the third group factor. This is an integer measure based on the department/region.
Grouping Equalizing Matrix	Specify the equalizing matrix used in the statistical sub-grouping. Options are Sales Units, Sales Revenue, and Gross Margin. When running the statistical grouping approach, the system tries to generate the user-specified number of sub-groupings so that the total equalizing metric for each bucket is nearly equal. This is needed to ensure balanced sub-groups during the optimization process when each sub-group is vying for inventory. For example, when choosing a maximizing metric for Gross Margin or Sales Revenue, the user should pick Sales Revenue as the equalizing metric. When maximizing Sales Units or Service Levels, the user should pick Sales Units as the equalizing metric.
Subgroup Setup Error Flag	Boolean measure that indicates an error in the subgroup setup. A true value may be triggered by one of the # of Groups for Subgroupings measures being over the limit or by an incorrect setup of one of the SubGrouping Metric measures.

Committing Sub-group Criteria

Once you have modified the sub-group criteria, performed a what-if case to review the outcome of the modifications, and decided to use the new settings, you can commit them to the domain by selecting **Commit Now** in the **File** menu. Note that only the criteria for sub-groupings is committed, not the arrangement of the item/stores within the subgroupings. The item/stores are not sorted into the new sub-groupings until the next batch run.

User Break Points Override Worksheet

Once the statistical sub-grouping has been performed by the system, you have the option to override it by specifying breakpoints for sub-groupings.

Note that the sub-grouping for breakpoints is performed in a nested manner as it is in the Define Sub-grouping Criteria worksheet. The breakpoints are the upper bounds for each grouping factor.

Figure 2–7 User Break Points Override Worksheet

Table 2–4 User Break Points Override Worksheet Measures

Measure	Description
User defined breakpoints for group factor 1	Specify the breakpoints for the grouping factor 1 for the department/region.
User defined breakpoints for group factor 2	Specify the breakpoints for the grouping factor 2 for the department/region.
User defined breakpoints for group factor 3	Specify the breakpoints for the grouping factor 3 for the department/region.

Sub-grouping Labels Worksheet

This worksheet allows you to create labels for the sub-groupings.

Figure 2–8 Sub-grouping Labels Worksheet

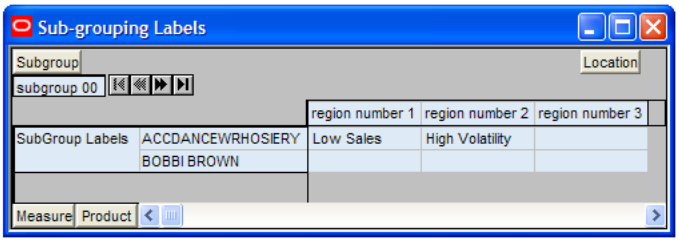


Table 2–5 Sub-grouping Labels Worksheet Measures

Measure	Description
SubGroup Labels	User-defined label for the sub-group. These labels appear in the Optimization Review workbook.

Constraints Setup Tab

The Constraints Setup tab contains three worksheets:

- Specify Minimum Constraints Worksheet
- Specify Maximum Constraint Worksheet
- Specify Maximum Order Frequency Worksheet

Specify Minimum Constraints Worksheet

This worksheet allows you to specify the minimum constraint for an item/region for the optimization. Constraints specified in this worksheet are used in the optimization batch run and are reflected in the constrained optimization results in the Optimization Review workbook.

Figure 2–9 Specify Minimum Constraints Worksheet

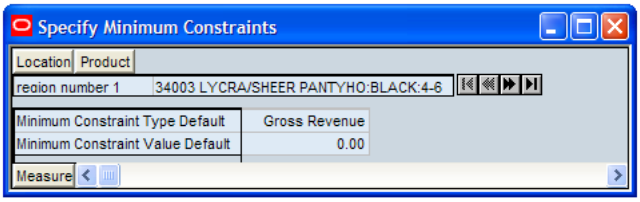


Table 2–6 Specify Minimum Constraints Worksheet Measures

Measure	Description
Minimum Constraint Type Default	Specify the minimum constraint type for an item/region. Options are Service Level, Sales Units, Sales Revenue, and Gross Revenue.
Minimum Constraint Value Default	Specify the value of the minimum constraint.

Specify Maximum Constraint Worksheet

This worksheet allows you to specify the maximum constraint for a department/store for the optimization. Constraints specified in this worksheet are used in the optimization batch run and are reflected in the constrained optimization results in the Optimization Review workbook.

Figure 2–10 Specify Maximum Constraint Worksheet

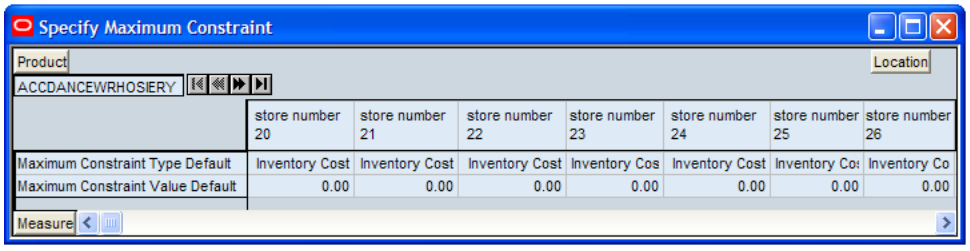


Table 2–7 Specify Maximum Constraint Worksheet Measures

Measure	Description
Maximum Constraint Type Default	Specify the maximum constraint type for a department/store. Options are Inventory Units, Inventory Cost, Weeks of Supply, and Space.
Maximum Constraint Value Default	Specify the value of the maximum constraint.

Specify Maximum Order Frequency Worksheet

This worksheet allows you to specify the maximum order frequency for a department/region/subgroup. For example, you can ensure that the average order frequency (the average number of orders per week) does not exceed a certain threshold for all item/locations.

Figure 2–11 Specify Maximum Order Frequency

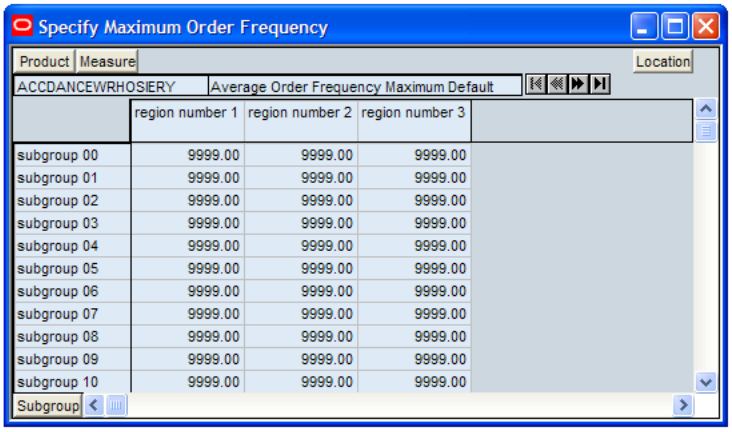


Table 2–8 Specify Maximum Order Frequency Worksheet Measures

Measure	Description
Average Order Frequency Maximum Default	Specify the maximum order frequency value for a department/region/subgroup.

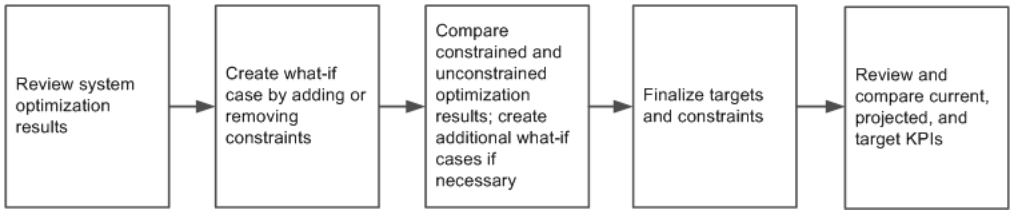
3

Optimization Review Workbook

The Optimization Review workbook allows you to analyze and approve the full mode batch results. You can compare the Inventory/Service Level Trade-off curves generated by both the unconstrained optimization and constrained optimization in the full batch. You can also dynamically change the constraints and view the resulting changes. Once you are satisfied with the optimization result, you can approve the result, which approves and saves the subgrouping breakpoints, recommended scenario for each subgroup, and recommended scenario for each item/store.

The user process flow of the Optimization Review workbook is shown below.

Figure 3–1 Optimization Review Workbook User Process Flow



The Optimization Review workbook contains the following tabs and worksheets:

- Analyze Sub-grouping Tab
  - Review Sub-grouping Results Worksheet
  - User Break Point Overrides Worksheet
  - Review Base Level in Sub-groupings Worksheet
  - Sub-grouping Criteria Worksheet
- Analyze and Approve Optimization Results Tab
  - Optimization Results Review Worksheet
  - Sub-grouping Optimization Results Worksheet
  - Weekly Projected Inventory Review Worksheet
  - Target Selection and Approve Worksheet
  - Review Targets Worksheet
- Review and Analyze Constraints Tab
  - Analyze Base Product Level Constraints Worksheet
  - Analyze Base Location Level Constraints Worksheet

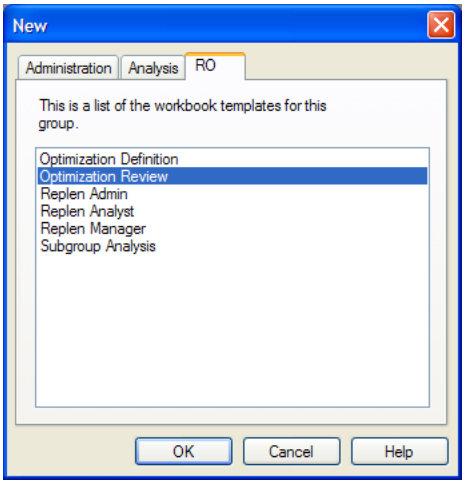
– Maximum Order Frequency Worksheet

Optimization Review Wizard

To open an Optimization Review workbook, perform the following:

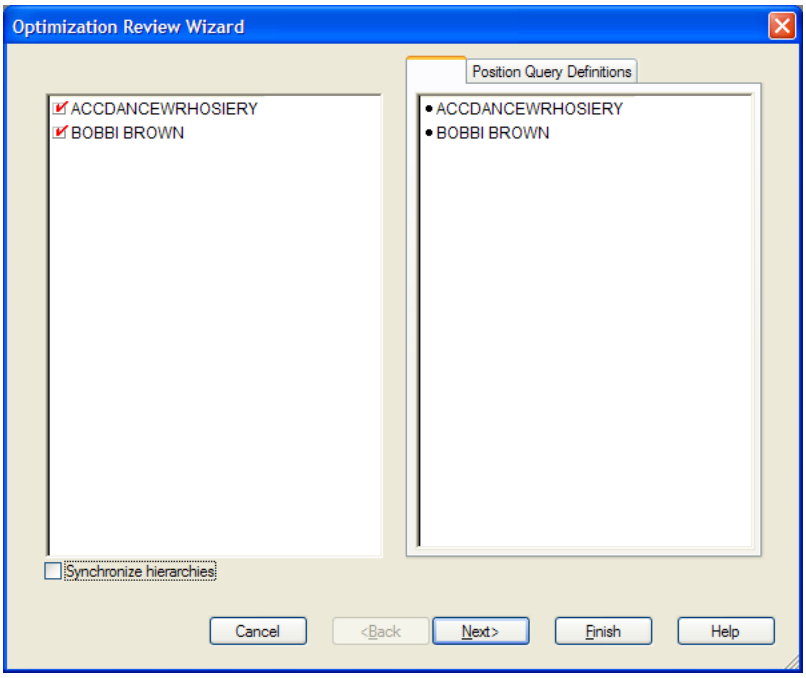
1. Select **File - New** or click the **New** button.
2. On the **RO** tab, select **Optimization Review** and click **OK**.

Figure 3–2 Creating a New Optimization Review Workbook



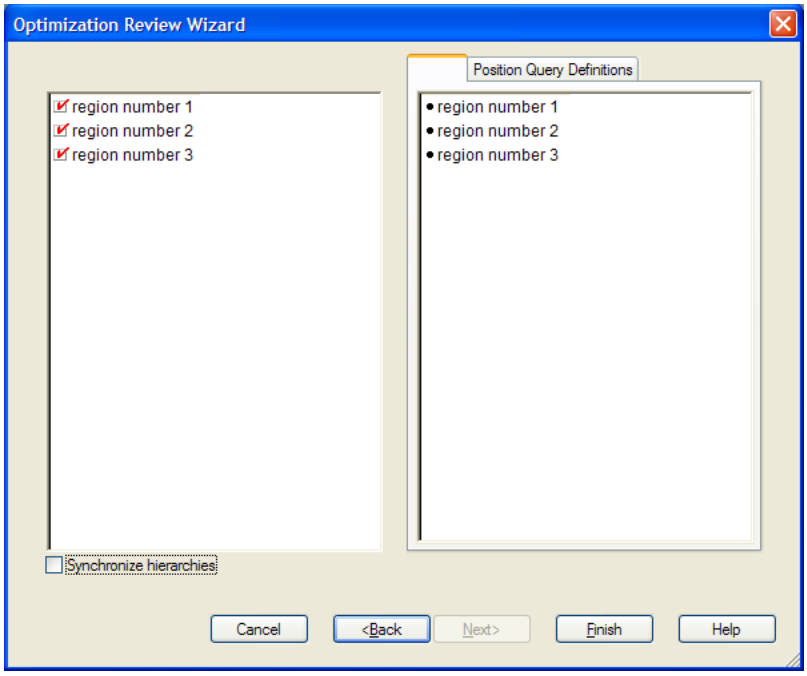
3. The **Select Products** screen appears. Select the departments to appear in the workbook and click **Next**.

Figure 3–3 Creating a New Optimization Review Workbook - Select Products



4. The **Select Locations** screen appears. Select the locations to appear in the workbook and click **Finish**.

Figure 3–4 Creating a New Optimization Review Workbook - Select Locations



The Optimization Review workbook builds.

Analyze Sub-grouping Tab

The Analyze Sub-grouping tab contains four worksheets:

- Review Sub-grouping Results Worksheet
- User Break Point Overrides Worksheet
- Review Base Level in Sub-groupings Worksheet
- Sub-grouping Criteria Worksheet

Review Sub-grouping Results Worksheet

This worksheet allows you to review the sub-grouping results from the full mode batch run. This worksheet is at the department/region/subgroup intersection and is read-only. Only valid subgroups are displayed.

Figure 3–5 Review Sub-grouping Results Worksheet

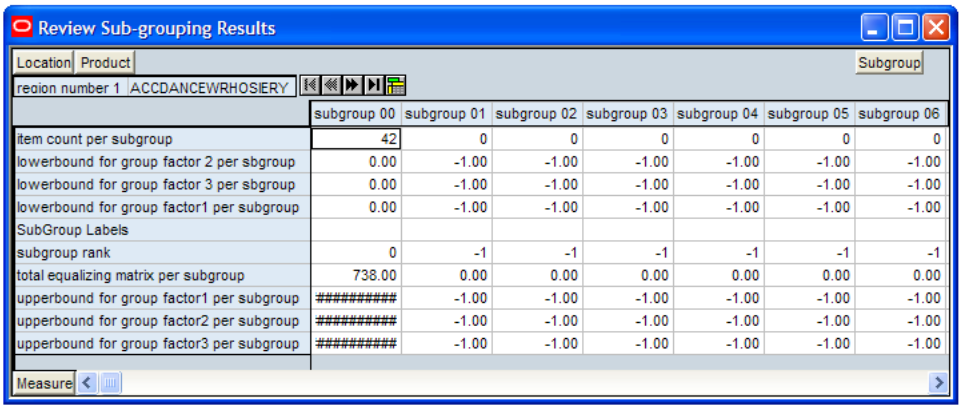


Table 3–1 Review Sub-grouping Results Worksheet Measures

Measure	Description
Item Count Per Subgroup	The number of item/stores for the subgroup.
Lowerbound for Group Factor1 per Sbgroup	The lower bound of the grouping factor1 for the subgroup.
Lowerbound for Group Factor2 per Sbgroup	The lower bound of the grouping factor2 for the subgroup.
Lowerbound for Group Factor3 per Sbgroup	The lower bound of the grouping factor3 for the subgroup.
SubGroup Labels	User-defined label of the subgroup.
Subgroup Rank	Ranks the subgroups for each department/region.
Total Equalizing Matrix per Subgroup	The total of equalizing matrix for each subgroup.
Upperbound for Group factor1 per Subgroup	The upper bound of the grouping factor1 for the subgroup.
Upperbound for Group factor2 per Subgroup	The upper bound of the grouping factor2 for the subgroup.
Upperbound for Group factor3 per Subgroup	The upper bound of the grouping factor3 for the subgroup.

User Break Point Overrides Worksheet

This worksheet allows you to review the breakpoint overrides. This worksheet is at the department/region/breakpoint intersection and is read-only.

Figure 3–6 User Break Point Overrides Worksheet

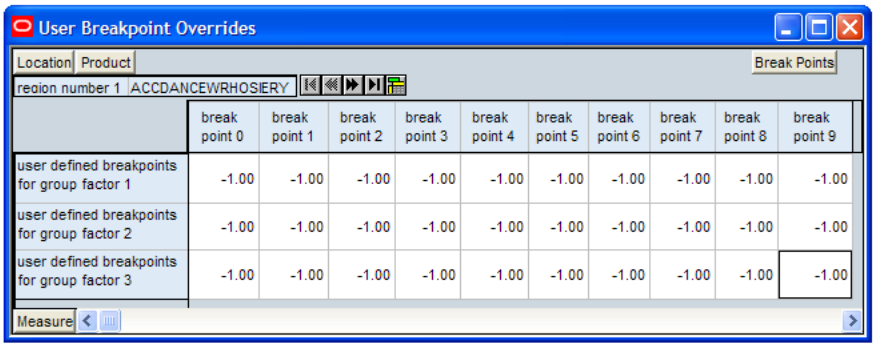


Table 3–2 User Break Point Overrides Worksheet Measures

Measure	Description
User Defined Breakpoints for Group Factor 1	The breakpoint for the grouping factor 1 for the department/region.
User Defined Breakpoints for Group Factor 2	The breakpoint for the grouping factor 2 for the department/region.
User Defined Breakpoints for Group Factor 3	The breakpoint for the grouping factor 3 for the department/region.

Review Base Level in Sub-groupings Worksheet

This worksheet allows you to review the sub-grouping information for the item/stores in the department/regions that were selected in the wizard. This worksheet is at the item/store intersection and is read-only.

Figure 3–7 Review Base Level in Sub-groupings Worksheet

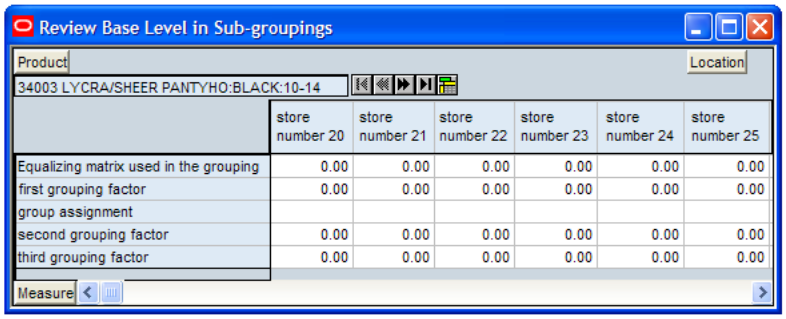


Table 3–3 Review Base level in Sub-groupings Worksheet Measures

Measure	Description
Equalizing Matrix Used in the Grouping	The value of the equalizing matrix used in subgrouping.
Group Assignment	The subgroup that the item/store belongs to.
First Grouping Factor	The value of grouping factor 1.
Second Grouping Factor	The value of grouping factor 2.
Third Grouping Factor	The value of grouping factor 3.

Sub-grouping Criteria Worksheet

This worksheet allows you to review number of sub-groupings needed for a higher level intersection as well as the subgrouping metrics and the grouping equalizing matrix used for the sub-groupings This worksheet is at the department/region intersection and is read-only.

Figure 3–8 Sub-grouping Criteria Worksheet

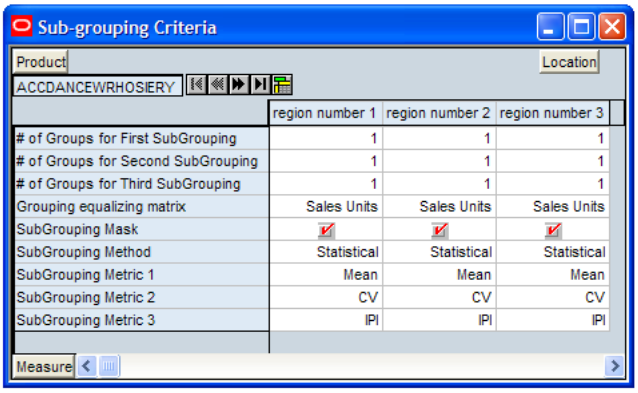


Table 3–4 Sub-grouping Criteria Worksheet Measures

Measure	Description
# of Groups for First SubGrouping	Specify the number of group for the first group factor. This is an integer measure based on the department/region.
# of Groups for Second SubGrouping	Specify the number of group for the second group factor. This is an integer measure based on the department/region.
# of Groups for Third SubGrouping	Specify the number of group for the third group factor. This is an integer measure based on the department/region.
Grouping Equalizing Matrix	Specify the equalizing matrix used in the statistical sub-grouping. Options are Sales Units, Sales Revenue, and Gross Margin.
Subgroup Setup Error Flag	Boolean measure that indicates an error in the subgroup setup. A true value may be triggered by one of the # of Groups for Subgroupings measures being over the limit or by an incorrect setup of one of the SubGrouping Metric measures.
SubGrouping Method	The subgroup method used. Options are Breakpoints or Statistical.
SubGrouping Metric 1	Specify the first grouping factor. Options are Mean, CV, and IPI.
SubGrouping Metric 2	Specify the second grouping factor. This cannot be the same as SubGrouping Metric 1 or 3. Options are Mean, CV, and IPI
SubGrouping Metric 3	Specify the third grouping factor. This cannot be the same as SubGrouping Metric 1 or 2. Options are Mean, CV, and IPI

Analyze and Approve Optimization Results Tab

The Analyze and Approve Optimization Results tab allows you to review the results of the optimization batch run, review the impact of specified constraints, and determine inventory/service level targets.

The tab contains five worksheets:

- Optimization Results Review Worksheet
- Sub-grouping Optimization Results Worksheet
- Weekly Projected Inventory Review Worksheet
- Target Selection and Approve Worksheet
- Review Targets Worksheet

Optimization Results Review Worksheet

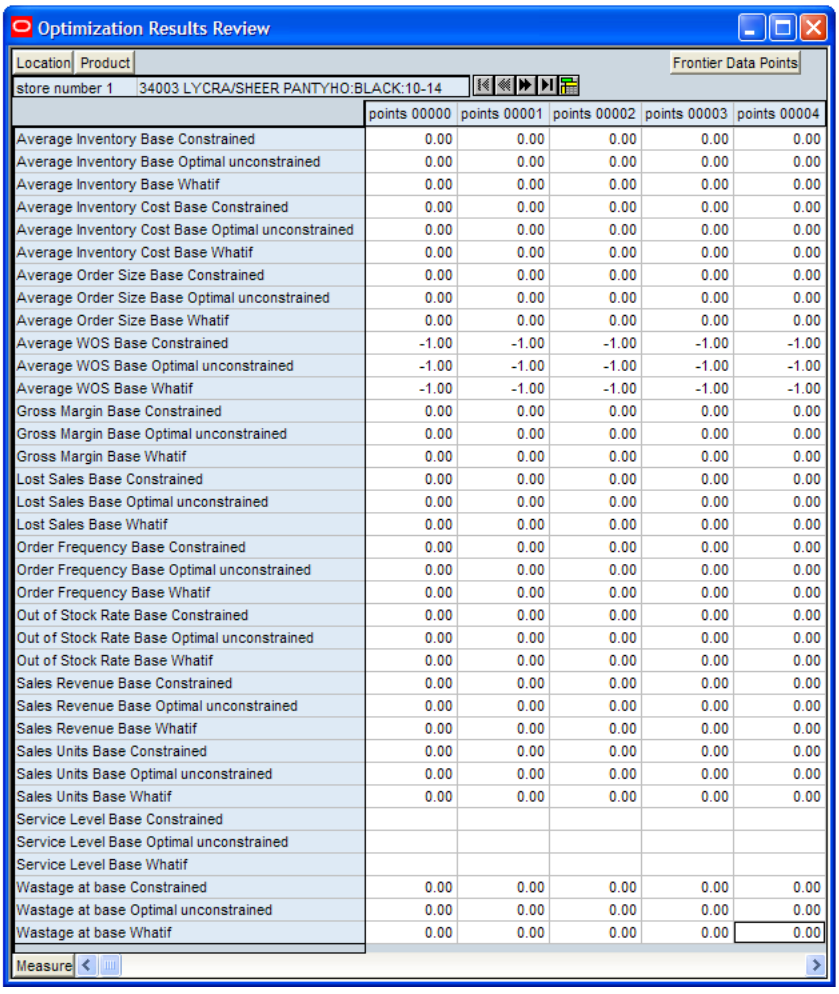
RO performs optimization and calculates optimal inventory allocation and associated service levels, projected sales, and lost sales for various increments of inventory. Each incremental inventory investment is referred to as a point on the Inventory/Service Level Trade-off curve.

This worksheet displays inventory, service levels, sales, lost sales, and other key metrics for each point of incremental inventory investment.

RO performs one batch run of unconstrained optimization and another run based on the specified constraints defined in the Optimization Definition workbook. By comparing the two runs, you can understand the costs of those specified constraints. You can also specify what-if constraints from the Review and Analyze Constraints tab and interactively view the results from the optimization based on the what-if constraints.

This worksheet is read-only.

Figure 3–9 Optimization Results Review Worksheet



Optimization Results Review

Location | Product | Frontier Data Points

store number 1 | 34003 LYCRA/SHEER PANTYHO:BLACK:10-14

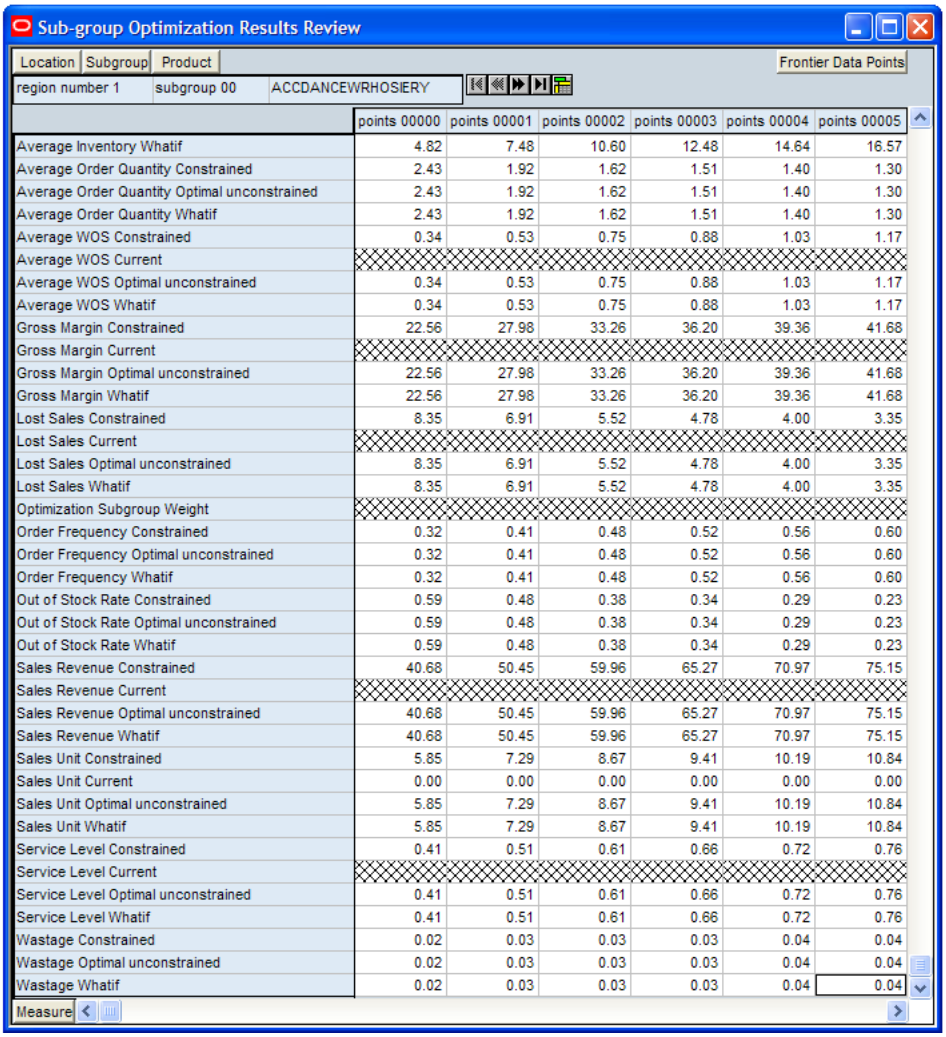
	points 00000	points 00001	points 00002	points 00003	points 00004
Average Inventory Base Constrained	0.00	0.00	0.00	0.00	0.00
Average Inventory Base Optimal unconstrained	0.00	0.00	0.00	0.00	0.00
Average Inventory Base Whatif	0.00	0.00	0.00	0.00	0.00
Average Inventory Cost Base Constrained	0.00	0.00	0.00	0.00	0.00
Average Inventory Cost Base Optimal unconstrained	0.00	0.00	0.00	0.00	0.00
Average Inventory Cost Base Whatif	0.00	0.00	0.00	0.00	0.00
Average Order Size Base Constrained	0.00	0.00	0.00	0.00	0.00
Average Order Size Base Optimal unconstrained	0.00	0.00	0.00	0.00	0.00
Average Order Size Base Whatif	0.00	0.00	0.00	0.00	0.00
Average WOS Base Constrained	-1.00	-1.00	-1.00	-1.00	-1.00
Average WOS Base Optimal unconstrained	-1.00	-1.00	-1.00	-1.00	-1.00
Average WOS Base Whatif	-1.00	-1.00	-1.00	-1.00	-1.00
Gross Margin Base Constrained	0.00	0.00	0.00	0.00	0.00
Gross Margin Base Optimal unconstrained	0.00	0.00	0.00	0.00	0.00
Gross Margin Base Whatif	0.00	0.00	0.00	0.00	0.00
Lost Sales Base Constrained	0.00	0.00	0.00	0.00	0.00
Lost Sales Base Optimal unconstrained	0.00	0.00	0.00	0.00	0.00
Lost Sales Base Whatif	0.00	0.00	0.00	0.00	0.00
Order Frequency Base Constrained	0.00	0.00	0.00	0.00	0.00
Order Frequency Base Optimal unconstrained	0.00	0.00	0.00	0.00	0.00
Order Frequency Base Whatif	0.00	0.00	0.00	0.00	0.00
Out of Stock Rate Base Constrained	0.00	0.00	0.00	0.00	0.00
Out of Stock Rate Base Optimal unconstrained	0.00	0.00	0.00	0.00	0.00
Out of Stock Rate Base Whatif	0.00	0.00	0.00	0.00	0.00
Sales Revenue Base Constrained	0.00	0.00	0.00	0.00	0.00
Sales Revenue Base Optimal unconstrained	0.00	0.00	0.00	0.00	0.00
Sales Revenue Base Whatif	0.00	0.00	0.00	0.00	0.00
Sales Units Base Constrained	0.00	0.00	0.00	0.00	0.00
Sales Units Base Optimal unconstrained	0.00	0.00	0.00	0.00	0.00
Sales Units Base Whatif	0.00	0.00	0.00	0.00	0.00
Service Level Base Constrained					
Service Level Base Optimal unconstrained					
Service Level Base Whatif					
Wastage at base Constrained	0.00	0.00	0.00	0.00	0.00
Wastage at base Optimal unconstrained	0.00	0.00	0.00	0.00	0.00
Wastage at base Whatif	0.00	0.00	0.00	0.00	0.00

Measure

Sub-grouping Optimization Results Worksheet

This worksheet displays the points of valid department/region/subgroups on the Inventory/Service Level Trade-off curve. This worksheet is at the department/region/subgroup/frontier points intersection and is read-only.

Figure 3–10 Sub-grouping Optimization Results Worksheet



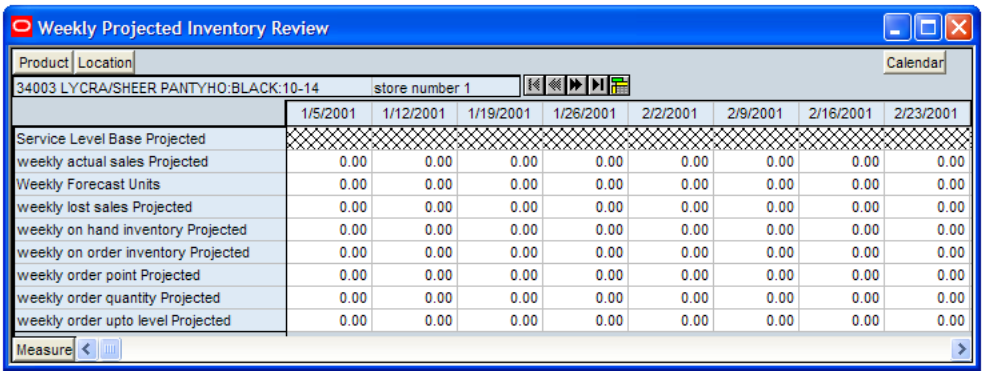
	points 00000	points 00001	points 00002	points 00003	points 00004	points 00005
Average Inventory Whatif	4.82	7.48	10.60	12.48	14.64	16.57
Average Order Quantity Constrained	2.43	1.92	1.62	1.51	1.40	1.30
Average Order Quantity Optimal unconstrained	2.43	1.92	1.62	1.51	1.40	1.30
Average Order Quantity Whatif	2.43	1.92	1.62	1.51	1.40	1.30
Average WOS Constrained	0.34	0.53	0.75	0.88	1.03	1.17
Average WOS Current						
Average WOS Optimal unconstrained	0.34	0.53	0.75	0.88	1.03	1.17
Average WOS Whatif	0.34	0.53	0.75	0.88	1.03	1.17
Gross Margin Constrained	22.56	27.98	33.26	36.20	39.36	41.68
Gross Margin Current						
Gross Margin Optimal unconstrained	22.56	27.98	33.26	36.20	39.36	41.68
Gross Margin Whatif	22.56	27.98	33.26	36.20	39.36	41.68
Lost Sales Constrained	8.35	6.91	5.52	4.78	4.00	3.35
Lost Sales Current						
Lost Sales Optimal unconstrained	8.35	6.91	5.52	4.78	4.00	3.35
Lost Sales Whatif	8.35	6.91	5.52	4.78	4.00	3.35
Optimization Subgroup Weight						
Order Frequency Constrained	0.32	0.41	0.48	0.52	0.56	0.60
Order Frequency Optimal unconstrained	0.32	0.41	0.48	0.52	0.56	0.60
Order Frequency Whatif	0.32	0.41	0.48	0.52	0.56	0.60
Out of Stock Rate Constrained	0.59	0.48	0.38	0.34	0.29	0.23
Out of Stock Rate Optimal unconstrained	0.59	0.48	0.38	0.34	0.29	0.23
Out of Stock Rate Whatif	0.59	0.48	0.38	0.34	0.29	0.23
Sales Revenue Constrained	40.68	50.45	59.96	65.27	70.97	75.15
Sales Revenue Current						
Sales Revenue Optimal unconstrained	40.68	50.45	59.96	65.27	70.97	75.15
Sales Revenue Whatif	40.68	50.45	59.96	65.27	70.97	75.15
Sales Unit Constrained	5.85	7.29	8.67	9.41	10.19	10.84
Sales Unit Current	0.00	0.00	0.00	0.00	0.00	0.00
Sales Unit Optimal unconstrained	5.85	7.29	8.67	9.41	10.19	10.84
Sales Unit Whatif	5.85	7.29	8.67	9.41	10.19	10.84
Service Level Constrained	0.41	0.51	0.61	0.66	0.72	0.76
Service Level Current						
Service Level Optimal unconstrained	0.41	0.51	0.61	0.66	0.72	0.76
Service Level Whatif	0.41	0.51	0.61	0.66	0.72	0.76
Wastage Constrained	0.02	0.03	0.03	0.03	0.04	0.04
Wastage Optimal unconstrained	0.02	0.03	0.03	0.03	0.04	0.04
Wastage Whatif	0.02	0.03	0.03	0.03	0.04	0.04

Measure

Weekly Projected Inventory Review Worksheet

This worksheet displays the weekly projected inventory at the item/store/week level. It is a read-only worksheet.

Figure 3–11 Weekly Projected Inventory Review Worksheet



Target Selection and Approve Worksheet

This worksheet allows you to specify the target inventory and service levels for the optimization level (department/region). You also have the option to apply unconstrained, constrained, or what-if optimization results for approval. Note that only one point or target can be selected for an optimization level.

Once you have selected the points, use the **Select Target and Approve** option under the **Actions** menu to approve the targets.

Figure 3–12 Target Selection and Approve Worksheet

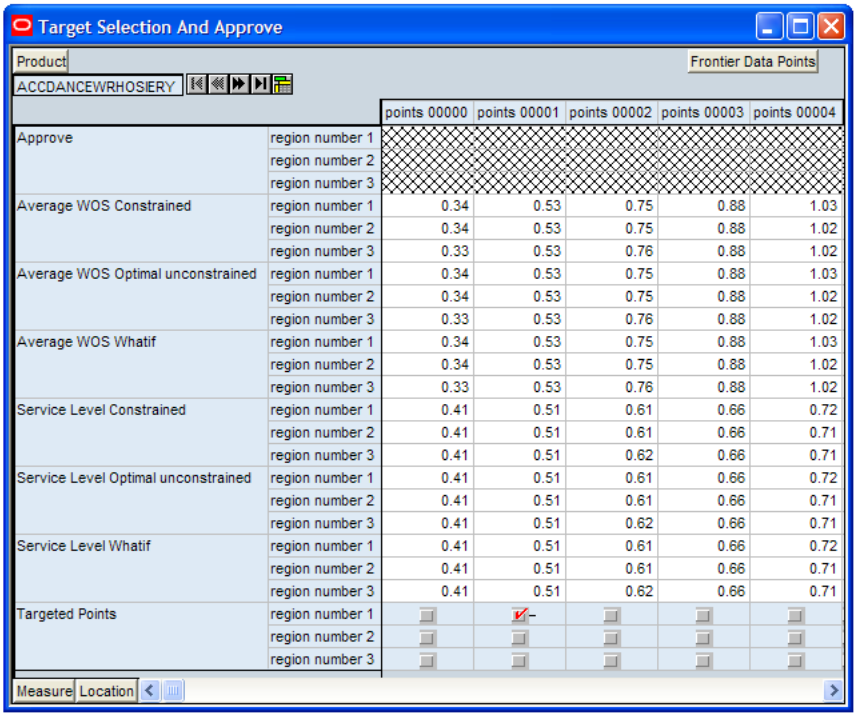


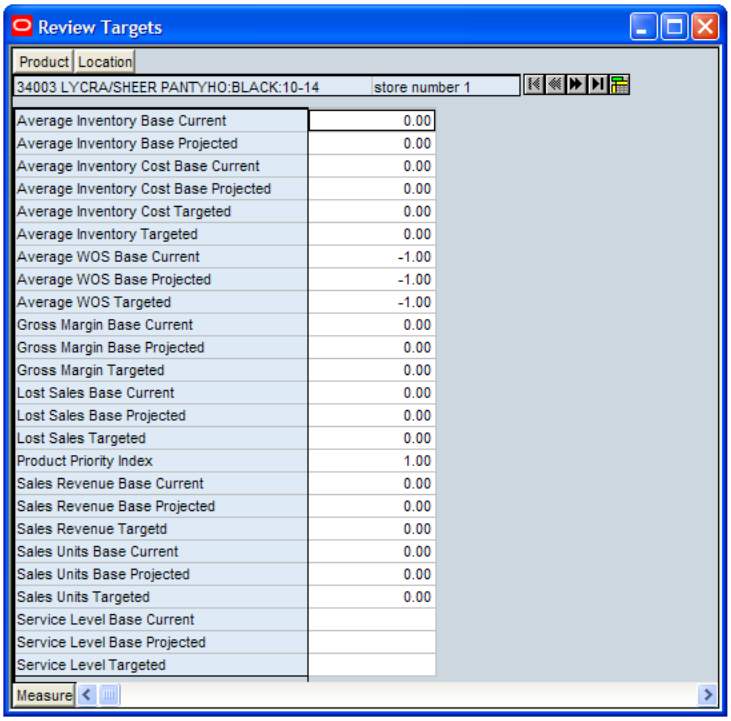
Table 3–5 Target Selection and Approve Worksheet Measures

Measure	Description
Approve	Allows you to specify the version of the optimization result to approve for the department/region. Options are None, Approve Optimal, Approve Constrained, and Approve What-if.
Average WOS Constrained	The constrained week of supply for the department/region/subgroup/frontier point. This is a recalc measure.
Average WOS Optimal Unconstrained	The optimal week of supply for the department/region/subgroup/frontier point. This is a recalc measure.
Average WOS Whatif	The constrained week of supply with the whatif constraints for the department/region/subgroup/frontier point. This is a recalc measure.
Service Level Constrained	The constrained service level for the department/region/subgroup/frontier point. This is a recalc measure.
Service Level Optimal Unconstrained	The optimal service level for the department/region/subgroup/frontier point. This is a recalc measure.
Service Level Whatif	The constrained service level with the whatif constraints for the department/region/subgroup/frontier point. This is a recalc measure.
Targeted Points	Allows you to specify which point along the curve to pick as a target. Only one point can be selected for a department/region.

Review Targets Worksheet

This worksheet displays the current, targeted, and projected KPIs based on the inventory/service level targets you defined in the Target Selection and Approve worksheet.

Figure 3–13 Review Targets Worksheet



Review and Analyze Constraints Tab

The Review and Analyze Constraints tab contains three worksheets:

- Analyze Base Product Level Constraints Worksheet
- Analyze Base Location Level Constraints Worksheet
- Maximum Order Frequency Worksheet

Analyze Base Product Level Constraints Worksheet

This worksheet allows you to review the minimum constraint type and value used in the optimization and to set the what-if minimum constraint type and value for the what-if version of the recommendation. To apply the what-if constraints that you set, select the **Apply Constraints** option in the **Actions** menu.

Figure 3–14 Analyze Base Product Level Constraints Worksheet

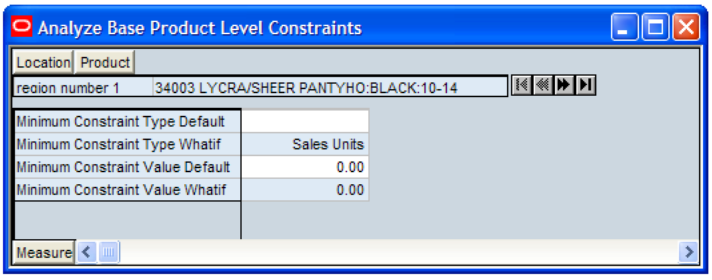


Table 3–6 Analyze Base Product Level Constraints Worksheet Measures

Measure	Description
Minimum Constraint Type Default	The default minimum constraint type for an item/region used in the optimization batch. It can be Sales Units, Sales Revenue, Sales Margin, or Service Level. This measure is read-only.
Minimum Constraint Type Whatif	The minimum constraint type for the item/region used in the what-if version of the recommendation. You can specify one of these options: Sales Units, Sales Revenue, Sales Margin, or Service Level. This constraint is used when the **Apply Constraints** option in the **Actions** menu is used to generate a what-if version recommendation.
Minimum Constraint Value Default	The default minimum constraint value for an item/region used in the optimization batch. This measure is read-only.
Minimum Constraint Value Whatif	The minimum constraint value for the item/region used in the what-if version of the recommendation. This constraint is used when the **Apply Constraints** option in the **Actions** menu is used to generate a what-if version recommendation.

Analyze Base Location Level Constraints Worksheet

This worksheet allows you to review the maximum constraint type and value used in the optimization and to set the what-if maximum constraint type and value for the what-if version of the recommendation. To apply the what-if constraints that you set, select the **Apply Constraints** option in the **Actions** menu

Figure 3–15 Analyze Base Location Level Constraints Worksheet

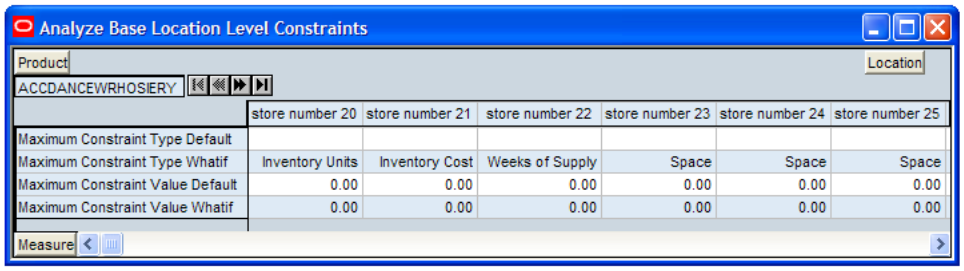


Table 3–7 Analyze Base Location Level Constraints Worksheet Measures

Measure	Description
Maximum Constraint Type Default	The default maximum constraint type for a department/store used in the optimization batch. It can be Inventory Units, Inventory Cost, or Week of Supply. This measure is read-only.
Maximum Constraint Type Whatif	The maximum constraint type for the department/store used in the what-if version of the recommendation. You can specify one of these options: Inventory Units, Inventory Cost, or Week of Supply. This constraint is used when the **Apply Constraints** option in the **Actions** menu is used to generate a what-if version recommendation.
Maximum Constraint Value Default	The default maximum constraint value for a department/store used in the optimization batch. This measure is read-only.
Maximum Constraint Value Whatif	The minimum constraint value for the department/store used in the what-if version of the recommendation. This constraint is used when the **Apply Constraints** option in the **Actions** menu is used to generate a what-if version recommendation.

Maximum Order Frequency Worksheet

This worksheet allows you to review the maximum order frequency used in the optimization and to set the what-if order frequency for the what-if version of the recommendation. To apply the what-if constraints that you set, select the **Apply Constraints** option in the **Actions** menu.

Figure 3–16 Maximum Order Frequency Worksheet

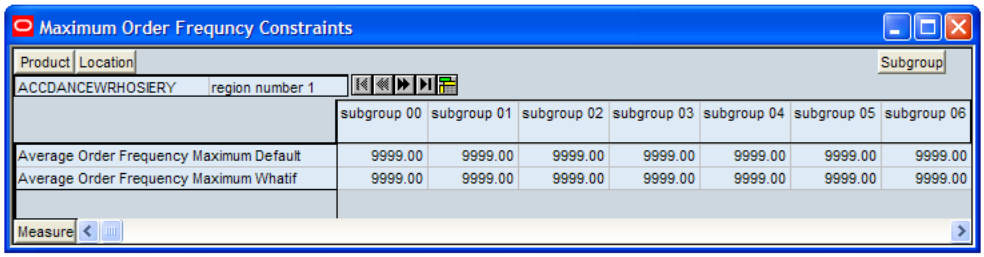


Table 3–8 Maximum Order Frequency Worksheet Measures

Measure	Description
Average Order Frequency Maximum Default	The default maximum order frequency value for a subgroup used in the optimization batch. This is a read-only measure.
Average Order Frequency Maximum Whatif	The maximum order frequency for a subgroup used in the what-if version of the recommendation. This constraint is used when the **Apply Constraints** option in the **Actions** menu is used to generate a what-if version recommendation.

4

Replenishment Admin Workbook

This chapter provides information on about the Replenishment Admin workbook, which is used to specify alert thresholds for products. This workbook contains one tab and one worksheet:

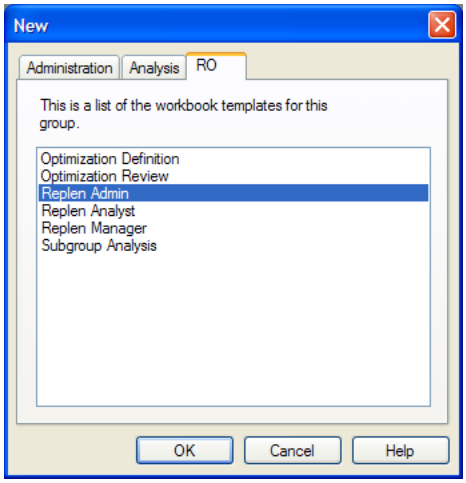
- Admin Threshold Worksheet

Replen Admin Wizard

To open a Replen Admin workbook, perform the following:

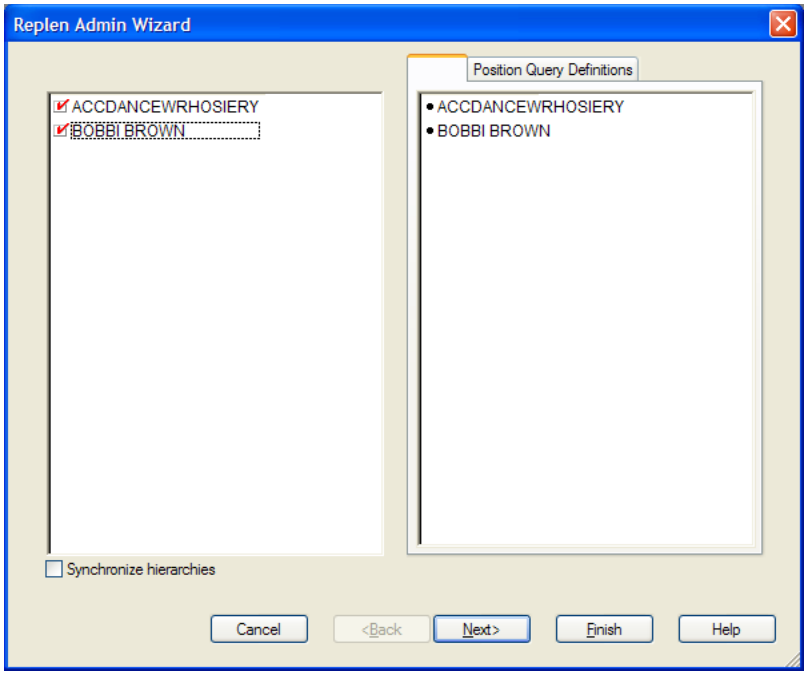
1. Select **File - New** or click the **New** button.
2. On the **RO** tab, select **Replen Admin** and click **OK**.

Figure 4–1 Creating a New Replen Admin Workbook



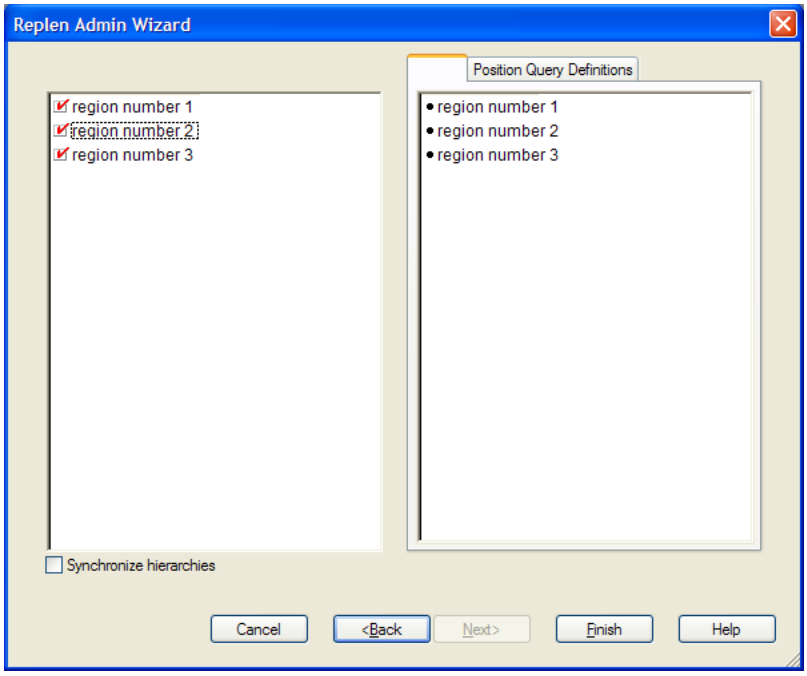
3. The **Select Products** screen appears. Select the departments to appear in the workbook and click **Next**.

Figure 4–2 Creating a New Replen Admin Workbook - Select Products



4. The **Select Locations** screen appears. Select the locations to appear in the workbook and click **Finish**.

Figure 4–3 Creating a New Replen Admin Workbook - Select Locations



The Replen Admin workbook builds.

Admin Threshold Worksheet

This workbook allows you to set thresholds for the Trend in Sales and Order Point Revenue alerts. If the trend in sales or order point for an item/location is higher than the threshold defined in this worksheet, an alert is triggered.

Figure 4–4 Admin Thresholds Worksheet

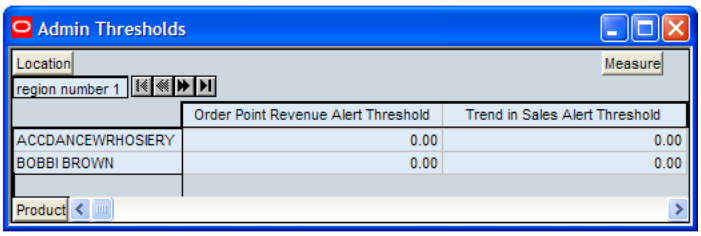


Table 4–1 Admin Thresholds Worksheet Measures

Measure	Description
Order Point Revenue Alert Threshold	The maximum value of the order point revenue that an item/location can have before an alert is triggered.
Trend in Sales Alert Threshold	The maximum value of the trend in sales that an item/location can have before an alert is triggered.

5

Replenishment Analyst Workbook

The Replenishment Analyst workbook allows the user to monitor replenishment performance and modify Item/Location level replenishment settings. This workbook also includes what-if capabilities, allowing users to view projected impact of Replenishment Settings on Inventory, Order Points, Order Up-to Levels, Service Level, etc.

This workbook allows the user to make an informed decision based on the impact of the changes in the Replenishment Settings. The user has the option of applying System Recommended Settings, Previously Approved Settings, or Override with Special user input settings.

This workbook is intended to include all Item/Locations for which the Replenishment Analyst is responsible.

The Replenishment Analyst worksheet contains the following tabs and worksheets:

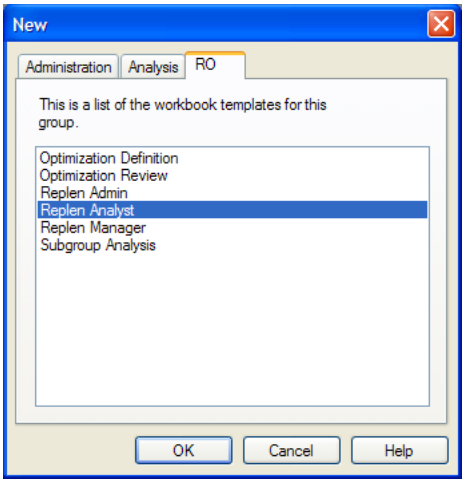
- Summary Tab
  - Summary Worksheet
- Details Tab
  - Statistics Worksheet
  - Analysis Worksheet
  - Weekly Details Worksheet
- Approval Tab
  - Approval Worksheet

Replen Analyst Wizard

To open a Replen Analyst workbook, perform the following:

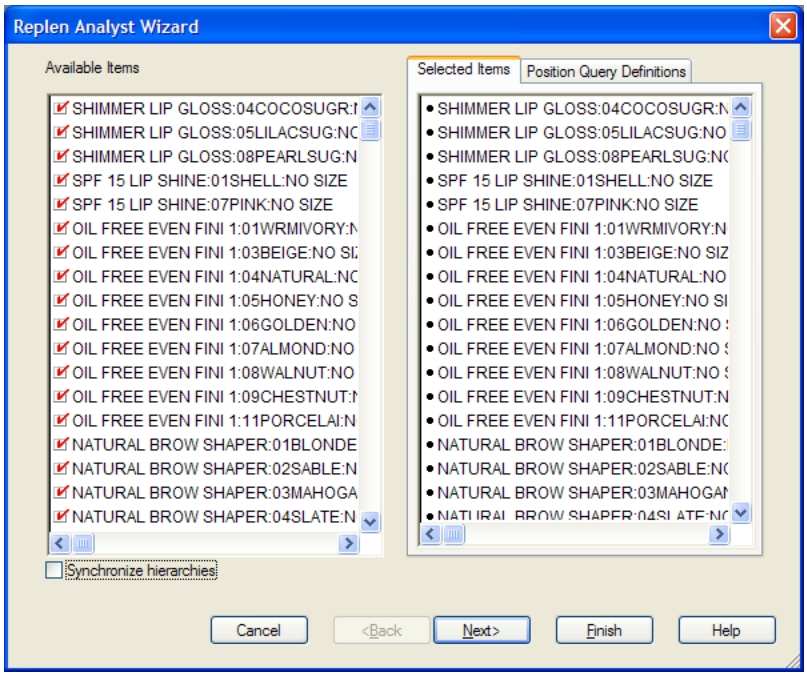
1. Select **File - New** or click the **New** button.
2. On the **RO** tab, select **Replen Analyst** and click **OK**.

Figure 5–1 Creating a New Replen Analyst Workbook



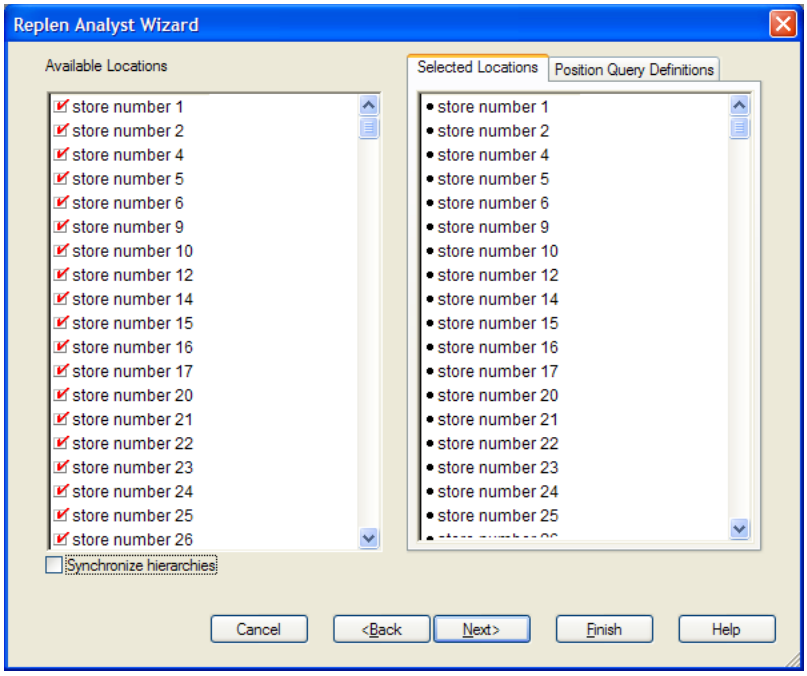
3. The **Available Products** screen appears. Select the departments to appear in the workbook and click **Next**.

Figure 5–2 Creating a New Replen Analyst Workbook - Select Products



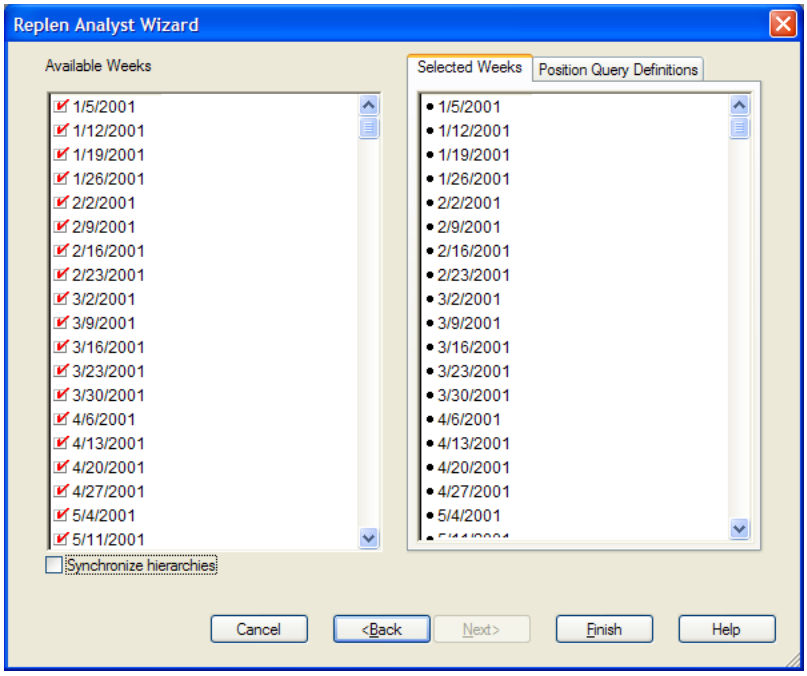
4. The **Available Locations** screen appears. Select the locations to appear in the workbook and click **Next**.

Figure 5–3 Creating a New Replen Analyst Workbook - Select Locations



5. The **Available Weeks** screen appears. Select the weeks to appear in the workbook and click **Finish**.

Figure 5–4 Creating a New Replen Analyst Workbook - Select Weeks



The Replen Analyst workbook builds.

Summary Tab

The Summary tab contains one worksheet: the Summary worksheet. It summarizes the alert review progress, performance statistics, and system recommendations for all item/locations that are included in this workbook. This workbook gives Replenishment Analysts a high level summary of inventory, sales, service level, and other performance statistics of all item/locations for which they are responsible.

Figure 5–5 Summary Worksheet

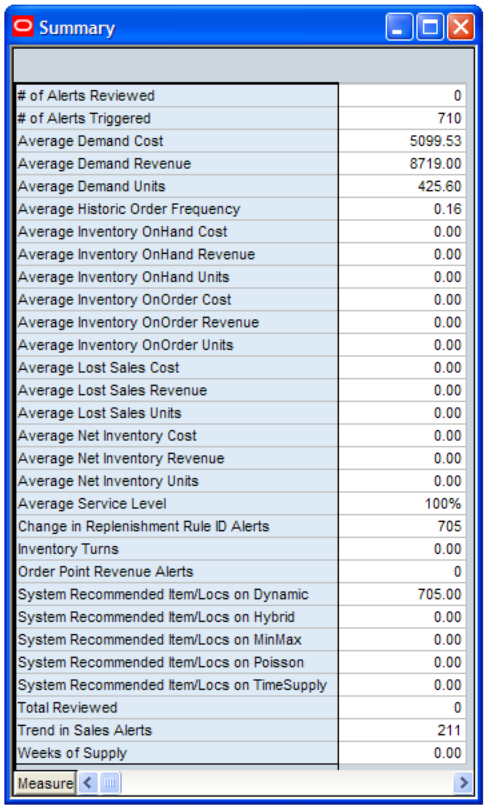


Table 5–1 Summary Worksheet Measures

Measure	Description
Alert Statistical Measures	
Total Reviewed	The total number of Item/Locations that have been reviewed so far.
# of Alerts Triggered	The total number of Item/Locations that have any alerts triggered.
# of Alerts Reviewed	The total number of Item/Locations that have been reviewed and have any alert triggered.
Order Point Revenue Alerts	The number of Item/Locations that have the Order Point Revenue alert triggered. The Order Point Revenue alert is triggered when Order Point Revenue exceeds a threshold. The threshold is the value entered in the Exception Threshold Workbook.

Table 5–1 (Cont.) Summary Worksheet Measures

Measure	Description
Trend in Sales Alerts	The number of Item/Locations that have the Trend is Sales alert triggered. The Trend in Sales alert is triggered when the absolute value of trend in Sales over the last month exceeds a threshold. The threshold is the value entered in the Exception Threshold Workbook.
Inventory Performance Statistical Measures	
Weeks of Supply	The number of Weeks of Supply or Weeks on Hand, calculated as average On Hand Inventory divided by average Demand.
Inventory Turns	The Average Inventory Turns calculated as Sales over that last 52 weeks divided by average On Hand Inventory the last 52 weeks.
Average Service Level	The percentage of demand that was met. Calculated as average sales/average Demand.
Average Historic Order Frequency	The Average number of Orders in a week.
Demand and Inventory Units Measures	
Average Demand Units	The average demand in units value. Demand is calculated as historic sales plus historic Lost Sales.
Average Lost Sales Units	The average lost sales units.
Average Inventory OnHand Units	The average on hand inventory in units.
Average Inventory OnOrder Units	The average on order inventory in units.
Average Net Inventory Units	The average net inventory in units.
Demand and Inventory Revenue Measures	
Average Demand Revenue	The average demand in revenue value is calculated by multiplying Average Demand Units by Unit Price. Demand is calculated as historic sales plus historic Lost Sales.
Average Lost Sales Revenue	The average lost sales revenue value.
Demand and Inventory Revenue Measures	
Average Inventory OnHand Revenue	The average on hand inventory in revenue value.
Average Inventory OnOrder Revenue	The average on order inventory in revenue value.
Average Net Inventory Revenue	The average net inventory in revenue value.
Demand and Inventory Cost Measures	
Average Demand Cost	The average demand in cost value is calculated by multiplying Average Demand Units by Unit Cost. Demand is calculated as historic sales plus historic Lost Sales.
Average Lost Sales Cost	The average lost sales cost value.
Average Inventory OnHand Cost	The average on hand inventory in cost value.
Average Inventory OnOrder Cost	The average on order inventory in cost value.

Table 5–1 (Cont.) Summary Worksheet Measures

Measure	Description
Average Net Inventory Cost	The average net inventory in cost value.
Number of Weeks for Stats	The number of weeks in history over which the above statistics have been calculated.
Replenishment Settings Statistical Measures	
System Recommended Item/Locs on MinMax	The number of Item/Locations for which the system is recommending MinMax Replenishment Method.
System Recommended Item/Locs on TimeSupply	The number of Item/Locations for which the system is recommending Time Supply Replenishment Method.
System Recommended Item/Locs on Dynamic	The number of Item/Locations for which the system is recommending Dynamic Replenishment Method.
System Recommended Item/Locs on Hybrid	The number of Item/Locations for which the system is recommending Hybrid Replenishment Method.
System Recommended Item/Locs on Poisson	The number of Item/Locations for which the system is recommending Poisson Replenishment Method.

Details Tab

The Details tab provides item/location and weekly details, what-if capabilities, and the option to select system-recommended, previous- approved, or user-updated settings by updating the approval status. This tab contains the following worksheets:

- Statistics Worksheet
  - Lists item/location-level inventory performance and other statistics.
- Weekly Details Worksheet
  - Gives the user item/location/week-level information on inventory, demand, lost sales, forecasts, and so on.
- Analysis Worksheet
  - Allows the user to perform the following:
    * Compare different replenishment settings
    * Perform what-if analysis to determine impact of these settings
    * Select system-recommended, previous-approved, or user-updated replenishment settings by updating the Replen Status measure

Statistics Worksheet

A number of the statistics listed in this worksheet are the same as those listed in the Summary worksheet of this workbook, but at the item/location level. Please refer to Summary Worksheet Measures table in the Summary Tab section for measure descriptions. Below is a list of measure descriptions that are not included in the Summary worksheet.

Figure 5–6 Statistics Worksheet

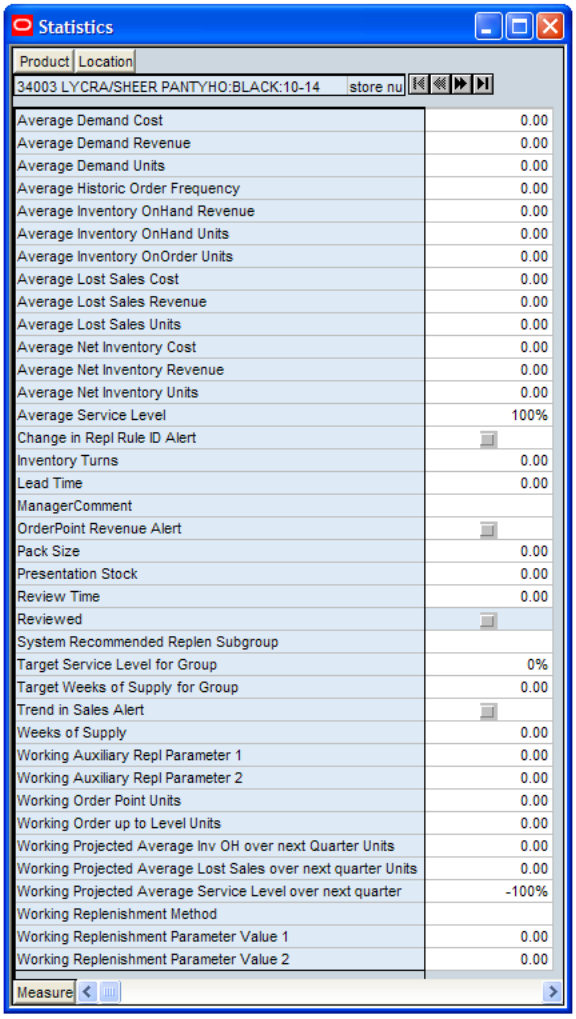


Table 5–2 Statistics Worksheet Measures

Measure	Description
Reviewed	This is a writable measure indicating whether or not this Item/Location has been reviewed by the user. This measure is only used for tracking purposes and updates the # of Alerts Reviewed and Total Reviewed measures
Lead Time	The Total Lead Time of the Item/Location value.
Pack Size	The Item Pack Size value.
Presentation Stock	The Minimum Presentation Stock value.

Table 5–2 (Cont.) Statistics Worksheet Measures

Measure	Description
Review Time	The frequency at which inventory is reviewed for replenishment value.
Price	The Unit Retail Price of the Item value.
Cost	The Unit Cost of the Item value.
System Recommended Rule ID	Replenishment Rule ID that the System is recommending for the Item/Location
Target Weeks of Supply for Replen Rule ID	The Overall Target or Optimal Weeks of Supply Recommended by RO for the group of Item/Locations that belong to this Replenishment Rule ID. While tracking Inventory and Service Level performance against this optimal target, it is important to track performance for the entire group of item/Locations that belong to this Replenishment Rule ID as opposed to the performance of individual Item/Locations.
Target Service Level for Replen Rule ID	The Overall Target or Optimal Service Level Recommended by RO for the group of Item/Locations that belong to this Replenishment Rule ID. While tracking Inventory and Service Level performance against this optimal target, it is important to track performance for the entire group of item/Locations that belong to this Replenishment Rule ID as opposed to the performance of individual Item/Locations.
Working Version	The working version reflects the replenishment settings based on the current Replenishment Status selection (system-recommended, previous-approved, or user-defined settings.). See the Analysis Worksheet for more details on the Replenishment Status measure.
Working Replenishment Method	Replenishment Method currently chosen by the user for this Item/Location. The user can choose between system-recommended, previous-approved, and special-user input settings. This measure is updated based on the Replenishment Status Measure. This measure represents the Replenishment Method that will be exported by the System, if the user approves the settings now.
Working Replenishment Parameter Value 1	Replenishment Parameter1 currently chosen by the user for this Item/Location. The user can choose between System recommended, Previous Approved and Special User input settings. This measure is updated based on the Replenishment Status Measure. This measure represents the Replenishment Method that will be exported by the System, if the user approves the settings now.
Working Replenishment Parameter Value 2	Replenishment Parameter2 currently chosen by the user for this Item/Location. The user can choose between System recommended, Previous Approved and Special User input settings. This measure is updated based on the Replenishment Status Measure. This measure represents the Replenishment Method that will be exported by the System, if the user approves the settings now.
Working Auxiliary Repl Parameter 1	Auxiliary Replenishment Parameter1 currently chosen by the user for this Item/Location. The user can choose between System recommended, Previous Approved and Special User input settings. This measure is updated based on the Replenishment Status Measure. This measure represents the Replenishment Method that will be exported by the System, if the user approves the settings now.

Table 5–2 (Cont.) Statistics Worksheet Measures

Measure	Description
Working Auxiliary Repl Parameter 2	Auxiliary Replenishment Parameter2 currently chosen by the user for this Item/Location. The user can choose between System recommended, Previous Approved and Special User input settings. This measure is updated based on the Replenishment Status Measure. This measure represents the Replenishment Method that will be exported by the System, if the user approves the settings now.
Working Replenishment Settings Statistical Measures The following measures provide statistics based on the Working Replenishment Settings. The statistics help provide the user with supporting information on the impact of the chosen replenishment Settings on future Inventory and Service levels to help the user choose the correct Replenishment Settings.	
Working Order Points Units	Order Point Units calculated by the System based on the Working Replenishment Method and Parameters.
Working Order Up to Level Units	Order Up to Point Units calculated by the System based on the Working Replenishment Method and Parameters.
Working Projected Average Inv OH over next Quarter Units	Projected Average On hand Inventory units over next Quarter based on Working Replenishment settings. This measure represents the long term steady state average On hand Inventory, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.
Working Projected Average Service Level over next Quarter	Projected Average Service Level over next Quarter based on Working replenishment settings. This measure represents the long term steady state Service Level, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.
Working Projected Lost Sales Units over next quarter Units	Projected Average Lost Sales over next Quarter based on Working replenishment settings. This measure represents the long term steady state Lost Sales, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.
System Recommended Replenishment Settings Statistical Measures The following measures provide statistics based on the System Recommended Replenishment Settings. The statistics help provide the user with supporting information on the impact of the chosen replenishment Settings on future Inventory and Service levels to help the user choose the correct Replenishment Settings.	
System Recommended Projected Average Inv OH over the next Quarter Units	Projected Average On hand Inventory units over next Quarter based on System Recommended Replenishment settings. This measure represents the long term steady state average On hand Inventory, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.
System Recommended Projected Average Service Level Over next Quarter	Projected Average Service Level over next Quarter based on System Recommended replenishment settings. This measure represents the long term steady state Service Level, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.
System Recommended Projected Lost Sales Units over next quarter Units	Projected Average Lost Sales over next Quarter based on System Recommended replenishment settings. This measure represents the long term steady state Lost Sales, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.

Table 5–2 (Cont.) Statistics Worksheet Measures

Measure	Description
Manager Comment	This is a read only measure, indicating any comments input in the Replenishment Manager Workbook. If the Replenishment Manager enters any special remarks about the performance of a Replenishment Rule ID, the comment is visible here to the Replenishment Analysts for all Item/Locations that belong to that Replenishment Rule ID.

Weekly Details Worksheet

This worksheet provides item/location/week-level details of historic inventory, demand, lost sales, and forecasts to help you easily identify trends in inventory and demand, large stock out situations, and so on.

Figure 5–7 Weekly Details Worksheet

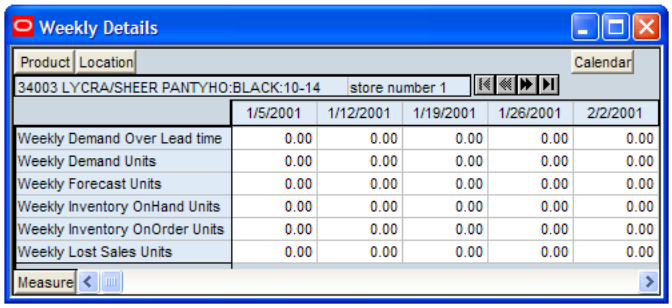


Table 5–3 Weekly Details Worksheet Measures

Measure	Description
Weekly Demand Over Lead time	Weekly demand units aggregated over Lead time for each week.
Weekly Demand Units	Weekly Demand Units
Weekly Forecast Units	Weekly Forecast Units
Weekly Inventory OnHand Units	Weekly On Hand Inventory Units
Weekly Inventory OnOrder Units	Weekly On Order Inventory Units
Weekly Lost Sales Units	Weekly Lost Sales Units

Analysis Worksheet

The Analysis worksheet allows you to compare different replenishment settings, perform what-if analysis to determine impact of these settings and ultimately select the settings to be used. You can apply system-recommended, previously-approved, or special-user input settings by updating the Replen Status measure. The workbook calculates OP, OUTL, Projected Order Quantity. The user can compare these values for various choices.

The user replenishment method and parameter measures that you set trigger a calculation that updates the read-only "user" measures when you select the **Calculate User Overrides** option in the **Menu** menu.

Figure 5–8 Analysis Worksheet

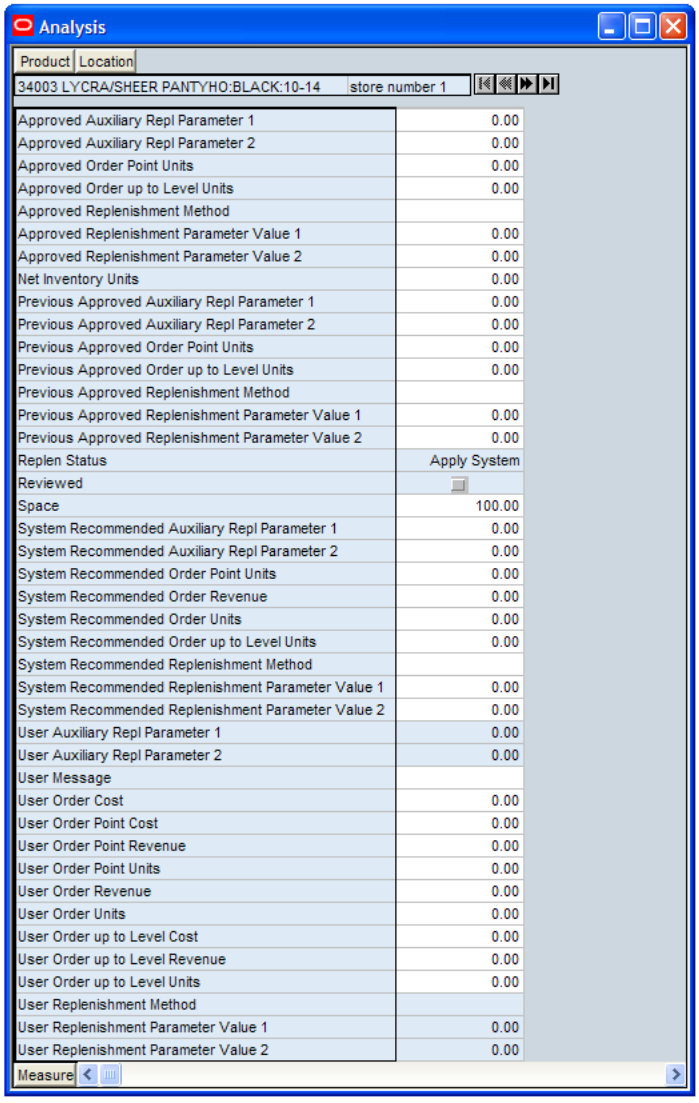


Table 5–4 Analysis Worksheet Measures

Measure	Description
Approved Auxiliary Repl Parameter 1	This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the Approve menu. The system will then copy the Auxiliary Replenishment Param1 indicated in the Replen Status measure to the Approved Replenishment Param1. The Approved flag will then be unchecked to allow the user to re-approve at a later time if needed.
Approved Auxiliary Repl Parameter 2	This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the Approve menu. The system will then copy the Auxiliary Replenishment Param1 indicated in the Replen Status measure to the Approved Replenishment Param1. The Approved flag will then be unchecked to allow the user to re-approve at a later time if needed.
Approved Order Point Units	This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the Approve menu. The system will then update this measure with the Order Point corresponding to the Approved Replenishment Method and Parameters.
Approved Order up to Level Units	This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the Approve menu. The system will then update this measure with the Order Up to Level corresponding to the Approved Replenishment Method and Parameters.
Approved Replenishment Method	This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the Approve menu. The system will then copy the Replenishment Settings indicated in the Replen Status measure to the Approved Replenishment Method. The Approved flag will then be unchecked to allow the user to re-approve at a later time if needed.
Approved Replenishment Parameter Value 1	This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the Approve menu. The system will then copy the Replenishment Param1 indicated in the Replen Status measure to the Approved Replenishment Param1. The Approved flag will then be unchecked to allow the user to re-approve at a later time if needed.
Approved Replenishment Parameter Value 2	This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the Approve menu. The system will then copy the Replenishment Param2 indicated in the Replen Status measure to the Approved Replenishment Param1. The Approved flag will then be unchecked to allow the user to re-approve at a later time if needed.
Net Inventory Units	The current net inventory position.
Previous Approved Auxiliary Repl Parameter 1	Previous Approved Auxiliary Replenishment Parameter Value 1.
Previous Approved Auxiliary Repl Parameter 2	Previous Approved Auxiliary Replenishment Parameter Value 2.
Previous Approved Order Point Units	The Previous Approved Order Point Units value.
Previous Approved Order up to Level Units	The Previous Approved Order Up to Level Units value.
Previous Approved Replenishment Method	The Previous Approved Replenishment Method.

Table 5–4 (Cont.) Analysis Worksheet Measures

Measure	Description
Previous Approved Replenishment Parameter Value 1	Previous Approved Replenishment Parameter Value 1.
Previous Approved Replenishment Parameter Value 2	Previous Approved Replenishment Parameter Value 2.
Replen Status	The Replenishment Status is a writable measure that determines which set of Replenishment parameters to be apply. This measure list provides the following options: ■ Apply System Recommended Settings ■ Apply Previous Approved Settings ■ Apply User Input This measure defaults to Apply System Recommended Settings if no alerts are triggered for the Item/Locations. If any alert is triggered, this measure defaults to Apply Previous Approved. This measure will directly impact the Working Replenishment Method and Parameters.
Reviewed	This is a writable measure indicating whether or not this Item/Location has been reviewed by the user. This measure is only used for tracking purposes and updates the # of Alerts Reviewed and Total Reviewed measures.
Space	Space for item/store.
System Recommended Auxiliary Repl Parameter 1	The System Recommended Auxiliary Replenishment Parameter Value 1 value.
System Recommended Auxiliary Repl Parameter 2	The System Recommended Auxiliary Replenishment Parameter Value 2 value.
System Recommended Order Point Units	The Order Point Units based on the System Recommended Methods and Parameters value.
System Recommended Order Revenue	The System Recommended Order Revenue measure value.
System Recommended Order Units	The Projected Order units calculated based on the System Recommended Methods and Parameters value.
System Recommended Order up to Level Units	The Order Up to Level Units based on the System Recommended Methods and Parameters value.
System Recommended Replenishment Method	The System Recommended Replenishment Method value.
System Recommended Replenishment Parameter Value 1	The System Recommended Replenishment Parameter Value 1 value.
System Recommended Replenishment Parameter Value 2	The System Recommended Replenishment Parameter Value 2 value.
User Auxiliary Repl Parameter 1	The is a writable measure where the user inputs auxiliary replenishment parameter 1 based on the Replenishment Method chosen. Please refer to Chapter 1 for valid Replenishment Parameter inputs for each method.
User Auxiliary Repl Parameter 2	The is a writable measure where the user inputs auxiliary replenishment parameter 2 based on the Replenishment Method chosen. Please refer to Chapter 1 for valid Replenishment Parameter inputs for each method.

Table 5–4 (Cont.) Analysis Worksheet Measures

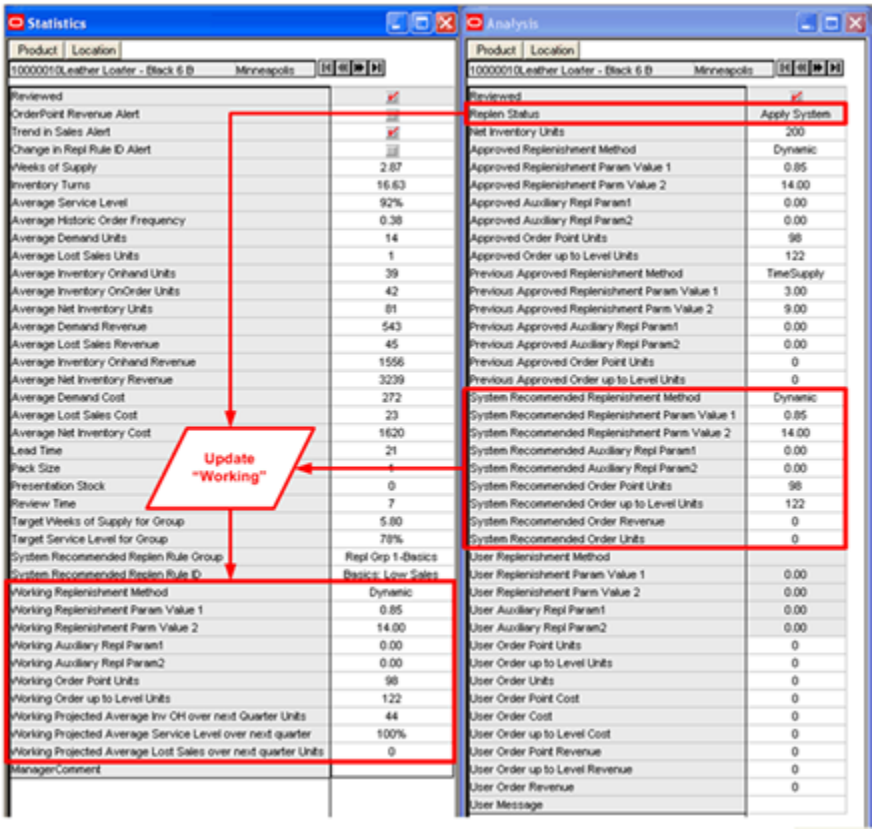
Measure	Description
User Message	This is a read-only measure that contains any error or warning messages returned by the system based on the user input values.
User Order Cost	This read-only measure is the product of the cost per unit and the number of the projected order units based on the user input methods and parameters.
User Order Point Cost	This read-only measure is the Order Point units multiplied by unit cost, calculated based on User Input Replenishment settings.
User Order Point Revenue	This read-only measure is the product of the price per unit and the order point units based on the user input methods and parameters.
User Order Point Units	This read-only measure is the number of order point units based on the user input method and parameters.
User Order Revenue	This read-only measure is the number of order units multiplied by the unit retail price, calculated based on User Input Replenishment settings.
User Order Units	This read-only measure is the Projected Order Units based on the User Input Methods and Parameters.
User Order up to Level Cost	This read-only measure is the product of the Order Up to Level Units and the unit cost based on the user Input Methods and Parameters.
User Order up to Level Revenue	The Order up to Level units multiplied by unit retail price, calculated based on User Input Replenishment settings.
User Order up to Level Units	This read-only measure is the Order Up to Level Units based on the user Input Methods and Parameters.
User Replenishment Method	This is measure list provides the following Replenishment Methods options: ■ MinMax ■ Dynamic ■ TimeSupply ■ Poisson ■ Hybrid Refer to Chapter 4, "Replenishment Admin Workbook" for valid replenishment parameter inputs for information about each method.
User Replenishment Parameter Value 1	This is a writable measure where the user inputs replenishment parameter 1 based on the Replenishment Method chosen. Refer to Chapter 4, "Replenishment Admin Workbook" for valid replenishment parameter inputs for information about each method.
User Replenishment Parameter Value 2	This is a writable measure where the user inputs replenishment parameter 2 based on the Replenishment Method chosen. Refer to Chapter 4, "Replenishment Admin Workbook" for valid replenishment parameter inputs for information about each method.

Understanding the Working Version of the Replenishment Settings

The Replenishment Status (Replen Status) determines the Working version of the Replenishment Settings as illustrated in the diagrams below.

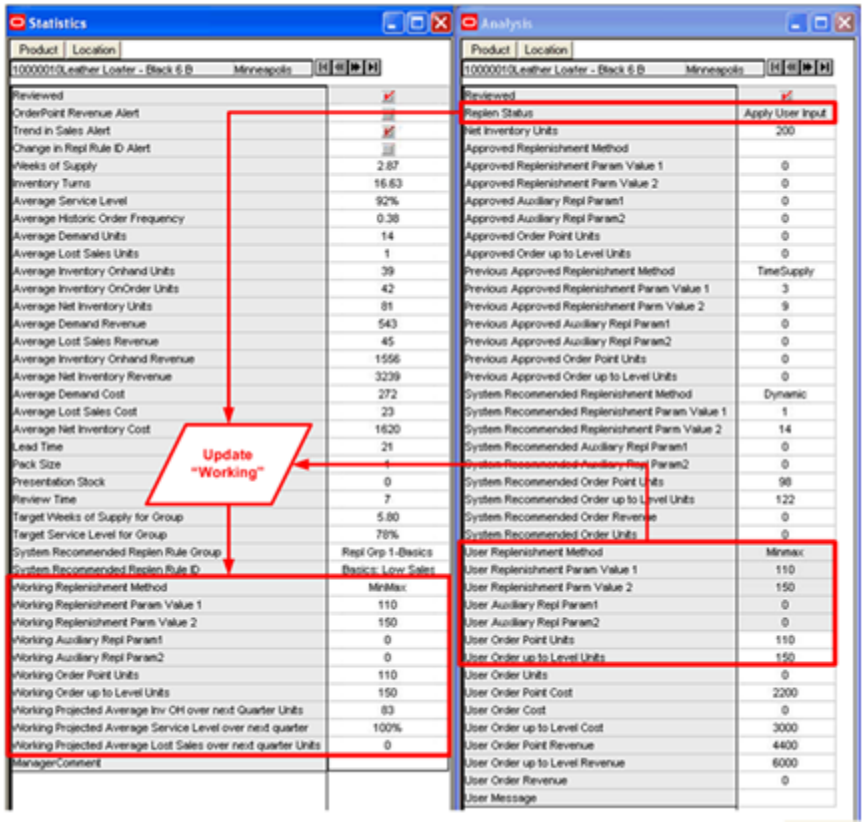
The side-by-side view of the worksheets in Figure 5–9 shows the relationship between the assigned Replenishment Status setting and the user measures in the Analyst worksheet and the Working version of measures applied to the Statistics worksheet. In the following example, the Replenishment Status is set to **Apply System**, which means that the System Recommended measures in the Analysis worksheet (on the right) are used as the Working version of measures in the Statistics worksheet (on the left).

Figure 5–9 Working Version of Replenishment Settings



In Figure 5–10, the Replenishment Status is set to **Apply User Input**, which means that the User measures in the Analysis worksheet (on the right) are used as the Working version of measures in the Statistics worksheet (on the left).

Figure 5–10 Apply User Input in Replenishment Status



The Replenishment Status selection drives the Working version in the Statistics worksheet. Once you have reviewed the alerts, performed any necessary what-if modifications, and updated the Replenishment Status, you can review the working version to see the results. Once satisfied with the working version, you can approve the settings in the Approval worksheet.

The replenishment status for alerted Item/Locations defaults to **Apply Previous Approved**. After reviewing the alerted Item/Locations, if you want to accept the system recommended setting, you change the Replenishment Status to **Apply System Recommended**. Once all alerts are reviewed, you can approve the selected settings.

Approval Tab

The approval tab consists of one worksheet, the Approval worksheet. The approval process is the final step in the replenishment analysis process. After reviewing inventory performance, performing what-if-analysis and updating the Replenishment Status, the user opens the Approval worksheet and approves the selected settings.

Figure 5–11 Approval Worksheet

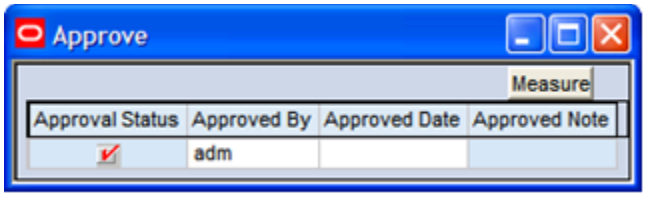


Table 5–5 Approve Worksheet Measures

Measure	Description
Approval Status	This is a writable check box measure. When the user checks this measure and invokes the Approve menu, the Approved Replenishment settings get updated.
Approved By	This is a read only measure that gets updated with the user ID when the user checks the Approval Status measure and invokes the Approve menu.
Approved Date	This is a read only measure that gets updated with the current date when the user checks the Approval Status measure and invokes the Approve menu.
Approved Note	This is a writable measure where the user can input Approval notes at the time of Approval.

Approval Process Flow

The Approval Process Flow is a combination of front-end and backend batch processes. The RO batch updates the system-recommended replenishment settings. The user can view the system-recommended and previously approved replenishment settings in the Replenishment Analyst workbook. The user can enter user-input replenishment settings, compare the impacts on inventory and service levels, and update the Replenishment Status appropriately. For item/locations which do not have any alerts triggered, the Replenishment Status defaults to Apply System Recommended settings. For item/locations that have at least one alert triggered, the Replenishment Status defaults to Apply Previous Approved setting.

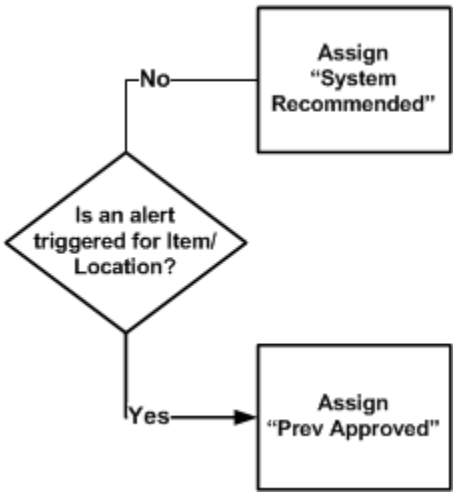
The Working Replenishment Settings get updated based on the Replenishment Status. When the user approves these settings, the Working Replenishment settings get copied to the Approved Replenishment settings.

For Item/Locations which the user has not approved at the time of the Approval batch run, the system will copy the System Recommended settings if no alerts were triggered, otherwise the system will copy the Previous Approved settings.

The approval batch is responsible for updating the Approved Replenishment Settings for any item/locations that the user has not manually approved.

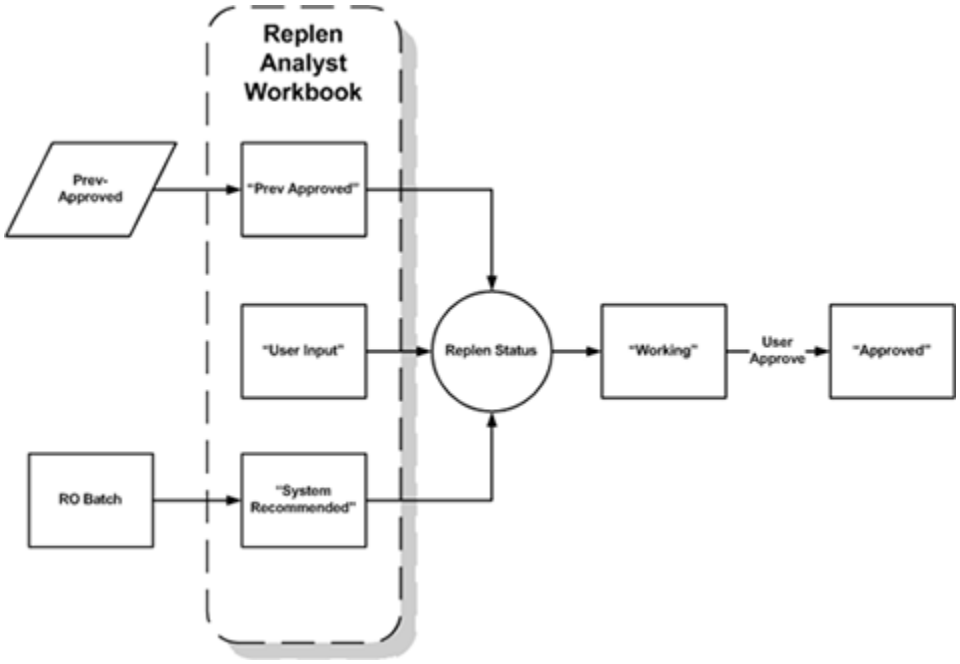
The following diagram illustrates how the default Replenishment Status is assigned.

Figure 5–12 Default Replenishment Status Assignment



The following diagram displays the approval process workflow in the Replenishment Analyst workbook.

Figure 5–13 Approval Process Workflow in Replenishment Analyst



6

Replenishment Manager Workbook

The Replenishment Manager workbook provides managers with high-level reports of the approved plan. Managers can review and track replenishment performance at aggregate levels. This workbook is intended for use by Replenishment Managers who are interested in reviewing replenishment performances for their department/region.

The workbook contains the following tabs and worksheets:

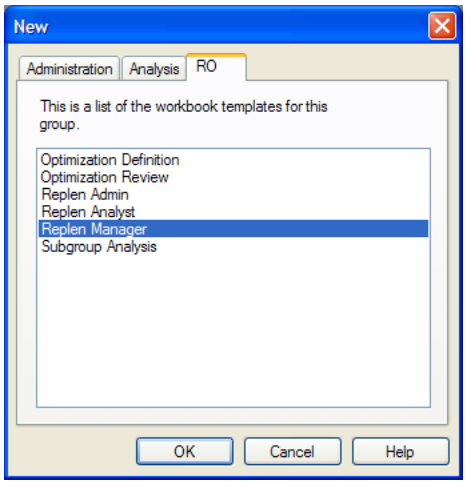
- Summary Tab
  - Summary Details Worksheet
- Summary Weekly Tab
  - Summary Weekly Worksheet
- Track Performance Tab
  - Track Performance Worksheet

Replen Manager Wizard

To open a Replen Manager workbook, perform the following:

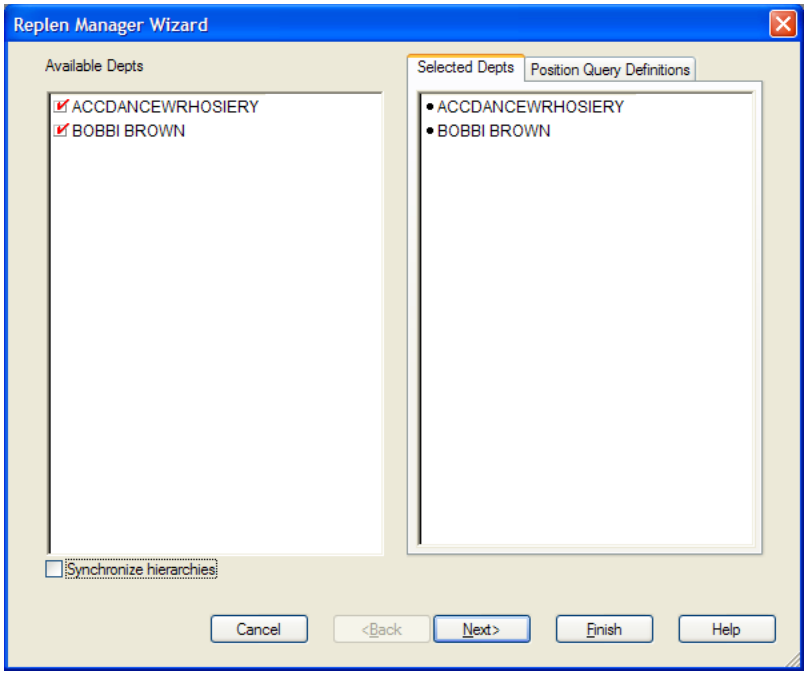
1. Select **File - New** or click the **New** button.
2. On the **RO** tab, select **Replen Manager** and click **OK**.

Figure 6–1 Creating a New Replen Manager Workbook



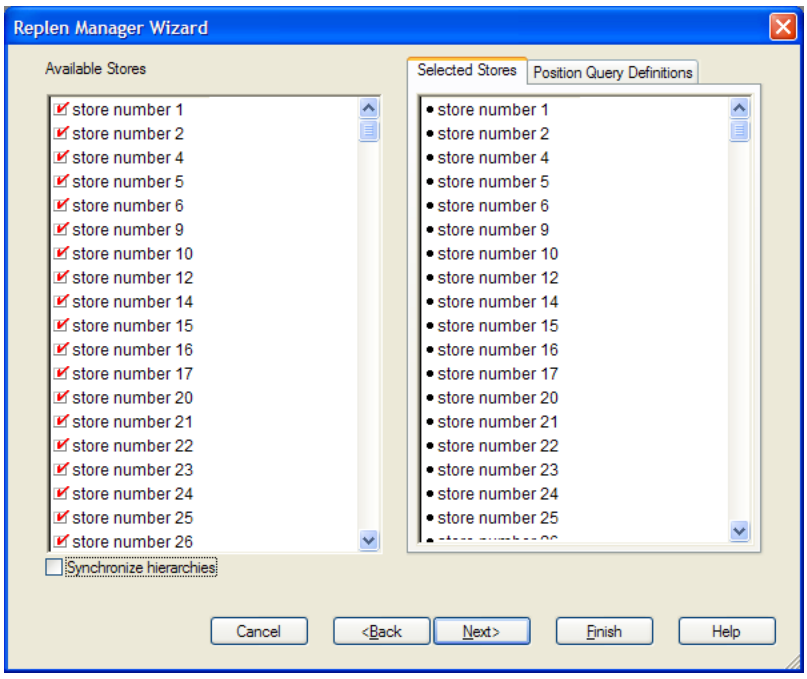
3. The **Available Depts** screen appears. Select the departments to appear in the workbook and click **Next**.

Figure 6–2 Creating a New Replen Manager Workbook - Available Depts



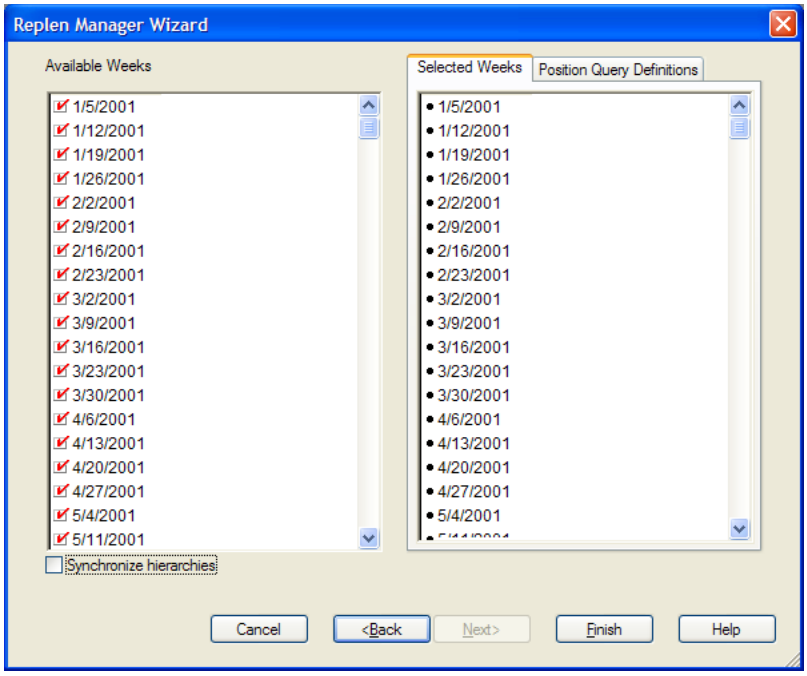
4. The **Available Stores** screen appears. Select the locations to appear in the workbook and click **Next**.

Figure 6–3 Creating a New Replen Manager Workbook - Available Stores



5. The **Available Weeks** screen appears. Select the weeks to appear in the workbook and click **Finish**.

Figure 6–4 Creating a New Replen Manager Workbook - Available Weeks

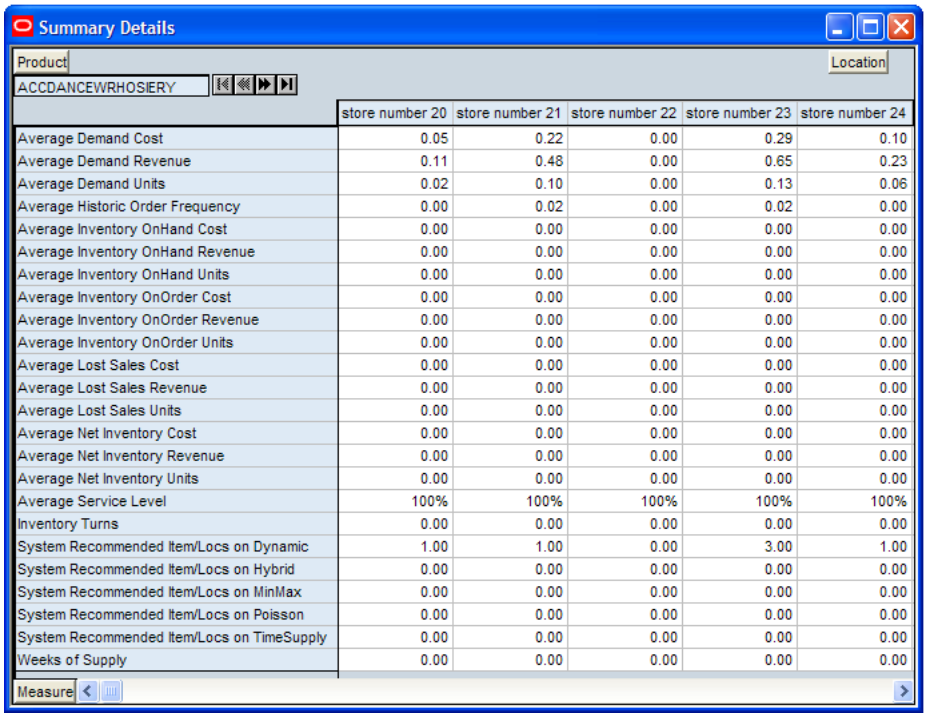


The Replen Manager workbook builds.

Summary Tab

This tab has one worksheet, the Summary worksheet, which displays the overall metrics of the approved plan.

Figure 6–5 Summary Details Worksheet



	store number 20	store number 21	store number 22	store number 23	store number 24
Average Demand Cost	0.05	0.22	0.00	0.29	0.10
Average Demand Revenue	0.11	0.48	0.00	0.65	0.23
Average Demand Units	0.02	0.10	0.00	0.13	0.06
Average Historic Order Frequency	0.00	0.02	0.00	0.02	0.00
Average Inventory OnHand Cost	0.00	0.00	0.00	0.00	0.00
Average Inventory OnHand Revenue	0.00	0.00	0.00	0.00	0.00
Average Inventory OnHand Units	0.00	0.00	0.00	0.00	0.00
Average Inventory OnOrder Cost	0.00	0.00	0.00	0.00	0.00
Average Inventory OnOrder Revenue	0.00	0.00	0.00	0.00	0.00
Average Inventory OnOrder Units	0.00	0.00	0.00	0.00	0.00
Average Lost Sales Cost	0.00	0.00	0.00	0.00	0.00
Average Lost Sales Revenue	0.00	0.00	0.00	0.00	0.00
Average Lost Sales Units	0.00	0.00	0.00	0.00	0.00
Average Net Inventory Cost	0.00	0.00	0.00	0.00	0.00
Average Net Inventory Revenue	0.00	0.00	0.00	0.00	0.00
Average Net Inventory Units	0.00	0.00	0.00	0.00	0.00
Average Service Level	100%	100%	100%	100%	100%
Inventory Turns	0.00	0.00	0.00	0.00	0.00
System Recommended Item/Locs on Dynamic	1.00	1.00	0.00	3.00	1.00
System Recommended Item/Locs on Hybrid	0.00	0.00	0.00	0.00	0.00
System Recommended Item/Locs on MinMax	0.00	0.00	0.00	0.00	0.00
System Recommended Item/Locs on Poisson	0.00	0.00	0.00	0.00	0.00
System Recommended Item/Locs on TimeSupply	0.00	0.00	0.00	0.00	0.00
Weeks of Supply	0.00	0.00	0.00	0.00	0.00

Table 6–1 Summary Details Worksheet Measures

Measure	Description
Inventory Performance Statistical Measures	
Weeks of Supply	The number of Weeks of Supply or Weeks on Hand, calculated as average On Hand Inventory divided by average Demand.
Inventory Turns	Average Inventory Turns calculated as Sales over that last 52 weeks divided by average On Hand Inventory the last 52 weeks.
Average Service Level	The percentage of demand that was met. Calculated as average sales/average Demand.
Average Historic Order Frequency	The average number of orders in a week.
Demand and Inventory Units Measures	
Average Demand Revenue	The average demand in Revenue, obtained by multiplying Average Demand Units by Unit Price. Demand is calculated as historic sales plus historic Lost Sales.
Average Lost Sales Revenue	The Average Lost Sales Revenue value.
Average Inventory OnHand Revenue	The Average On Hand Inventory in revenue value.

Table 6–1 (Cont.) Summary Details Worksheet Measures

Measure	Description
Average Inventory OnOrder Revenue	The Average On Order Inventory in revenue value.
Average Net Inventory Revenue	The Average Net Inventory in revenue value.
Demand and Inventory Cost Measures	
Average Demand Cost	Average demand in cost, obtained by multiplying Average Demand Units by Unit Cost. Demand is calculated as historic sales plus historic Lost Sales.
Average Lost Sales Cost	Average Lost Sales cost.
Average Inventory OnHand Cost	The Average On Hand Inventory in cost.
Average Inventory OnOrder Cost	The Average On Order Inventory in cost.
Average Net Inventory Cost	The Average Net Inventory in cost.
Number of Weeks for Stats	The number of weeks in history over which the above statistics have been calculated.
Replenishment Settings Statistical Measures	
System Recommended Item/Locs on Dynamic	The number of Item/Locations for which the System is recommending Dynamic Replenishment Method.
System Recommended Item/Locs on Hybrid	The number of Item/Locations for which the System is recommending Hybrid Replenishment Method.
System Recommended Item/Locs on MinMax	The number of Item/Locations for which the System is recommending MinMax Replenishment Method.
System Recommended Item/Locs on Poisson	The number of Item/Locations for which the System is recommending Poisson Replenishment Method.
System Recommended Item/Locs on TimeSupply	The number of Item/Locations for which the System is recommending Time Supply Replenishment Method.
Projected Inventory and Service Level Statistics The following measures provide projected statistics on Inventory, Service Level, and Lost Sales. The Working and System Recommended statistics allow the Manager to view the projected impacts of both statistical versions at the same time.	
System Recommended Projected Average Inv OH Over Next Quarter Units	Projected Average OnHand Inventory units over next Quarter based on System Recommended Replenishment settings. This measure represents the long term steady state average On hand Inventory, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.
System Recommended Projected Lost Sales Units Over Next Quarter Units	Projected Average Lost Sales over next Quarter based on System Recommended replenishment settings. This measure represents the long term steady state Lost Sales, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.
System Recommended Projected Average Service Level over next quarter Units	Projected Average Service Level over next Quarter based on System Recommended replenishment settings. This measure represents the long term steady state Service Level, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.

Table 6–1 (Cont.) Summary Details Worksheet Measures

Measure	Description
System Recommended Projected Weeks of Supply over next quarter	Projected Weeks of Supply over next Quarter based on System Recommended replenishment settings. The number of Weeks of Supply or Weeks on Hand is calculated as average On Hand Inventory divided by average Demand.
Working Projected Average Inv OH over next Quarter Units	Projected Average On hand Inventory units over next Quarter based on Working Replenishment settings. This measure represents the long term steady state average On hand Inventory, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.
Working Projected Average Lost Sales over next quarter Units	Projected Average Lost Sales over next Quarter based on Working replenishment settings. This measure represents the long term steady state Lost Sales, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.
Working Projected Average Service Level over next quarter	Projected Average Service Level over next Quarter based on Working replenishment settings. This measure represents the long term steady state Service Level, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.
Working Projected Weeks of Supply for next quarter	Projected Weeks of Supply over next Quarter based on Working replenishment settings. The number of Weeks of Supply or Weeks on Hand is calculated as average On Hand Inventory divided by average Demand.

Summary Weekly Tab

This tab has one worksheet, Summary Weekly, which provides weekly information to help Replenishment Managers track inventory movement.

Figure 6–6 Summary Weekly Worksheet

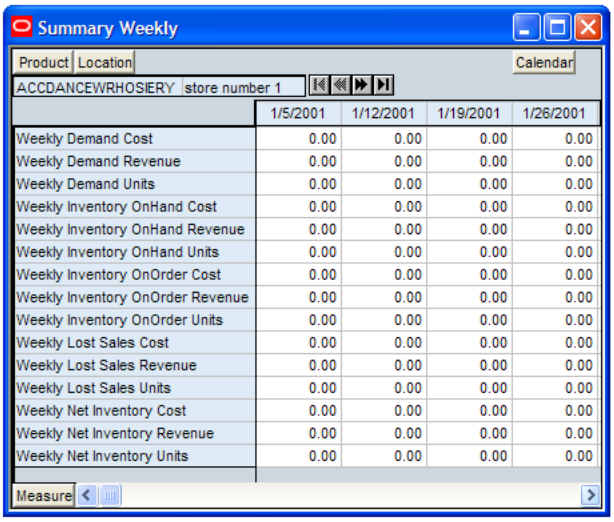


Table 6–2 Summary Weekly Worksheet Measures

Measure	Description
Weekly Demand Units	The Weekly Demand Units value.
Weekly Lost Sales Units	The Weekly Lost Sales Units value.
Weekly Inventory OnHand Units	The Weekly On Hand Inventory Units value.
Weekly Inventory OnOrder Units	The Weekly On Order Inventory Units value.
Weekly Net Inventory Units	The Weekly Net Inventory Units value.
Weekly Demand Revenue	The Weekly Demand Revenue value.
Weekly Lost Sales Revenue	The Weekly Lost Sales Revenue value.
Weekly Inventory OnHand Revenue	The Weekly On Hand Inventory Revenue value.
Weekly Inventory OnOrder Revenue	The Weekly On Order Inventory Revenue value.
Weekly Net Inventory Revenue	The Weekly Net Inventory Revenue value.
Weekly Demand Cost	The Weekly Demand Cost value.
Weekly Lost Sales Cost	The Weekly Lost Sales Cost value.
Weekly Inventory OnHand Cost	The Weekly On Hand Inventory Cost value.
Weekly Inventory OnOrder Cost	The Weekly On Order Inventory Cost value.
Weekly Net Inventory Cost	The Weekly Net Inventory Cost value.

Track Performance Tab

The Track Performance tab contains one worksheet, Track Performance, which allows Replenishment Managers to see how their Inventory is tracking against Optimal Inventory and Service level recommendations made by RO. The statistics displayed in this worksheet are by Replenishment Rule ID which is the level at which RO recommendations are specified during the configuration process. It is important to note that most of these statistics are also displayed in other workbooks/worksheets, but the statistics here are by Replenishment Rule ID as opposed to by item/location or by department/location.

Figure 6–7 Track Performance Worksheet

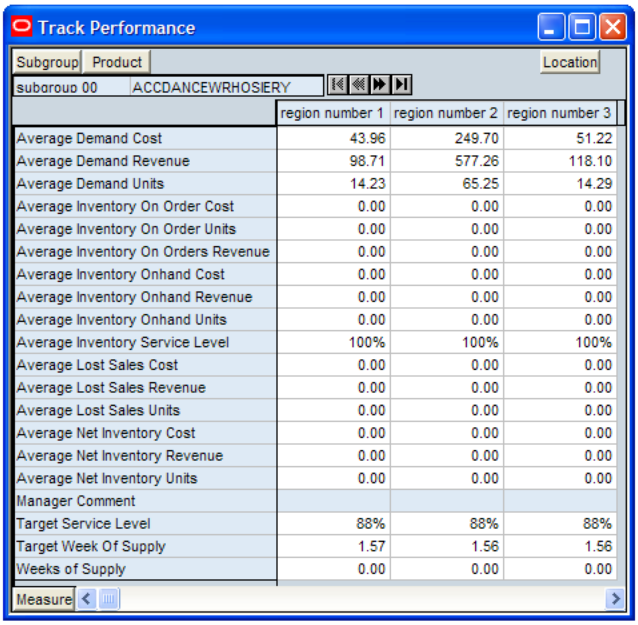


Table 6–3 Track Performance Worksheet Measures

Measure	Description
Inventory Performance Measures	
Average Inventory Service Level	The percentage of demand that was met. Calculated as historic average sales/average Demand over the last year.
Weeks of Supply	The number of Weeks of Supply or Weeks on Hand, calculated as average On Hand Inventory divided by average Demand over the last year.
Target Service Level	The target optimal Service Level recommended by RO for this Replenishment Rule ID.
Target Weeks of Supply	The target optimal Weeks of Supply recommended by RO for this Replenishment Rule ID.
Demand and Inventory Units Measures	
Average Demand Units	The average demand in units for this Replenishment Rule ID over the last year. Demand is calculated as historic sales plus historic Lost Sales.

Table 6–3 (Cont.) Track Performance Worksheet Measures

Measure	Description
Average Lost Sales Units	The Average Lost Sale in units for this Replenishment Rule ID over the last year.
Average Inventory OnHand Units	The Average On Hand Inventory in units.
Average Inventory OnOrder Units	The Average On Order Inventory in units.
Average Net Inventory Units	The Average Net Inventory in units.
Demand and Inventory Revenue Measures	
Average Demand Revenue	The average demand in Revenue for this Replenishment Rule ID over the last year. Demand is calculated as historic sales plus historic Lost Sales.
Average Lost Sales Revenue	The Average Lost Sale in Revenue for this Replenishment Rule ID over the last year.
Average Inventory OnHand Revenue	The Average On Hand Inventory in Revenue value.
Average Inventory OnOrder Revenue	The Average On Order Inventory in Revenue value.
Average net Inventory Revenue	The Average Net Inventory in Revenue value.
Demand and Inventory Cost Measures	
Average Demand Cost	The average demand in Cost for this Replenishment Rule ID over the last year. Demand is calculated as historic sales plus historic Lost Sales.
Average Net Inventory Cost	The Average Net Inventory in Cost value.
Average Inventory OnHand Cost	The Average On Hand Inventory in Cost value.
Average Inventory OnOrder Cost	The Average On Order Inventory in Cost value.
Average Lost Sales Cost	The Average Lost Sale in Cost for this Replenishment Rule ID over the last year.
Manager Comment Measure	
Manager Comment	This a writable measure that allows the Replenishment Manager to enter comments on the performance of the Replenishment Rule ID. These comments can be reviewed by the Replenishment Analyst in the Replenishment Analyst Workbook at an Item/Location level.

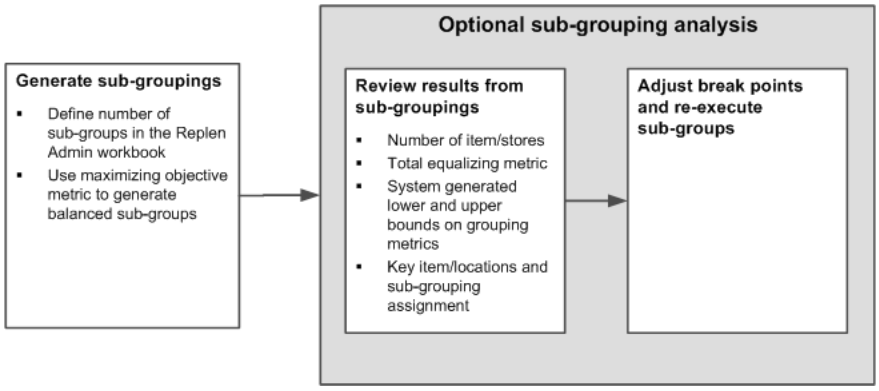
7

Subgroup Analysis Workbook

This chapter describes the Subgroup Analysis workbook, which allows you to dynamically alter the subgroup parameters to analyze and refine the subgroup parameters prior to full mode batch process. The modified subgroup parameters can be committed back to the domain to be used in the next batch. Any change to the subgroup parameters means the approved optimization parameters in the domain are out of date. A full mode batch process needs to be rerun and reapproved before any refresh mode batch process being invoked.

The user process flow of the Subgroup Analysis workbook is shown below.

Figure 7–1 Subgroup Analysis Workbook User Process Flow



The Subgroup Analysis workbook contains one tab and four worksheets:

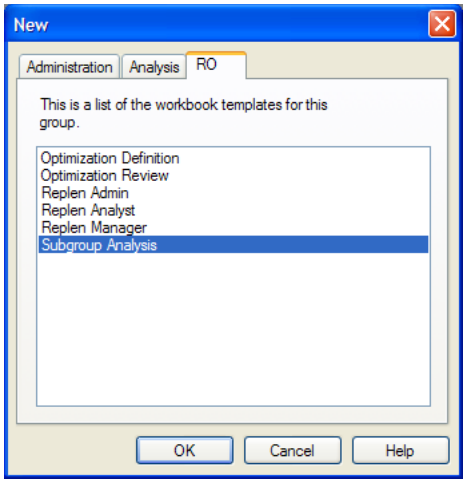
- Subgroup Analysis Tab
  - Review Sub-grouping Results Worksheet
  - User Breakpoint Overrides Worksheet
  - Review Base Level in Sub-groups Worksheet
  - Sub-group Criteria Worksheet

Subgroup Analysis Wizard

To open a Subgroup Analysis workbook, perform the following:

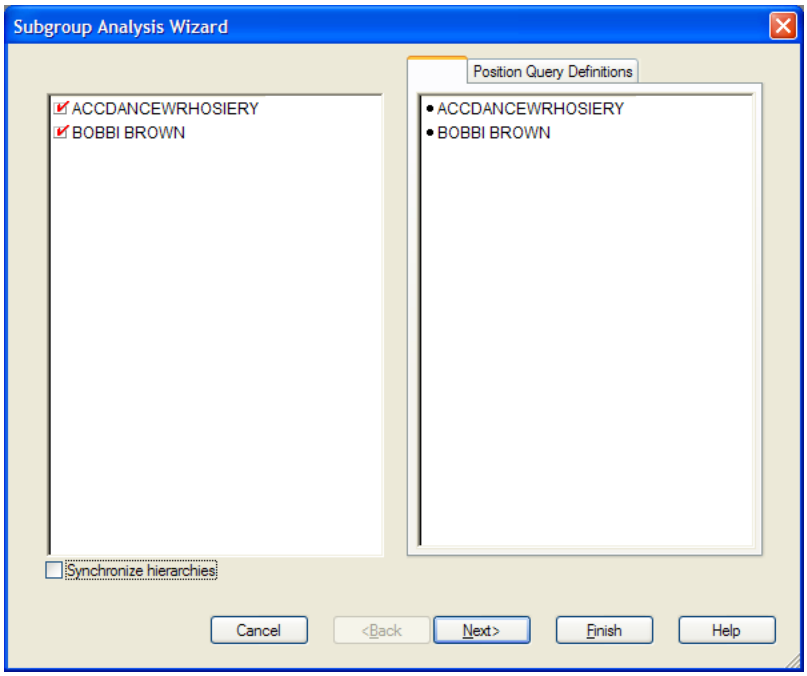
1. Select **File - New** or click the **New** button.
2. On the **RO** tab, select **Subgroup Analysis** and click **OK**.

Figure 7–2 Creating a New Subgroup Analysis Workbook



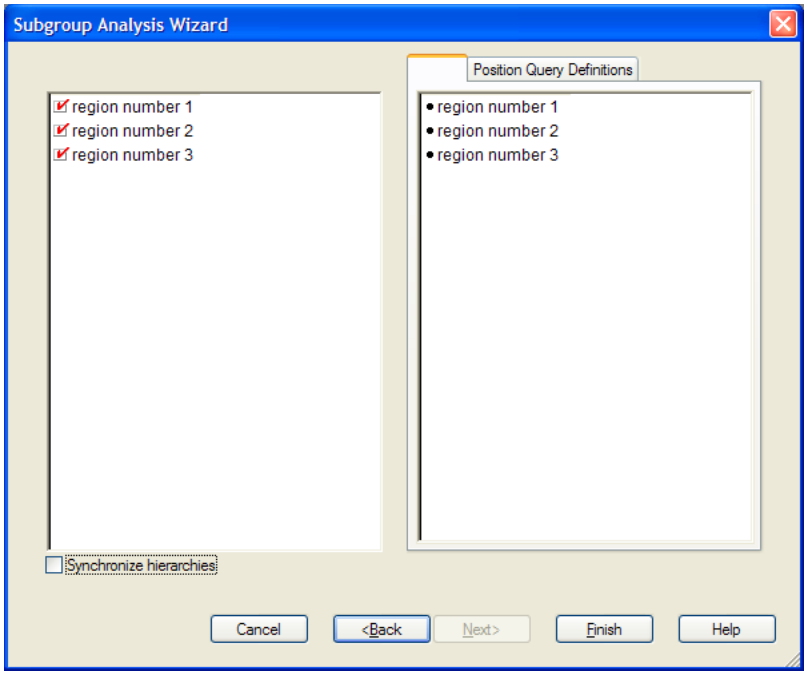
3. The **Select Products** screen appears. Select the departments to appear in the workbook and click **Next**.

Figure 7–3 Creating a New Subgroup Analysis Workbook - Select Products



4. The Select Locations screen appears. Select the locations to appear in the workbook and click **Finish**.

Figure 7–4 Creating a New Subgroup Analysis Workbook - Select Locations



Subgroup Analysis Tab

The Subgroup Analysis tab contains four worksheets:

- Review Sub-grouping Results Worksheet
- User Breakpoint Overrides Worksheet
- Review Base Level in Sub-groups Worksheet
- Sub-group Criteria Worksheet

Review Sub-grouping Results Worksheet

This worksheet allows you to review the sub-grouping results from the full mode batch run. Only valid subgroups are displayed. All measures but SubGroup Labels are read-only.

The screenshot of the worksheet below is at the department/region/subgroup intersection.

Figure 7–5 Review Sub-grouping Results Worksheet

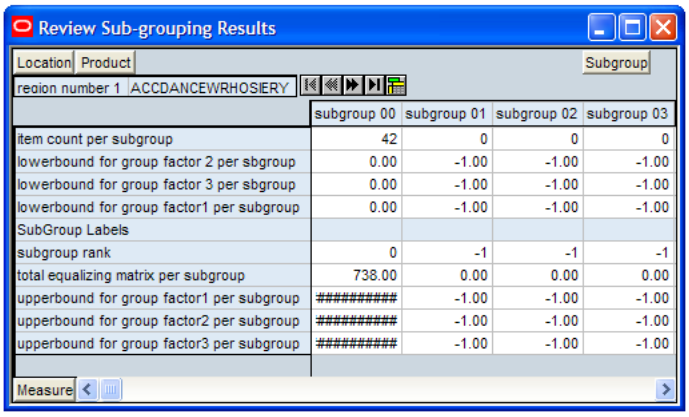


Table 7–1 Review Sub-grouping Results Worksheet Measures

Measure	Description
Item Count Per Subgroup	The number of item/stores for the subgroup.
Lowerbound for Group Factor1 per Sbgroup	The lower bound of the grouping factor1 for the subgroup.
Lowerbound for Group Factor2 per Sbgroup	The lower bound of the grouping factor2 for the subgroup.
Lowerbound for Group Factor3 per Sbgroup	The lower bound of the grouping factor3 for the subgroup.
SubGroup Labels	User-defined label of the subgroup.
Subgroup Rank	Ranks the subgroups for each department/region.
Total Equalizing Matrix per Subgroup	The total of equalizing matrix for each subgroup.
Upperbound for Group factor1 per Subgroup	The upper bound of the grouping factor1 for the subgroup.
Upperbound for Group factor2 per Subgroup	The upper bound of the grouping factor2 for the subgroup.
Upperbound for Group factor3 per Subgroup	The upper bound of the grouping factor3 for the subgroup.

User Breakpoint Overrides Worksheet

This worksheet allows you to review and alter the breakpoint overrides.

The screenshot of the worksheet below is at the department/region/breakpoint intersection.

Figure 7–6 User Breakpoint Overrides Worksheet

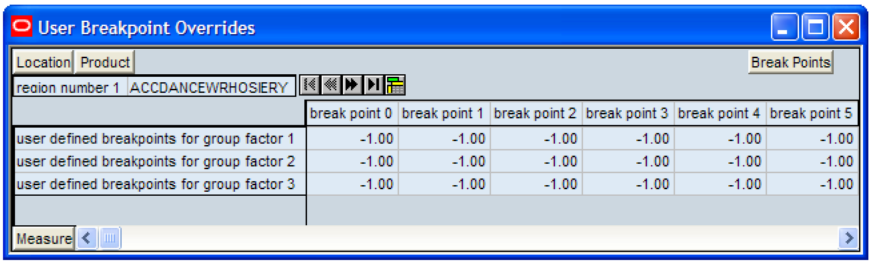


Table 7–2 User Break Point Overrides Worksheet Measures

Measure	Description
User Defined Breakpoints for Group Factor 1	The breakpoint for the grouping factor 1 for the department/region.
User Defined Breakpoints for Group Factor 2	The breakpoint for the grouping factor 2 for the department/region.
User Defined Breakpoints for Group Factor 3	The breakpoint for the grouping factor 3 for the department/region.

Review Base Level in Sub-groups Worksheet

This worksheet allows you to review the sub-grouping information for the item/stores in the department/regions that were selected in the wizard. This worksheet is read-only.

The screenshot of the worksheet below is at the item/store intersection.

Figure 7–7 Review Base Level in Sub-groups Worksheet

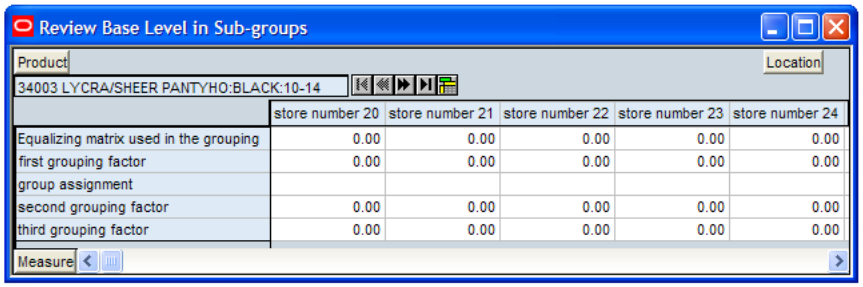


Table 7–3 Review Base level in Sub-groupings Worksheet Measures

Measure	Description
Equalizing Matrix Used in the Grouping	The value of the equalizing matrix used in subgrouping.
Group Assignment	The subgroup that the item/store belongs to.
First Grouping Factor	The value of grouping factor 1.
Second Grouping Factor	The value of grouping factor 2.
Third Grouping Factor	The value of grouping factor 3.

Sub-group Criteria Worksheet

This worksheet allows you to review the sub-grouping criteria for a for a higher level intersection (such as department/region) and change it if necessary.

The number of total subgroupings for the higher level intersection cannot exceed 50. In other words, when entering the values for each of the # of Groups SubGrouping measures, the product of these three numbers cannot exceed 50. The first subgrouping takes priority over the second and third subgroupings, and the second subgrouping takes priority over the third.

If you enter a number in the second or third subgrouping measure that causes the product of the three numbers to exceed 50, an **Out of Range** message appears that suggests a range of acceptable values.

If the values for each of the three subgroupings have already been calculated, and then you change the value of the first subgrouping to a number less than 50 that causes the product of the three measures to exceed 50, an out of range message does not appear. However, once you click **Calculate**, the Subgroup Setup Error Flag measure is checked and an error message appears in the Subgroup Setup Error Message measure.

The screenshot of the worksheet below is at the department/region intersection.

Figure 7–8 Sub-group Criteria Worksheet

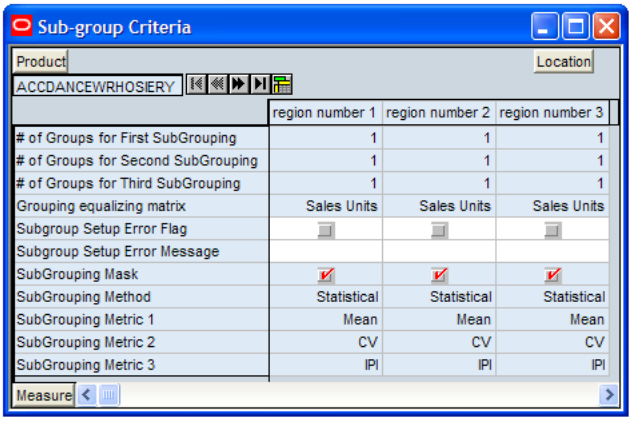


Table 7–4 Sub-grouping Criteria Worksheet Measures

Measure	Description
# of Groups for First SubGrouping	Specify the number of group for the first group factor. This is an integer measure based on the department/region.
# of Groups for Second SubGrouping	Specify the number of group for the second group factor. This is an integer measure based on the department/region.
# of Groups for Third SubGrouping	Specify the number of group for the third group factor. This is an integer measure based on the department/region.
Grouping Equalizing Matrix	Specify the equalizing matrix used in the statistical sub-grouping. Options are Sales Units, Sales Revenue, and Gross Margin.
Subgroup Setup Error Flag	Boolean measure that indicates an error in the subgroup setup. A true value may be triggered by one of the # of Groups for Subgroupings measures being over the limit or by an incorrect setup of one of the SubGrouping Metric measures.

Table 7–4 (Cont.) Sub-grouping Criteria Worksheet Measures

Measure	Description
SubGrouping Method	The subgroup method used. Options are Breakpoints or Statistical.
SubGrouping Metric 1	Specify the first grouping factor. Options are Mean, CV, and IPI.
SubGrouping Metric 2	Specify the second grouping factor. This cannot be the same as SubGrouping Metric 1 or 3. Options are Mean, CV, and IPI
SubGrouping Metric 3	Specify the third grouping factor. This cannot be the same as SubGrouping Metric 1 or 2. Options are Mean, CV, and IPI

Committing Sub-group Criteria

Once you have modified the sub-group criteria, performed a what-if case to review the outcome of the modifications, and decided to use the new settings, you can commit them to the domain by selecting **Commit Now** in the **File** menu. Note that only the criteria for sub-groupings is committed, not the arrangement of the item/stores within the subgroupings. The item/stores are not sorted into the new sub-groupings until the next batch run.