Oracle® Retail Replenishment Optimization

User Guide for the RPAS Classic Client

Release 14.0

E51873-02

February 2014

ORACLE®

Oracle Retail Replenishment Optimization User Guide for the RPAS Classic Client, Release 14.0

E51873-02

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Preface

The *Oracle Retail Replenishment Optimization User Guide for the RPAS Classic Client* describes the application's user interface. It provides detailed instructions for performing the various steps in the replenishment optimization process.

Audience

This guide is intended for following types of users in Oracle Retail Replenishment Optimization:

- Replenishment Analysts
- Replenishment Managers
- Replenishment Administrators

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Related Documents

For more information, see the following documents in the Oracle Retail Replenishment Optimization Release 14.0 documentation set:

- *Oracle Retail Replenishment Optimization Implementation Guide*
- *Oracle Retail Replenishment Optimization Installation Guide*
- *Oracle Retail Replenishment Optimization Release Notes*
- *Oracle Retail Replenishment Optimization User Guide for the RPAS Fusion Client*
- *Oracle Retail Batch Script Architecture Implementation Guide*
- Oracle Retail Predictive Application Server documentation

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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, 14.0) or a later patch release (for example, 14.0.1). 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

Documentation is packaged with each Oracle Retail product release. Oracle Retail product documentation is also available on the following Web site:

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

(Data Model documents are not available through Oracle Technology Network. These documents are packaged with released code, or you can obtain them through My Oracle Support.)

Documentation should be available on this Web site within a month after a product release.

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 the best use of the available replenishment capabilities, RO balances inventory investments across items/warehouses to maximize return on investment (ROI). Optimization is performed based on business objectives and allows retailers to make inventory investment decisions that are in line with their 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/warehouse demand and supply chain variables to determine the optimal inventory for the 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/warehouse selling characteristics ensures accurate replenishment. It allows you to focus on maximizing profit rather than the time-consuming business of managing individual item/warehouse level replenishment.

Functionality

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 items/warehouses.
  - Inventory investment trade-offs are performed based on item/warehouse level demand profiles and ROI.
  - Robust simulation techniques drive the calculations for product/location return on inventory investment.
  - Once an overall inventory investment decision is made, RO delivers the item/warehouse-specific requirements to help you reach that goal.
- Use item weighting during optimization.
  - RO can consider product importance when assessing ROI.

  - RO performs optimization and inventory investment recommendations based on the statistical characteristics of the item/warehouse. If an item is important for strategic reasons (for example, the item may be a traffic driver; 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.

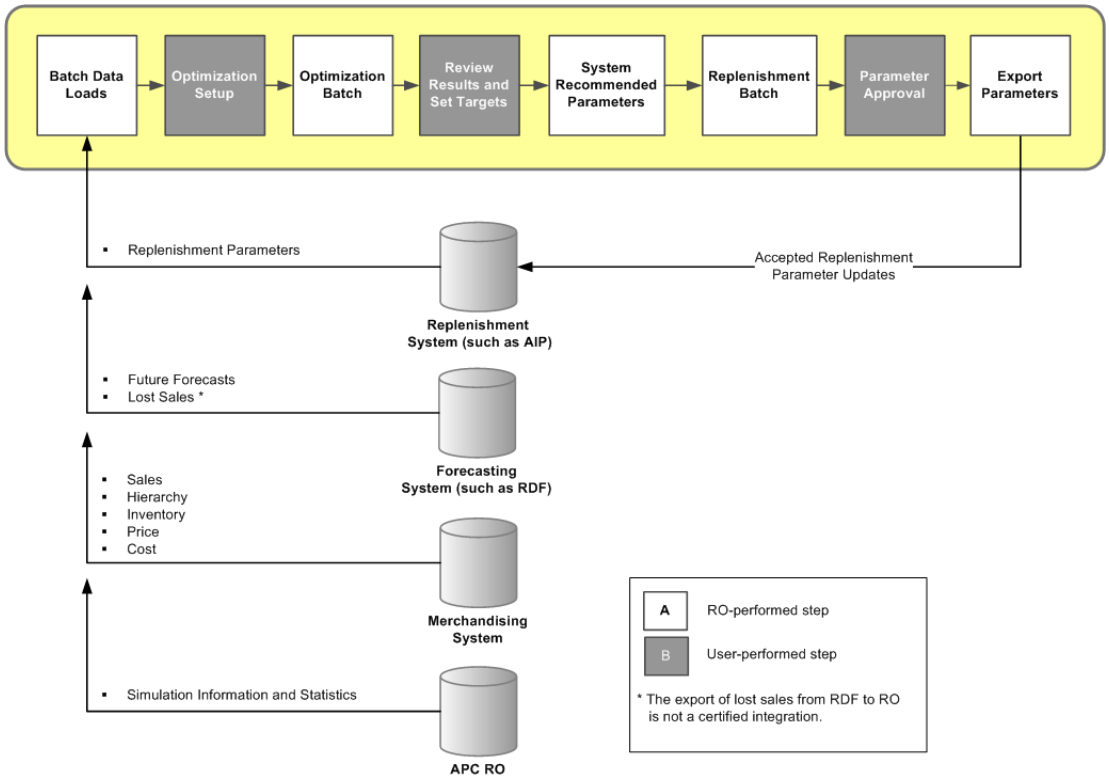
  RO can consider changing assortments and associated item priorities that result from an assortment rationalization process.

RO Solution Process Overview

Figure 1–1 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. You can perform What-if analysis by changing replenishment settings and determining the impact on projected inventory and service levels. You can restrict this analysis to only altered items/locations. You can then approve 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.

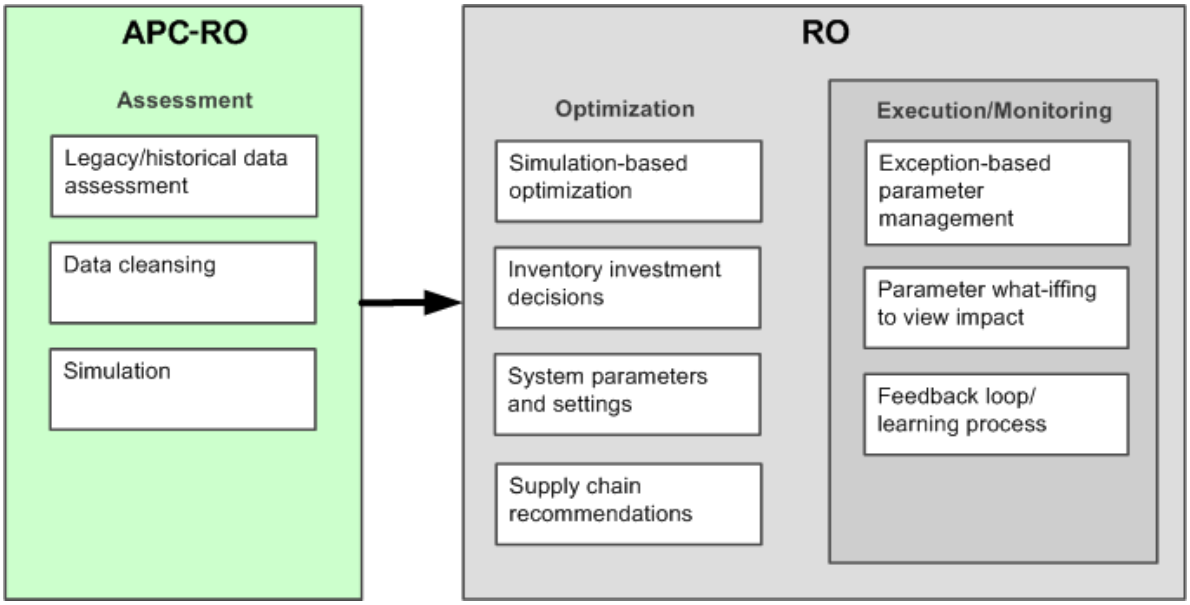
Figure 1–1 RO Solution Process Flow



RO and APC-RO

RO receives simulation information and statistics from APC-RO and uses these parameters to perform the optimization. This process is shown in Figure 1–2.

Figure 1–2 RO and APC-RO



- APC-RO calculates the necessary parameters that drive the optimization within RO.
  - The parameters relate the ROI information to the statistical characteristics of the items/warehouses.
  - Parameters are based on robust simulation techniques that capture item/warehouse/day-level nuances in demand (such as day-to-day variability and spikes), lead times, pack sizes, review frequencies, warehouse fill rates (for warehouses running multi-tier), and the impact on the return on inventory investment.
- APC-RO exports item/warehouse 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 items/warehouses
  - 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 the 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 items/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

- Subgroup Analysis Workbook
- Replenishment Manager Workbook

Permissible File Names

When saving a workbook (or saving a copy using the **Save As** command), there are restrictions on the length of the file name and the characters that can be used,

- The file name can be a maximum of 32 characters.
- The filename can contain the following standard characters:
  - a - z
  - A - Z
  - 0 - 9
- The filename can contain the following special characters:
  - .
  - |
  - _
  - -
  - /
  - $
  - &
  - spaces

Any file name not meeting these conditions results in an error message.

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 two 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 the previous full mode run.

The Optimization Definition workbook contains the following tabs:

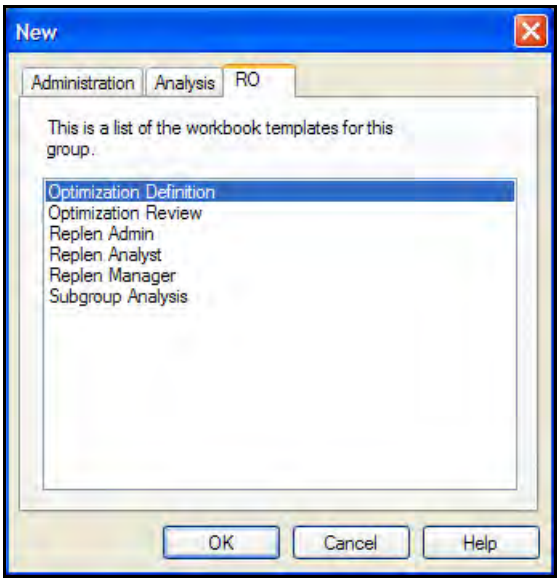
- Optimization Run Setup Tab
- Subgrouping Setup Tab
- Constraints Setup Tab

Optimization Definition Wizard

To open an Optimization Definition workbook, perform the following:

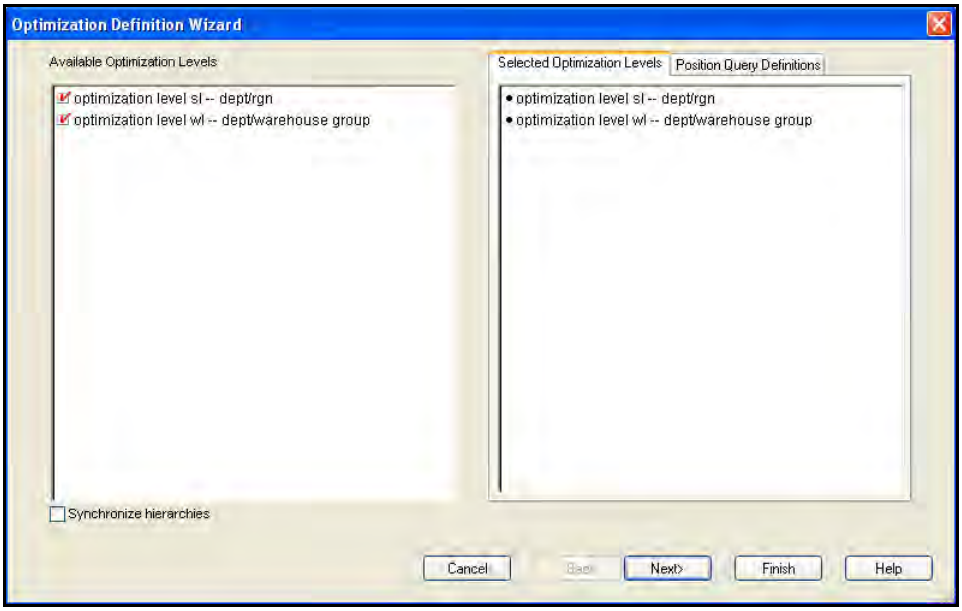
1. Select **File - New** or click **New**.
2. On the **RO** tab, select **Optimization Definition** and click **OK**.

Figure 2–1 Creating a New Optimization Definition Workbook



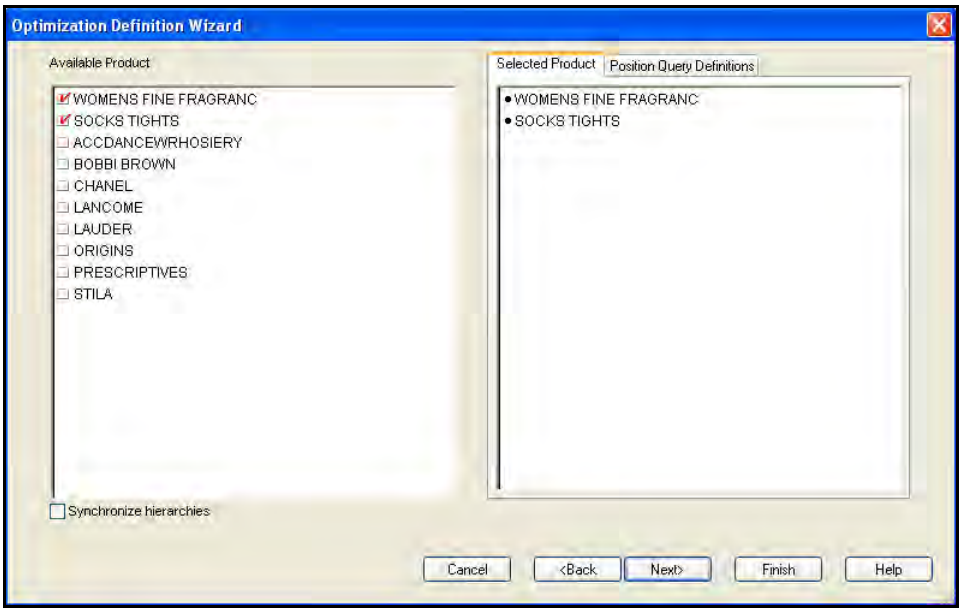
3. The Available Optimization Levels window opens. Select either or both the store level (SL) or the warehouse level (WL) and click Next.

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



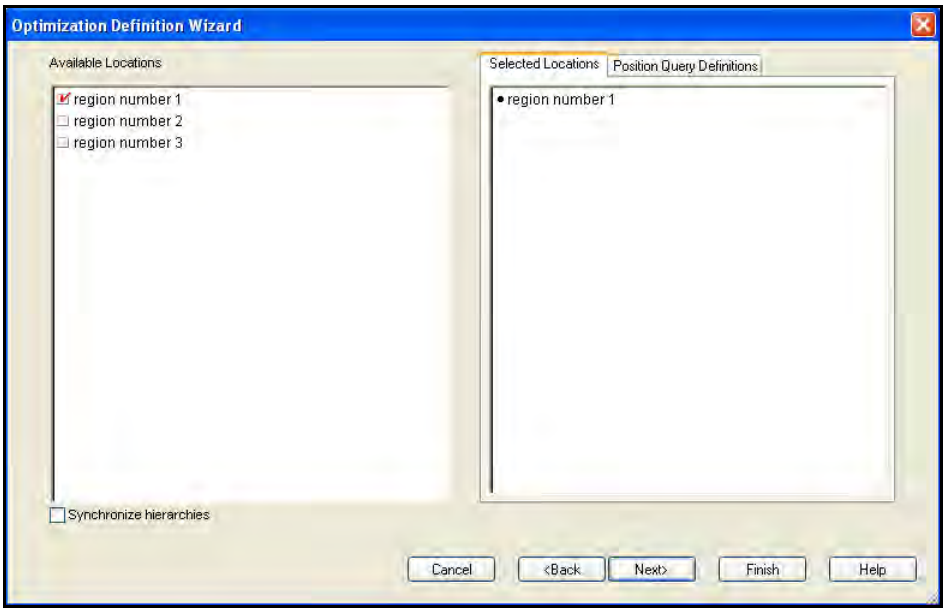
4. The Available Products window opens. Select the products to be displayed in the workbook and click **Next**.

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



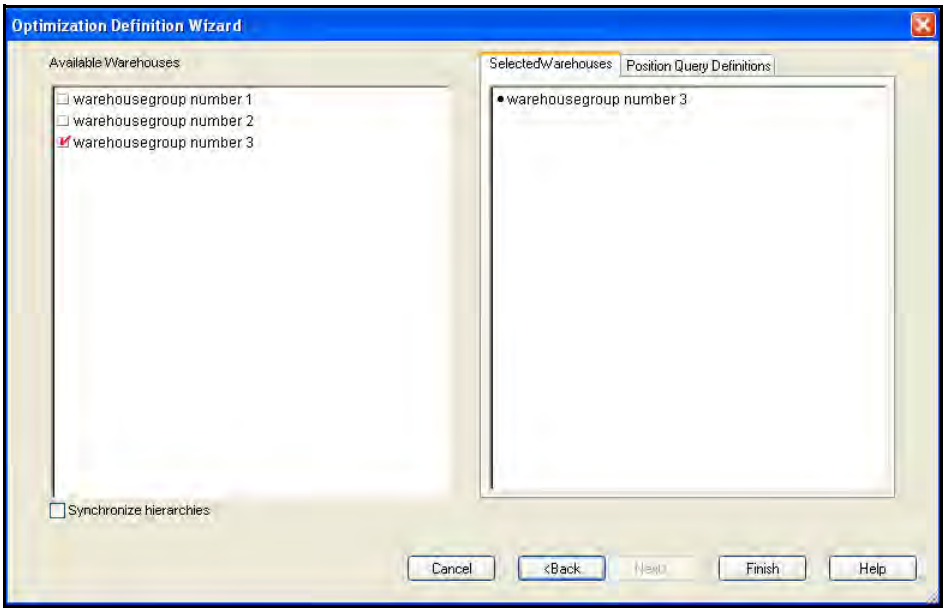
5. The Available Locations window opens. Select the companies to be displayed in the workbook and click Next.

Figure 2–4 Creating a New Optimization Definition Workbook - Select Locations



6. The Available Warehouses window opens. Select the warehouses to be displayed in the workbook and click Finish.

Figure 2–5 Creating a New Optimization Definition Workbook - Select Warehouses



The Optimization Definition workbook is built.

Optimization Run Setup Tab

The Optimization Run Setup tab contains the following worksheets:

- Basic Setup for Store Optimization Worksheet
- Advanced Setup for Store Optimization Worksheet

- Basic Setup for Warehouse Optimization Worksheet
- Advanced Setup for Warehouse Optimization Worksheet

Basic Setup for Store Optimization Worksheet

The Basic Setup for Store Optimization worksheet enables you to set up optimization parameters like maximizing and minimizing metrics and optimization mode for the store level optimization. Note that RO determines optimal inventory investment across products/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 2–6 Basic Setup for Store Optimization Worksheet

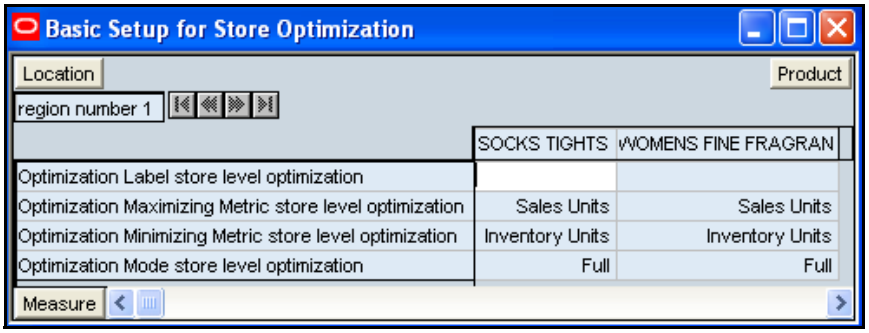


Table 2–1 Basic Setup for Store Optimization Worksheet Measures

Measure	Description
Optimization Label Store Level Optimization	User-defined label of the store level optimization. This can be viewed in the Optimization Review workbook.
Optimization Maximizing Metric Store Level Optimization	Used to specify the maximizing metrics in the store level optimization. This is based on the group/company level. Options are Sales Units, Sales Revenue, Gross Margin, and Service Level.
Optimization Minimizing Metric Store Level Optimization	Used to specify the minimizing metrics in the store level optimization. This is based on the group/company level. Options are Inventory Units and Inventory Cost.
Optimization Mode Store Level Optimization	Used to specify the batch mode: full mode, refresh mode or None.

Advanced Setup for Store Optimization Worksheet

The Advanced Setup for Store Optimization worksheet enables you to set the advanced optimization parameters for the store level optimization.

Figure 2–7 Advanced Setup for Store Optimization Worksheet

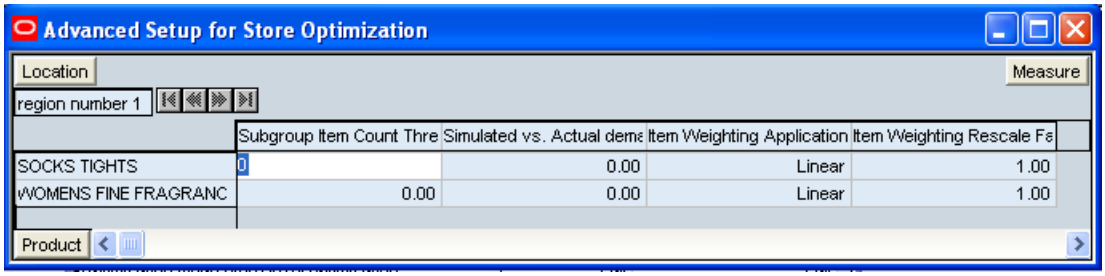


Table 2–2 Advanced Setup for Store Optimization Worksheet Measures

Measure	Description
Simulated vs. Actual demand deviance threshold Store Level Optimization	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 Store Level Optimization	When the number of items/locations within a subgroup falls below this threshold, the system assumes that the robustness in the item/location-level replenishment characteristics is not enough. In those situations, the system uses the statistical grouping level characteristics for all items/locations in the subgroup in order to avoid overfitting.

Note: The Item Weighting Application Factor and the Item Weighting Rescale Factor for Store Level Optimization are available for setup in Configuration Tools. Refer to the *Oracle Retail Replenishment Optimization Implementation Guide* for additional information.

Basic Setup for Warehouse Optimization Worksheet

The Basic Setup for Warehouse Optimization worksheet enables you to set up optimization parameters like maximizing and minimizing metrics and optimization mode for the warehouse optimization.

Figure 2–8 Basic Setup for Warehouse Optimization Worksheet

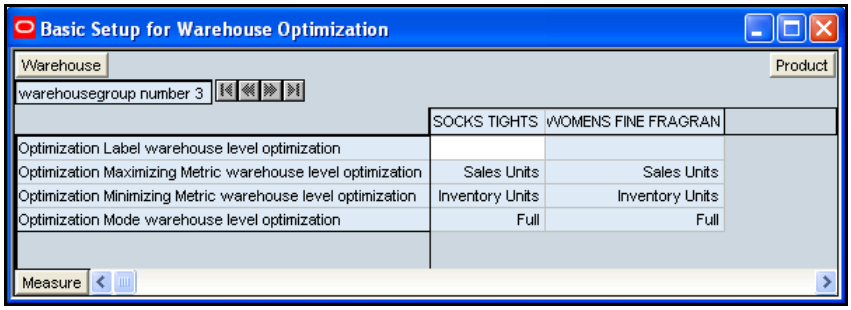


Table 2–3 Basic Setup for Warehouse Optimization Worksheet Measures

Measure	Description
Optimization Label Warehouse Level Optimization	User-defined label of the warehouse level optimization. This can be viewed in the Optimization Review workbook.
Optimization Maximizing Metric Warehouse Level Optimization	Used to specify the maximizing metrics in the warehouse level optimization. This is based on the group/warehouse group level. Options are Sales Units, Sales Revenue, Gross Margin, and Service Level.
Optimization Minimizing Metric Warehouse Level Optimization	Used to specify the minimizing metrics in the warehouse level optimization. This is based on the group/warehouse group level. Options are Inventory Units and Inventory Cost.
Optimization Mode Warehouse Level Optimization	Used to specify the batch mode: full mode, refresh mode, or None.

Advanced Setup for Warehouse Optimization Worksheet

The Advanced Setup for Warehouse worksheet enables you to set the advanced optimization parameters for the warehouse level optimization.

Figure 2–9 Advanced Setup for Warehouse Optimization Worksheet

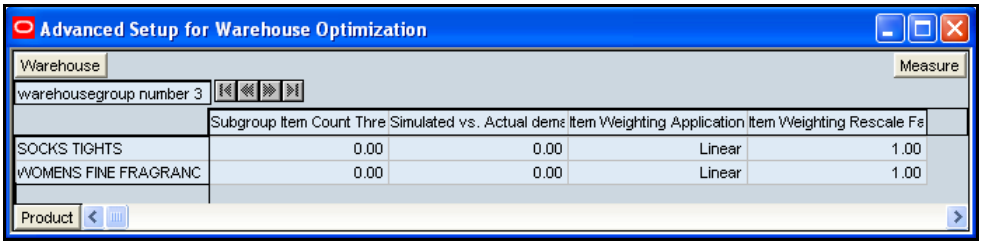


Table 2–4 Advanced Setup for Warehouse Optimization Worksheet Measures

Measure	Description
Simulated vs. Actual demand deviance threshold Warehouse Level Optimization	Used to determine if the demand characteristics of an item/warehouse 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/warehouse location-specific characteristics.
Subgroup Item Count Threshold Warehouse Level Optimization	When the number of item/warehouse locations within a subgroup fall below this threshold, the system assumes that the robustness in the item/warehouse location-level replenishment characteristics is not enough. In those situations, the system uses the statistical grouping level characteristics for all item/warehouse locations in the subgroup in order to avoid overfitting.

Subgrouping Setup Tab

In the Subgrouping Setup tab, you can define the subgrouping criteria and specify the subgrouping method to be used.

RO performs optimization at statistical subgroupings of items/stores rather than at the item/store level to avoid overfitting. Performing optimization at the subgrouping level ensures that the optimization results are robust.

The locations mentioned above can be either store - for the store level optimization, or warehouses - for the warehouse level optimization.

Performing Groupings on Multiple Metrics

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

The subgrouping is usually performed based on multiple statistical attributes like selling levels, variability, seasonality, and so on. For example, it is typical to group items/locations based on volume first. Then one can further group items/locations within each volume bucket on variability. Also, you can choose to group items/locations based on other features, like seasonality or forecast errors. The configuration of subgrouping metrics is described in the *Oracle Retail Replenishment Optimization Implementation Guide*.

The same methodology applies both for stores and warehouses.

The Subgrouping Setup tab contains the following worksheets:

- Define Subgrouping Criteria for Store Optimization Worksheet
- User Breakpoints Override for Store Optimization Worksheet
- Subgrouping Labels for Store Optimization Worksheet
- Define Subgrouping Criteria for Warehouse Optimization Worksheet
- User Breakpoints Override for Warehouse Optimization Worksheet
- Subgrouping Labels for Warehouse Optimization Worksheet

Define Subgrouping Criteria for Store Optimization Worksheet

This worksheet enables you to define subgrouping criteria like the number of groupings, subgrouping methods. The optimization is performed at the specified store optimization level, such as group/company. The subgrouping 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 is displayed 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 selected and an error message is displayed in the Subgroup Setup Error Message measure.

The view in Figure 2–10 displays data at the group/company intersection.

Figure 2–10 Define Subgrouping Criteria for Store Optimization Worksheet

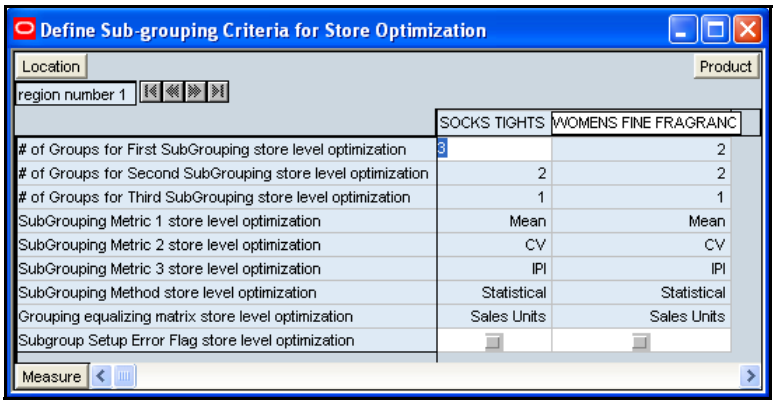


Table 2–5 Define Subgrouping Criteria for Store Optimization Worksheet Measures

Measure	Description
SubGrouping Method for Grouping Factor 1 Store Level Optimization	The subgroup method used for Grouping Factor 1. Options are Breakpoints and Statistical. Breakpoints are defined in User Breakpoints Override for Store Optimization View.
SubGrouping Method for Grouping Factor 2 Store Level Optimization	The subgroup method used for Grouping Factor 2. Options are Breakpoints and Statistical.
SubGrouping Method for Grouping Factor 3 Store Level Optimization	The subgroup method used for Grouping Factor 3. Options are Breakpoints and Statistical.
# of Groups for First SubGrouping Store Level Optimization	Specify the number of groups for the first group factor. This is an integer measure that is based on the group/company.
# of Groups for Second SubGrouping Store Level Optimization	Specify the number of groups for the second group factor. This is an integer measure that is based on the group/company.
# of Groups for Third SubGrouping Store Level Optimization	Specify the number of groups for the third group factor. This is an integer measure that is based on the group/company.
Subgroup Setup Error Flag Store Level Optimization	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.
Subgroup Setup Error Message Store Level Optimization	String measure that displays the error message that caused the error flagged in Subgroup Setup Error Flag Store Level Optimization.

Note: The Subgrouping Metric 1, Subgrouping Metric 2, Subgrouping Metric 3, and Grouping Equalizing Metric for Store Level Optimization are available for setup in Configuration Tools. Refer to the *Oracle Retail Replenishment Optimization Implementation Guide* for additional information.

Committing Subgroup Criteria

When you have modified the subgroup, you can commit them to the domain by selecting **Commit Now** in the **File** menu. Note that only the criteria for subgroupings is committed, not the arrangement of the item/stores within the subgroupings. The items/stores are not sorted into the new subgroupings until the next batch run.

User Breakpoints Override for Store Optimization Worksheet

Once the statistical subgrouping has been performed by the system, you have the option to override it by specifying breakpoints for subgroupings.

Note that the subgrouping for breakpoints is performed in a nested manner as it is in the Define Subgrouping Criteria view. The breakpoints are defined for each subgroup by defining the lower and upper bounds for each group factor.

The value set in this view for upper and lower bounds should match the settings in Define Subgrouping Criteria for Store Optimization View. For instance, if in the Define Subgrouping Criteria for Store Optimization View the number of Groups for First Subgrouping, Second Subgrouping, Third Subgrouping are set to 2, 3, 2, respectively, then the group/company level is expected to have 12 subgroups (12=2*3*2). Among these 12 subgroups:

- For **Group Factor 1**, every six subgroups should have the same lower bounds and upper bounds for Group Factor 1, starting from Subgroup 00. This is because the 12 subgroups are divided into two sections equally first, The later six-subgroup section's lower bound should be equal to (recommend) or greater than the previous six sub-group section's upper bound.
- For **Group Factor 2**, every two subgroups should have the same lower bounds and upper bounds for Group Factor 2, starting from subgroup 00. This is because within each subgroup section, the six subgroups are divided into three parts equally. The later two subgroup section's lower bound should be equal to (recommend) or greater than the previous two sub-group section's upper bound. This logic applies to all of the subgroups in the same section, which has six subgroups.
- For **Group Factor 3**, each of the subgroups should then be assigned a lower and a upper bounds independently,. The later subgroup section's lower bound should be equal to (recommend) or greater than the previous sub-group section's upper bound. This logic applies to all of the subgroups in the same section, which has two subgroups.

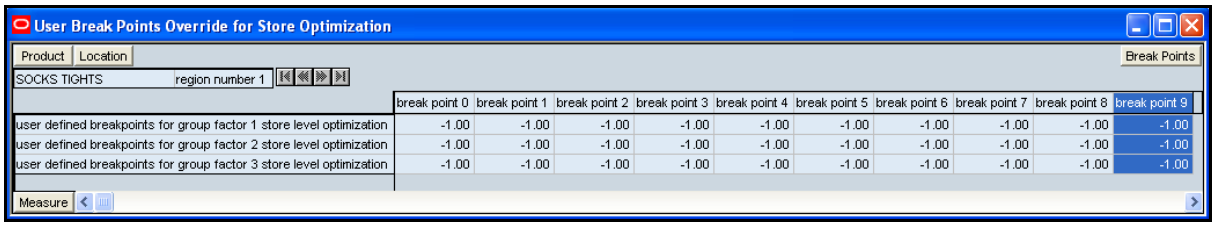
It is suggested to run the subgrouping with statistical first. Reviewing the breakpoints in the Optimization Review workbook helps give a baseline on how the lower bounds and upper bounds should look.

Note: When defining the lower and upper bounds for different group factors, you should know the specified subgroup metric so that the values set in this view can be utilized accordingly and correctly. The subgroup metrics are in Configuration Tools. Refer to the *Oracle Retail Replenishment Optimization Implementation Guide* for additional information.

Table 2–6 User Breakpoints Override for Store Optimization Worksheet Measures

Measure	Description
User defined Lower Bound for Group Factor 1 per Subgroup Store-Level Optimization	Specify the lower bound for the Group Factor 1 for the group/company. The range set in lower bound is inclusive.
User defined Lower Bound for Group Factor 2 per Subgroup Store-Level Optimization	Specify the lower bound for the Group Factor 2 for the group/company. The range set in lower bound is inclusive.
User defined Lower Bound for Group Factor 3 per Subgroup Store-Level Optimization	Specify the lower bound for the Group Factor 2 for the group/company. The range set in lower bound is inclusive.
User defined Upper Bound for Group Factor 1 per Subgroup Store-Level Optimization	Specify the upper bound for the Group Factor 1 for the group/company. The range set in upper bound is exclusive.
User defined Upper Bound for Group Factor 2 per Subgroup Store-Level Optimization	Specify the upper bound for the Group Factor 2 for the group/company. The range set in upper bound is exclusive.
User defined Upper Bound for Group Factor 3 per Subgroup Store-Level Optimization	Specify the upper bound for the Group Factor 3 for the group/company. The range set in upper bound is exclusive.

Figure 2–11 User Breakpoints Override for Store Optimization Worksheet



Subgrouping Labels for Store Optimization Worksheet

This worksheet enables you to create labels for the subgroupings.

Figure 2–12 Subgrouping Labels for Store Optimization Worksheet

Table 2–7 Subgrouping Labels for Store Optimization Worksheet Measures

Measure	Description
SubGroup Labels Store Level Optimization	User-defined label for the subgroup. These labels appear in the Optimization Review workbook.

Define Subgrouping Criteria for Warehouse Optimization Worksheet

The methods and parameters available in the store optimization views are available for the warehouse optimization views as well. This view enables you to define subgrouping criteria like the number of groupings and subgrouping methods. The optimization is performed at the specified store optimization level, such as group/warehouse group. The subgrouping 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 is displayed 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, after you click **Calculate**, the Subgroup Setup Error Flag measure is selected and an error message is displayed in the Subgroup Setup Error Message measure.

The worksheet in Figure 2–13 is at the group/warehouse group intersection.

Figure 2–13 Define Subgrouping Criteria for Warehouse Optimization Worksheet

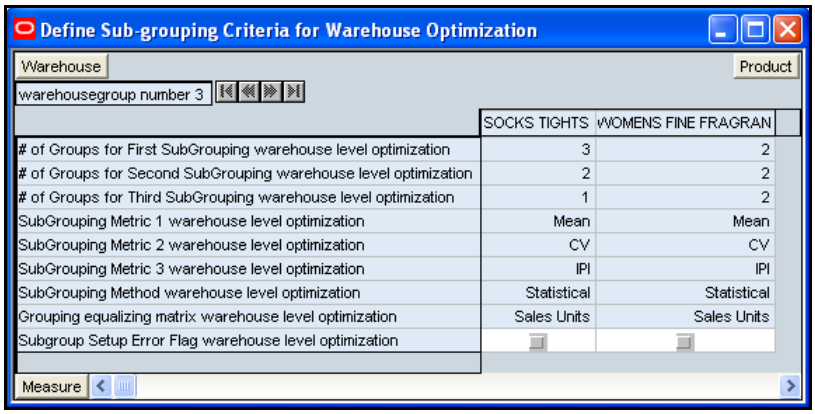


Table 2–8 Define Subgrouping Criteria for Warehouse Optimization Worksheet Measures

Measure	Description
SubGrouping Method for Grouping Factor 1 Warehouse Level Optimization	The subgroup method used for Grouping Factor 1. Options are Breakpoints and Statistical.
SubGrouping Method for Grouping Factor 2 Warehouse Level Optimization	The subgroup method used for Grouping Factor 2. Options are Breakpoints and Statistical.
SubGrouping Method for Grouping Factor 3 Warehouse Level Optimization	The subgroup method used for Grouping Factor 3. Options are Breakpoints and Statistical.
# of Groups for First SubGrouping Warehouse Level Optimization	Specify the number of group for the first group factor. This is an integer measure that is based on the group/warehouse group.
# of Groups for Second SubGrouping Warehouse Level Optimization	Specify the number of group for the second group factor. This is an integer measure that is based on the group/warehouse group.

Table 2–8 (Cont.) Define Subgrouping Criteria for Warehouse Optimization Worksheet Measures

Measure	Description
# of Groups for Third SubGrouping Warehouse Level Optimization	Specify the number of group for the third group factor. This is an integer measure that is based on the group/warehouse group.
Subgroup Setup Error Flag Warehouse Level Optimization	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.
Subgroup Setup Error Message Warehouse Level Optimization	String measure that displays the error message that caused the error flagged in Subgroup Setup Error Flag Warehouse Level Optimization.
SubGrouping Method for Grouping Factor 1 Warehouse Level Optimization	The subgroup method used for Grouping Factor 1. Options are Breakpoints and Statistical.

Note: The Subgrouping Metric 1, Subgrouping Metric 2, Subgrouping Metric 3, and Grouping Equalizing Metric for Warehouse Level Optimization are available for setup in Configuration Tools. Refer to the Oracle Retail Replenishment Optimization Implementation Guide for additional information.

Committing Subgroup Criteria

When you have modified the subgroup, you can commit them to the domain by selecting **Commit Now** in the **File** menu. Note that only the criteria for subgroupings is committed, not the arrangement of the items/warehouses within the subgroupings. The items/warehouses are not sorted into the new subgroupings until the next batch runs.

User Breakpoints Override for Warehouse Optimization Worksheet

When the statistical subgrouping has been performed by the system, you have the option to override it by specifying breakpoints for subgroupings.

Note that the subgrouping for breakpoints is performed in a nested manner as it is in the Define Subgrouping Criteria view. The breakpoints are defined for each subgroup by defining the lower and upper bounds for each group factor.

The value set in this view for upper and lower bounds should match the settings in Define Subgrouping Criteria for Warehouse Optimization View. For instance, if in the Define Subgrouping Criteria for Warehouse Optimization View the # of Group for First Subgrouping, Second Subgrouping, Third Subgrouping are set to 2, 3, 2, respectively, then the group/warehouse group level is expected to have 12 subgroups (24=2*3*2). Among these 12 subgroups:

- For **Group Factor 1**, every six subgroups should have the same lower bounds and upper bounds for Group Factor 1, starting from Subgroup 00. This is because the 12subgroups are divided into two sections equally first. The later six-subgroup section's lower bound should be equal to (recommend) or greater than the previous six sub-group section's upper bound.
- For **Group Factor 2**, every two subgroups should have the same lower bounds and upper bounds for Group Factor 2, starting from subgroup 00. This is because within each subgroup section, the 6 subgroups are divided into three parts equally, secondly. The later two subgroup section's lower bound should be equal to (recommend) or greater than the previous two sub-group section's upper bound.

This logic applies to all of the subgroups in the same section, which has six subgroups.

- For **Group Factor 3**, each of the subgroups should then be assigned a lower and a upper bounds independently. The later subgroup section's lower bound should be equal to (recommend) or greater than the previous sub-group section's upper bound. This logic applies to all of the subgroups in the same section, which has two subgroups.

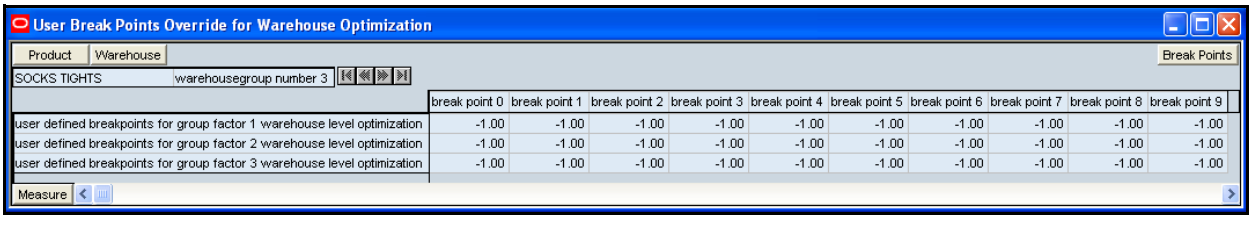
It is suggested to run the subgrouping with statistical first. Reviewing the breakpoints in the Optimization Review workbook helps give a reference on how the lower bounds and upper bounds should look like.

Note: When defining the lower and upper bounds for different group factor, you should know the specified subgroup metric so that the values set in this view can be utilized accordingly and correctly. The subgroup metrics are in Configuration Tools. Refer to the *Oracle Retail Replenishment Optimization Implementation Guide* for additional information.

Table 2–9 User Breakpoints Override for Warehouse Optimization Worksheet Measures

Measure	Description
User defined Lower Bound for Group Factor 1 per Subgroup Warehouse-Level Optimization	Specify the lower bound for the Group Factor 1 for the group/warehouse group. The range set in lower bound is inclusive.
User defined Lower Bound for Group Factor 2 per Subgroup Warehouse-Level Optimization	Specify the lower bound for the Group Factor 2 for the group/warehouse group. The range set in lower bound is inclusive.
User defined Lower Bound for Group Factor 3 per Subgroup Warehouse-Level Optimization	Specify the lower bound for the Group Factor 2 for the group/warehouse group. The range set in lower bound is inclusive.
User defined Upper Bound for Group Factor 1 per Subgroup Warehouse-Level Optimization	Specify the upper bound for the Group Factor 1 for the group/warehouse group. The range set in upper bound is exclusive.
User defined Upper Bound for Group Factor 2 per Subgroup Warehouse-Level Optimization	Specify the upper bound for the Group Factor 2 for the group/warehouse group. The range set in upper bound is exclusive.
User defined Upper Bound for Group Factor 3 per Subgroup Warehouse-Level Optimization	Specify the upper bound for the Group Factor 3 for the group/warehouse group. The range set in upper bound is exclusive.

Figure 2–14 User Breakpoints Override for Warehouse Optimization Worksheet



Subgrouping Labels for Warehouse Optimization Worksheet

This worksheet enables you to create labels for the warehouse subgroupings.

Figure 2–15 Subgrouping Labels for Warehouse Optimization Worksheet

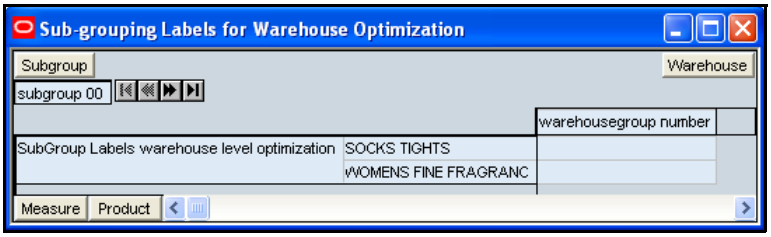


Table 2–10 Subgrouping Labels for Warehouse Optimization Worksheet Measures

Measure	Description
SubGroup Labels Warehouse Level Optimization	User-defined label for the subgroup. These labels appear in the Optimization Review workbook.

Constraints Setup Tab

The Constraints Setup tab contains the following worksheets:

- Specify Minimum Constraints for Store Optimization Worksheet
- Specify Maximum Constraint for Store Optimization Worksheet
- Specify Maximum Order Frequency for Store Optimization Worksheet
- Specify Minimum Constraints for Warehouse Optimization Worksheet
- Specify Maximum Constraint for Warehouse Optimization Worksheet
- Specify Maximum Order Frequency for Warehouse Optimization Worksheet

Specify Minimum Constraints for Store Optimization Worksheet

This worksheet enables you to specify the minimum constraint for an item/company for the store level 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 2–16 Specify Minimum Constraints for Store Optimization Worksheet

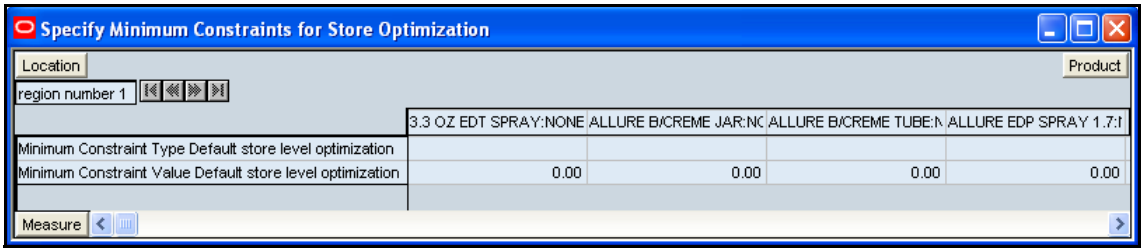


Table 2–11 Specify Minimum Constraints for Store Optimization Worksheet Measures

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

Specify Maximum Constraint for Store Optimization Worksheet

This worksheet enables you to specify the maximum constraint for a group/store for the store level 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 2–17 Specify Maximum Constraint for Store Optimization Worksheet

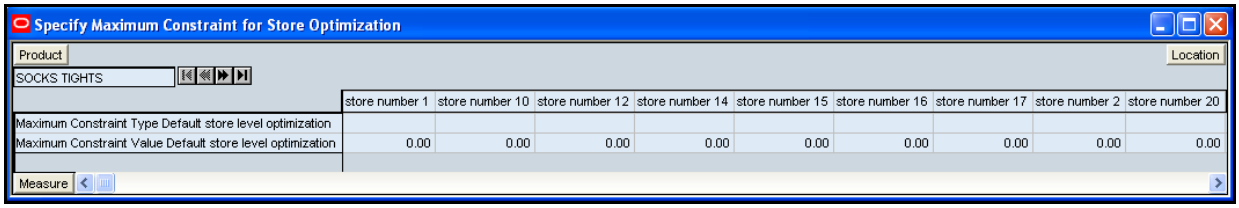


Table 2–12 Specify Maximum Constraint for Store Optimization Worksheet Measures

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

Specify Maximum Order Frequency for Store Optimization Worksheet

This worksheet enables you to specify the maximum order frequency for a group/company/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 items/locations.

Figure 2–18 Specify Maximum Order Frequency for Store Optimization

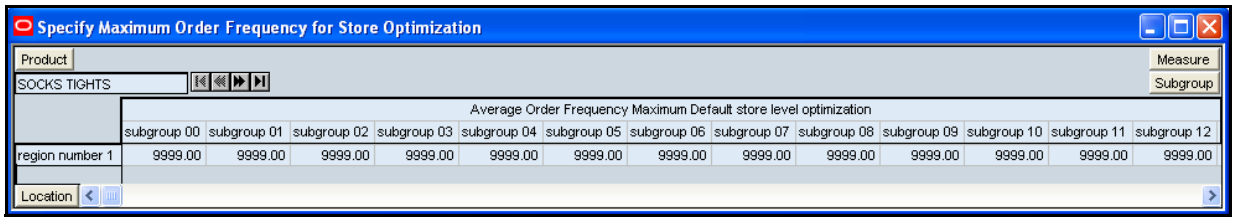


Table 2–13 Specify Maximum Order Frequency for Store Optimization Worksheet Measures

Measure	Description
Average Order Frequency Maximum Default Store Optimization Level	Specify the maximum order frequency value for a group/company/subgroup.

Specify Minimum Constraints for Warehouse Optimization Worksheet

This worksheet enables you to specify the minimum constraint for an item/warehouse group for the warehouse level 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 2–19 Specify Minimum Constraints for Warehouse Optimization Worksheet

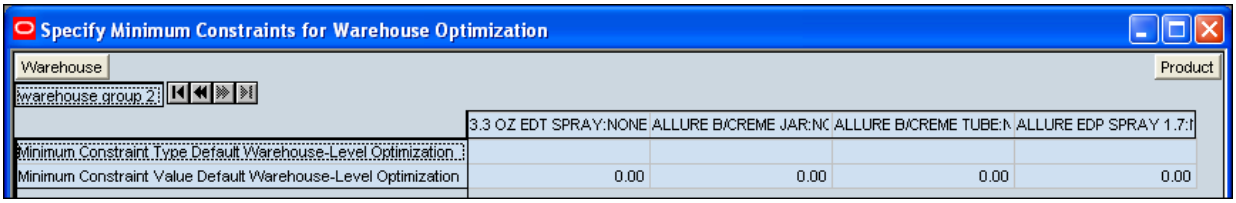


Table 2–14 Specify Minimum Constraints for Warehouse Optimization Worksheet Measures

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

Specify Maximum Constraint for Warehouse Optimization Worksheet

This worksheet enables you to specify the maximum constraint for a group/warehouse for the warehouse level 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 2–20 Specify Maximum Constraint for Warehouse Optimization Worksheet

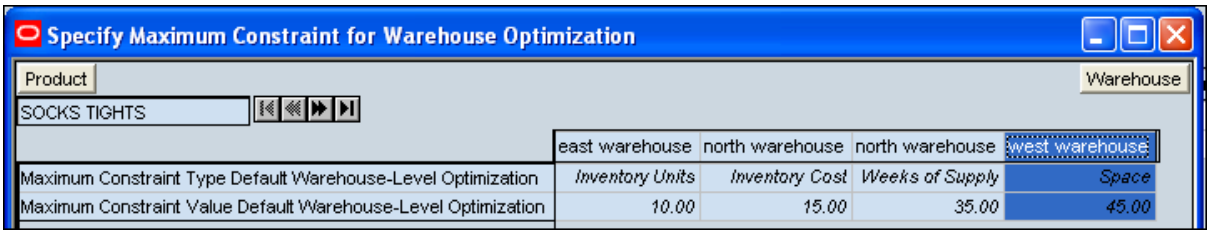


Table 2–15 Specify Maximum Constraint for Warehouse Optimization Worksheet Measures

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

Specify Maximum Order Frequency for Warehouse Optimization Worksheet

This worksheet enables you to specify the maximum order frequency for a group/warehouse group/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 items/locations.

Figure 2–21 Specify Maximum Order Frequency for Warehouse Optimization

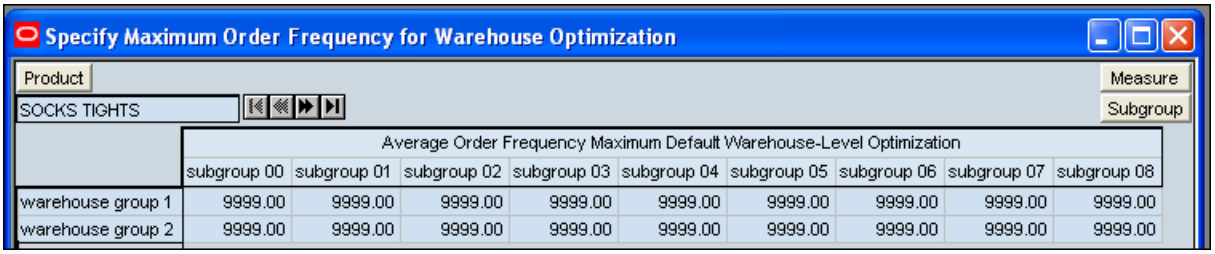


Table 2–16 Specify Maximum Order Frequency for Warehouse Optimization Worksheet Measures

Measure	Description
Average Order Frequency Maximum Default Warehouse Optimization Level	Specify the maximum order frequency value for a department/warehouse group/subgroup.

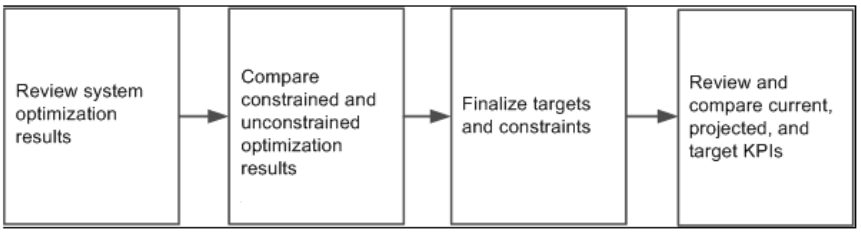
3

Optimization Review Workbook

The Optimization Review workbook enables 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. When 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 in Figure 3–1.

Figure 3–1 Optimization Review Workbook User Process Flow



The Optimization Review workbook contains the following tabs:

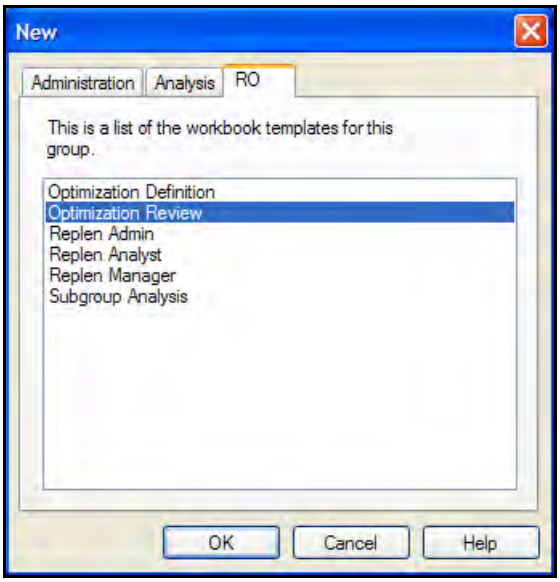
- Analyze Subgrouping Tab
- Analyze and Approve Optimization Results Tab
- Review and Analyze Constraints Tab

Optimization Review Wizard

To open an Optimization Review workbook, perform the following steps:

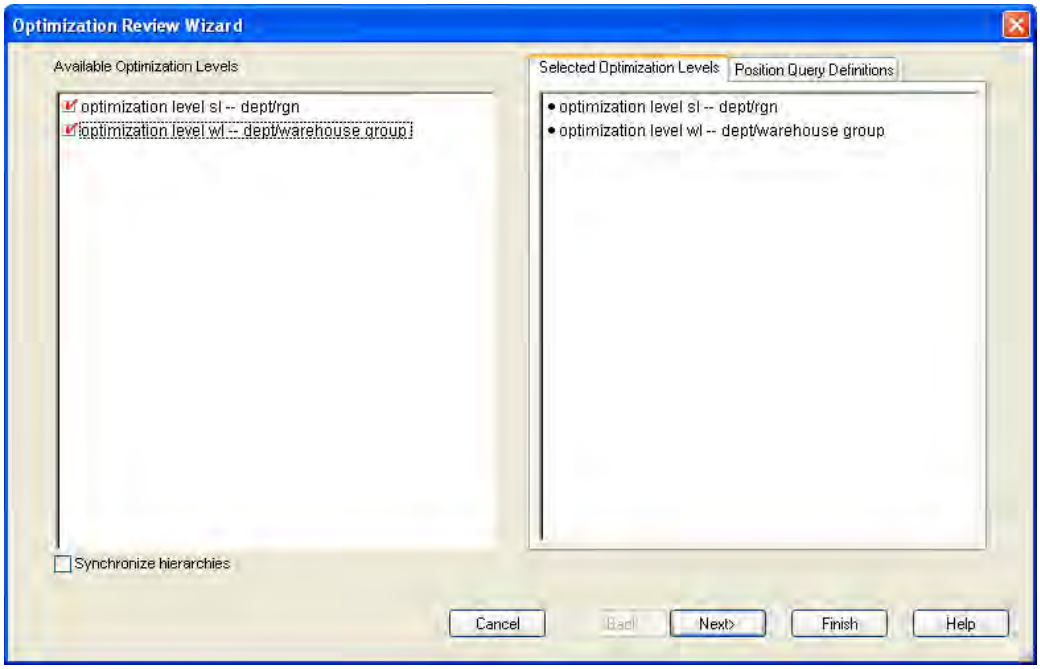
1. Select **File - New** or click **New**.
2. On the **RO** tab, select **Optimization Review** and click **OK**.

Figure 3–2 Creating a New Optimization Review Workbook



3. The Available Optimization Levels window opens. Select either or both SL (store level) or WL (warehouse level) and click Next.

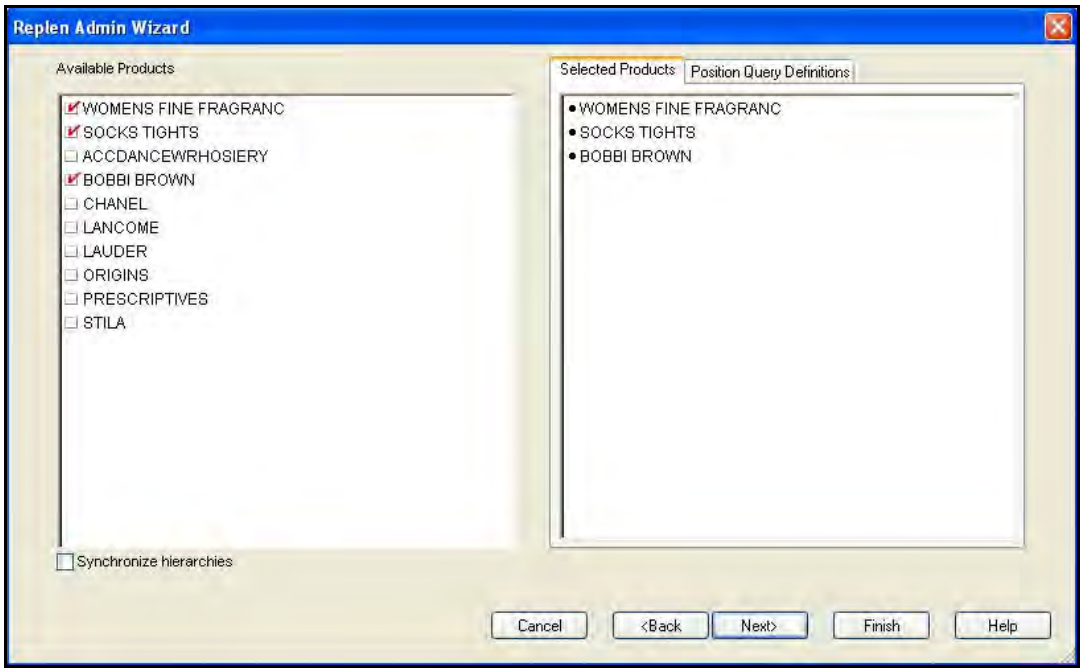
Figure 3–3 Available Optimization Levels



4. The Select Products window opens. Select the products to be displayed in the workbook and click **Next**.

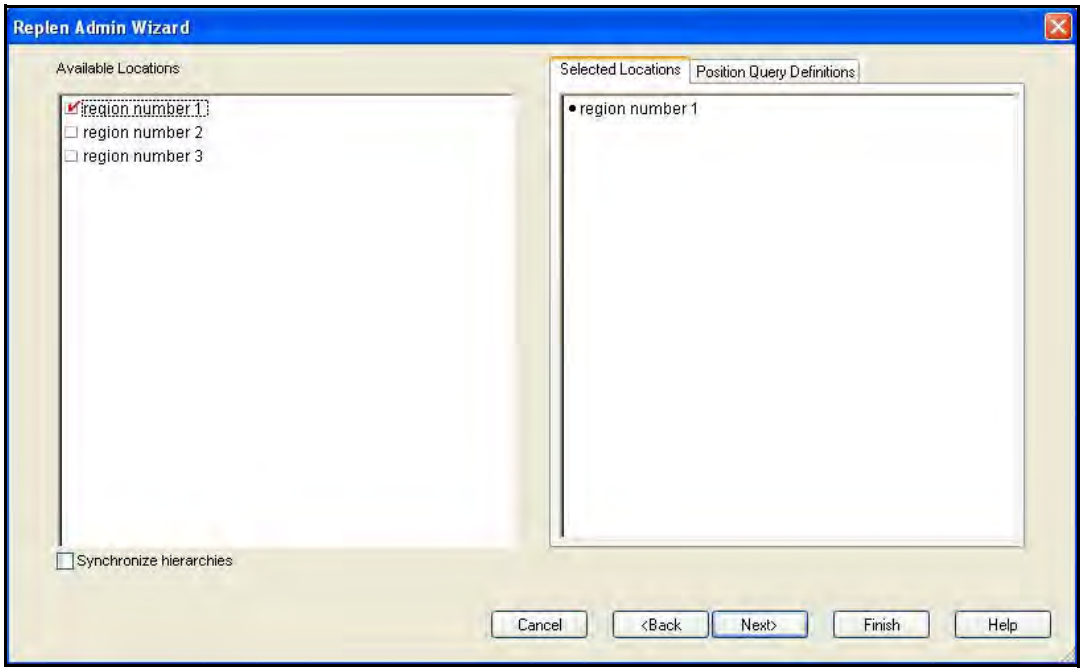
Note: Although this workbook allows navigation to the item level, it performs at the group level. Ensure that Selected Items include at least one group level.

Figure 3–4 Select Products



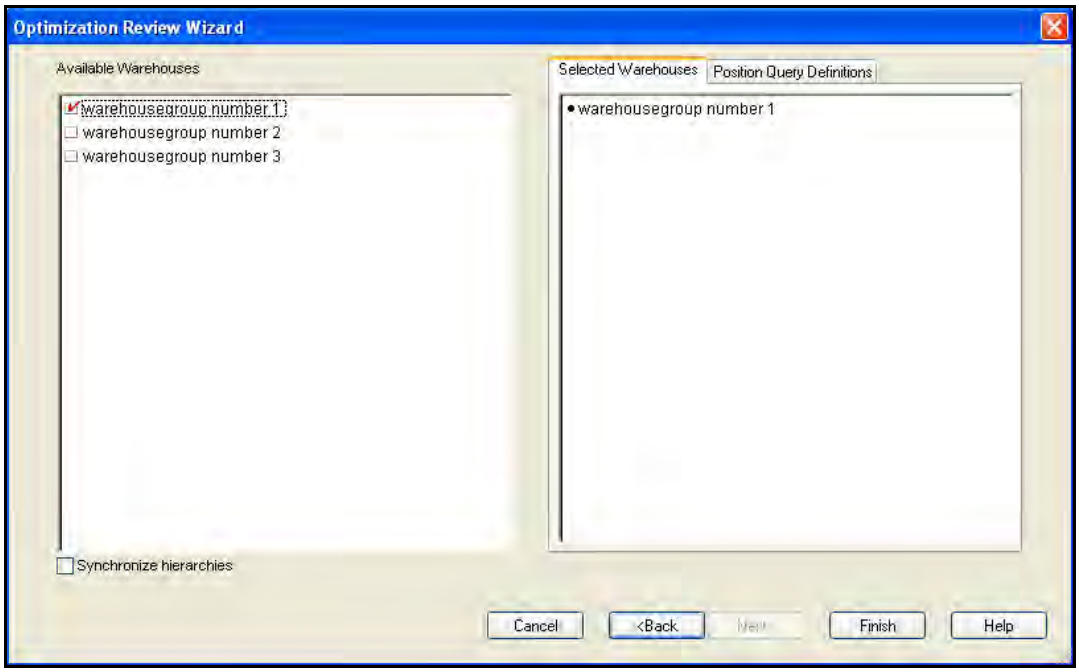
5. The Select Locations window opens. Select the locations to be displayed in the workbook and click Next.

Figure 3–5 Select Locations



The Available Warehouses window opens. Select the warehouses to be displayed in the workbook and click Finish.

Figure 3–6 Available Warehouses



The Optimization Review workbook is built.

Analyze Subgrouping Tab

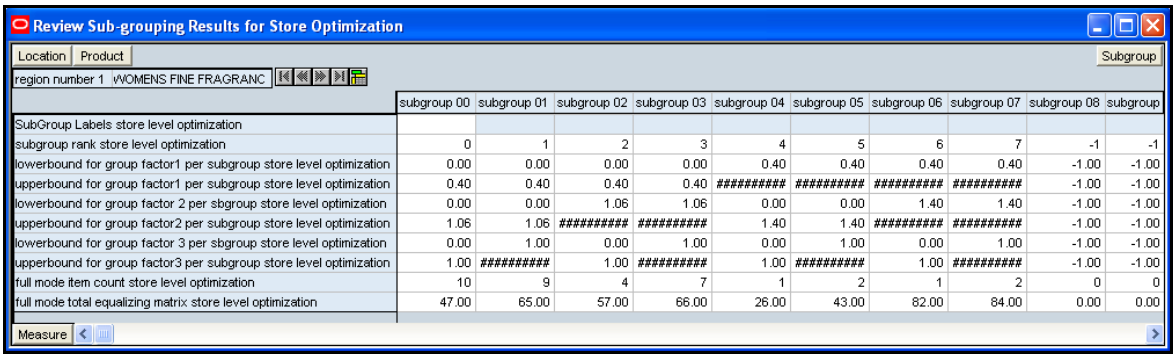
The Analyze Subgrouping tab contains the following worksheets:

- Review Subgrouping Results for Store Optimization Worksheet
- User BreakPoint Overrides for Store Optimization Worksheet
- Review Base Level in Subgroupings for Store Optimization Worksheet
- Subgrouping Criteria for Store Optimization Worksheet
- Review Subgrouping Results for Warehouse Optimization Worksheet
- User Breakpoint Overrides for Warehouse Optimization Worksheet
- Review Base Level in Subgroupings for Warehouse Optimization Worksheet
- Subgrouping Criteria for Warehouse Optimization Worksheet

Review Subgrouping Results for Store Optimization Worksheet

This worksheet enables you to review the subgrouping results from the full mode batch run. This worksheet is at the group/company/subgroup intersection and is read-only. Only valid subgroups are displayed.

Figure 3–7 Review Subgrouping Results for Store Optimization Worksheet



	subgroup 00	subgroup 01	subgroup 02	subgroup 03	subgroup 04	subgroup 05	subgroup 06	subgroup 07	subgroup 08	subgroup
SubGroup Labels store level optimization										
subgroup rank store level optimization	0	1	2	3	4	5	6	7	-1	-1
lowerbound for group factor1 per subgroup store level optimization	0.00	0.00	0.00	0.00	0.40	0.40	0.40	0.40	-1.00	-1.00
upperbound for group factor1 per subgroup store level optimization	0.40	0.40	0.40	0.40	##########	##########	##########	##########	-1.00	-1.00
lowerbound for group factor 2 per sbgroup store level optimization	0.00	0.00	1.06	1.06	0.00	0.00	1.40	1.40	-1.00	-1.00
upperbound for group factor2 per subgroup store level optimization	1.06	1.06	##########	##########	1.40	1.40	##########	##########	-1.00	-1.00
lowerbound for group factor 3 per sbgroup store level optimization	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	-1.00	-1.00
upperbound for group factor3 per subgroup store level optimization	1.00	##########	1.00	##########	1.00	##########	1.00	##########	-1.00	-1.00
full mode item count store level optimization	10	9	4	7	1	2	1	2	0	0
full mode total equalizing matrix store level optimization	47.00	65.00	57.00	66.00	26.00	43.00	82.00	84.00	0.00	0.00

Measure

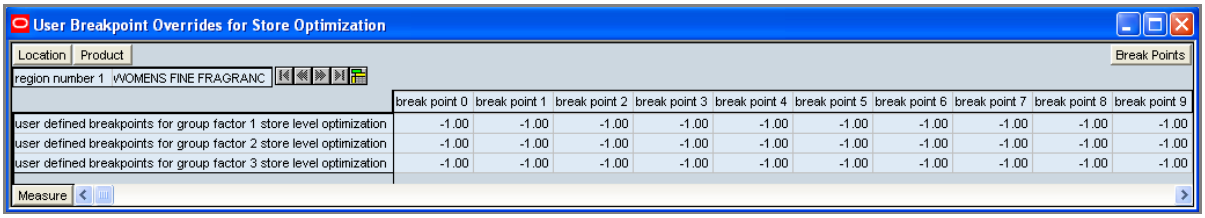
Table 3–1 Review Subgrouping Results for Store Optimization Worksheet Measures

Measure	Description
Item Count per Subgroup Store Level Optimization Full Mode Item Count for Store Level Optimization	The number of item/stores for the subgroup.
Lower Bound for Group Factor 1 per Subgroup - Store Level Optimization	The lower bound of the grouping Factor 1 for the subgroup.
Lower Bound for Group Factor 2 per Subgroup - Store Level Optimization	The lower bound of the grouping Factor 2 for the subgroup.
Lower Bound for Group Factor 3 per Subgroup - Store Level Optimization	The lower bound of the grouping Factor 3 for the subgroup.
SubGroup Labels - Store Level Optimization	User-defined label of the subgroup.
Subgroup Rank Store -Level Optimization	Ranks the subgroups for each group/company.
Full Mode Total Equalizing Matrix - Store Level Optimization	The total of equalizing matrix for each subgroup.
Upper Bound for Group Factor 1 per Subgroup - Store Level Optimization	The upper bound of the grouping Factor 1 for the subgroup.
Upper Bound for Group Factor 2 per Subgroup Store - Level Optimization	The upper bound of the grouping Factor 2 for the subgroup.
Upper Bound for Group Factor 3 per Subgroup - Store Level Optimization	The upper bound of the grouping Factor 3 for the subgroup.

User BreakPoint Overrides for Store Optimization Worksheet

This worksheet enables you to review the breakpoint overrides. This worksheet is at the group/company/subgroup intersection and is read-only.

Figure 3–8 User BreakPoint Overrides for Store Optimization Worksheet



	break point 0	break point 1	break point 2	break point 3	break point 4	break point 5	break point 6	break point 7	break point 8	break point 9
user defined breakpoints for group factor 1 store level optimization	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
user defined breakpoints for group factor 2 store level optimization	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
user defined breakpoints for group factor 3 store level optimization	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00

Measure

Table 3–2 User Breakpoint Overrides Worksheet for Store Optimization Measures

Measure	Description
User Defined Lower Bound for Group Factor 1 - Store Level Optimization	The Lower Bound for the grouping Factor 1 for the group/company.
User Defined Lower Bound for Group Factor 2 - Store Level Optimization	The Lower Bound for the grouping Factor 2 for the group/company.
User Defined Lower Bound for Group Factor 3 - Store Level Optimization	The Lower Bound for the grouping Factor 3 for the group/company.
User Defined Upper Bound for Group Factor 1 - Store Level Optimization	The upper bound for the grouping Factor 1 for the group/company.
User Defined Upper Bound for Group Factor 2 - Store Level Optimization	The upper bound for the grouping Factor 2 for the group/company.
User Defined Upper Bound for Group Factor 3 - Store Level Optimization	The upper bound for the grouping Factor 3 for the group/company.

Review Base Level in Subgroupings for Store Optimization Worksheet

This worksheet enables you to review the subgrouping information for the item/stores in the group/company that were selected in the wizard. This worksheet is at the item/store intersection and is read-only.

Figure 3–9 Review Base Level in Subgroupings for Store Optimization Worksheet

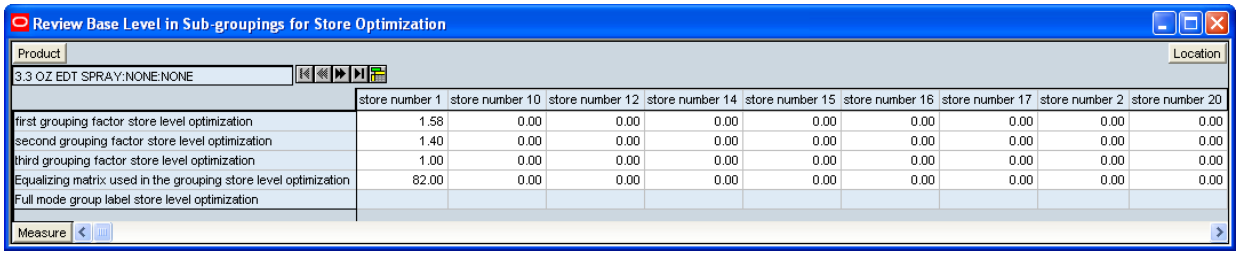


Table 3–3 Review Base level in Subgroupings Worksheet for Store Optimization Measures

Measure	Description
Equalizing Matrix Used in the Grouping - Store Level Optimization	The value of the equalizing matrix used in subgrouping.
Full Mode Group Label - Store Level Optimization	The Full Mode Group Label-Store Level Optimization subgroup that the item/store belongs to.
First Grouping Factor - Store Level Optimization	The value of grouping Factor 1.
Second Grouping Factor - Store Level Optimization	The value of grouping Factor 2.
Third Grouping Factor - Store Level Optimization	The value of grouping Factor 3.

Subgrouping Criteria for Store Optimization Worksheet

This worksheet enables you to review the subgroupings needed for a higher level intersection as well as the subgrouping metrics and the grouping equalizing matrix used for the subgroupings. This worksheet is at the group/company intersection and is read-only.

Figure 3–10 Subgrouping Criteria for Store Optimization Worksheet

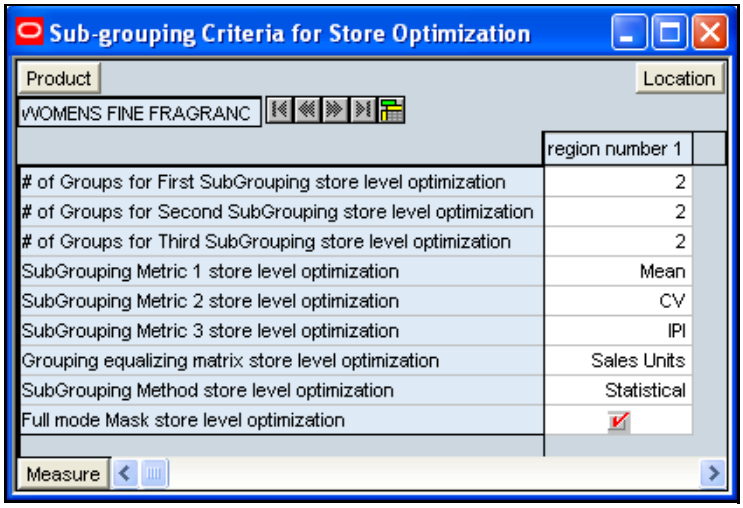


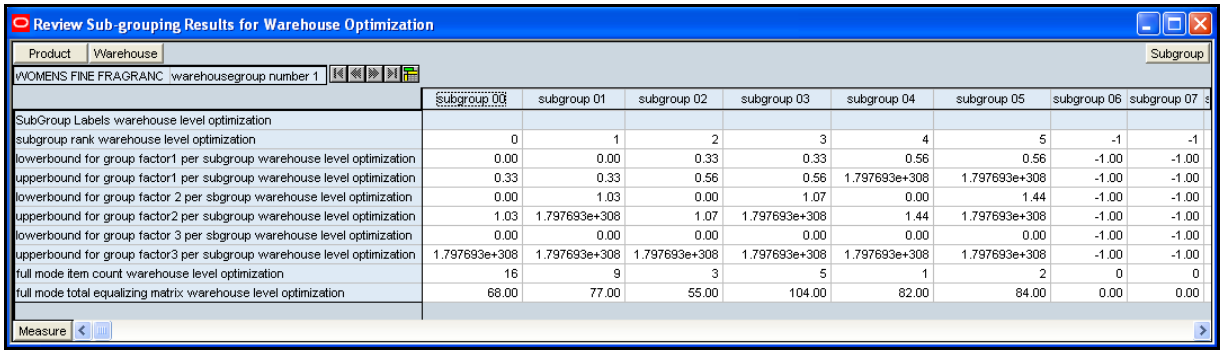
Table 3–4 Subgrouping Criteria for Store Optimization Worksheet Measures

Measure	Description
# of Groups for First SubGrouping Store - Level Optimization	Displays the number of groups for the first group factor. This is an integer measure based on the group/company.
# of Groups for Second SubGrouping Store - Level Optimization	Displays the number of groups for the second group factor. This is an integer measure based on the group/company.
# of Groups for Third SubGrouping Store - Level Optimization	Displays the number of groups for the third group factor. This is an integer measure based on the group/company.
Full Mode Mask - Store Level Optimization	Displays if the optimization run was refresh or full mode. If selected, the results displayed are generated by a full mode run.
SubGrouping Method for Grouping Factor 1 - Store Level Optimization	The subgroup method used for Group Factor 1. Options are Breakpoints and Statistical.
SubGrouping Method for Grouping Factor 2 - Store Level Optimization	The subgroup method used for Group Factor 2. Options are Breakpoints and Statistical.
SubGrouping Method for Grouping Factor 3 - Store Level Optimization	The subgroup method used for Group Factor 3. Options are Breakpoints and Statistical.

Review Subgrouping Results for Warehouse Optimization Worksheet

This worksheet enables you to review the subgrouping results from the full mode batch run. This worksheet is at the group/warehouse group/subgroup intersection and is read-only. Only valid subgroups are displayed.

Figure 3–11 Review Subgrouping Results for Warehouse Optimization Worksheet



	subgroup 00	subgroup 01	subgroup 02	subgroup 03	subgroup 04	subgroup 05	subgroup 06	subgroup 07
SubGroup Labels warehouse level optimization								
subgroup rank warehouse level optimization	0	1	2	3	4	5	-1	-1
lowerbound for group factor1 per subgroup warehouse level optimization	0.00	0.00	0.33	0.33	0.56	0.56	-1.00	-1.00
upperbound for group factor1 per subgroup warehouse level optimization	0.33	0.33	0.56	0.56	1.797693e+308	1.797693e+308	-1.00	-1.00
lowerbound for group factor 2 per sbgroup warehouse level optimization	0.00	1.03	0.00	1.07	0.00	1.44	-1.00	-1.00
upperbound for group factor2 per subgroup warehouse level optimization	1.03	1.797693e+308	1.07	1.797693e+308	1.44	1.797693e+308	-1.00	-1.00
lowerbound for group factor 3 per sbgroup warehouse level optimization	0.00	0.00	0.00	0.00	0.00	0.00	-1.00	-1.00
upperbound for group factor3 per subgroup warehouse level optimization	1.797693e+308	1.797693e+308	1.797693e+308	1.797693e+308	1.797693e+308	1.797693e+308	-1.00	-1.00
full mode item count warehouse level optimization	16	9	3	5	1	2	0	0
full mode total equalizing matrix warehouse level optimization	68.00	77.00	55.00	104.00	82.00	84.00	0.00	0.00

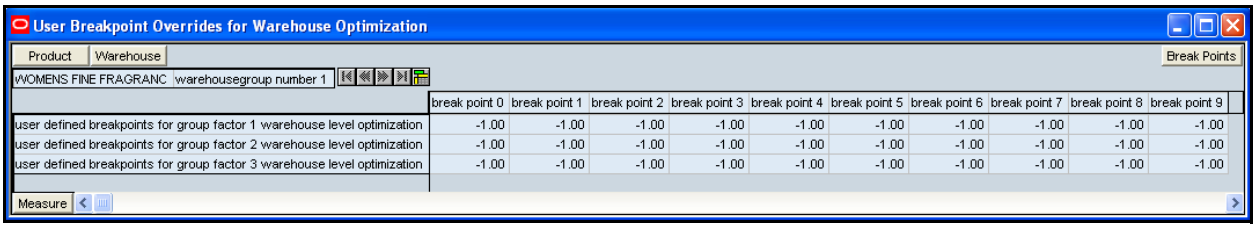
Table 3–5 Review Subgrouping Results for Warehouse Optimization Worksheet Measures

Measure	Description
Full Mode Item Count - Warehouse Level Optimization	The number of items/warehouses for the subgroup.
Lower Bound for Group Factor 1 per Subgroup - Warehouse Level Optimization	The lower bound of the grouping Factor 1 for the subgroup.
Lower Bound for Group Factor 2 per Subgroup - Warehouse Level Optimization	The lower bound of the grouping Factor 2 for the subgroup.
Lower Bound for Group Factor 3 per Subgroup - Warehouse Level Optimization	The lower bound of the grouping Factor 3 for the subgroup.
SubGroup Labels - Warehouse Level Optimization	User-defined label of the subgroup.
Subgroup Rank - Warehouse Level Optimization	Ranking of the subgroups for each group/warehouse group.
Full Mode Total Equalizing Matrix - Warehouse Level Optimization	The total of equalizing matrix for each subgroup.
Upper Bound for Group Factor 1 per Subgroup - Warehouse Level Optimization	The upper bound of the grouping Factor 1 for the subgroup.
Upper Bound for Group Factor 2 per Subgroup - Warehouse Level Optimization	The upper bound of the grouping Factor 2 for the subgroup.
Upper Bound for Group Factor 3 per Subgroup - Warehouse Level Optimization	The upper bound of the grouping Factor 3 for the subgroup.

User Breakpoint Overrides for Warehouse Optimization Worksheet

This worksheet enables you to review the breakpoint overrides. This worksheet is at the group/warehouse group intersection and is read-only.

Figure 3–12 User Breakpoint Overrides for Warehouse Optimization Worksheet



	break point 0	break point 1	break point 2	break point 3	break point 4	break point 5	break point 6	break point 7	break point 8	break point 9
user defined breakpoints for group factor 1 warehouse level optimization	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
user defined breakpoints for group factor 2 warehouse level optimization	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
user defined breakpoints for group factor 3 warehouse level optimization	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00

Table 3–6 User Breakpoint Overrides Worksheet for Warehouse Optimization Measures

Measure	Description
User Defined Lower Bound for Group Factor 1 - Warehouse Level Optimization	The lower bound for the grouping Factor 1 for the group/warehouse group.
User DefinedLower Bound for Group Factor 2 - Warehouse Level Optimization	The lower bound for the grouping Factor 2 for the group/warehouse group.
User Defined Lower Bound for Group Factor 3 - Warehouse Level Optimization	The lower bound for the grouping Factor 3 for the group/warehouse group.
User Defined Upper Bound for Group Factor 1 - Warehouse Level Optimization	The upper bound for the grouping Factor 1 for the department/warehouse group.
User Defined Upper Bound for Group Factor 2 - Warehouse Level Optimization	The upper bound for the grouping Factor 2 for the department/warehouse group.
User Defined Upper Bound for Group Factor 3 - Warehouse Level Optimization	The upper bound for the grouping Factor 3 for the department/warehouse group.

Review Base Level in Subgroupings for Warehouse Optimization Worksheet

This worksheet enables you to review the subgrouping information for the item/warehouses in the group/warehouse groups that were selected in the wizard. This worksheet is at the item/warehouse intersection and is read-only.

Figure 3–13 Review Base Level in Subgroupings for Warehouse Optimization Worksheet

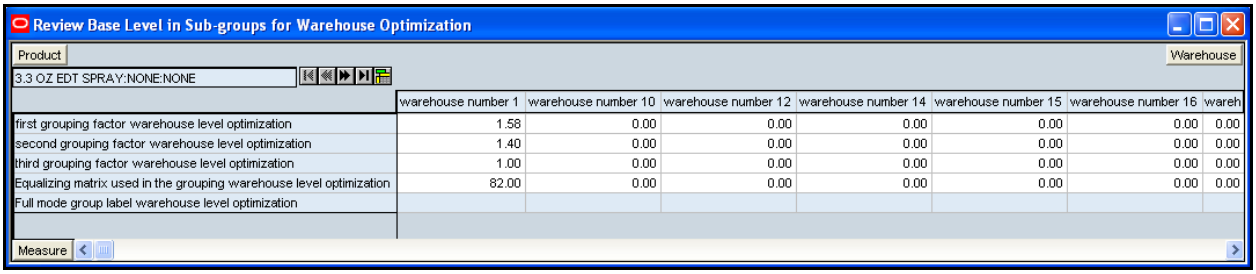


Table 3–7 Review Base Level in Subgroupings Worksheet for Warehouse Optimization Measures

Measure	Description
Equalizing Matrix Used in the Grouping - Warehouse Level Optimization	The value of the equalizing matrix used in subgrouping.
Full Mode Group Label - Warehouse Level Optimization	The subgroup that the item/warehouse belongs to.
First Grouping Factor - Warehouse Level Optimization	The value of grouping Factor 1.
Second Grouping Factor - Warehouse Level Optimization	The value of grouping Factor 2.
Third Grouping Factor - Warehouse Level Optimization	The value of grouping Factor 3.

Subgrouping Criteria for Warehouse Optimization Worksheet

This worksheet enables you to review the subgroupings needed for a higher level intersection as well as the subgrouping metrics and the grouping equalizing matrix used for the subgroupings. This worksheet is at the group/warehouse group intersection and is read-only.

Figure 3–14 Subgrouping Criteria for Warehouse Optimization Worksheet

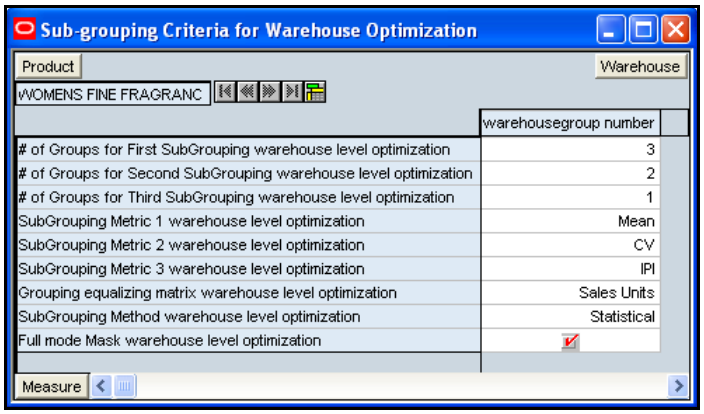


Table 3–8 Subgrouping Criteria for Warehouse Optimization Worksheet Measures

Measure	Description
# of Groups for First SubGrouping - Warehouse Level Optimization	Specify the number of group for the first group factor. This is an integer measure that is based on the group/warehouse group.
# of Groups for Second SubGrouping - Warehouse Level Optimization	Specify the number of group for the second group factor. This is an integer measure that is based on the group/warehouse group.
# of Groups for Third SubGrouping - Warehouse Level Optimization	Specify the number of group for the third group factor. This is an integer measure that is based on the group/warehouse group.
Full Mode Mask - Warehouse Level Optimization	Displays if the optimization run was refresh or full mode. If selected, the results displayed are generated by a full mode run.
SubGrouping Method for Grouping Factor 1 - Warehouse Level Optimization	The subgroup method used for Group Factor 1. Options are Breakpoints and Statistical.
SubGrouping Method for Grouping Factor 2 - Warehouse Level Optimization	The subgroup method used for Group Factor 2. Options are Breakpoints and Statistical.
SubGrouping Method for Grouping Factor 3 - Warehouse Level Optimization	The subgroup method used for Group Factor 2. Options are Breakpoints and Statistical.

Analyze and Approve Optimization Results Tab

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

The worksheets in this step contain the optimized and constrained versions of statistics measures and metrics. The constrained version result is calculated based on your constraints setup in the Definition workbook. The constraints reflect your retail business requirements such as these examples:

- For key items, keep a minimum of 500,000 units of inventory at all time.
- For a warehouse with limited space, carry a maximum of six weeks of supply at all times.

The optimized version result is calculated without considering the constraints, and it represents the best outcome the system can get.

Note: Only the optimized version is populated during workbook build time. To reduce the build time, the constrained measures are only populated if the "Warehouse Generate Constrained Curve" custom menu is run.

The tab contains the following worksheets:

- Optimization Results Review for Store Optimization Worksheet
- Subgroup Optimization Results for Store Optimization Worksheet
- Weekly Projected Inventory Review for Store Optimization Worksheet
- Target Selection and Approve for Store Optimization Worksheet
- Review Targets for Store Optimization Worksheet
- Optimization Results Review for Warehouse Optimization Worksheet
- Subgroup Optimization Results for Warehouse Optimization Worksheet
- Weekly Projected Inventory Review for Warehouse Optimization Worksheet
- Target Selection and Approve for Warehouse Optimization Worksheet
- Review Targets for Warehouse Optimization Worksheet

Optimization Results Review for Store Optimization Worksheet

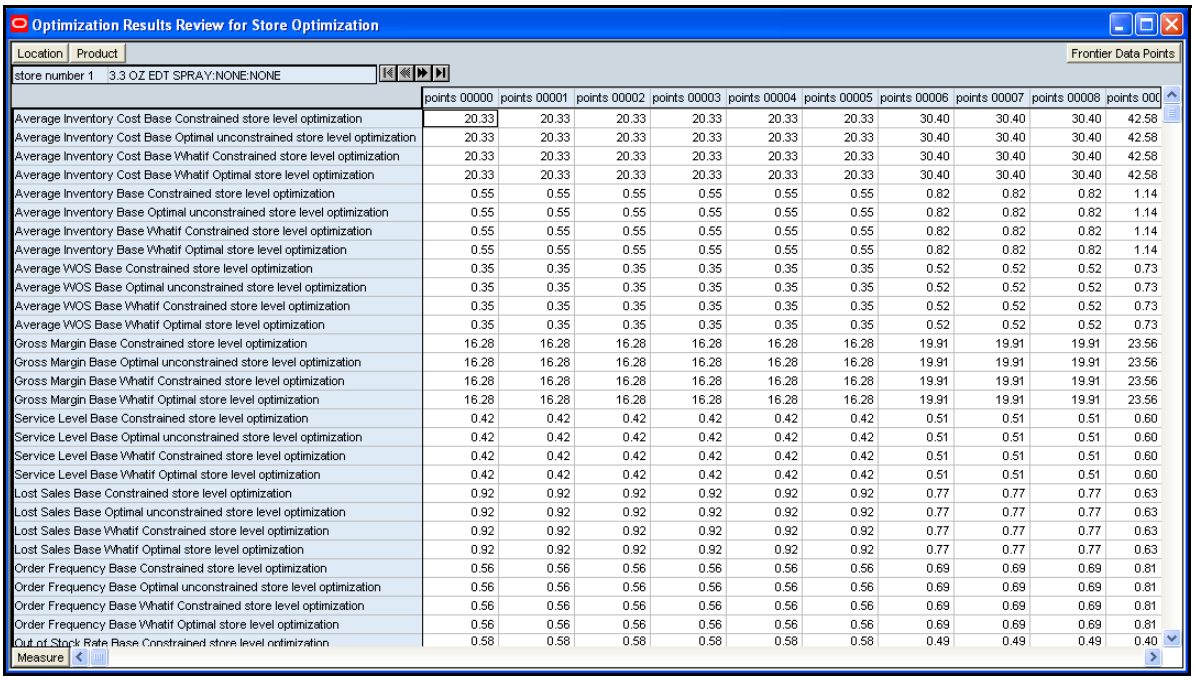
RO performs optimization and calculates optimal inventory allocation and associated service levels, projected sales, and lost sales for various increments of inventory. Each incremental inventory investment is referred to as a point on the Inventory/Service Level Trade-off curve.

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 the specified constraints.

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

This worksheet is read-only.

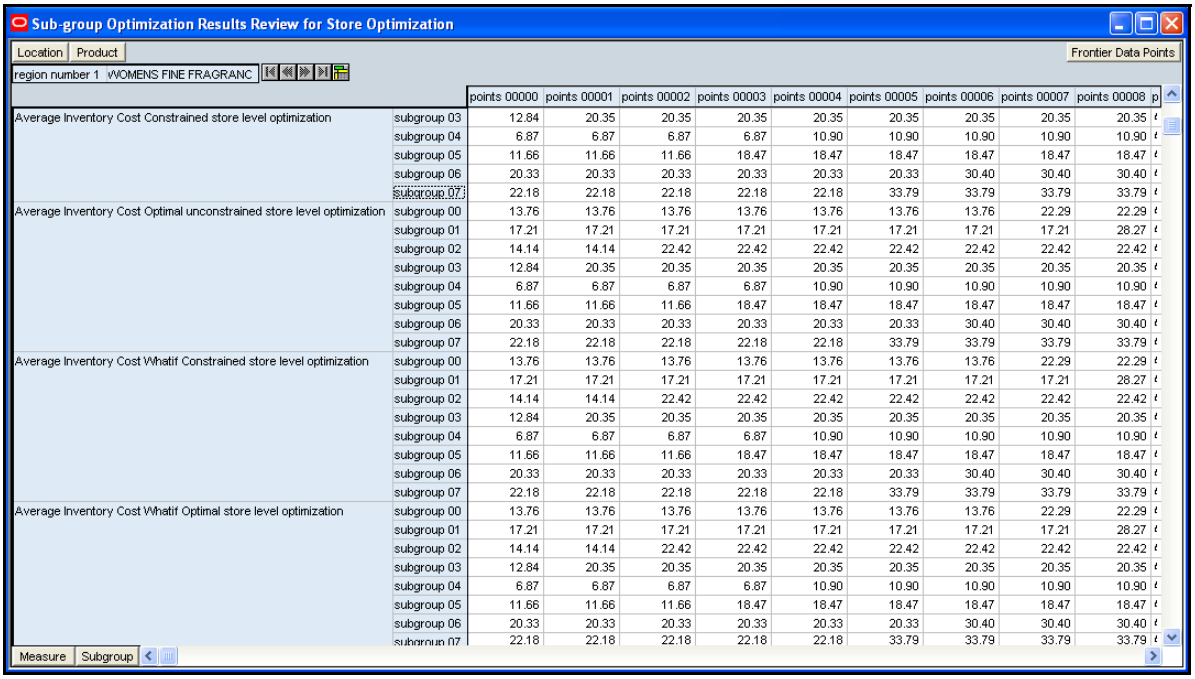
Figure 3–15 Optimization Results Review for Store Optimization Worksheet



Subgroup Optimization Results for Store Optimization Worksheet

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

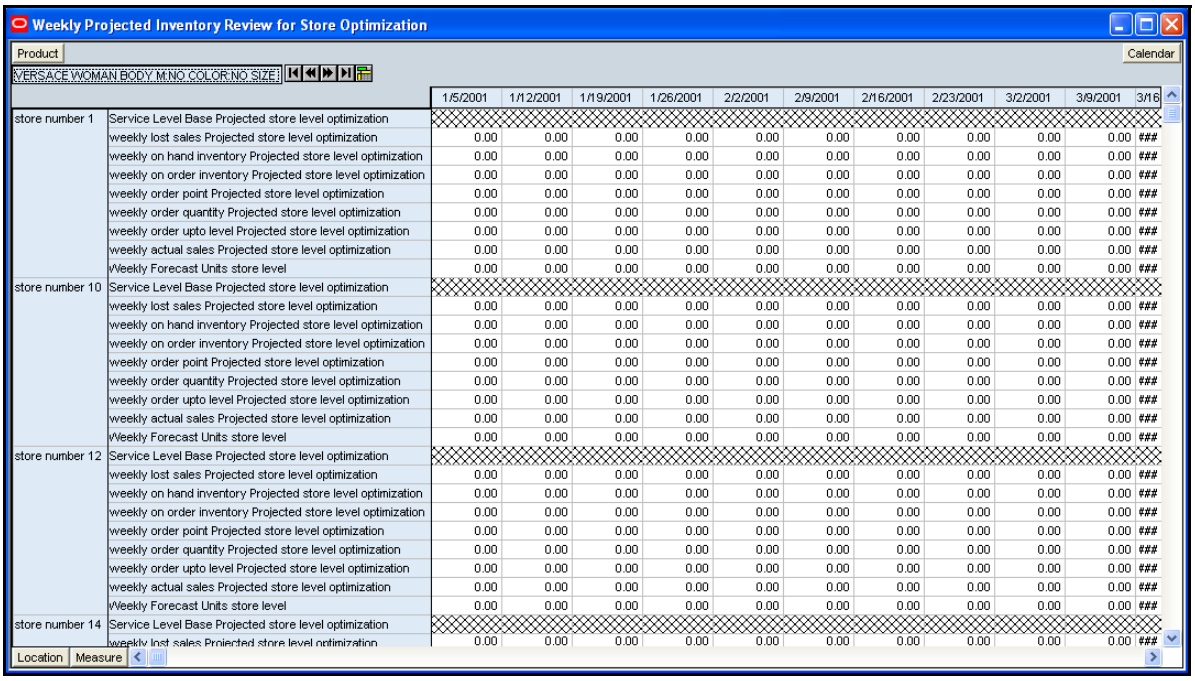
Figure 3–16 Subgrouping Optimization Results for Store Optimization Worksheet



Weekly Projected Inventory Review for Store Optimization Worksheet

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

Figure 3–17 Weekly Projected Inventory Review for Store Optimization Worksheet



Target Selection and Approve for Store Optimization Worksheet

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

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

Figure 3–18 Target Selection and Approve for Store Optimization Worksheet

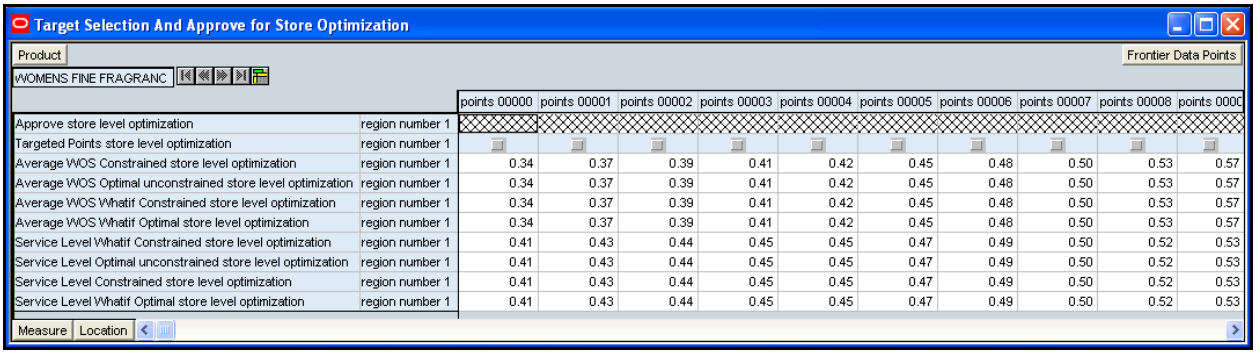


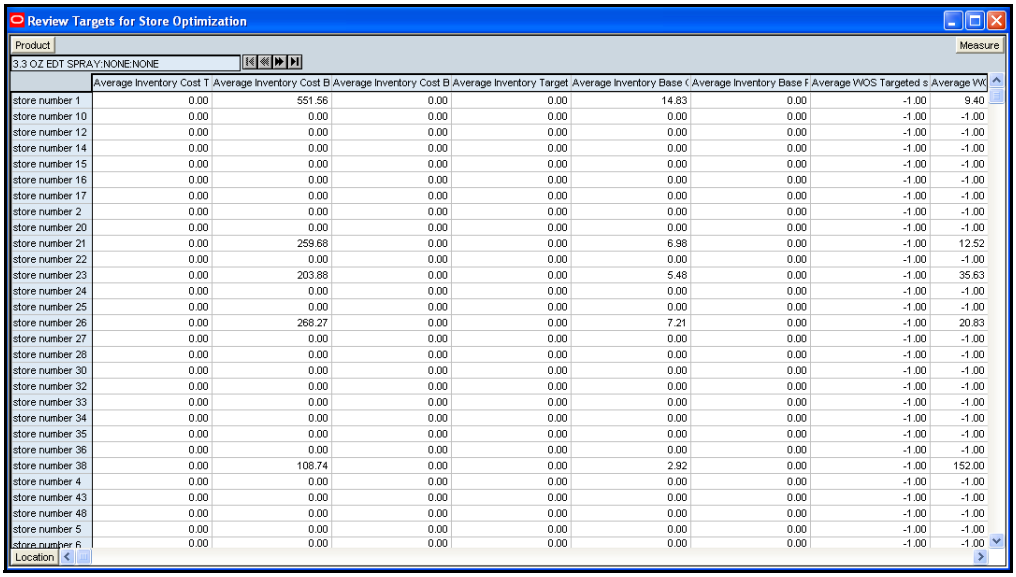
Table 3–9 Target Selection and Approve for Store Optimization Worksheet Measures

Measure	Description
Approve Store Level Optimization	Enables you to specify the version of the optimization result to approve for the group/company. Options are None, Approve Optimal, and Approve Constrained. Note that the approval is done per group company, and thus to view the approval options, you must collapse the Frontier Data Points level to 'all [Frontier Data Points]'.
Average WOS Constrained Store Level Optimization	The constrained weeks of supply for the group company/subgroup/frontier point. This is a recalc measure.
Average WOS Optimal Unconstrained Store Level Optimization	The optimal weeks of supply for the group company/subgroup/frontier point. This is a recalc measure.
Service Level Constrained Store Level Optimization	The constrained service level for the group company/subgroup/frontier point. This is a recalc measure.
Service Level Optimal Unconstrained Store Level Optimization	The optimal service level for the group company/subgroup/frontier point. This is a recalc measure.
Targeted Points Store Level Optimization	Enables you to specify which point along the curve to pick as a target. Only one point can be selected for a group company.

Review Targets for Store Optimization Worksheet

This worksheet displays the current, targeted, and projected key performance indicators (KPIs) based on the inventory/service level targets that you had defined in the Target Selection and Approve worksheet.

Figure 3–19 Review Targets for Store Optimization Worksheet



Optimization Results Review for Warehouse Optimization Worksheet

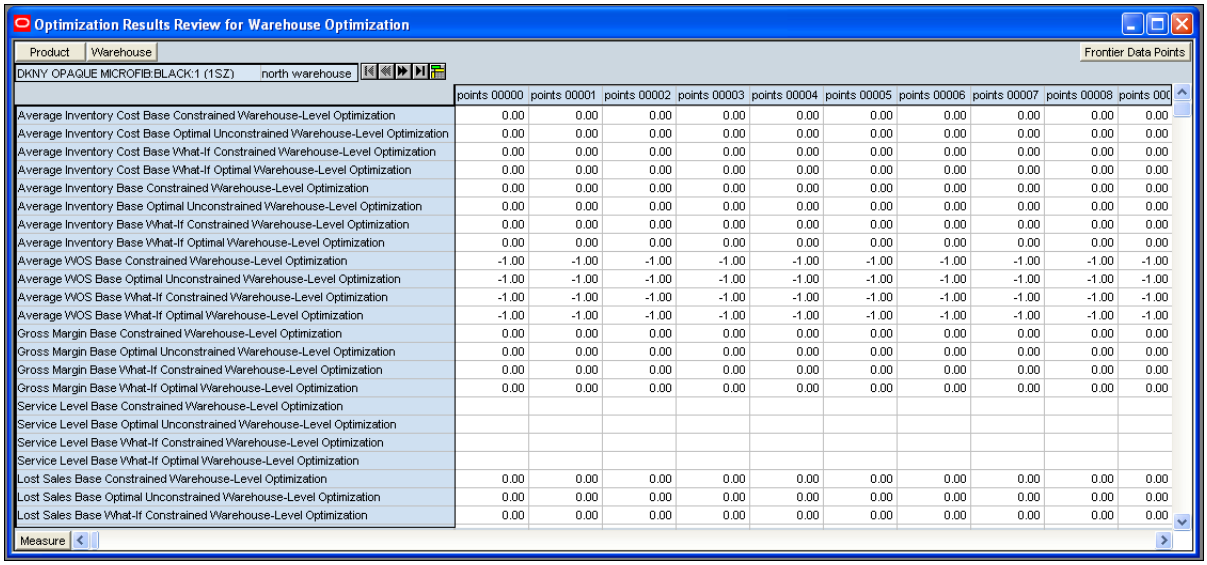
RO performs optimization and calculates optimal inventory allocation and associated service levels, projected sales, and lost sales for various increments of inventory. Each incremental inventory investment is referred to as a point on the Inventory/Service Level Trade-off curve.

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 the 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 3–20 Optimization Results Review for Warehouse Optimization Worksheet



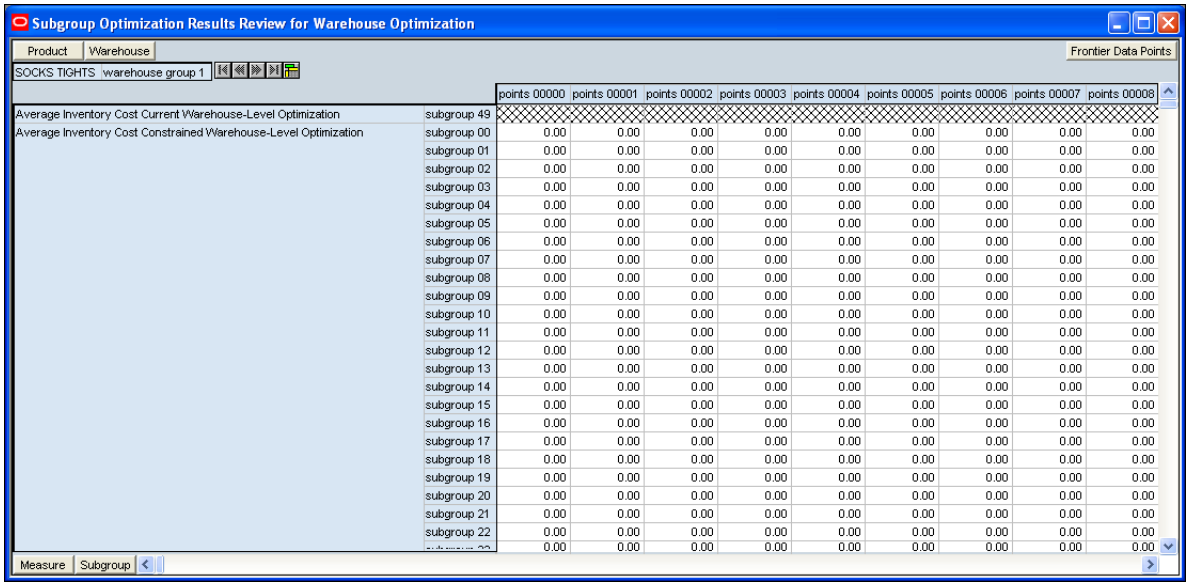
	points 00000	points 00001	points 00002	points 00003	points 00004	points 00005	points 00006	points 00007	points 00008	points 000
Average Inventory Cost Base Constrained Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Inventory Cost Base Optimal Unconstrained Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Inventory Cost Base What-If Constrained Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Inventory Cost Base What-If Optimal Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Inventory Base Constrained Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Inventory Base Optimal Unconstrained Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Inventory Base What-If Constrained Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average Inventory Base What-If Optimal Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average WOS Base Constrained Warehouse-Level Optimization	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Average WOS Base Optimal Unconstrained Warehouse-Level Optimization	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Average WOS Base What-If Constrained Warehouse-Level Optimization	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Average WOS Base What-If Optimal Warehouse-Level Optimization	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00	-1.00
Gross Margin Base Constrained Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross Margin Base Optimal Unconstrained Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross Margin Base What-If Constrained Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Gross Margin Base What-If Optimal Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Service Level Base Constrained Warehouse-Level Optimization										
Service Level Base Optimal Unconstrained Warehouse-Level Optimization										
Service Level Base What-If Constrained Warehouse-Level Optimization										
Service Level Base What-If Optimal Warehouse-Level Optimization										
Lost Sales Base Constrained Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lost Sales Base Optimal Unconstrained Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Lost Sales Base What-If Constrained Warehouse-Level Optimization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Measure

Subgroup Optimization Results for Warehouse Optimization Worksheet

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

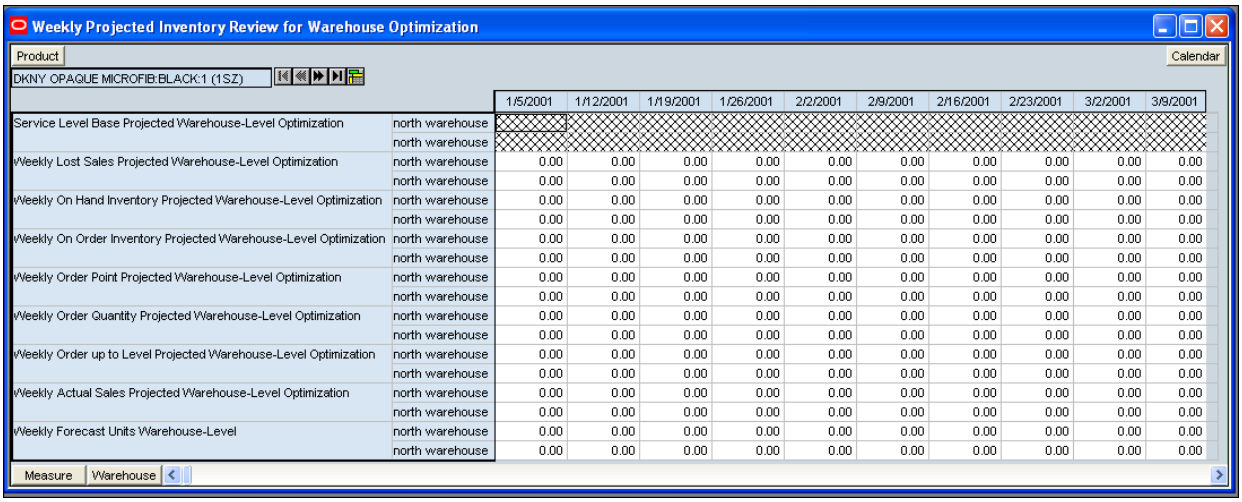
Figure 3–21 Subgrouping Optimization Results for Warehouse Optimization Worksheet



Weekly Projected Inventory Review for Warehouse Optimization Worksheet

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

Figure 3–22 Weekly Projected Inventory Review for Warehouse Optimization Worksheet



Target Selection and Approve for Warehouse Optimization Worksheet

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

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

Figure 3–23 Target Selection and Approve for Warehouse Optimization Worksheet

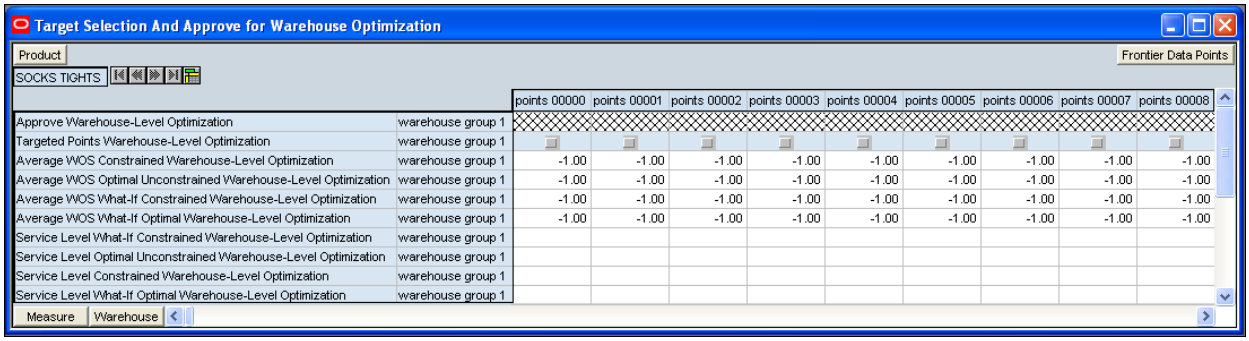


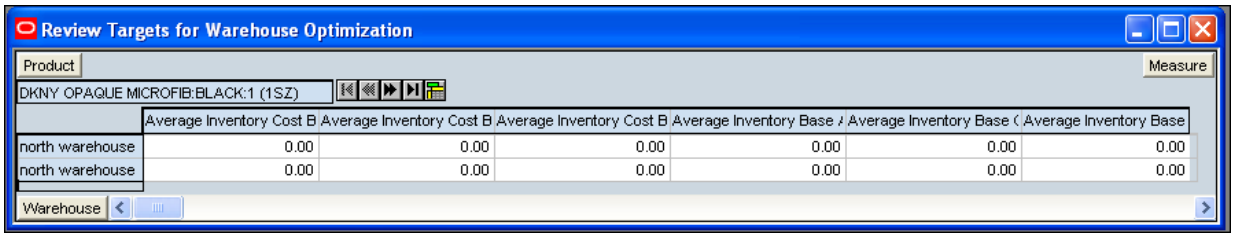
Table 3–10 Target Selection and Approve for Warehouse Optimization Worksheet Measures

Measure	Description
Approve Warehouse Level Optimization	Enables you to specify the version of the optimization result to approve for the group/warehouse group. Options are None, Approve Optimal, and Approve Constrained.
Average WOS Constrained Warehouse Level Optimization	The constrained week of supply for the group/warehouse group/subgroup/frontier point. This is a recalc measure.
Average WOS Optimal Unconstrained Warehouse Level Optimization	The optimal week of supply for the group/warehouse group/subgroup/frontier point. This is a recalc measure.
Service Level Constrained Warehouse Level Optimization	The constrained service level for the group/warehouse group/subgroup/frontier point. This is a recalc measure.
Service Level Optimal Unconstrained Warehouse Level Optimization	The optimal service level for the group/warehouse group/subgroup/frontier point. This is a recalc measure.
Targeted Points Warehouse Level Optimization	Enables you to specify which point along the curve to pick as a target. Only one point can be selected for a group/warehouse group.

Review Targets for Warehouse Optimization 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 3–24 Review Targets for Warehouse Optimization Worksheet



Review and Analyze Constraints Tab

The Review and Analyze Constraints tab contains the following worksheets:

- Analyze Base Product Level Constraints for Store Optimization Worksheet
- Analyze Base Location Level Constraints for Store Optimization Worksheet

- Maximum Order Frequency for Store Optimization Worksheet
- Optimization Matrices for Store Optimization Worksheet
- Analyze Base Product Level Constraints for Warehouse Optimization Worksheet
- Analyze Base Location Level Constraints for Warehouse Optimization Worksheet
- Maximum Order Frequency for Warehouse Optimization Worksheet
- Optimization Matrices for Warehouse Optimization Worksheet

Analyze Base Product Level Constraints for Store Optimization Worksheet

This worksheet enables you to review the minimum constraint type and value used in the optimization.

Figure 3–25 Analyze Base Product Level Constraints for Store Optimization Worksheet

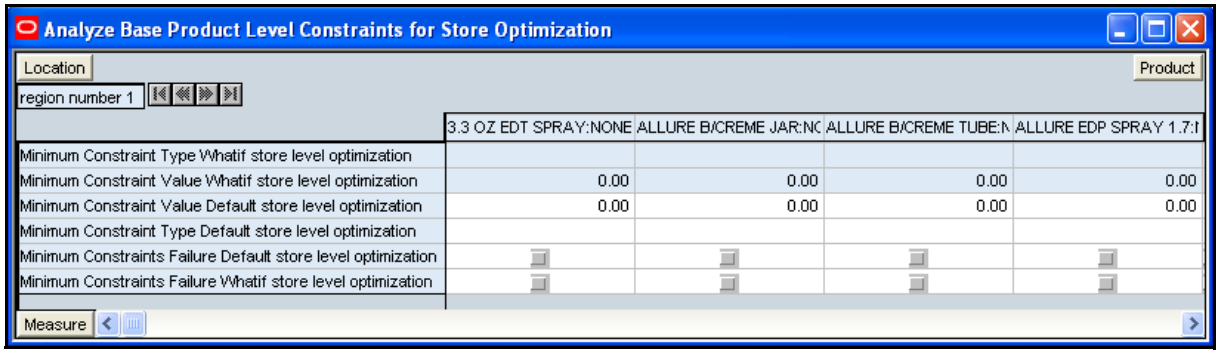


Table 3–11 Analyze Base Product Level Constraints for Store Optimization Worksheet Measures

Measure	Description
Minimum Constraint Type Default Store Level Optimization	The default minimum constraint type for an item/company used in the optimization batch. It can be Sales Units, Sales Revenue, Sales Margin, or Service Level. This measure is read-only.
Minimum Constraint Value Default Store Level Optimization	The default minimum constraint value for an item/company used in the optimization batch. This measure is read-only.
Minimum Constraints Failure Default Store Level Optimization	Displays if the constraint was met or not. If selected, the constraint was not met.

Analyze Base Location Level Constraints for Store Optimization Worksheet

This worksheet enables you to review the maximum constraint type and value used in the optimization.

Figure 3–26 Analyze Base Location Level Constraints for Store Optimization Worksheet

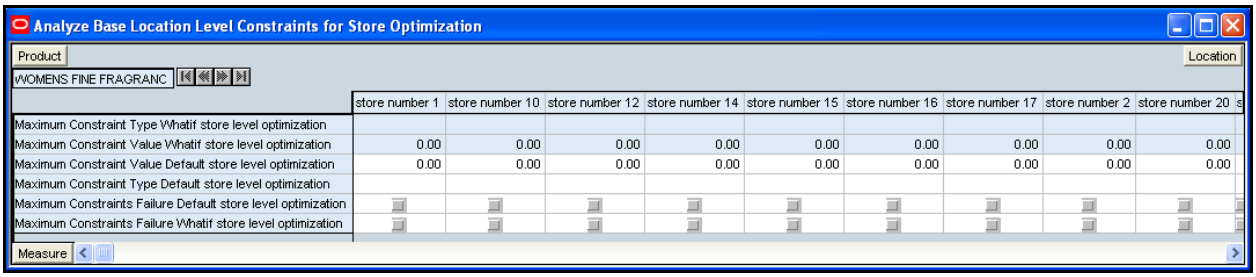


Table 3–12 Analyze Base Location Level Constraints for Store Optimization Worksheet Measures

Measure	Description
Maximum Constraint Type Default Store Level Optimization	The default maximum constraint type for a group/store used in the optimization batch. It can be Inventory Units, Inventory Cost, Weeks of Supply, or Space. This measure is read-only.
Maximum Constraint Value Default Store Level Optimization	The default maximum constraint value for a group/store used in the optimization batch. This measure is read-only.
Maximum Constraints Failure Default Store Level Optimization	Displays if the default constraint was met or not. If selected, the constraint was not met.

Maximum Order Frequency for Store Optimization Worksheet

This worksheet enables you to review the maximum order frequency used in the optimization.

Figure 3–27 Maximum Order Frequency for Store Optimization Worksheet

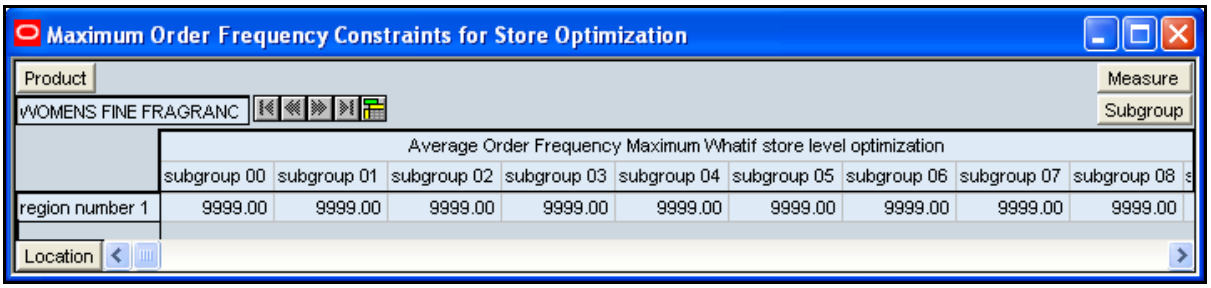


Table 3–13 Maximum Order Frequency for Store Optimization Worksheet Measures

Measure	Description
Average Order Frequency Maximum Default Store Level Optimization	The default maximum order frequency value for a subgroup used in the optimization batch. This is a read-only measure.
Maximum Constraints Failure Default Store Level Optimization	Displays if the constraint was met or not. If selected, the constraint was not met.

Optimization Matrices for Store Optimization Worksheet

This worksheet enables you to review the maximizing and minimizing matrix for the regular optimization run.

Figure 3–28 Optimization Matrices for Store Optimization Worksheet

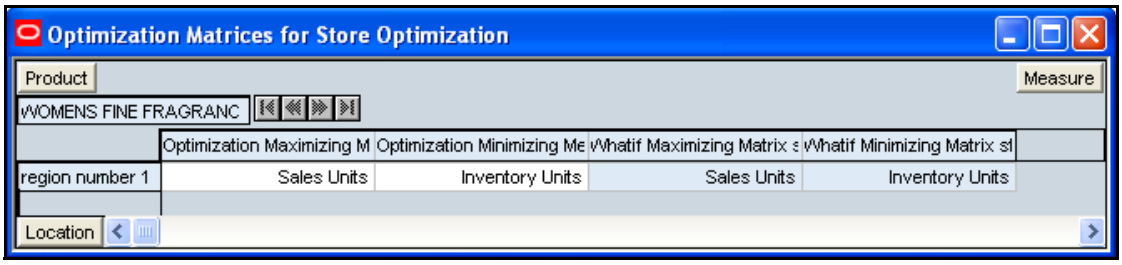


Table 3–14 Optimization Matrices for Store Optimization Worksheet Measures

Measure	Description
Optimization Minimizing Metric Store Level Optimization	Displays the minimizing metric used in the optimization run.
Optimization Maximizing Metric Store Level Optimization	Displays the maximizing metric used in the optimization run.

Analyze Base Product Level Constraints for Warehouse Optimization Worksheet

This worksheet enables you to review the minimum constraint type and value used in the optimization.

Figure 3–29 Analyze Base Product Level Constraints for Warehouse Optimization Worksheet

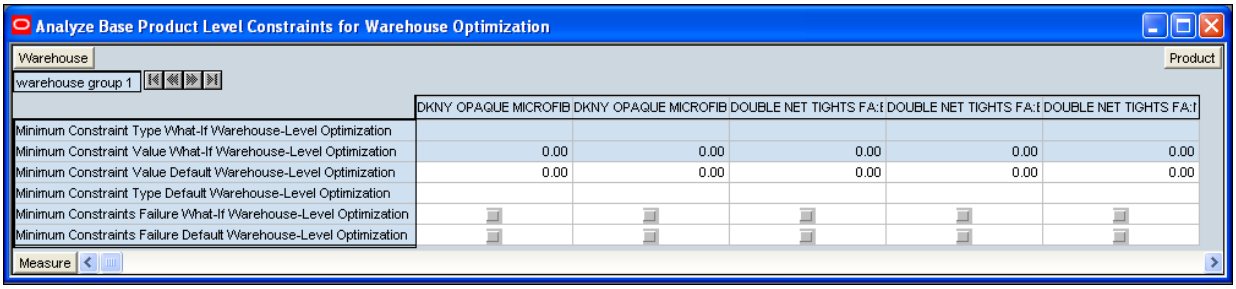


Table 3–15 Analyze Base Product Level Constraints for Warehouse Optimization Worksheet Measures

Measure	Description
Minimum Constraint Type Default Warehouse Level Optimization	The default minimum constraint type for an item/warehouse group used in the optimization batch. It can be Sales Units, Sales Revenue, Sales Margin, or Service Level. This measure is read-only.
Minimum Constraint Value Default Warehouse Level Optimization	The default minimum constraint value for an item/warehouse group used in the optimization batch. This measure is read-only.
Minimum Constraints Failure Default Warehouse Level Optimization	Displays if the constraint was met or not. If selected, the constraint was not met.

Analyze Base Location Level Constraints for Warehouse Optimization Worksheet

This worksheet enables you to review the maximum constraint type and value used in the optimization.

Figure 3–30 Analyze Base Location Level Constraints for Warehouse Optimization Worksheet

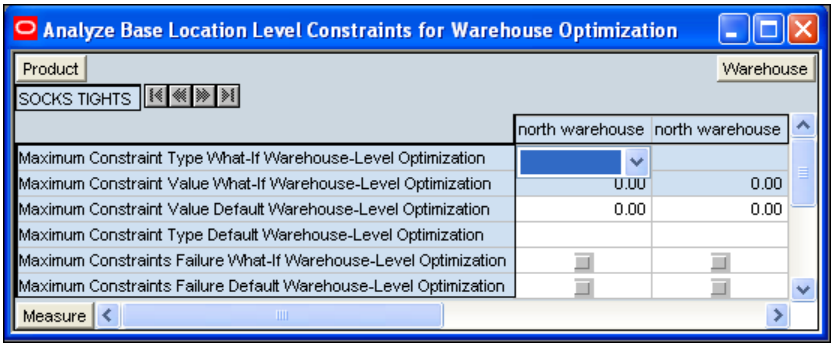


Table 3–16 Analyze Base Location Level Constraints for Warehouse Optimization Worksheet Measures

Measure	Description
Maximum Constraint Type Default Warehouse Level Optimization	The default maximum constraint type for a group/warehouse used in the optimization batch. It can be Inventory Units, Inventory Cost, Weeks of Supply, or Space. This measure is read-only.
Maximum Constraint Value Default Warehouse Level Optimization	The default maximum constraint value for a group/warehouse used in the optimization batch. This measure is read-only.
Maximum Constraints Failure Default Warehouse Level Optimization	Displays if the constraint was met or not. If selected, the constraint was not met.

Maximum Order Frequency for Warehouse Optimization Worksheet

This worksheet enables you to review the maximum order frequency used in the optimization.

Figure 3–31 Maximum Order Frequency for Warehouse Optimization Worksheet

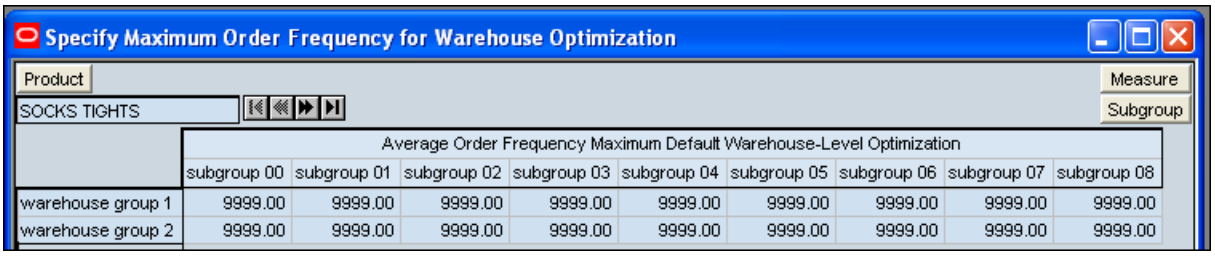


Table 3–17 Maximum Order Frequency for Warehouse Optimization Worksheet Measures

Measure	Description
Average Order Frequency Maximum Default Warehouse Level Optimization	The default maximum order frequency value for a subgroup used in the optimization batch. This is a read-only measure.
Maximum Constraints Failure Default Warehouse Level Optimization	Displays if the constraint was met or not. If selected, the constraint was not met.

Optimization Matrices for Warehouse Optimization Worksheet

This worksheet enables you to review the maximizing and minimizing matrix for the regular optimization run.

Figure 3–32 Optimization Matrices for Warehouse Optimization Worksheet

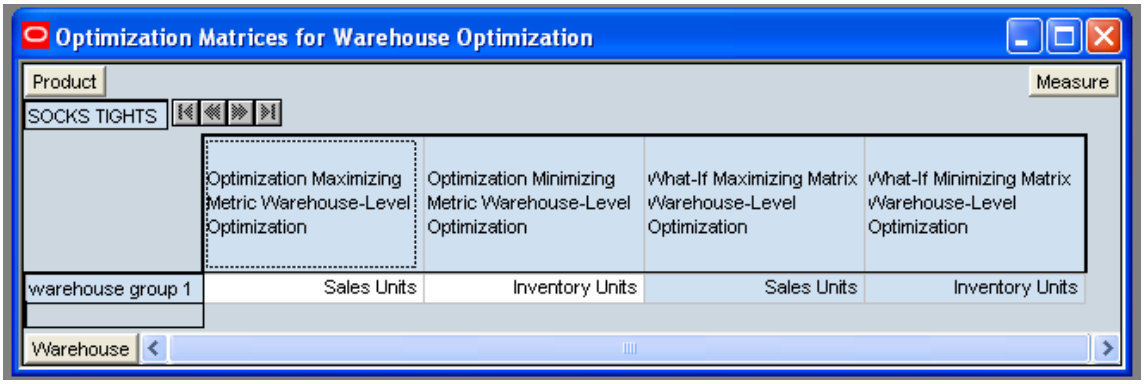


Table 3–18 Optimization Matrices for Warehouse Optimization Worksheet Measures

Measure	Description
Optimization Minimizing Metric Warehouse Level Optimization	Displays the minimizing metric used in the optimization run.
Optimization Maximizing Metric Warehouse Level Optimization	Displays the maximizing metric used in the optimization run.

4

Replenishment Analyst Workbook

The Replenishment Analyst workbook enables you to monitor replenishment performance and modify item/location level replenishment settings. This workbook also includes What-if capabilities, allowing you to view projected impact of Replenishment Settings on parameters such as Inventory, Order Points, Order Up-to Levels, and Service Level.

This workbook enables you to make an informed decision based on the impact of the changes in the Replenishment Settings. You have the option of applying System Recommended Settings, Previously Approved Settings, or Override with Special user input settings. This workbook is intended to include all items/locations for which the Replenishment Analyst is responsible.

The Replenishment Analyst (Replen Analyst) worksheet contains the following tabs:

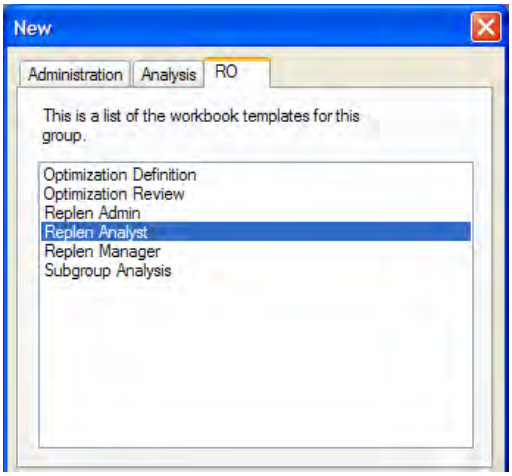
- Summary Tab
- Details Tab
- Approval Tab

Replen Analyst Wizard

To open a Replen Analyst workbook, perform the following:

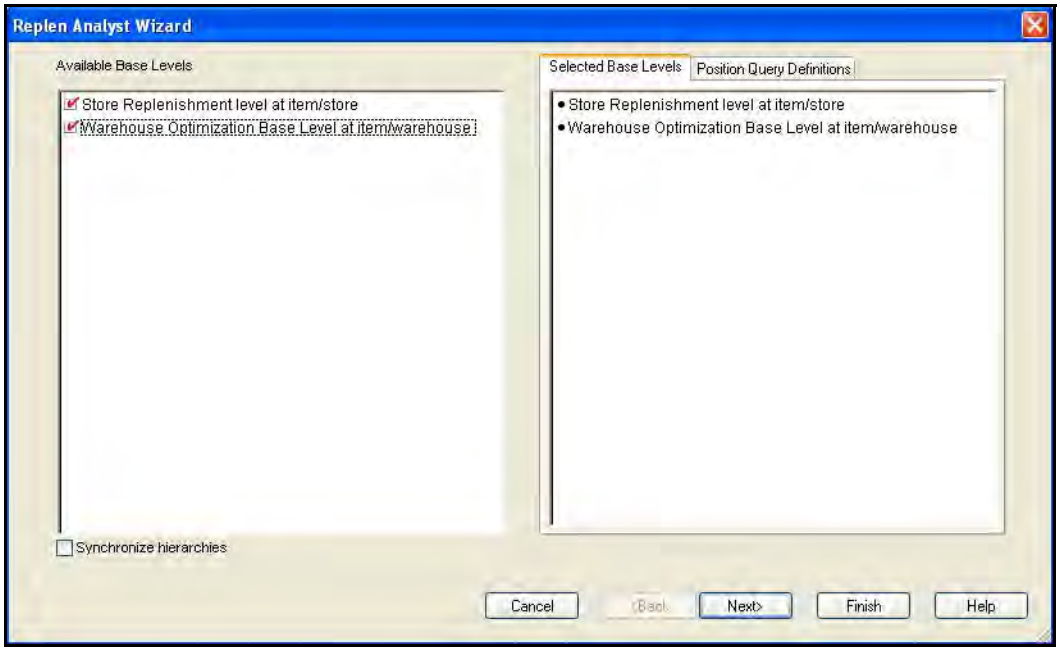
1. Select **File - New** or click **New**.
2. On the **RO** tab, select **Replen Analyst** and click **OK**.

Figure 4–1 Creating a New Replen Analyst Workbook



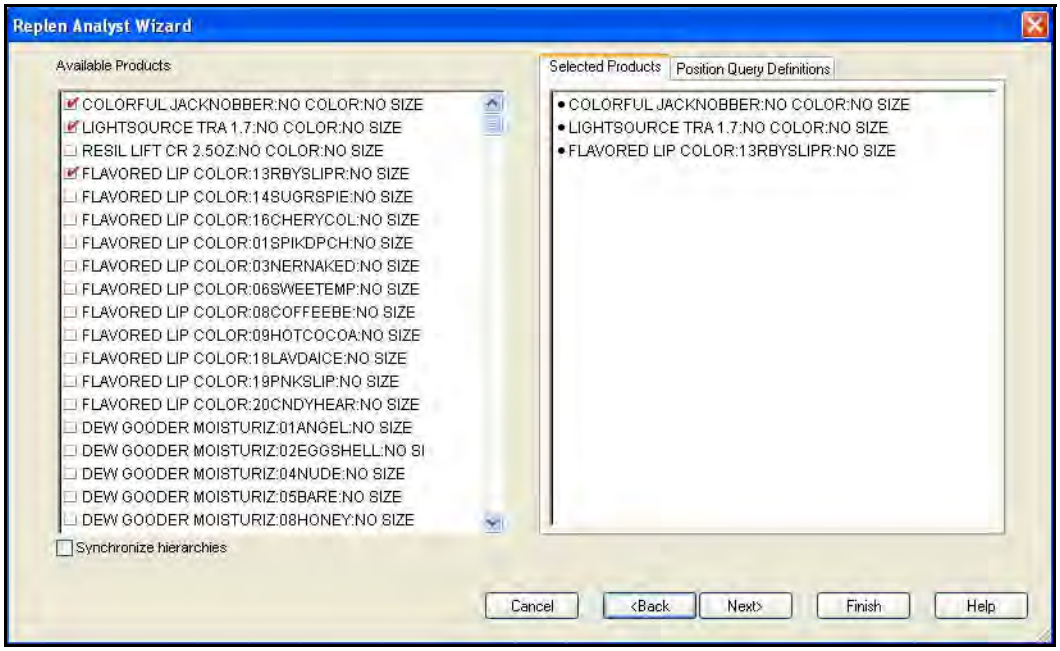
3. The Available Base Levels window opens. Select either or both the store level (SL) or warehouse level (WL) to be displayed in the workbook and click **Next**.

Figure 4–2 Available Base Levels



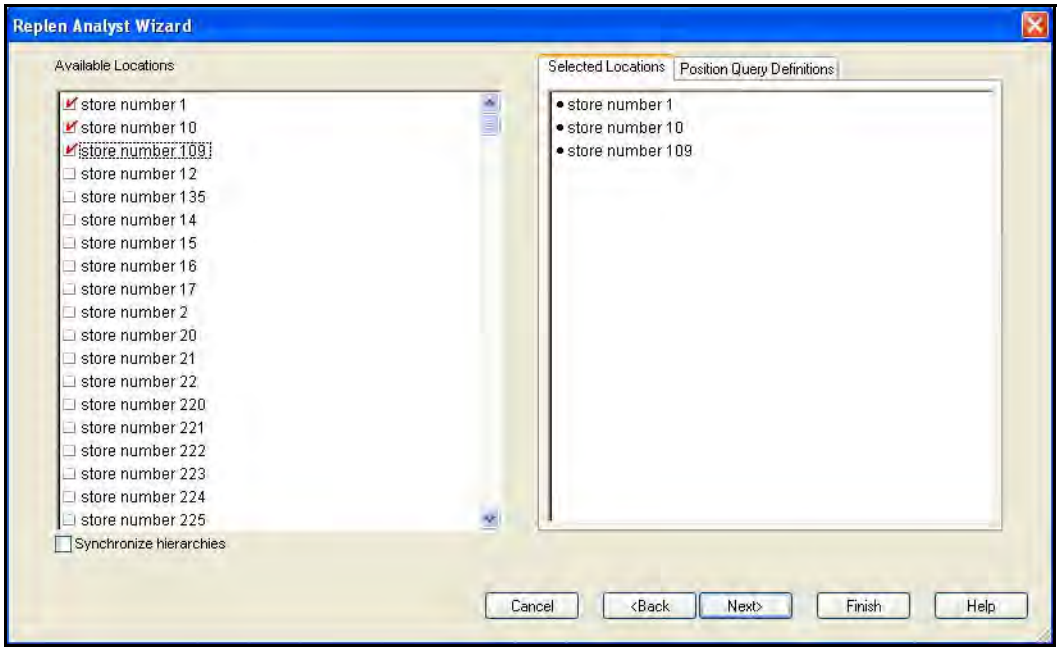
4. The Available Products window opens. Select the items to be displayed in the workbook and click **Next**.

Figure 4–3 Available Products



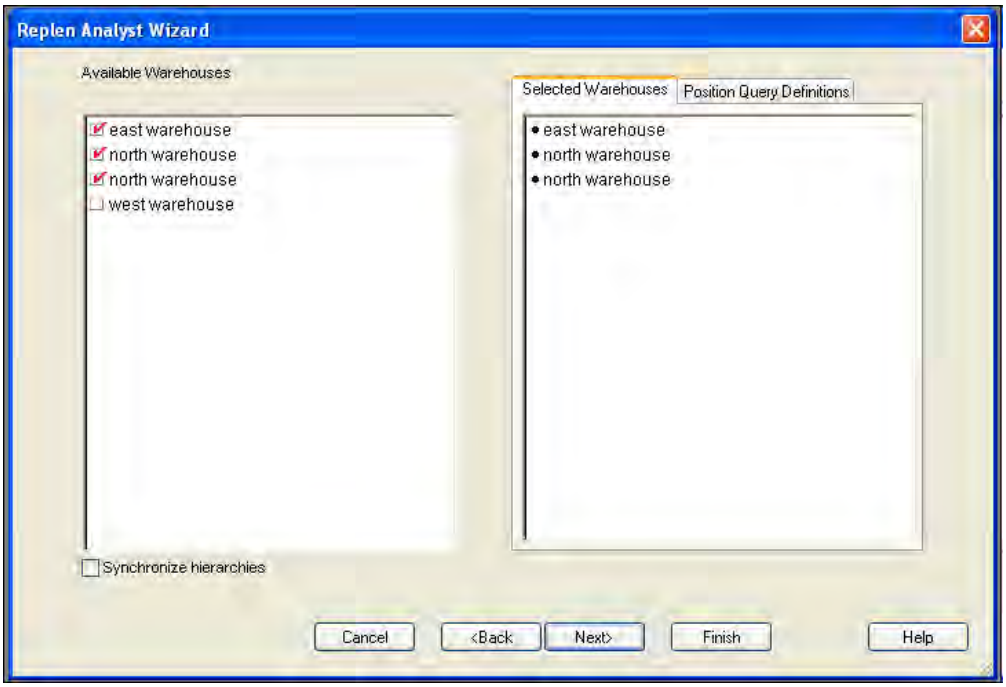
5. The Available Locations window opens. Select the stores to be displayed in the workbook and click **Next**.

Figure 4–4 Available Locations



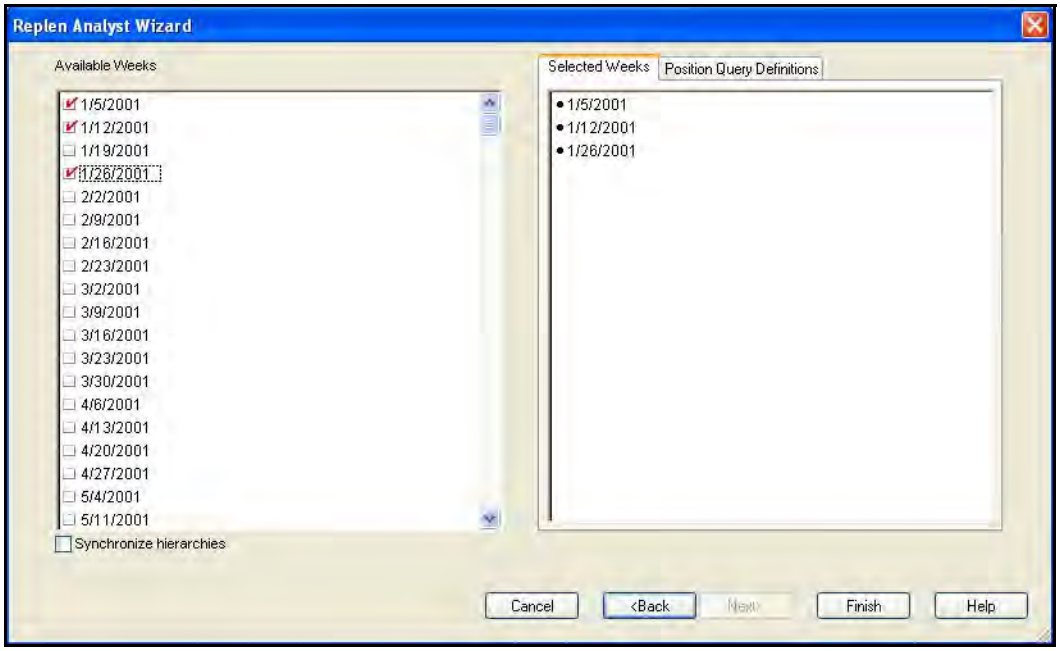
6. The Available Warehouses window opens. Select the warehouses to be displayed in the workbook and click **Next**.

Figure 4–5 Available Warehouses



7. The Available Weeks window opens. Select the weeks to be displayed in the workbook and click **Finish**.

Figure 4–6 Available Weeks



The Replen Analyst workbook is built.

Replenishment Methods and Parameters Overview

Replenishment methods and parameters are concepts that are modified and reviewed in the Replen Analyst workbook. In the Replen Analyst workbook, there are several versions of these concepts, including:

- System Recommended
- Approved Version

Replenishment Method

Replenishment Method to be applied to all items/locations that meet the Replenishment Rule Group and Replenishment Rule ID thresholds. This is a writable measure.

Replenishment Param Name1

This is a read-only measure that prompts you with what Replenishment Parameters need to be entered for the selected Replenishment Method. This measure gets populated once you enter a Replenishment Method and click **Calculate**.

Replenishment Param Name2

This is a read-only measure that prompts you with the Replenishment Parameters that need to be entered for the selected Replenishment Method. This measure gets populated once you enter a Replenishment Method and click **Calculate**.

Auxiliary Replenishment Param Name1

This is a read-only measure that prompts you with the Replenishment Parameters that need to be entered for the selected Replenishment Method. This measure gets populated once you enter a Replenishment Method and click **Calculate**.

Auxiliary Replenishment Param Name2

This is a read-only measure that prompts you with the Replenishment Parameters that need to be entered for the selected Replenishment Method. This measure gets populated once you enter a Replenishment Method and click **Calculate**.

Replenishment Param Value1

This is a writable measure, which can either be loaded or entered through this workbook. This measure holds the value for Replenishment Param1. For example, if you choose a Replenishment Method of MinMax, then this measure stores the Min value (as suggested by the Replenishment Param Name1 measure).

Replenishment Param Value2

This is a writable measure, which can either be loaded or entered through this workbook. This measure holds the value for Replenishment Param1. For example, if you choose a Replenishment Method of MinMax, then this measure stores the Max value (as suggested by the Replenishment Param Name2 measure).

Auxiliary Replenishment Param Value1

This is a writable measure, which can either be loaded or entered through this workbook. This measure holds the value for Auxiliary Replenishment Param1.

Auxiliary Replenishment Param Value2

This is a writable measure, which can either be loaded or entered through this workbook. This measure holds the value for Auxiliary Replenishment Param2.

Auxiliary Parameters for MinMax Replenishment Method

RO enables you to specify minimum and maximum values that are a function of mean sales and standard deviation, as an alternate specifying a fixed value of minimum and maximum values. The Auxiliary Parameters in this case are called Safety Stock Factor and Weeks of Supply Factor. They are used as shown in Figure 4–7 to arrive at the Min and Max values:

Figure 4–7 Auxiliary Parameters for MinMax Replenishment Values

$$Min = Mean * (Lead\ Time + Review\ Time) / 7 + SafetyStockFactor * stddev * sqrt(Lead\ Time)$$
$$Max = Min + WOSFactor * Mean$$

Note: If both Min/Max values as well as Auxiliary Parameters - SafetyStock and WOSFactors are entered, then the Auxiliary Parameters take precedence.

User Message

This is a read-only measure that contains any error or warning messages from the system. When you click **Calculate**, the system validates the user input values and populates this measure with any error or warning messages.

Replenishment Parameters and Validity

Table 4–1 lists the replenishment methods and valid values of the corresponding parameters.

Table 4–1 Replenishment Parameters and Validity Table

Repl Method	Repl Param1	Repl Param2	Auxiliary Repl Param1	Auxiliary Repl Param2	Validity
MinMax	Min	Max	SafetyStockFactor	WOS Factor	Min>0; Max>0; Max>Min
					SafetyStockFactor >0; WOS factor>0
					If Min, Max, SafetyStock, and WOS factors are all input, then the Min/Max values will be ignored.
Dynamic	Service Level	Inventory Selling Days			Service Level>0 and <1 Inventory Selling days>0
TimeSupply	MinTS	MaxTS	TSHorizon		MinTS>0; MaxTS>0; MaxTS>MinTS
					TSHorizon> 0
Poisson	Service Level	Inventory Selling Days			Service Level>0 and <1 Inventory Selling days>0
Hybrid	MinTS	Inventory Selling Days	TSHorizon		MinTS>0; TSHorizon>0

Summary Tab

The Summary tab summarizes the alert review progress, performance statistics, and system recommendations for all items/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 items/locations for which they are responsible.

The Summary tab contains the following worksheets:

- Store Replenishment Summary Worksheet
- Warehouse Replenishment Summary Worksheet

Store Replenishment Summary Worksheet

In this worksheet, the metrics are presented at the aggregate level, for all item/store combinations selected in the wizard.

Figure 4–8 Store Replenishment Summary Worksheet

Table 4–2 Store Replenishment Summary Worksheet Measures

Measure	Description
Inventory Performance Statistical Measures	
Weeks of Supply Store-Level	The number of Weeks of Supply or Weeks on-hand, calculated as Average Inventory On Hand Units divided by Average Demand Units. This measure is calculated by using the department/region level measures.
Inventory Turns Store-Level	Average Inventory Turns calculated as Average Demand Units over the last 52 weeks divided by Average Inventory On Hand Units the last 52 weeks. This measure is calculated by using the department/region level measures.
Average Service Level Store-Level	The percentage of demand that was met is calculated as 1 minus Average Lost Sales Units/Average Demand Units. This measure is calculated by using the department/region level measures.
Average Historic Order Frequency Store-Level	The average number of orders in a week. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
Demand and Inventory Units Measures	
Average Demand Units Store-Level	The average demand in Revenue, obtained by multiplying Average Demand Units and Unit Price. Demand is calculated as historic sales plus historic Lost Sales. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.

Table 4–2 (Cont.) Store Replenishment Summary Worksheet Measures

Measure	Description
Average Lost Sales Units Store-Level	The Average Lost Sales Revenue value. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
Average Inventory On Hand Units Store-Level	The Average on-hand Inventory in revenue value. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
Average Inventory On Order Units Store-Level	The Average On Order Inventory in revenue value. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
Average Net Inventory Units Store-Level	The Average Net Inventory in revenue value. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
Demand and Inventory Revenue Measures	
Average Demand Revenue - Store Level	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 - Store Level	The average lost sales revenue value.
Demand and Inventory Revenue Measures	
Average Inventory On Hand Revenue - Store Level	The average on-hand inventory in revenue value.
Average Inventory On Order Revenue - Store Level	The average On Order inventory in revenue value.
Average Net Inventory Revenue - Store Level	The average net inventory in revenue value.
Demand and Inventory Cost Measures	
Average Demand Revenue Store-Levell	Average demand in cost, obtained by multiplying Average Demand Units by Unit Cost. Demand is calculated as historic sales plus historic Lost Sales. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
Average Lost Sales Revenue Store-Level	Average Lost Sales cost. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
Average Inventory On Hand Revenue Store-Level	The Average on-hand Inventory in cost. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
Average Inventory On Order Revenue Store-Levell	The Average On Order Inventory in cost. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
Average Net Inventory Revenue Store-Level	The Average Net Inventory in cost. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
Number of Weeks for Stats Store-Level	The number of weeks in history over which the above statistics have been calculated. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.

Table 4–2 (Cont.) Store Replenishment Summary Worksheet Measures

Measure	Description
Replenishment Settings Statistical Measures	
System Recommended Item/Locs on MinMax - Store Level	The number of items/locations for which the system recommends the MinMax Replenishment Method. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
System Recommended Item/Locs on TimeSupply - Store Level	The number of items/locations for which the system recommends the Time Supply Replenishment Method. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
System Recommended Item/Locs on Dynamic - Store Level	The number of items/locations for which the system recommends the Dynamic Replenishment Method. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
System Recommended Item/Locs on Hybrid - Store Level	The number of items/locations for which the system recommends the Hybrid Replenishment Method. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.
System Recommended Item/Locs on Poisson - Store Level	The number of items/locations for which the system recommends the Poisson Replenishment Method. This measure is calculated by averaging at the item /store level for the past year and then summing up to the department/region level.

Warehouse Replenishment Summary Worksheet

In this worksheet, the metrics are presented at the aggregate level, for all item/warehouse combinations selected in the wizard.

Figure 4–9 Warehouse Replenishment Summary Worksheet

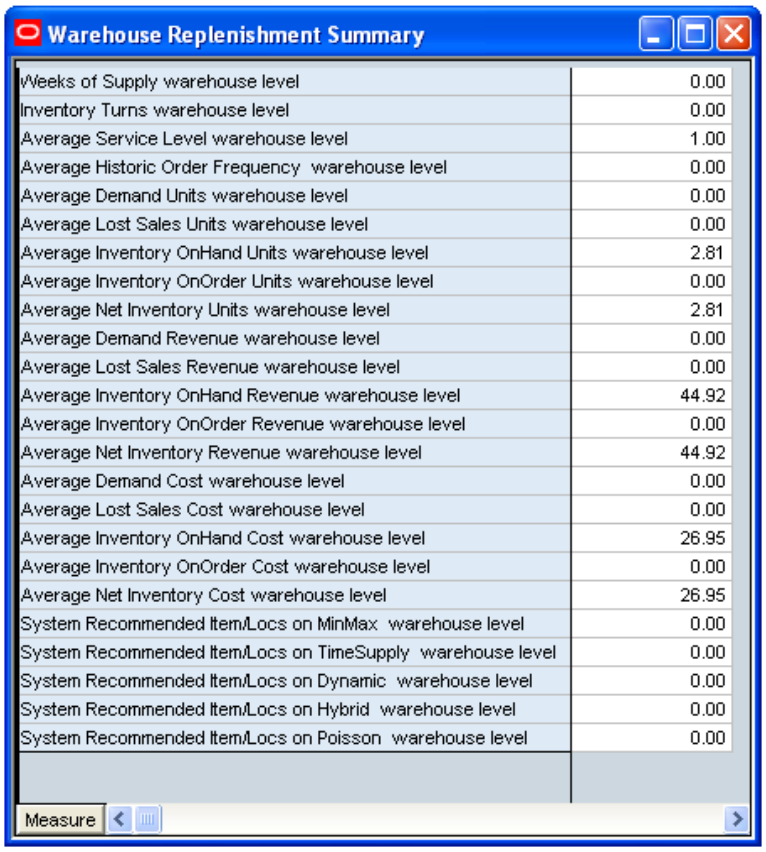


Table 4–3 Warehouse Replenishment Summary Worksheet Measures

Measure	Description
Inventory Performance Statistical Measures	
Weeks of Supply Warehouse Level	The number of Weeks of Supply or Weeks On-Hand, calculated as average On-Hand Inventory divided by average Demand.
Inventory Turns - Warehouse Level	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 - Warehouse Level	The percentage of demand that was met. Calculated as average sales/average Demand.
Average Historic Order Frequency - Warehouse Level	The Average number of Orders in a week.
Demand and Inventory Units Measures	
Average Demand Units - Warehouse Level	The average demand in units value. Demand is calculated as historic sales plus historic Lost Sales.
Average Lost Sales Units - Warehouse Level	The average lost sales units.
Average Inventory On Hand Units - Warehouse Level	The average on-hand inventory in units.
Average Inventory On Order Units - Warehouse Level	The average On Order inventory in units.
Average Net Inventory Units - Warehouse Level	The average net inventory in units.

Table 4–3 (Cont.) Warehouse Replenishment Summary Worksheet Measures

Measure	Description
Demand and Inventory Revenue Measures	
Average Demand Revenue - Warehouse Level	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 - Warehouse Level	The average lost sales revenue value.
Demand and Inventory Revenue Measures	
Average Inventory On Hand Revenue - Warehouse Level	The average on-hand inventory in revenue value.
Average Inventory On Order Revenue - Warehouse Level	The average On Order inventory in revenue value.
Average Net Inventory Revenue - Warehouse Level	The average net inventory in revenue value.
Demand and Inventory Cost Measures	
Average Demand Cost - Warehouse Level	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 - Warehouse Level	The average lost sales cost value.
Average Inventory On Hand Cost - Warehouse Level	The average on-hand inventory in cost value.
Average Inventory On Order Cost - Warehouse Level	The average On Order inventory in cost value.
Average Net Inventory Cost - Warehouse Level	The average net inventory in cost value.
Number of Weeks for Stats - Warehouse Level	The number of weeks in history over which the above statistics have been calculated.
Replenishment Settings Statistical Measures	
System Recommended Item/Locs on MinMax - Warehouse Level	The number of items/locations for which the system recommends the MinMax Replenishment Method.
System Recommended Item/Locs on TimeSupply - Warehouse Level	The number of items/locations for which the system recommends the Time Supply Replenishment Method.
System Recommended Item/Locs on Dynamic - Warehouse Level	The number of items/locations for which the system recommends the Dynamic Replenishment Method.
System Recommended Item/Locs on Hybrid - Warehouse Level	The number of items/locations for which the system recommends the Hybrid Replenishment Method.
System Recommended Item/Locs on Poisson - Warehouse Level	The number of items/locations for which the system recommends the 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.

For additional information about replenishment setting, see Understanding the Working Version of the Replenishment Settings.

This tab contains the following worksheets:

- Store Replenishment Statistics Worksheet
- Warehouse Replenishment Statistics Worksheet

  Lists item/location-level inventory performance and other statistics.

- Store Replenishment Weekly Details Worksheet
- Warehouse Replenishment Weekly Details Worksheet

  Gives you item/location/week-level information on inventory, demand, lost sales, forecasts, and so on.

- Store Replenishment Analysis Worksheet
- Warehouse Replenishment Analysis Worksheet

  Enables you 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

Store Replenishment Statistics Worksheet

Several of the statistics listed in this worksheet are the same as those listed in the Summary worksheet of this workbook, but at the item/store level. Refer to Table 4–2 for measure descriptions. Figure 4–10 shows a list of measure descriptions that are not included in the Summary worksheet.

Figure 4–10 Store Replenishment Statistics Worksheet

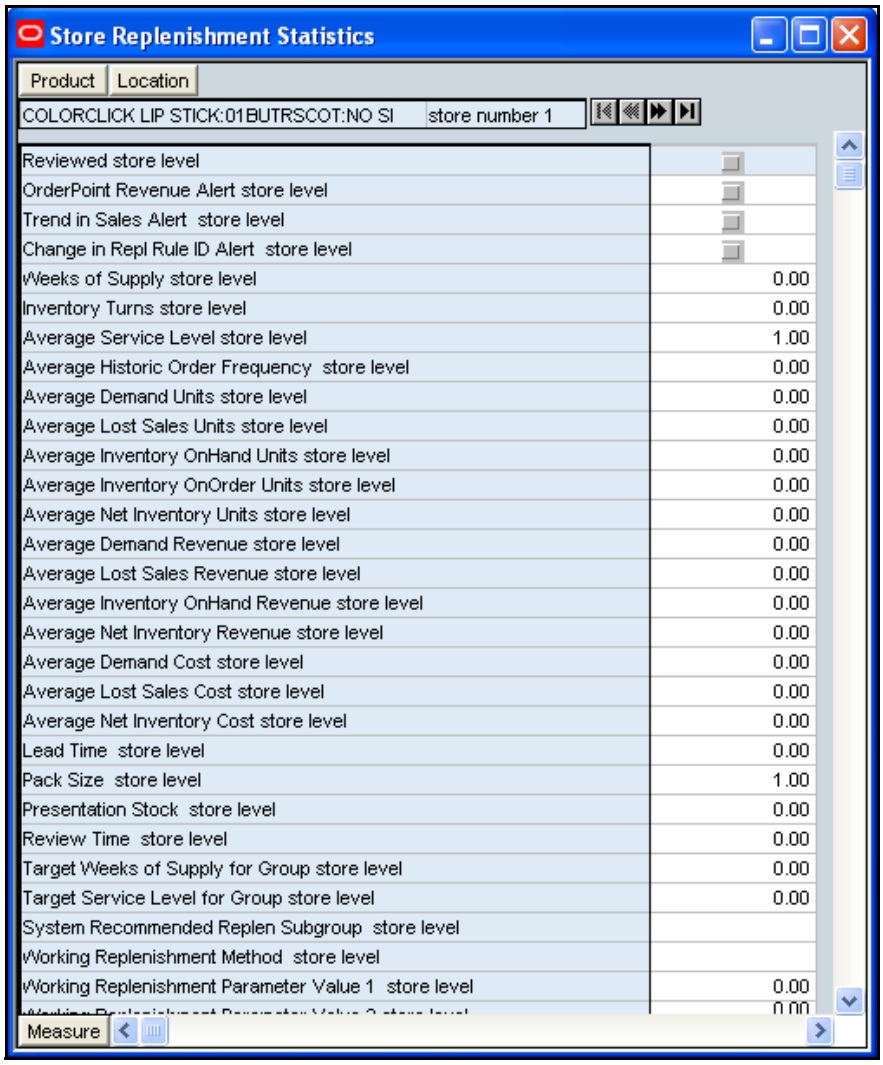


Table 4–4 Store Replenishment Statistics Worksheet Measures

Measure	Description
Reviewed - Store Level	This is a writable measure indicating whether or not this item/location has been reviewed by you. This measure is used only for tracking purposes and updates the # of alerts reviewed and total reviewed measures.
Lead Time - Store Level	The total lead time of the item/location value.
Pack Size - Store Level	The item pack size value.
Presentation Stock - Store Level	The minimum presentation stock value.
Review Time - Store Level	The frequency at which inventory is reviewed for replenishment purposes.
Price - Store Level	The unit retail price of the item value.
Cost - Store Level	The unit cost of the item value.
System Recommended Replen Subgroup - Store Level	Replenishment Rule ID that the system recommends for the item/location.

Table 4–4 (Cont.) Store Replenishment Statistics Worksheet Measures

Measure	Description
Target Weeks of Supply for Group - Store Level	The overall target or optimal weeks of supply recommended by RO for the subgroup of items/locations that this item/location belongs to. While tracking inventory and service level performance against this optimal target, it is important to track performance for the entire group of items/locations as opposed to the performance of individual items/locations.
Target Service Level for Group - Store Level	The overall target or optimal service level recommended by RO for the group of items/locations that this item/location belongs to. While tracking Inventory and Service Level performance against this optimal target, it is important to track performance for the entire group of items/locations as opposed to the performance of individual items/locations.
Working Replenishment Method - Store Level	Replenishment method you have currently chosen for this item/location. You 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 you approve the settings now.
Working Replenishment Parameter Value 1 - Store Level	Replenishment Parameter1 you have currently chosen for this item/location. You 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 you approve the settings now.
Working Replenishment Parameter Value 2 - Store Level	Replenishment Parameter2 you have currently chosen for this item/location. You 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 you approve the settings now.
Working Auxiliary Repl Parameter 1 - Store Level	Auxiliary Replenishment Parameter1 you have currently chosen for this item/location. You 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 you approve the settings now.
Working Auxiliary Repl Parameter 2 - Store Level	Auxiliary Replenishment Parameter2 you have currently chosen for this item/location. You 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 you approve the settings now.
Working Replenishment Settings Statistical Measures The following measures provide statistics based on the working replenishment settings. The statistics help provide you with supporting information on the impact of the chosen replenishment settings on future inventory and service levels. This helps you to choose the correct replenishment settings.	
Working Order Points Units - Store Level	Order Point Units calculated by the system based on the working replenishment method and parameters.
Working Order Up to Level Units - Store Level	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 - Store Level	Projected Average On hand Inventory units over the 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 - Store Level	Projected Average Service Level over the 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.

Table 4–4 (Cont.) Store Replenishment Statistics Worksheet Measures

Measure	Description
Working Projected Lost Sales Units over next quarter Units - Store Level	Projected Average Lost Sales over the 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 you with supporting information on the impact of the chosen replenishment Settings on future inventory and service levels to help you choose the correct Replenishment Settings.	
System Recommended Projected Average Inv OH over the next Quarter Units - Store Level	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 - Store Level	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 - Store Level	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.
Manager Comment - Store Level	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 items/locations that belong to that replenishment rule ID.

Store Replenishment Weekly Details Worksheet

This worksheet provides item/store/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 4–11 Store Replenishment Weekly Details Worksheet

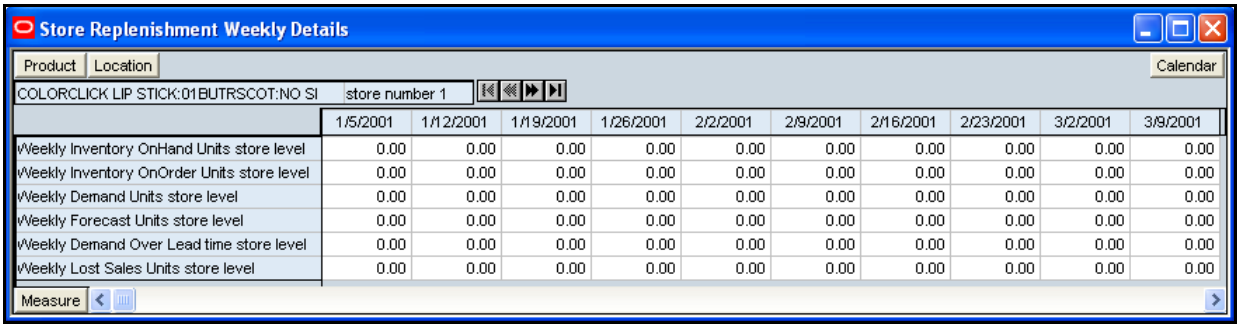


Table 4–5 Store Replenishment Weekly Details Worksheet Measures

Measure	Description
Weekly Demand Over Lead time Store Level	Weekly demand units aggregated over lead time for each week
Weekly Demand Units Store Level	Weekly demand units
Weekly Forecast Units Store Level	Weekly forecast units

Table 4–5 (Cont.) Store Replenishment Weekly Details Worksheet Measures

Measure	Description
Weekly Inventory On Hand Units Store Level	Weekly on-hand inventory units
Weekly Inventory On Order Units Store Level	Weekly On Order inventory units
Weekly Lost Sales Units Store Level	Weekly lost sales units

Store Replenishment Analysis Worksheet

The Analysis worksheet enables 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, and Projected Order Quantity. You 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 **Menu**.

Figure 4–12 Store Replenishment Analysis Worksheet

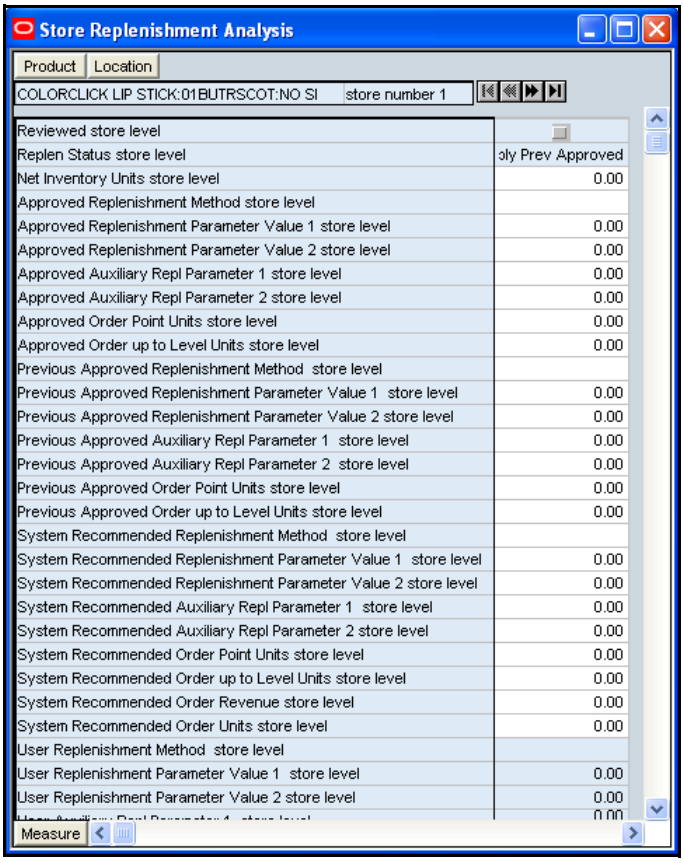


Table 4–6 Store Replenishment Analysis Worksheet Measures

Measure	Description
Approved Auxiliary Repl Parameter 1 Store Level	This measure selects the Approve option in the Approval tab to invoke 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 cleared to allow you to re-approve at a later time if needed.
Approved Auxiliary Repl Parameter 2 Store Level	This measure selects the Approve option in the Approval tab to invoke 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 cleared to allow you to re-approve at a later time if needed.
Approved Order Point Units Store Level	This measure selects the Approve option in the Approval tab to invoke 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 Store Level	This measure selects the Approve option in the Approval tab to invoke 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 Store Level	This measure selects the Approve option in the Approval tab to invoke 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 cleared to allow you to re-approve at a later time if needed.
Approved Replenishment Parameter Value 1 Store Level	This measure selects the Approve option in the Approval tab to invoke 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 cleared to allow you to re-approve at a later time if needed.
Approved Replenishment Parameter Value 2 Store Level	This measure selects the Approve option in the Approval tab to invoke 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 cleared to allow you to re-approve at a later time if needed.
Net Inventory Units Store Level	The current net inventory position.
Previous Approved Auxiliary Repl Parameter 1 Store Level	Previous Approved Auxiliary Replenishment Parameter Value 1.
Previous Approved Auxiliary Repl Parameter 2 Store Level	Previous Approved Auxiliary Replenishment Parameter Value 2.
Previous Approved Order Point Units Store Level	The Previous Approved Order Point Units value.
Previous Approved Order up to Level Units Store Level	The Previous Approved Order Up to Level Units value.
Previous Approved Replenishment Method Store Level	The Previous Approved Replenishment Method.
Previous Approved Replenishment Parameter Value 1 Store Level	Previous Approved Replenishment Parameter Value 1.
Previous Approved Replenishment Parameter Value 2 Store Level	Previous Approved Replenishment Parameter Value 2.

Table 4–6 (Cont.) Store Replenishment Analysis Worksheet Measures

Measure	Description
Replen Status Store Level	The Replenishment Status is a writable measure that determines the set of Replenishment parameters to be applied. This measure list provides the following options: ▪ Apply System ▪ Apply Prev Approved ▪ Apply User Input This measure defaults to Apply System Recommended Settings if no alerts are triggered for the items/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 Store Level	This is a writable measure indicating whether or not this item/location has been reviewed by the you. This measure is used only for tracking purposes and updates the # of Alerts Reviewed and Total Reviewed measures.
Space Store Level	Space for item/warehouse.
System Recommended Auxiliary Repl Parameter 1 Store Level	The System Recommended Auxiliary Replenishment Parameter Value 1 value.
System Recommended Auxiliary Repl Parameter 2 Store Level	The System Recommended Auxiliary Replenishment Parameter Value 2 value.
System Recommended Order Point Units Store Level	The Order Point Units based on the System Recommended Methods and Parameters value.
System Recommended Order Revenue Store Level	The System Recommended Order Revenue measure value.
System Recommended Order Units Store Level	The Projected Order units calculated based on the System Recommended Methods and Parameters value.
System Recommended Order up to Level Units Store Level	The Order Up to Level Units based on the System Recommended Methods and Parameters value.
System Recommended Replenishment Method Store Level	The System Recommended Replenishment Method value.
System Recommended Replenishment Parameter Value 1 Store Level	The System Recommended Replenishment Parameter Value 1 value.
System Recommended Replenishment Parameter Value 2 Store Level	The System Recommended Replenishment Parameter Value 2 value.
User Auxiliary Repl Parameter 1 Store Level	This is a writable measure where you input auxiliary replenishment parameter 1 based on the Replenishment Method chosen. Refer to Chapter 1, "Introduction" for valid Replenishment Parameter inputs for each method.
User Auxiliary Repl Parameter 2 Store Level	This is a writable measure where you input auxiliary replenishment parameter 2 based on the Replenishment Method chosen. Refer to Chapter 1, "Introduction" for valid Replenishment Parameter inputs for each method.
User Message Store Level	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 Store Level	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 Store Level	This read-only measure is the Order Point units multiplied by unit cost, calculated based on the user-input Replenishment settings.

Table 4–6 (Cont.) Store Replenishment Analysis Worksheet Measures

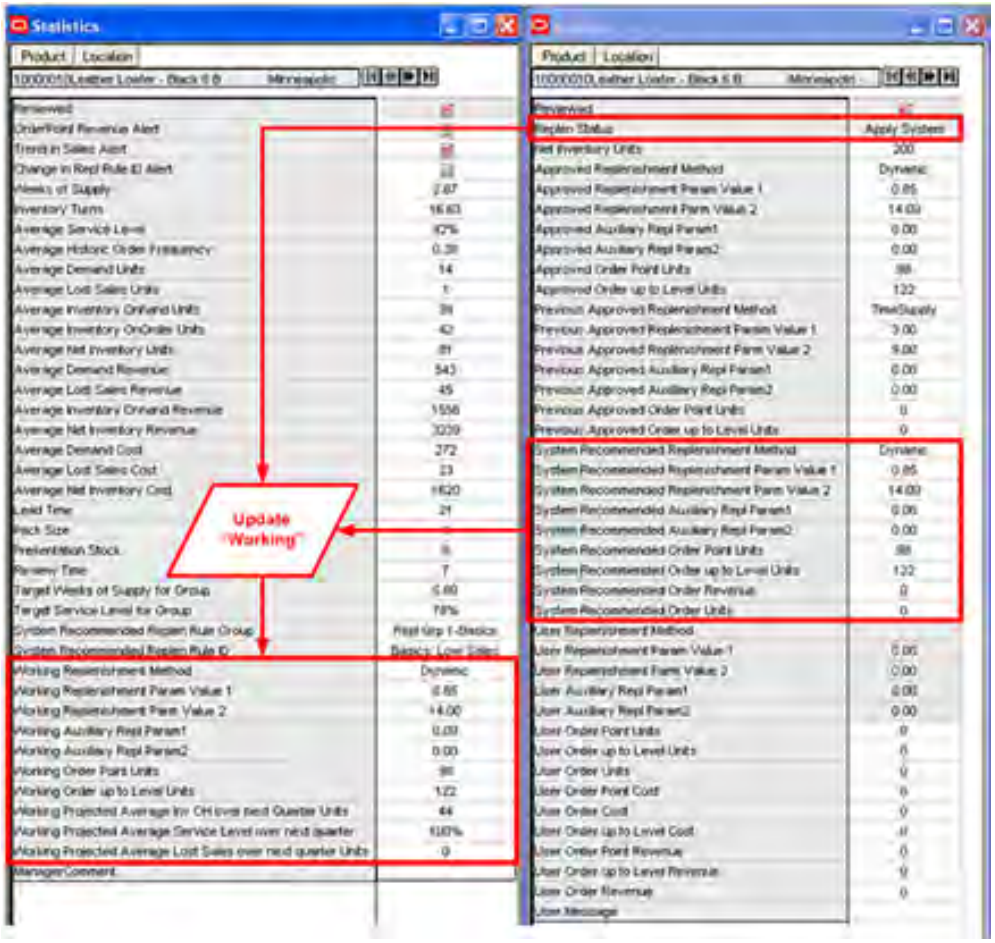
Measure	Description
User Order Point Revenue Store Level	This read-only measure is the product of the price per unit and the order point units based on the user-input methods and parameters.
User Order Point Units Store Level	This read-only measure is the number of order point units based on the user-input method and parameters.
User Order Revenue Store Level	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 Store Level	This read-only measure is the Projected Order Units based on the user-input Methods and Parameters.
User Order up to Level Cost Store Level	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 Store Level	The Order up to Level units multiplied by unit retail price, calculated based on User Input Replenishment settings.
User Order up to Level Units Store Level	This read-only measure is the Order Up to Level Units based on the user Input Methods and Parameters.
User Replenishment Method Store Level	This is measure list provides the following Replenishment Methods options: ■ MinMax ■ Dynamic ■ TimeSupply ■ Poisson ■ Hybrid Refer to Chapter 7, "Replenishment Admin Workbook" for valid replenishment parameter inputs and for information about each method.
User Replenishment Parameter Value 1 Store Level	This is a writable measure where you input replenishment parameter 1 based on the Replenishment Method chosen. Refer to Chapter 7, "Replenishment Admin Workbook" for valid replenishment parameter inputs and for information about each method.
User Replenishment Parameter Value 2 Store Level	This is a writable measure where you input replenishment parameter 2 based on the Replenishment Method chosen. Refer to Chapter 7, "Replenishment Admin Workbook" for valid replenishment parameter inputs and 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 Figure 4–13 and Figure 4–14.

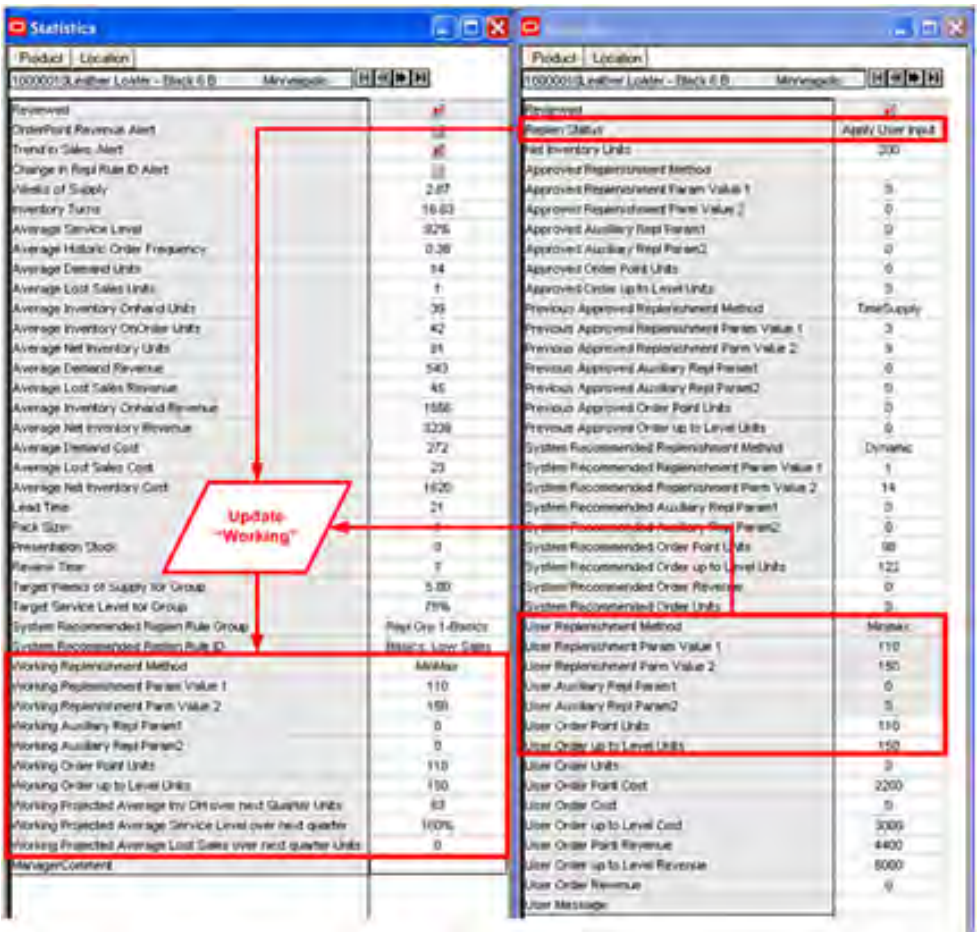
The side-by-side view of the worksheets in Figure 4–13 shows the relationship between the assigned Replenishment Status setting and you measure in the Analyst worksheet and the Working version of measures applied to the Statistics worksheet. In Figure 4–13, the Replenishment Status is set to **Apply 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 4–13 Working Version of Replenishment Settings



In Figure 4–14, 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 4–14 Apply User Input in Replenishment Status



The Replenishment Status selection drives the working version in the Statistics worksheet. When 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. When you are satisfied with the working version, you can approve the settings in the Approval worksheet.

The replenishment status for alerted items/locations defaults to **Apply Previous Approved**. After reviewing the alerted items/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.

Warehouse Replenishment 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/warehouse level. Refer to Warehouse Replenishment Summary Worksheet Measures for measure descriptions. Figure 4–15 shows a list of measure descriptions that are not included in the Summary worksheet.

Figure 4–15 Warehouse Replenishment Statistics Worksheet

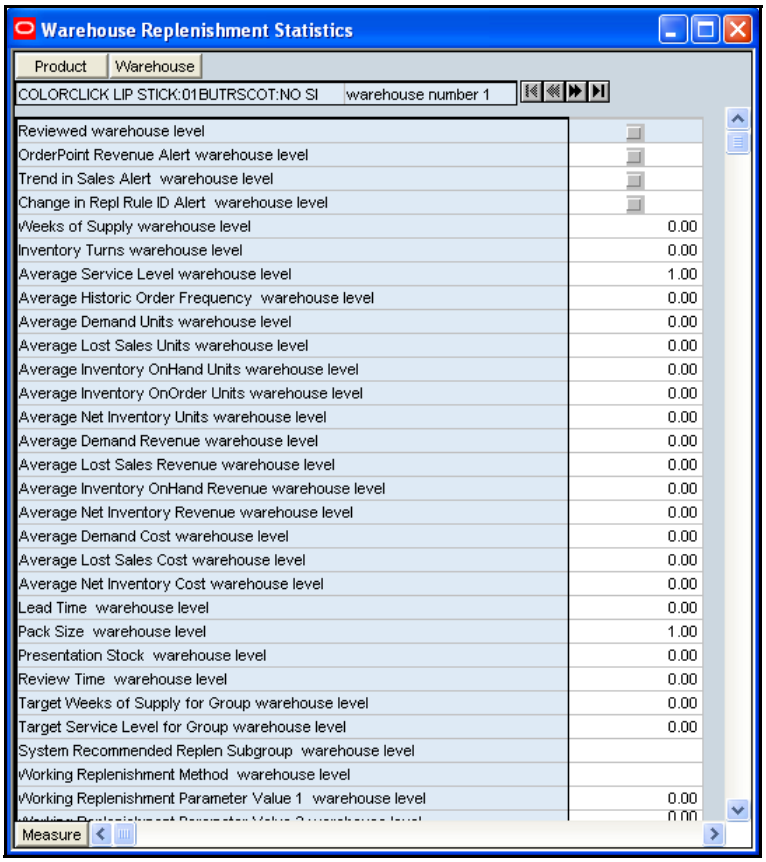


Table 4–7 Warehouse Replenishment Statistics Worksheet Measures

Measure	Description
Reviewed Warehouse Level	This is a writable measure indicating whether or not this item/location has been reviewed by you. This measure is only used for tracking purposes and updates the # of Alerts Reviewed and Total Reviewed measures.
Lead Time Warehouse Level	The Total Lead Time of the item/location value.
Pack Size Warehouse Level	The Item Pack Size value.
Presentation Stock Warehouse Level	The Minimum Presentation Stock value.
Review Time Warehouse Level	The frequency at which inventory is reviewed for replenishment purposes.
Price Warehouse Level	The Unit Retail Price of the Item value.
Cost Warehouse Level	The Unit Cost of the Item value.
System Recommended Replen Subgroup Warehouse Level	Subgroup that the System recommends for the item/location.
Target Weeks of Supply for Group Warehouse Level	The overall target or optimal weeks of supply recommended by RO for the subgroup of items/locations this item/location belongs to. While tracking inventory and service level performance against this optimal target, it is important to track performance for the entire group of items/locations as opposed to the performance of individual items/locations.

Table 4–7 (Cont.) Warehouse Replenishment Statistics Worksheet Measures

Measure	Description
Target Service Level for Group Warehouse Level	The overall target or optimal service level recommended by RO for the subgroup of items/locations this item/location belongs to. While tracking inventory and service level performance against this optimal target, it is important to track performance for the entire group of items/locations as opposed to the performance of individual items/locations.
Working Replenishment Method Warehouse Level	Replenishment method currently chosen by you for this item/location. You 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 you approve the settings now.
Working Replenishment Parameter Value 1 Warehouse Level	Replenishment Parameter1 currently chosen by you for this item/location. You 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 you approve the settings now.
Working Replenishment Parameter Value 2 Warehouse Level	Replenishment Parameter2 currently chosen by you for this item/location. You 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 you approve the settings now.
Working Auxiliary Repl Parameter 1 Warehouse Level	Auxiliary Replenishment Parameter1 currently chosen by you for this item/location. You 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 you approve the settings now.
Working Auxiliary Repl Parameter 2 Warehouse Level	Auxiliary Replenishment Parameter2 currently chosen by you for this item/location. You 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 you approve the settings now.
Working Replenishment Settings Statistical Measures The following measures provide statistics based on the Working Replenishment Settings. The statistics help provide you with supporting information on the impact of the chosen replenishment Settings on future Inventory and Service levels to help you choose the correct Replenishment Settings.	
Working Order Points Units Warehouse Level	Order Point Units calculated by the system based on the working replenishment method and parameters.
Working Order Up to Level Units Warehouse Level	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 Warehouse Level	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 Warehouse Level	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 Warehouse Level	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.

Table 4–7 (Cont.) Warehouse Replenishment Statistics Worksheet Measures

Measure	Description
System Recommended Replenishment Settings Statistical Measures The following measures provide statistics based on the System Recommended Replenishment Settings. The statistics help provide you with supporting information on the impact of the chosen replenishment Settings on future Inventory and Service levels to help you choose the correct Replenishment Settings.	
System Recommended Projected Average Inv OH over the next Quarter Units Warehouse Level	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 Warehouse Level	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 Warehouse Level	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.
Manager Comment Warehouse Level	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 items/locations that belong to that replenishment rule ID.

Warehouse Replenishment Weekly Details Worksheet

This worksheet provides item/warehouse/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 4–16 Warehouse Replenishment Weekly Details Worksheet

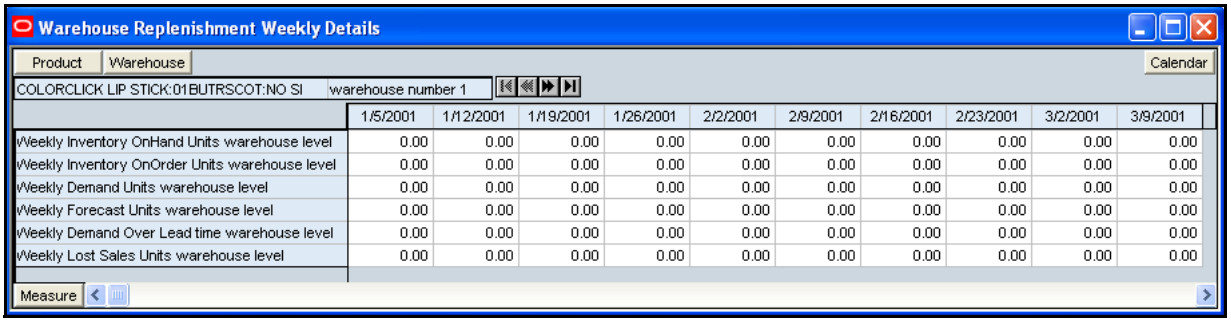


Table 4–8 Warehouse Replenishment Weekly Details Worksheet Measures

Measure	Description
Weekly Demand Over Lead time Warehouse Level	Weekly demand units aggregated over lead time for each week
Weekly Demand Units Warehouse Level	Weekly demand units
Weekly Forecast Units Warehouse Level	Weekly forecast units

Table 4–8 (Cont.) Warehouse Replenishment Weekly Details Worksheet Measures

Measure	Description
Weekly Inventory On Hand Units Warehouse Level	Weekly on-hand inventory units
Weekly Inventory On Order Units Warehouse Level	Weekly On Order inventory units
Weekly Lost Sales Units Warehouse Level	Weekly lost sales units

Warehouse Replenishment Analysis Worksheet

The Analysis worksheet enables 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, and Projected Order Quantity. You 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 **Menu**.

Figure 4–17 Warehouse Replenishment Analysis Worksheet

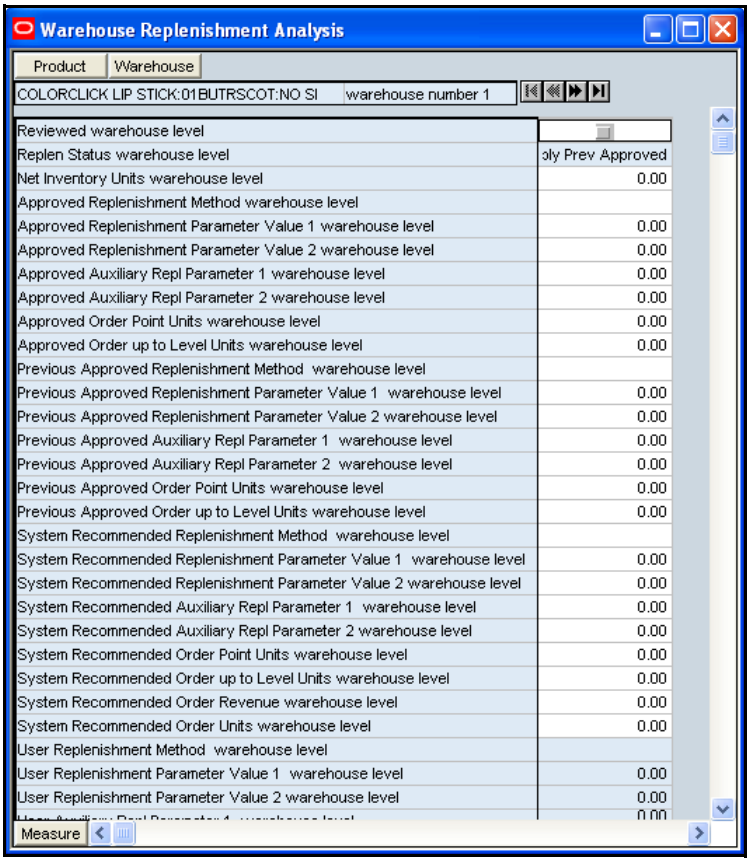


Table 4–9 Warehouse Replenishment Analysis Worksheet Measures

Measure	Description
Approved Auxiliary Repl Parameter 1 Warehouse Level	This measure selects the Approve option in the Approval tab to invoke 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 cleared to allow you to re-approve at a later time if needed.
Approved Auxiliary Repl Parameter 2 Warehouse Level	This measure selects the Approve option in the Approval tab to invoke 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 cleared to allow you to re-approve at a later time if needed.
Approved Order Point Units Warehouse Level	This measure selects the Approve option in the Approval tab to invoke 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 Warehouse Level	This measure selects the Approve option in the Approval tab to invoke 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 Warehouse Level	This measure selects the Approve option in the Approval tab to invoke 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 cleared to allow you to re-approve at a later time if needed.
Approved Replenishment Parameter Value 1 Warehouse Level	This measure selects the Approve option in the Approval tab to invoke 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 is then cleared to allow you to re-approve at a later time if needed.
Approved Replenishment Parameter Value 2 Warehouse Level	This measure selects the Approve option in the Approval tab to invoke 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 cleared to allow you to re-approve at a later time if needed.
Net Inventory Units Warehouse Level	The current net inventory position.
Previous Approved Auxiliary Repl Parameter 1 Warehouse Level	Previous Approved Auxiliary Replenishment Parameter Value 1.
Previous Approved Auxiliary Repl Parameter 2 Warehouse Level	Previous Approved Auxiliary Replenishment Parameter Value 2.
Previous Approved Order Point Units Warehouse Level	The Previous Approved Order Point Units value.
Previous Approved Order up to Level Units Warehouse Level	The Previous Approved Order Up to Level Units value.
Previous Approved Replenishment Method Warehouse Level	The Previous Approved Replenishment Method.
Previous Approved Replenishment Parameter Value 1 Warehouse Level	Previous Approved Replenishment Parameter Value 1.
Previous Approved Replenishment Parameter Value 2 Warehouse Level	Previous Approved Replenishment Parameter Value 2.

Table 4–9 (Cont.) Warehouse Replenishment Analysis Worksheet Measures

Measure	Description
Replen Status Warehouse Level	The Replenishment Status is a writable measure that determines the set of Replenishment parameters to be applied. This measure list provides the following options: ▪ Apply System ▪ Apply Prev Approved ▪ Apply User Input This measure defaults to Apply System Recommended Settings if no alerts are triggered for the items/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 Warehouse Level	This is a writable measure indicating whether or not this item/location has been reviewed by you. This measure is used only for tracking purposes and updates the # of Alerts Reviewed and Total Reviewed measures.
Space Warehouse Level	Space for item/warehouse.
System Recommended Auxiliary Repl Parameter 1 Warehouse Level	The System Recommended Auxiliary Replenishment Parameter Value 1 value.
System Recommended Auxiliary Repl Parameter 2 Warehouse Level	The System Recommended Auxiliary Replenishment Parameter Value 2 value.
System Recommended Order Point Units Warehouse Level	The Order Point Units based on the System Recommended Methods and Parameters value.
System Recommended Order Revenue Warehouse Level	The System Recommended Order Revenue measure value.
System Recommended Order Units Warehouse Level	The Projected Order units calculated based on the System Recommended Methods and Parameters value.
System Recommended Order up to Level Units Warehouse Level	The Order Up to Level Units based on the System Recommended Methods and Parameters value.
System Recommended Replenishment Method Warehouse Level	The System Recommended Replenishment Method value.
System Recommended Replenishment Parameter Value 1 Warehouse Level	The System Recommended Replenishment Parameter Value 1 value.
System Recommended Replenishment Parameter Value 2 Warehouse Level	The System Recommended Replenishment Parameter Value 2 value.
User Auxiliary Repl Parameter 1 Warehouse Level	This is a writable measure where you input auxiliary replenishment parameter 1 based on the Replenishment Method chosen. Refer to Chapter 1, "Introduction" for valid Replenishment Parameter inputs for each method.
User Auxiliary Repl Parameter 2 Warehouse Level	This is a writable measure where you input auxiliary replenishment parameter 2 based on the Replenishment Method chosen. Refer to Chapter 1, "Introduction" for valid Replenishment Parameter inputs for each method.
User Message Warehouse Level	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 Warehouse Level	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 Warehouse Level	This read-only measure is the Order Point units multiplied by unit cost, calculated based on user-input Replenishment settings.
User Order Point Revenue Warehouse Level	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.

Table 4–9 (Cont.) Warehouse Replenishment Analysis Worksheet Measures

Measure	Description
User Order Point Units Warehouse Level	This read-only measure is the number of order point units based on the user-input method and parameters.
User Order Revenue Warehouse Level	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 Warehouse Level	This read-only measure is the Projected Order Units based on the User Input Methods and Parameters.
User Order up to Level Cost Warehouse Level	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 Warehouse Level	The Order up to Level units multiplied by unit retail price, calculated based on User Input Replenishment settings.
User Order up to Level Units Warehouse Level	This read-only measure is the Order Up to Level Units based on the user Input Methods and Parameters.
User Replenishment Method Warehouse Level	This is measure list provides the following Replenishment Methods options: ■ MinMax ■ Dynamic ■ TimeSupply ■ Poisson ■ Hybrid Refer to Chapter 7, "Replenishment Admin Workbook" for valid replenishment parameter inputs and for information about each method.
User Replenishment Parameter Value 1 Warehouse Level	This is a writable measure where you input replenishment parameter 1 based on the Replenishment Method chosen. Refer to Chapter 7, "Replenishment Admin Workbook" for valid replenishment parameter inputs and for information about each method.
User Replenishment Parameter Value 2 Warehouse Level	This is a writable measure where you input replenishment parameter 2 based on the Replenishment Method chosen. Refer to Chapter 7, "Replenishment Admin Workbook" for valid replenishment parameter inputs and for information about each method.

Approval Tab

The Approval tab consists of two worksheets:

- Store Replenishment Approve Worksheet
- Warehouse Replenishment Approve 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, you can open the Approval worksheet and approve the selected settings.

For additional information about the process flow, see: Approval Process Flow.

Store Replenishment Approve Worksheet

In this worksheet, the metrics are presented at the item/store level, for all combinations selected in the wizard.

Figure 4–18 Store Replenishment Approve Worksheet

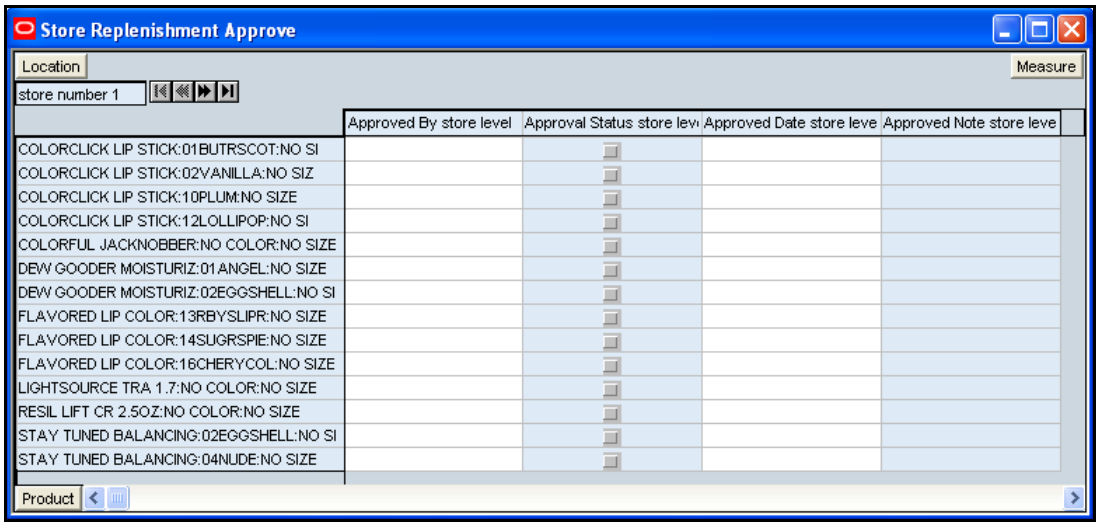


Table 4–10 Store Replenishment Approve Worksheet Measures

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

Warehouse Replenishment Approve Worksheet

In this worksheet, the metrics are presented at the item/warehouse level, for all combinations selected in the wizard.

Figure 4–19 Warehouse Replenishment Approve Worksheet

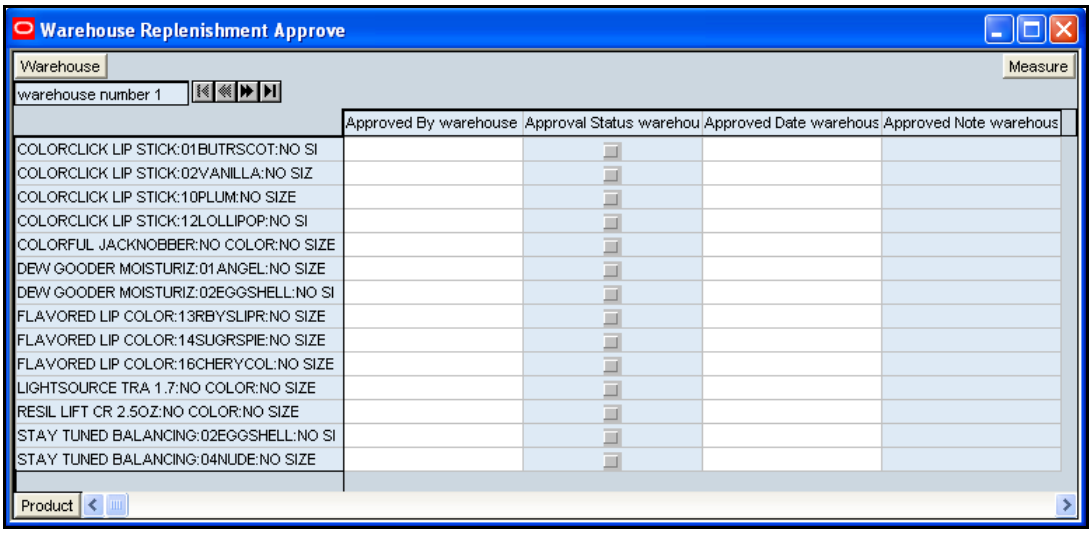


Table 4–11 Warehouse Replenishment Approve Worksheet Measures

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

Approval Process Flow

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

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

For items/locations that you have 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 items/locations that you have not manually approved.

Figure 4–20 illustrates how the default Replenishment Status is assigned.

Figure 4–20 Default Replenishment Status Assignment

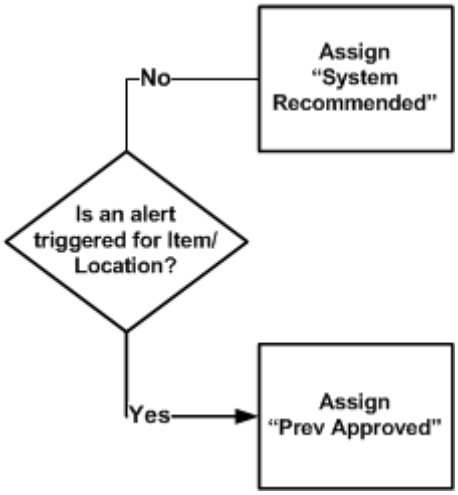
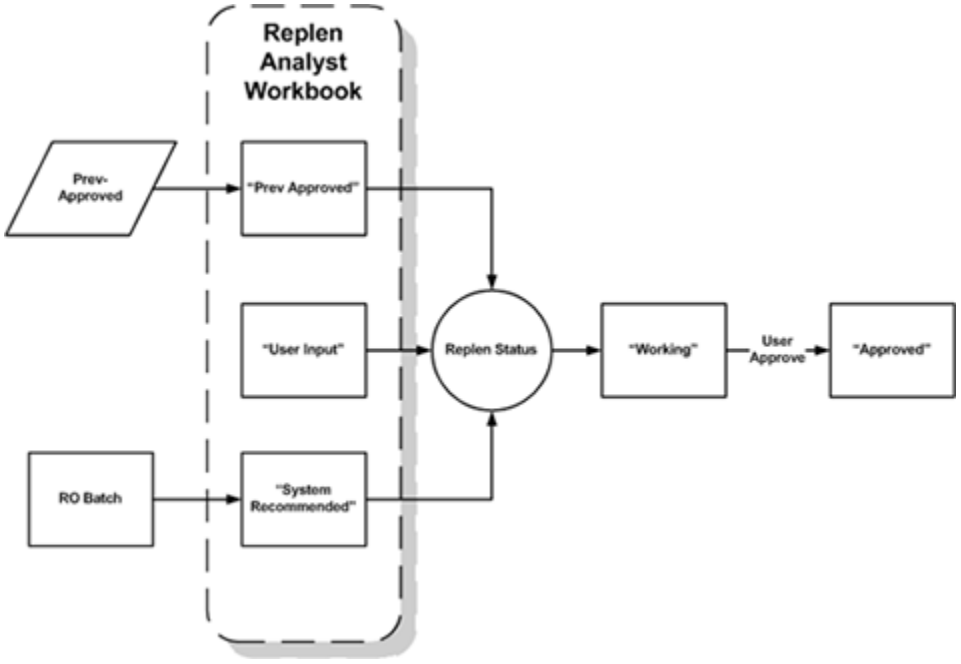


Figure 4–21 displays the approval process workflow in the Replenishment Analyst workbook.

Figure 4–21 Approval Process Workflow in Replenishment Analyst



5

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 or department/warehouse group.

The workbook contains the following tabs and worksheets:

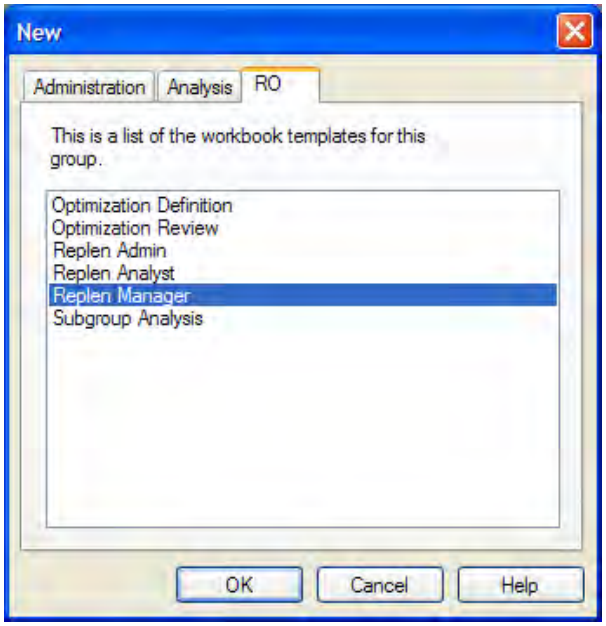
- Summary Tab
- Summary Weekly Tab
- Track Performance Tab

Replen Manager Wizard

To open a Replen Manager workbook, perform the following:

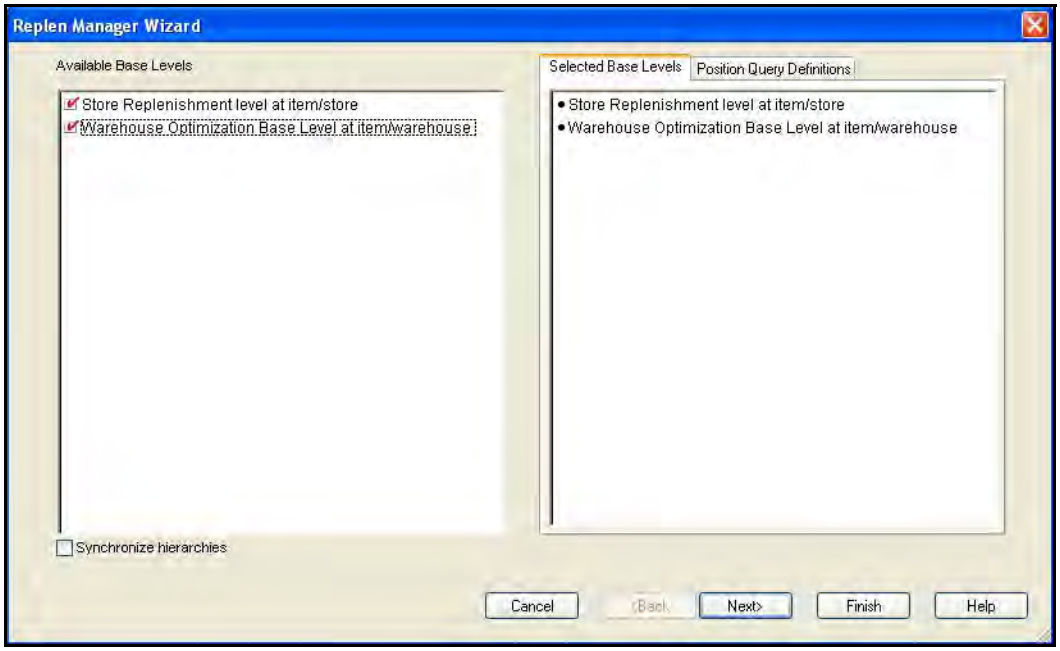
1. Select **File - New** or click **New**.
2. On the **RO** tab, select **Replen Manager** and click **OK**.

Figure 5–1 Creating a New Replen Manager Workbook



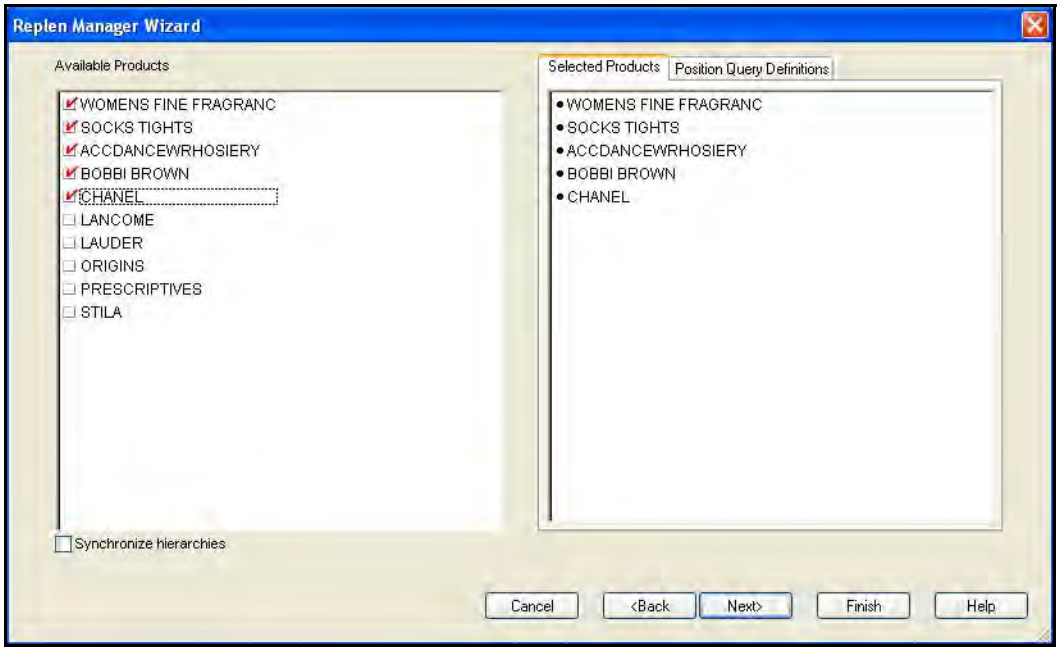
3. The Available Base Levels window opens. Select either or both the store level (SL) or the warehouse level (WL) and click **Next**.

Figure 5–2 Available Base Levels



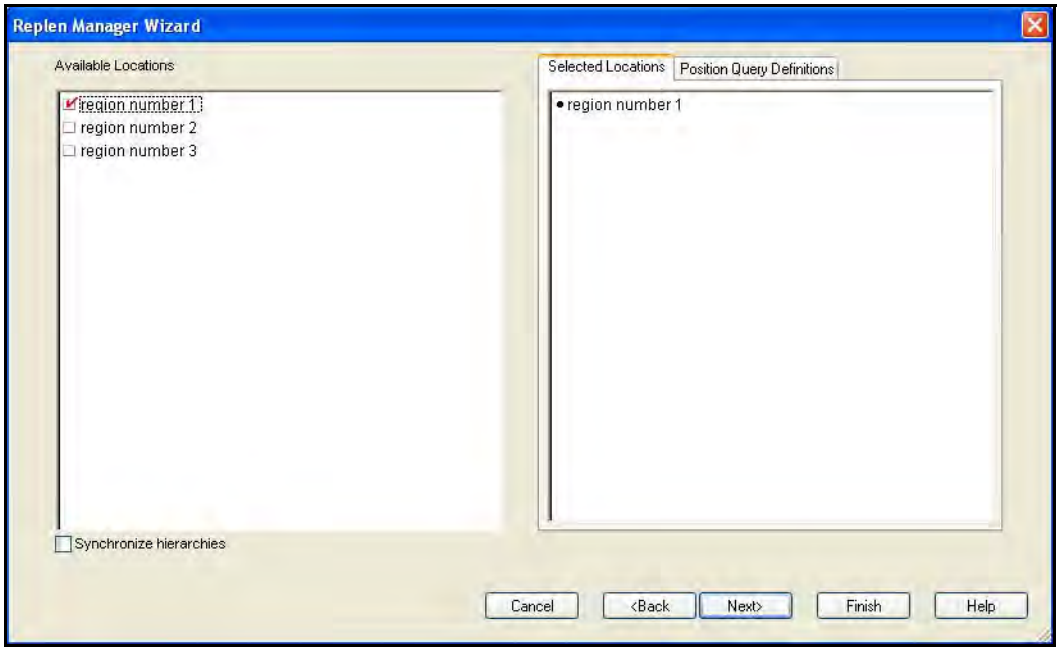
4. The Available Products window opens. Select the products to appear in the workbook and click **Next**.

Figure 5–3 Available Products



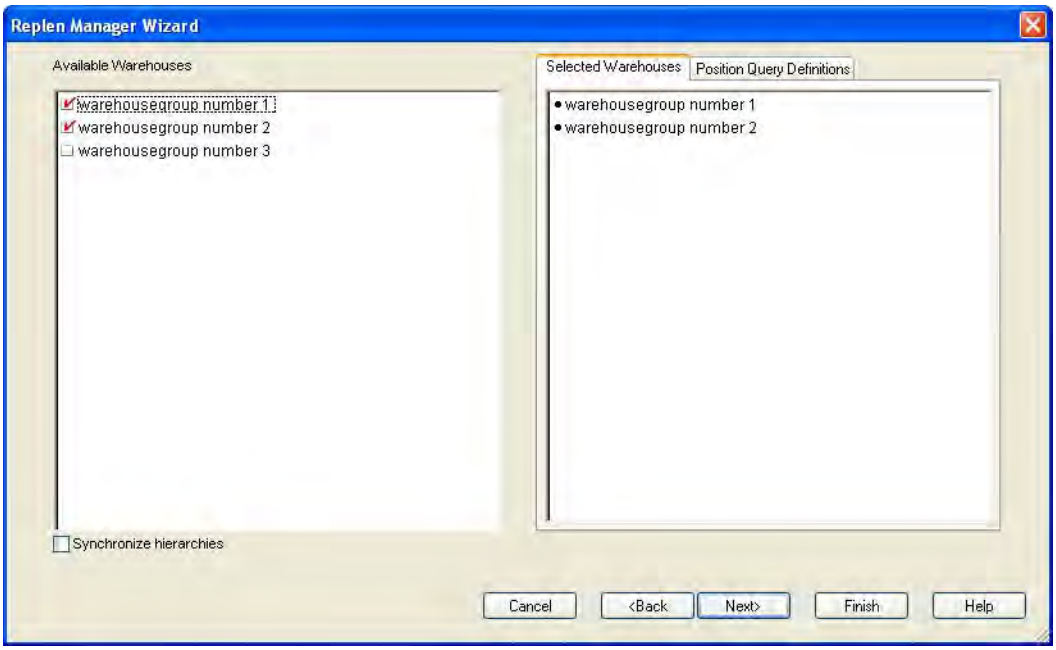
5. The Available Locations window opens. Select the locations to appear in the workbook and click Next.

Figure 5–4 Available Locations



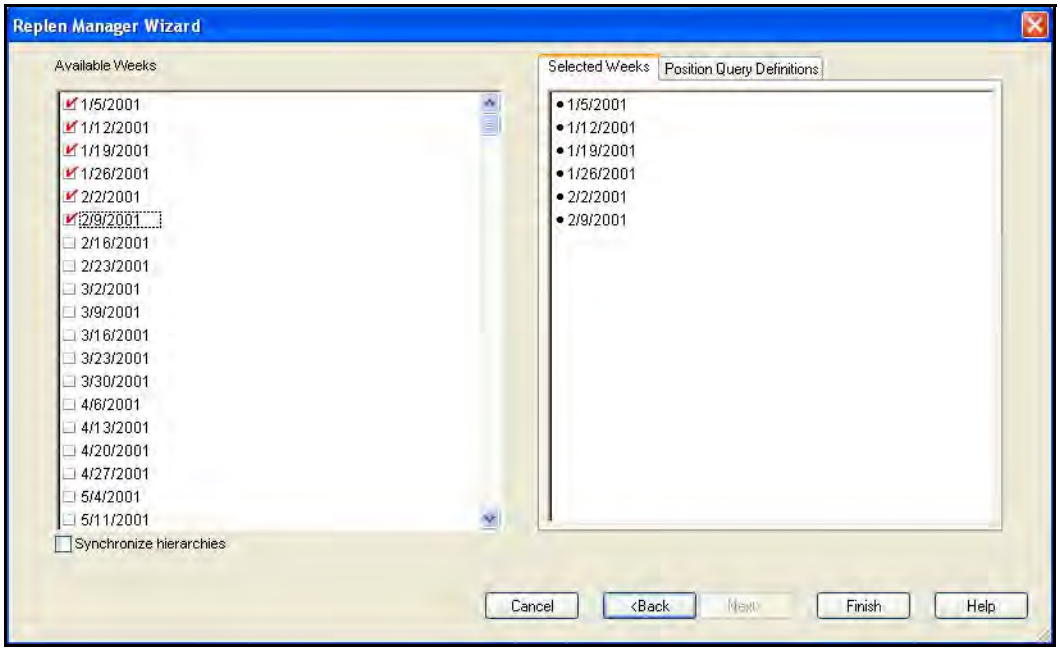
6. The Available Warehouses window opens. Select the warehouse locations to appear in the workbook and click **Next**.

Figure 5–5 Available Warehouses



7. The Available Weeks window opens. Select the weeks to appear in the workbook and click **Finish**.

Figure 5–6 Available Weeks



The Replen Manager workbook is built.

Summary Tab

This tab has two worksheets:

- Store Replenishment Summary Details
- Warehouse Replenishment Summary Details

The Summary worksheets display the overall metrics of the approved plan.

Store Replenishment Summary Details

This worksheet displays a high level summary at the department/region level.

Figure 5–7 Store Replenishment Summary Details Worksheet

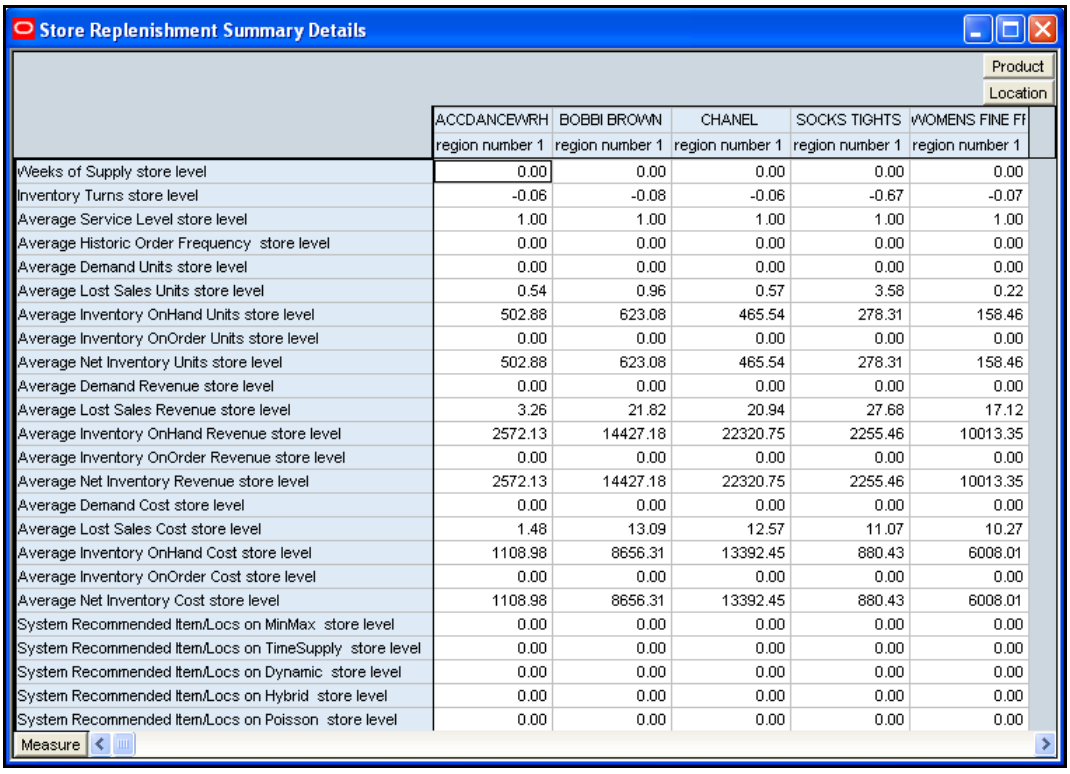


Table 5–1 Store Replenishment Summary Details Worksheet Measures

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

Table 5–1 (Cont.) Store Replenishment Summary Details Worksheet Measures

Measure	Description
Average Net Inventory Revenue Store Level	The Average Net Inventory in revenue value.
Demand and Inventory Cost Measures	
Average Demand Cost Store Level	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 Store Level	Average Lost Sales cost.
Average Inventory On Hand Cost Store Level	The Average on-hand Inventory in cost.
Average Inventory On Order Cost Store Level	The Average On Order Inventory in cost.
Average Net Inventory Cost Store Level	The Average Net Inventory in cost.
Number of Weeks for Stats Store Level	The number of weeks in history over which the above statistics have been calculated.
Replenishment Settings Statistical Measures	
System Recommended Item/Locs on Dynamic Store Level	The number of items/locations for which the System recommends the Dynamic Replenishment Method.
System Recommended Item/Locs on Hybrid Store Level	The number of items/locations for which the System recommends the Hybrid Replenishment Method.
System Recommended Item/Locs on MinMax Store Level	The number of items/locations for which the System recommends the MinMax Replenishment Method.
System Recommended Item/Locs on Poisson Store Level	The number of items/locations for which the System recommends the Poisson Replenishment Method.
System Recommended Item/Locs on TimeSupply Store Level	The number of items/locations for which the System recommends the Time Supply Replenishment Method.
Projected Inventory and Service Level Statistics These 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 Store Level	Projected Average On-Hand Inventory units over the 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 Store Level	Projected Average Lost Sales over the 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 Store Level	Projected Average Service Level over the 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.

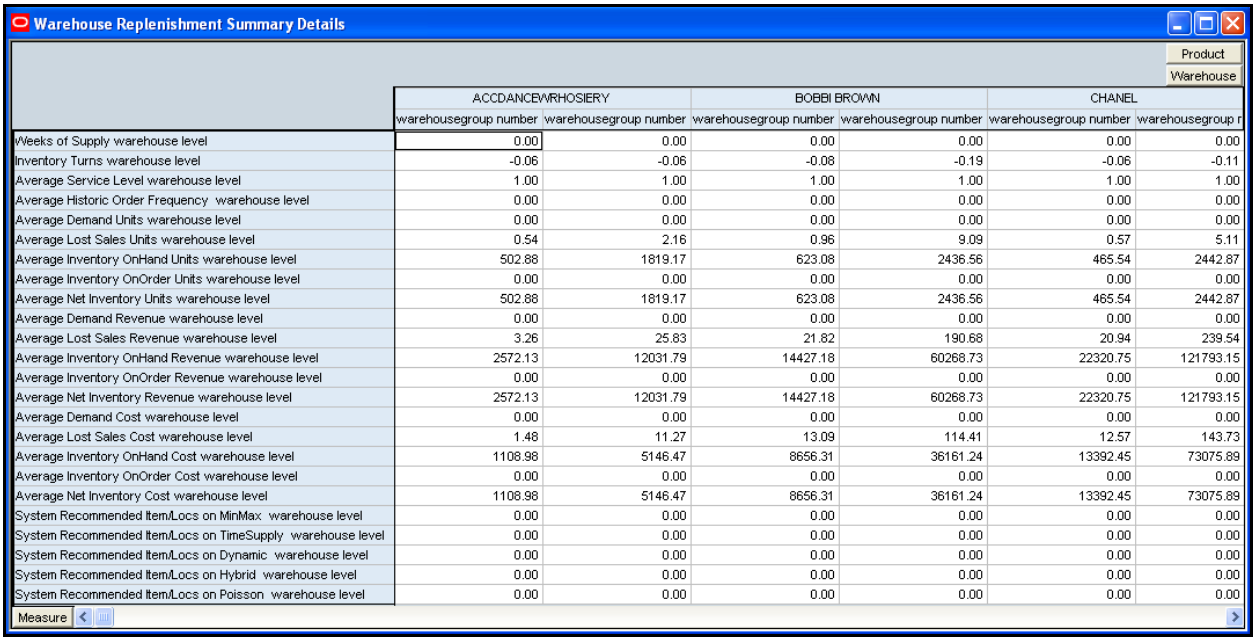
Table 5–1 (Cont.) Store Replenishment Summary Details Worksheet Measures

Measure	Description
System Recommended Projected Weeks of Supply over next quarter Store Level	Projected Weeks of Supply over the 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 Store Level	Projected Average on-hand Inventory units over the 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 Store Level	Projected Average Lost Sales over the 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 Store Level	Projected Average Service Level over the 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 Store Level	Projected Weeks of Supply over the 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.

Warehouse Replenishment Summary Details

This worksheet displays a high level summary at the department/warehouse group level.

Figure 5–8 Warehouse Replenishment Summary Details Worksheet



	ACCDANCEWRHOSIERY		BOBBI BROWN		CHANEL	
	warehousegroup number	warehousegroup number	warehousegroup number	warehousegroup number	warehousegroup number	warehousegroup r
Weeks of Supply warehouse level	0.00	0.00	0.00	0.00	0.00	0.00
Inventory Turns warehouse level	-0.06	-0.06	-0.08	-0.19	-0.06	-0.11
Average Service Level warehouse level	1.00	1.00	1.00	1.00	1.00	1.00
Average Historic Order Frequency warehouse level	0.00	0.00	0.00	0.00	0.00	0.00
Average Demand Units warehouse level	0.00	0.00	0.00	0.00	0.00	0.00
Average Lost Sales Units warehouse level	0.54	2.16	0.96	9.09	0.57	5.11
Average Inventory OnHand Units warehouse level	502.88	1819.17	623.08	2436.56	465.54	2442.87
Average Inventory OnOrder Units warehouse level	0.00	0.00	0.00	0.00	0.00	0.00
Average Net Inventory Units warehouse level	502.88	1819.17	623.08	2436.56	465.54	2442.87
Average Demand Revenue warehouse level	0.00	0.00	0.00	0.00	0.00	0.00
Average Lost Sales Revenue warehouse level	3.26	25.83	21.82	190.68	20.94	239.54
Average Inventory OnHand Revenue warehouse level	2572.13	12031.79	14427.18	60268.73	22320.75	121793.15
Average Inventory OnOrder Revenue warehouse level	0.00	0.00	0.00	0.00	0.00	0.00
Average Net Inventory Revenue warehouse level	2572.13	12031.79	14427.18	60268.73	22320.75	121793.15
Average Demand Cost warehouse level	0.00	0.00	0.00	0.00	0.00	0.00
Average Lost Sales Cost warehouse level	1.48	11.27	13.09	114.41	12.57	143.73
Average Inventory OnHand Cost warehouse level	1108.98	5146.47	8656.31	36161.24	13392.45	73075.89
Average Inventory OnOrder Cost warehouse level	0.00	0.00	0.00	0.00	0.00	0.00
Average Net Inventory Cost warehouse level	1108.98	5146.47	8656.31	36161.24	13392.45	73075.89
System Recommended Item/Locs on MinMax warehouse level	0.00	0.00	0.00	0.00	0.00	0.00
System Recommended Item/Locs on TimeSupply warehouse level	0.00	0.00	0.00	0.00	0.00	0.00
System Recommended Item/Locs on Dynamic warehouse level	0.00	0.00	0.00	0.00	0.00	0.00
System Recommended Item/Locs on Hybrid warehouse level	0.00	0.00	0.00	0.00	0.00	0.00
System Recommended Item/Locs on Poisson warehouse level	0.00	0.00	0.00	0.00	0.00	0.00

Table 5–2 Warehouse Replenishment Summary Details Worksheet Measures

Measure	Description
Inventory Performance Statistical Measures	
Weeks of Supply Warehouse Level	The number of Weeks of Supply or Weeks on-hand, calculated as average on-hand Inventory divided by Average Demand.
Inventory Turns Warehouse Level	Average Inventory Turns calculated as Sales over the last 52 weeks divided by average on-hand Inventory the last 52 weeks.
Average Service Level Warehouse Level	The percentage of demand that was met, calculated as Average Sales/Average Demand.
Average Historic Order Frequency Warehouse Level	The average number of orders in a week.
Demand and Inventory Units Measures	
Average Demand Revenue Warehouse Level	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 Warehouse Level	The Average Lost Sales Revenue value.
Average Inventory On Hand Revenue Warehouse Level	The Average on-hand Inventory in revenue value.
Average Inventory On Order Revenue Warehouse Level	The Average On Order Inventory in revenue value.
Average Net Inventory Revenue Warehouse Level	The Average Net Inventory in revenue value.
Demand and Inventory Cost Measures	
Average Demand Cost Warehouse Level	Average demand in cost, obtained by multiplying Average Demand Units and Unit Cost. Demand is calculated as historic sales plus historic Lost Sales.
Average Lost Sales Cost Warehouse Level	Average Lost Sales cost.
Average Inventory On Hand Cost Warehouse Level	The Average on-hand Inventory in cost.
Average Inventory On Order Cost Warehouse Level	The Average On Order Inventory in cost.
Average Net Inventory Cost Warehouse Level	The Average Net Inventory in cost.
Number of Weeks for Stats Warehouse Level	The number of weeks in history over which the above statistics have been calculated.
Replenishment Settings Statistical Measures	
System Recommended Item/Locs on Dynamic Warehouse Level	The number of items/locations for which the System recommends the Dynamic Replenishment Method.
System Recommended Item/Locs on Hybrid Warehouse Level	The number of items/locations for which the System recommends the Hybrid Replenishment Method.
System Recommended Item/Locs on MinMax Warehouse Level	The number of items/locations for which the System recommends the MinMax Replenishment Method.

Table 5–2 (Cont.) Warehouse Replenishment Summary Details Worksheet Measures

Measure	Description
System Recommended Item/Locs on Poisson Warehouse Level	The number of items/locations for which the System recommends the Poisson Replenishment Method.
System Recommended Item/Locs on TimeSupply Warehouse Level	The number of items/locations for which the System recommends the Time Supply Replenishment Method.
Projected Inventory and Service Level Statistics These 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 Warehouse Level	Projected Average On Hand Inventory units over the 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 Warehouse Level	Projected Average Lost Sales over the 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 Warehouse Level	Projected Average Service Level over the 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 Weeks of Supply over next quarter Warehouse Level	Projected Weeks of Supply over the 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 Warehouse Level	Projected Average on-hand Inventory units over the 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 Warehouse Level	Projected Average Lost Sales over the 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 Warehouse Level	Projected Average Service Level over the 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 Warehouse Level	Projected Weeks of Supply over the 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 two worksheets:

- Store Replenishment Summary Weekly Worksheet
- Warehouse Replenishment Summary Weekly Worksheet

These worksheets provide weekly information to help Replenishment Managers track inventory movement.

Store Replenishment Summary Weekly Worksheet

This worksheet displays a high level weekly summary at the department/region level.

Figure 5–9 Store Replenishment Summary Weekly Worksheet

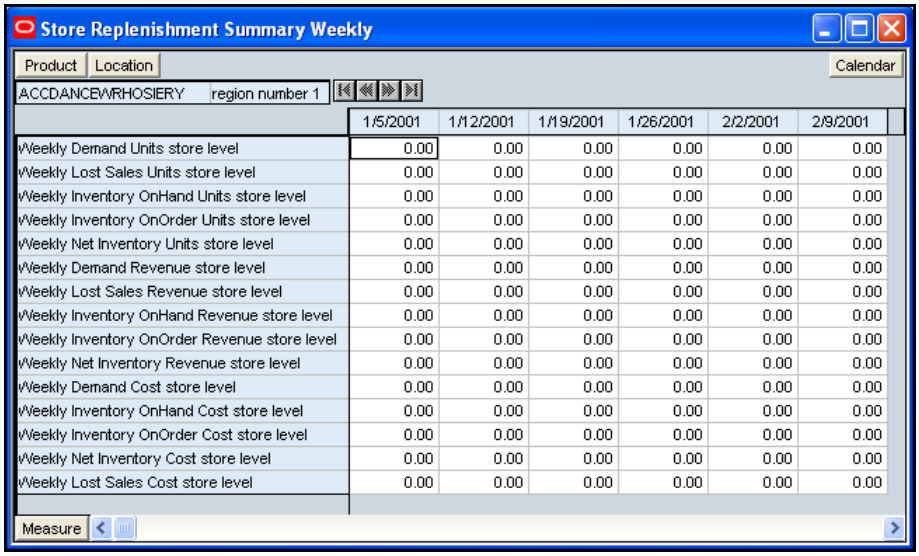


Table 5–3 Store Replenishment Summary Weekly Worksheet Measures

Measure	Description
Weekly Demand Units Store Level	The Weekly Demand Units value.
Weekly Lost Sales Units Store Level	The Weekly Lost Sales Units value.
Weekly Inventory On Hand Units Store Level	The Weekly on-hand Inventory Units value.
Weekly Inventory On Order Units Store Level	The Weekly On Order Inventory Units value.
Weekly Net Inventory Units Store Level	The Weekly Net Inventory Units value.
Weekly Demand Revenue Store Level	The Weekly Demand Revenue value.
Weekly Lost Sales Revenue Store Level	The Weekly Lost Sales Revenue value.
Weekly Inventory On Hand Revenue Store Level	The Weekly on-hand Inventory Revenue value.
Weekly Inventory On Order Revenue Store Level	The Weekly On Order Inventory Revenue value.
Weekly Net Inventory Revenue Store Level	The Weekly Net Inventory Revenue value.
Weekly Demand Cost Store Level	The Weekly Demand Cost value.
Weekly Lost Sales Cost Store Level	The Weekly Lost Sales Cost value.
Weekly Inventory On Hand Cost Store Level	The Weekly on-hand Inventory Cost value.
Weekly Inventory On Order Cost Store Level	The Weekly On Order Inventory Cost value.
Weekly Net Inventory Cost Store Level	The Weekly Net Inventory Cost value.

Warehouse Replenishment Summary Weekly Worksheet

This worksheet displays a high level weekly summary at the department/warehouse group level.

Figure 5–10 Warehouse Replenishment Summary Weekly Worksheet

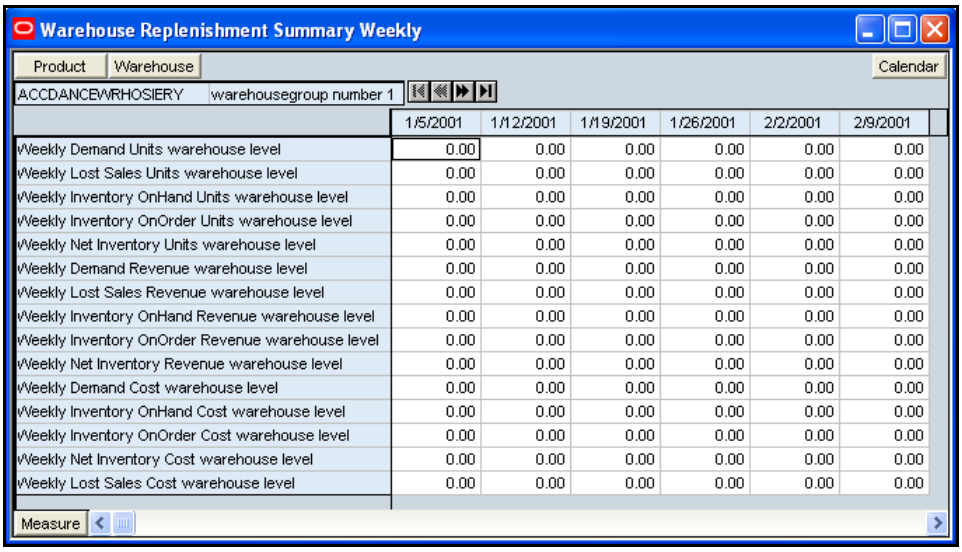


Table 5–4 Warehouse Replenishment Summary Weekly Worksheet Measures

Measure	Description
Weekly Demand Units Warehouse Level	The Weekly Demand Units value.
Weekly Lost Sales Units Warehouse Level	The Weekly Lost Sales Units value.
Weekly Inventory On Hand Units Warehouse Level	The Weekly on-hand Inventory Units value.
Weekly Inventory On Order Units Warehouse Level	The Weekly On Order Inventory Units value.
Weekly Net Inventory Units Warehouse Level	The Weekly Net Inventory Units value.
Weekly Demand Revenue Warehouse Level	The Weekly Demand Revenue value.
Weekly Lost Sales Revenue Warehouse Level	The Weekly Lost Sales Revenue value.
Weekly Inventory On Hand Revenue Warehouse Level	The Weekly on-hand Inventory Revenue value.
Weekly Inventory On Order Revenue Warehouse Level	The Weekly On Order Inventory Revenue value.
Weekly Net Inventory Revenue Warehouse Level	The Weekly Net Inventory Revenue value.
Weekly Demand Cost Warehouse Level	The Weekly Demand Cost value.
Weekly Lost Sales Cost Warehouse Level	The Weekly Lost Sales Cost value.
Weekly Inventory On Hand Cost Warehouse Level	The Weekly on-hand Inventory Cost value.
Weekly Inventory On Order Cost Warehouse Level	The Weekly On Order Inventory Cost value.
Weekly Net Inventory Cost Warehouse Level	The Weekly Net Inventory Cost value.

Track Performance Tab

This tab has two worksheets:

- Store Replenishment Track Performance Worksheet

- Warehouse Replenishment Track Performance Worksheet

The Track Performance tab 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 subgroup, 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 subgroup as opposed to by item/location or department/location.

Store Replenishment Track Performance Worksheet

This worksheet displays the subgroup performance at the department/region level.

Figure 5–11 Store Replenishment Track Performance Worksheet

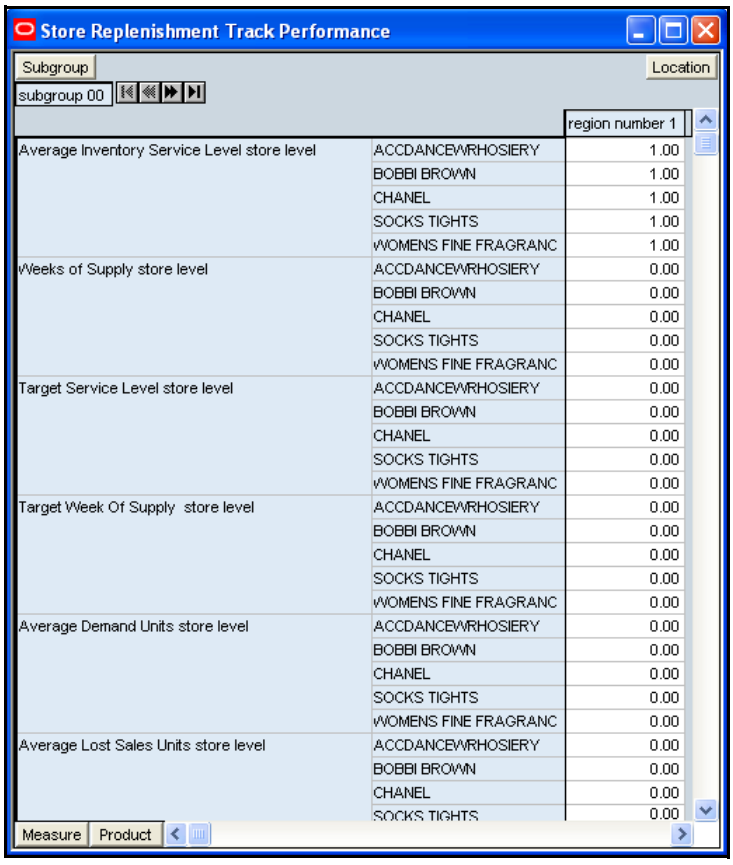


Table 5–5 Store Replenishment Track Performance Worksheet Measures

Measure	Description
Inventory Performance Measures	
Average Inventory Service Level Store Level	The percentage of demand that was met. Calculated as historic Average Sales/Average Demand over the last year.
Weeks of Supply Store Level	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 Store Level	The target optimal Service Level recommended by RO for this subgroup.

Table 5–5 (Cont.) Store Replenishment Track Performance Worksheet Measures

Measure	Description
Target Weeks of Supply Store Level	The target optimal Weeks of Supply recommended by RO for this subgroup.
Demand and Inventory Units Measures	
Average Demand Units Store Level	The Average Demand in units for this subgroup over the last year. Demand is calculated as historic sales plus historic Lost Sales.
Average Lost Sales Units Store Level	The Average Lost Sale in units for this subgroup over the last year.
Average Inventory On Hand Units Store Level	The Average on-hand Inventory in units.
Average Inventory On Order Units Store Level	The Average On Order Inventory in units.
Average Net Inventory Units Store Level	The Average Net Inventory in units.
Demand and Inventory Revenue Measures	
Average Demand Revenue Store Level	The Average Demand in Revenue for this subgroup over the last year. Demand is calculated as historic sales plus historic Lost Sales.
Average Lost Sales Revenue Store Level	The Average Lost Sale in Revenue for this subgroup over the last year.
Average Inventory On Hand Revenue Store Level	The Average on-hand Inventory in Revenue value.
Average Inventory On Order Revenue Store Level	The Average On Order Inventory in Revenue value.
Average net Inventory Revenue Store Level	The Average Net Inventory in Revenue value.
Demand and Inventory Cost Measures	
Average Demand Cost Store Level	The Average Demand in Cost for this subgroup over the last year. Demand is calculated as historic sales plus historic Lost Sales.
Average Net Inventory Cost Store Level	The Average Net Inventory in Cost value.
Average Inventory On Hand Cost Store Level	The Average on-hand Inventory in Cost value.
Average Inventory On Order Cost Store Level	The Average On Order Inventory in Cost value.
Average Lost Sales Cost Store Level	The Average Lost Sale in Cost for this subgroup over the last year.
Manager Comment Measure	
Manager Comment Store Level	This is a writable measure that allows the Replenishment Manager to enter comments on the performance of the subgroup. These comments can be reviewed by the Replenishment Analyst in the Replenishment Analyst Workbook at an item/location level.

Warehouse Replenishment Track Performance Worksheet

This worksheet displays the subgroup performance at the department/warehouse group level.

Figure 5–12 Warehouse Replenishment Track Performance Worksheet

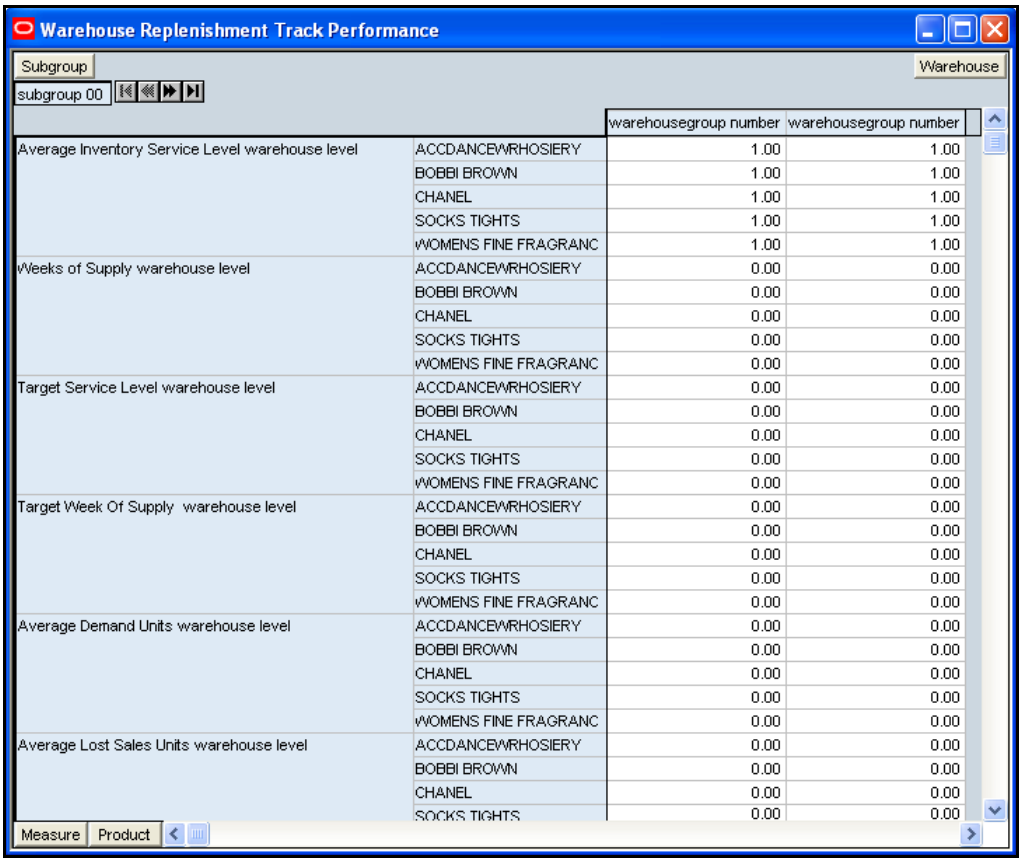


Table 5–6 Warehouse Replenishment Track Performance Worksheet Measures

Measure	Description
Inventory Performance Measures	
Average Inventory Service Level Warehouse Level	The percentage of demand that was met. Calculated as historic Average Sales/Average Demand over the last year.
Weeks of Supply Warehouse Level	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 Warehouse Level	The target optimal Service Level recommended by RO for this subgroup.
Target Weeks of Supply Warehouse Level	The target optimal Weeks of Supply recommended by RO for this subgroup.
Demand and Inventory Units Measures	
Average Demand Units Warehouse Level	The average demand in units for this subgroup over the last year. Demand is calculated as historic sales plus historic Lost Sales.
Average Lost Sales Units Warehouse Level	The Average Lost Sale in units for this subgroup over the last year.
Average Inventory On Hand Units Warehouse Level	The Average on-hand Inventory in units.
Average Inventory On Order Units Warehouse Level	The Average On Order Inventory in units.

Table 5–6 (Cont.) Warehouse Replenishment Track Performance Worksheet Measures

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

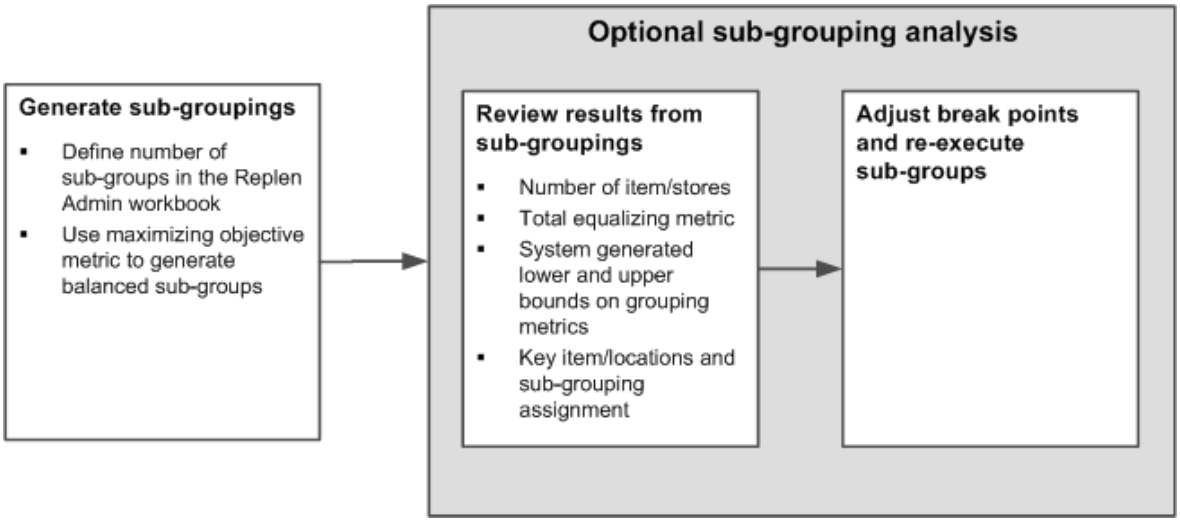
6

Subgroup Analysis Workbook

This chapter describes the Subgroup Analysis workbook, which enables 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 that 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 is invoked.

The user process flow of the Subgroup Analysis workbook is shown in Figure 6–1.

Figure 6–1 Subgroup Analysis Workbook User Process Flow



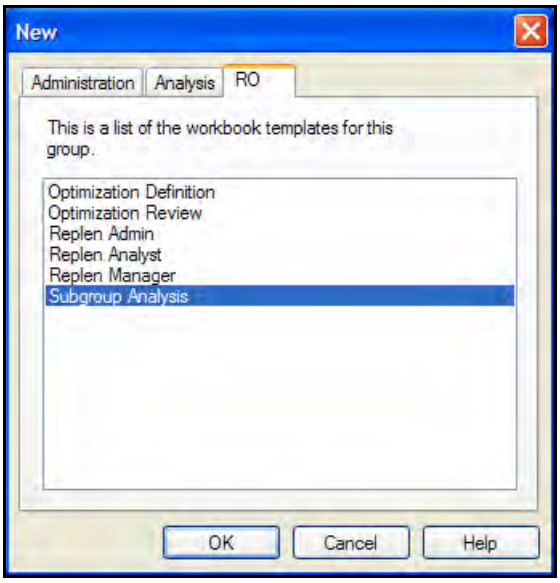
The Subgroup Analysis workbook contains the Subgroup Analysis Tab.

Subgroup Analysis Wizard

To open a Subgroup Analysis workbook, perform the following:

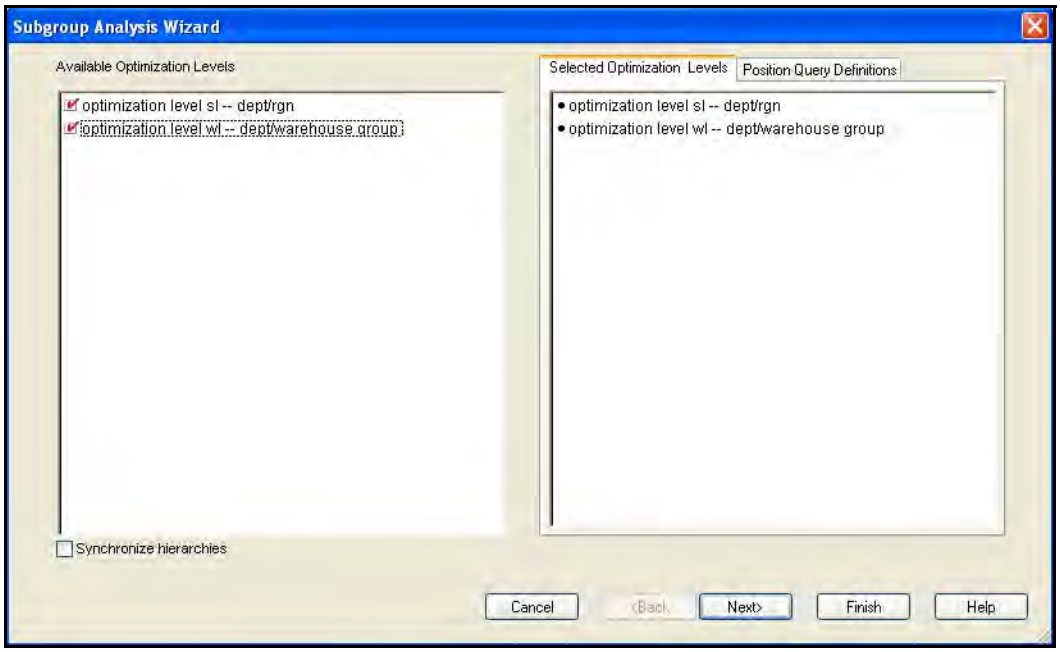
1. Select **File - New** or click **New**.
2. On the **RO** tab, select **Subgroup Analysis** and click **OK**.

Figure 6–2 Creating a New Subgroup Analysis Workbook



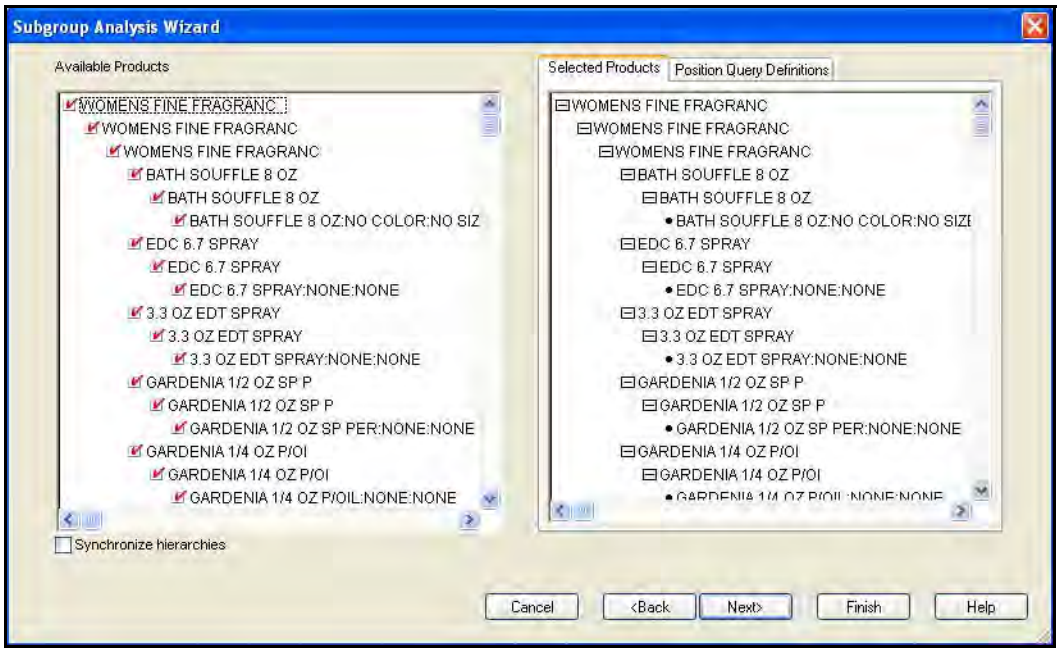
3. The Available Optimization Levels window opens. Select either or both the warehouse (SL) or the warehouse level (WL) and then click **Next**.

Figure 6–3 Available Optimization Levels



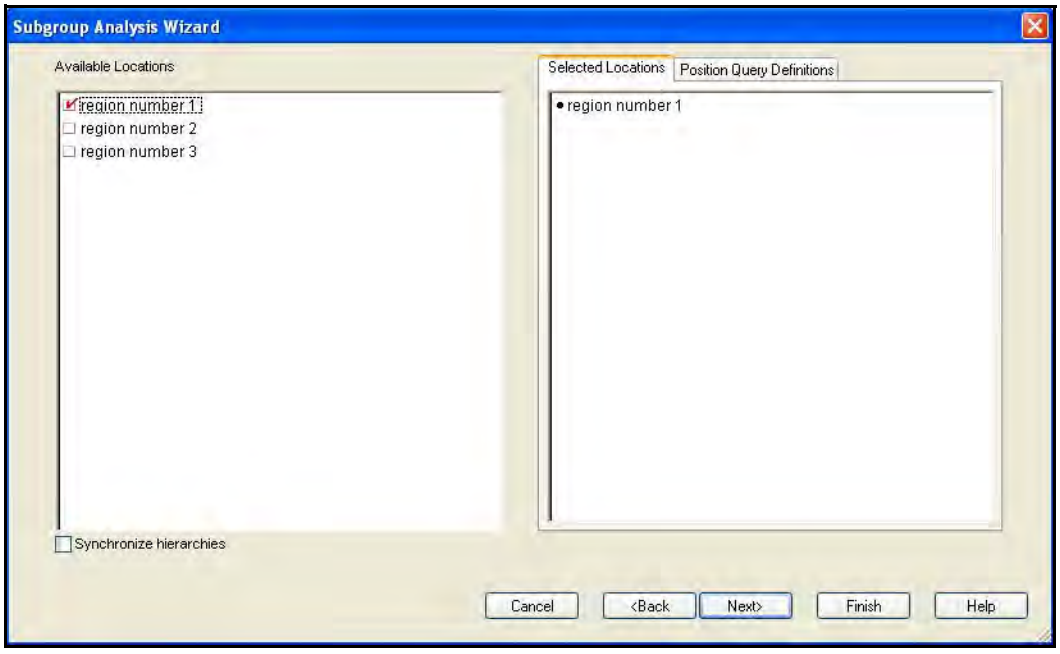
4. The Available Products window opens. Select the departments to be displayed in the workbook and click **Next**.

Figure 6–4 Available Products



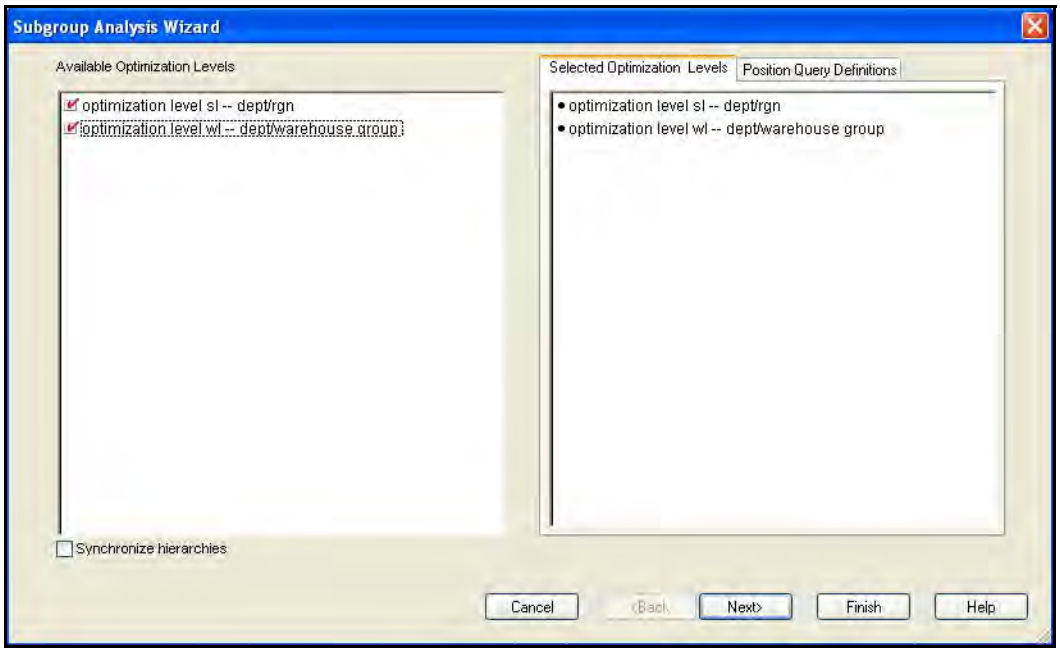
5. The Available Locations window opens. Select the locations to be displayed in the workbook and click **Next**.

Figure 6–5 Available Locations



6. The Available Warehouses window opens. Select the warehouses to be displayed in the workbook and click **Finish**.

Figure 6–6 Available Warehouses



The Subgroup Analysis workbook is built.

Subgroup Analysis Tab

The Subgroup Analysis tab contains the following worksheets:

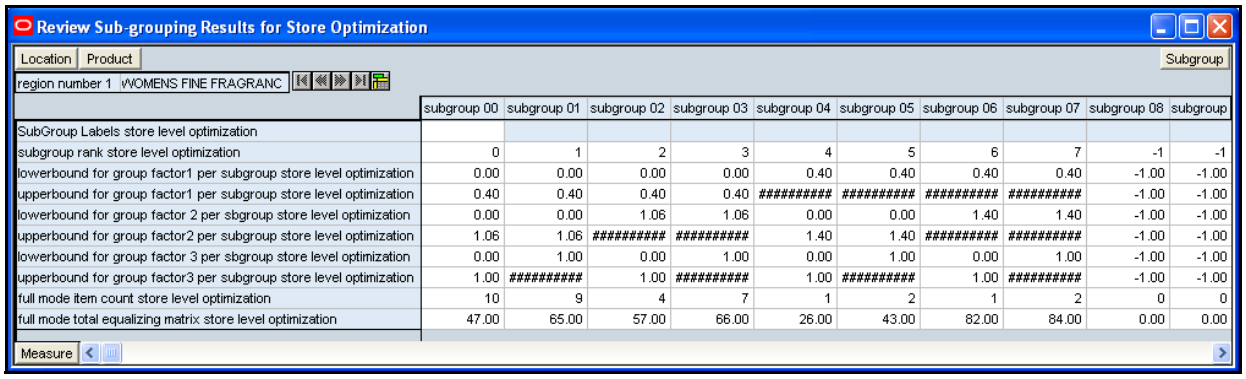
- Review Subgrouping Results for Store Optimization Worksheet
- User Breakpoint Overrides for Store Optimization Worksheet
- Review Base Level in Subgroups for Store Optimization Worksheet
- Subgroup Criteria for Store Optimization Worksheet
- Review Subgrouping Results for Warehouse Optimization Worksheet
- User Breakpoint Overrides for Warehouse Optimization Worksheet
- Review Base Level in Subgroups for Warehouse Optimization Worksheet
- Subgroup Criteria for Warehouse Optimization Worksheet

Review Subgrouping Results for Store Optimization Worksheet

This worksheet enables you to review the subgrouping results from the full mode batch run. Only valid subgroups are displayed. All measures, except SubGroup Labels, are read-only.

Figure 6–7 shows the worksheet at the department/region/subgroup intersection.

Figure 6–7 Review Subgrouping Results for Store Optimization Worksheet



	subgroup 00	subgroup 01	subgroup 02	subgroup 03	subgroup 04	subgroup 05	subgroup 06	subgroup 07	subgroup 08	subgroup
SubGroup Labels store level optimization										
subgroup rank store level optimization	0	1	2	3	4	5	6	7	-1	-1
lowerbound for group factor1 per subgroup store level optimization	0.00	0.00	0.00	0.00	0.40	0.40	0.40	0.40	-1.00	-1.00
upperbound for group factor1 per subgroup store level optimization	0.40	0.40	0.40	0.40	##########	##########	##########	##########	-1.00	-1.00
lowerbound for group factor 2 per sbgroup store level optimization	0.00	0.00	1.06	1.06	0.00	0.00	1.40	1.40	-1.00	-1.00
upperbound for group factor2 per subgroup store level optimization	1.06	1.06	##########	##########	1.40	1.40	##########	##########	-1.00	-1.00
lowerbound for group factor 3 per sbgroup store level optimization	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	-1.00	-1.00
upperbound for group factor3 per subgroup store level optimization	1.00	##########	1.00	##########	1.00	##########	1.00	##########	-1.00	-1.00
full mode item count store level optimization	10	9	4	7	1	2	1	2	0	0
full mode total equalizing matrix store level optimization	47.00	65.00	57.00	66.00	26.00	43.00	82.00	84.00	0.00	0.00

Table 6–1 Review Subgrouping Results for Store Optimization Worksheet Measures

Measure	Description
Full Mode Item Count Per Subgroup Store Level Optimization	The number of item/stores for the subgroup.
Lower Bound for Group Factor 1 per Subgroup Store Level Optimization	The lower bound of the grouping Factor 1 for the subgroup.
Lower Bound for Group Factor 2 per Subgroup Store Level Optimization	The lower bound of the grouping Factor 2 for the subgroup.
Lower Bound for Group Factor 3 per Subgroup Store Level Optimization	The lower bound of the grouping Factor 3 for the subgroup.
SubGroup Labels Store Level Optimization	User-defined label of the subgroup.
Subgroup Rank Store Level Optimization	Ranking of the subgroups for each department/region.
Full Mode Total Equalizing Matrix per Subgroup Store Level Optimization	The total of equalizing matrix for each subgroup.
Upper Bound for Group Factor 1 per Subgroup Store Level Optimization	The upper bound of the grouping Factor 1 for the subgroup.
Upper Bound for Group Factor 2 per Subgroup Store Level Optimization	The upper bound of the grouping Factor 2 for the subgroup.
Upper Bound for Group Factor 3 per Subgroup Store Level Optimization	The upper bound of the grouping Factor 3 for the subgroup.

User Breakpoint Overrides for Store Optimization Worksheet

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

Figure 6–8 shows the worksheet at the department/region/breakpoint intersection.

Figure 6–8 User Breakpoint Overrides for Store Optimization Worksheet

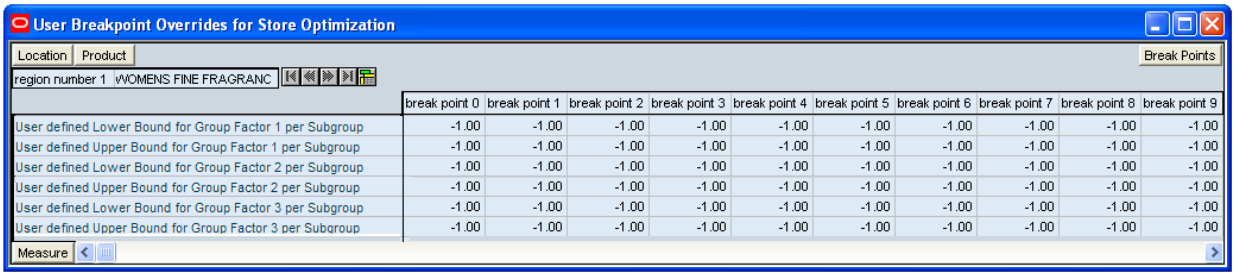


Table 6–2 User Breakpoint Overrides for Store Optimization Worksheet Measures

Measure	Description
User defined Lower Bound for Group Factor 1 per Subgroup Store-Level Optimization	Specify the lower bound for the Group Factor 1 for the group/company. The range set in lower bound is inclusive.
User defined Lower Bound for Group Factor 2 per Subgroup Store-Level Optimization	Specify the lower bound for the Group Factor 2 for the group/company. The range set in lower bound is inclusive.
User defined Lower Bound for Group Factor 3 per Subgroup Store-Level Optimization	Specify the lower bound for the Group Factor 3 for the group/company. The range set in lower bound is inclusive.
User defined Upper Bound for Group Factor 1 per Subgroup Store-Level Optimization	Specify the upper bound for the Group Factor 1 for the group/company. The range set in upper bound is exclusive.
User defined Upper Bound for Group Factor 2 per Subgroup Store-Level Optimization	Specify the upper bound for the Group Factor 2 for the group/company. The range set in upper bound is exclusive.
User defined Upper Bound for Group Factor 3 per Subgroup Store-Level Optimization	Specify the upper bound for the Group Factor 3 for the group/company. The range set in upper bound is exclusive.

Review Base Level in Subgroups for Store Optimization Worksheet

This worksheet enables you to review the subgrouping information for the items/stores in the departments/regions that were selected in the wizard. This worksheet is read-only.

Figure 6–9 shows the worksheet at the item/store intersection.

Figure 6–9 Review Base Level in Subgroups for Store Optimization Worksheet

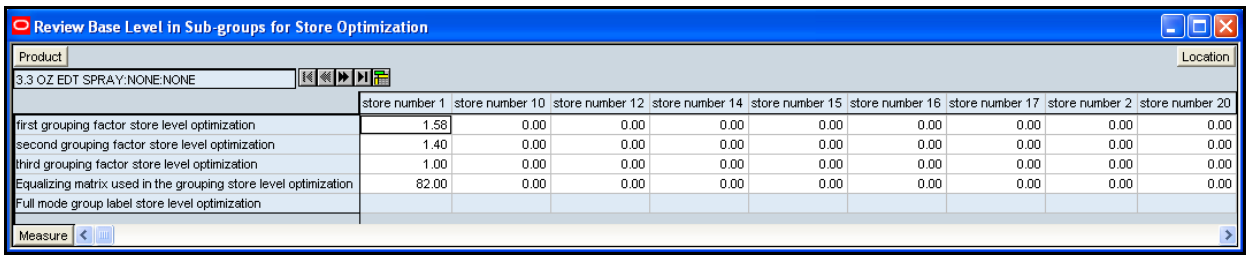


Table 6–3 Review Base Level in Subgroupings for Store Optimization Worksheet Measures

Measure	Description
Equalizing Matrix Used in the Grouping Store Level Optimization	The value of the equalizing matrix used in subgrouping.
Full Mode Group Label Store Level Optimization	Displays the label of the subgroup that the item/store belongs to.
First Grouping Factor Store Level Optimization	The value of grouping Factor 1.
Second Grouping Factor Store Level Optimization	The value of grouping Factor 2.
Third Grouping Factor Store Level Optimization	The value of grouping Factor 3.

Subgroup Criteria for Store Optimization Worksheet

This worksheet enables you to review the subgrouping 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 is displayed, which 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, when you click **Calculate**, the Subgroup Setup Error Flag measure is selected and an error message is displayed in the Subgroup Setup Error Message measure.

Figure 6–10 shows the worksheet at the department/region intersection.

Figure 6–10 Subgroup Criteria for Store Optimization Worksheet

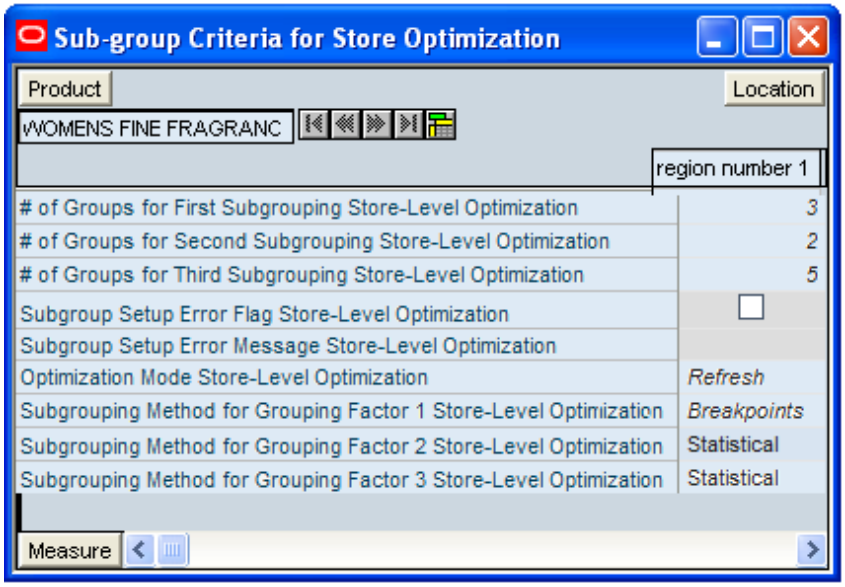


Table 6–4 Subgrouping Criteria Worksheet for Store Optimization Measures

Measure	Description
# of Groups for First SubGrouping Store Level Optimization	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 Store Level Optimization	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 Store Level Optimization	Specify the number of group for the third group factor. This is an integer measure based on the department/region.
Subgroup Setup Error Flag Store Level Optimization	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.
Subgroup Setup Error Message Store Level Optimization	Displays the message resulting total subgroup number over limit, if the number of subgroups is larger than the limit, which is 50.
Optimization Mode Store Level Optimization	Specifies the optimization type. Options are Full, Refresh, and None.
SubGrouping Method for Grouping Factor 1 Store Level Optimization	The subgroup method used for Grouping Factor 1. Options are Breakpoints and Statistical. Breakpoints are defined in User Breakpoints Override for Store Optimization View.
SubGrouping Method for Grouping Factor 2 Store Level Optimization	The subgroup method used for Grouping Factor 2. Options are Breakpoints and Statistical.
SubGrouping Method for Grouping Factor 3 Store Level Optimization	The subgroup method used for Grouping Factor 3. Options are Breakpoints and Statistical.

Committing Subgroup Criteria

When you have modified the subgroup 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 subgroupings is committed, not the arrangement of the

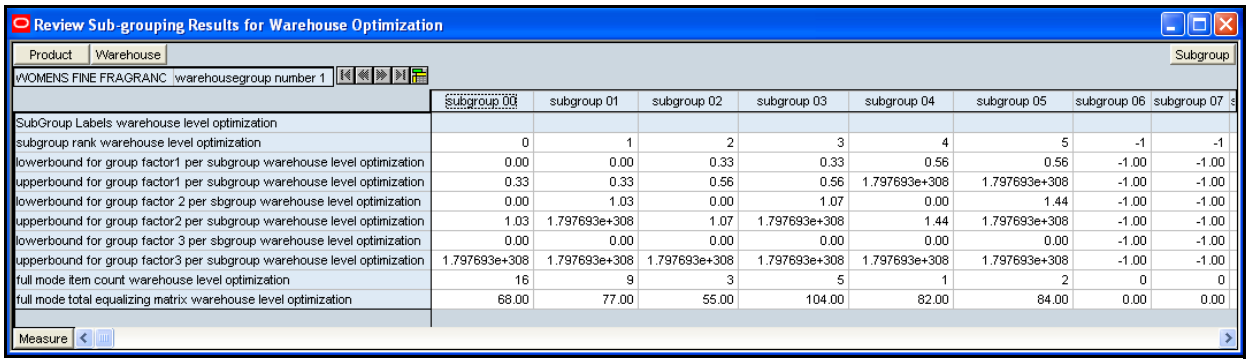
item/stores within the subgroupings. The item/stores are not sorted into the new subgroupings until the next batch run.

Review Subgrouping Results for Warehouse Optimization Worksheet

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

Figure 6–11 shows the worksheet at the department/warehouse group/subgroup intersection.

Figure 6–11 Review Subgrouping Results for Warehouse Optimization Worksheet



	subgroup 00	subgroup 01	subgroup 02	subgroup 03	subgroup 04	subgroup 05	subgroup 06	subgroup 07
SubGroup Labels warehouse level optimization								
subgroup rank warehouse level optimization	0	1	2	3	4	5	-1	-1
lowerbound for group factor1 per subgroup warehouse level optimization	0.00	0.00	0.33	0.33	0.56	0.56	-1.00	-1.00
upperbound for group factor1 per subgroup warehouse level optimization	0.33	0.33	0.56	0.56	1.797693e+308	1.797693e+308	-1.00	-1.00
lowerbound for group factor 2 per sbgroup warehouse level optimization	0.00	1.03	0.00	1.07	0.00	1.44	-1.00	-1.00
upperbound for group factor2 per subgroup warehouse level optimization	1.03	1.797693e+308	1.07	1.797693e+308	1.44	1.797693e+308	-1.00	-1.00
lowerbound for group factor 3 per sbgroup warehouse level optimization	0.00	0.00	0.00	0.00	0.00	0.00	-1.00	-1.00
upperbound for group factor3 per subgroup warehouse level optimization	1.797693e+308	1.797693e+308	1.797693e+308	1.797693e+308	1.797693e+308	1.797693e+308	-1.00	-1.00
full mode item count warehouse level optimization	16	9	3	5	1	2	0	0
full mode total equalizing matrix warehouse level optimization	68.00	77.00	55.00	104.00	82.00	84.00	0.00	0.00

Table 6–5 Review Subgrouping Results for Warehouse Optimization Worksheet Measures

Measure	Description
Full Mode Item Count Per Subgroup Warehouse Level Optimization	The number of items/warehouses for the subgroup.
Lower Bound for Group Factor 1 per Subgroup Warehouse Level Optimization	The lower bound of the grouping Factor 1 for the subgroup.
Lower Bound for Group Factor 2 per Subgroup Warehouse Level Optimization	The lower bound of the grouping Factor 2 for the subgroup.
Lower Bound for Group Factor 3 per Subgroup Warehouse Level Optimization	The lower bound of the grouping Factor 3 for the subgroup.
SubGroup Labels Warehouse Level Optimization	User-defined label of the subgroup.
Subgroup Rank Warehouse Level Optimization	Ranks the subgroups for each department/warehouse group.
Full Mode Total Equalizing Matrix per Subgroup Warehouse Level Optimization	The total of equalizing matrix for each subgroup.
Upper Bound for Group Factor 1 per Subgroup Warehouse Level Optimization	The upper bound of the grouping Factor 1 for the subgroup.
Upper Bound for Group Factor 2 per Subgroup Warehouse Level Optimization	The upper bound of the grouping Factor 2 for the subgroup.
Upper Bound for Group Factor 3 per Subgroup Warehouse Level Optimization	The upper bound of the grouping Factor 3 for the subgroup.

User Breakpoint Overrides for Warehouse Optimization Worksheet

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

Figure 6–12 shows the worksheet at the department/region/breakpoint intersection.

Figure 6–12 User Breakpoint Overrides for Warehouse Optimization Worksheet

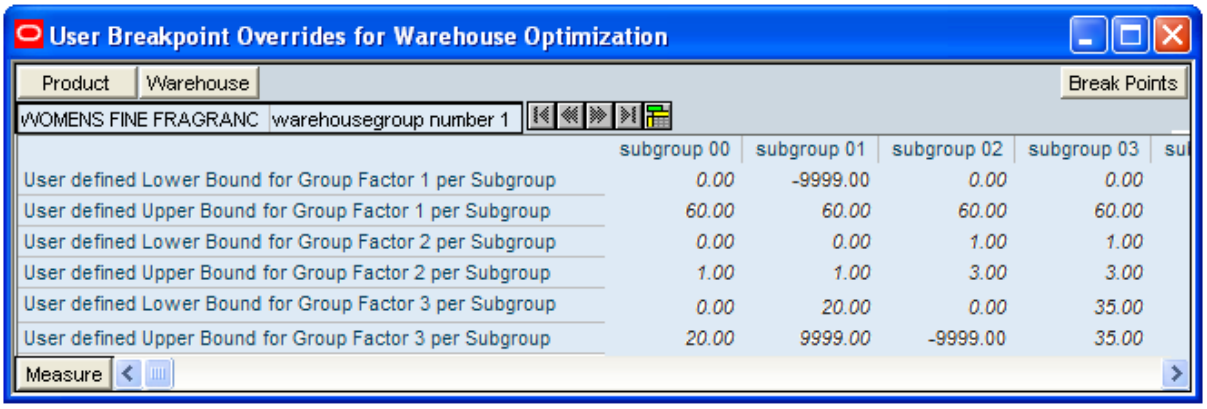


Table 6–6 User Breakpoint Overrides for Warehouse Optimization Worksheet Measures

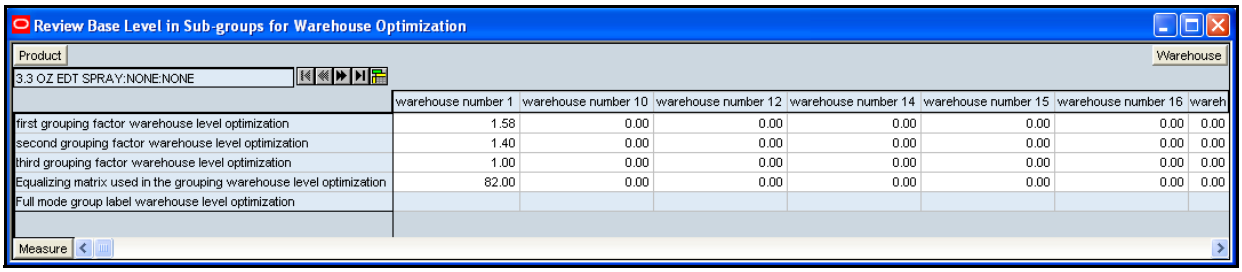
Measure	Description
User defined Lower Bound for Group Factor 1 per Subgroup Warehouse-Level Optimization	Specify the lower bound for the Group Factor 1 for the group/warehouse group. The range set in lower bound is inclusive.
User defined Lower Bound for Group Factor 2 per Subgroup Warehouse-Level Optimization	Specify the lower bound for the Group Factor 2 for the group/warehouse group. The range set in lower bound is inclusive.
User defined Lower Bound for Group Factor 3 per Subgroup Warehouse-Level Optimization	Specify the lower bound for the Group Factor 3 for the group/warehouse group. The range set in lower bound is inclusive.
User defined Upper Bound for Group Factor 1 per Subgroup Warehouse-Level Optimization	Specify the upper bound for the Group Factor 1 for the group/warehouse group. The range set in upper bound is exclusive.
User defined Upper Bound for Group Factor 2 per Subgroup Warehouse-Level Optimization	Specify the upper bound for the Group Factor 2 for the group/warehouse group. The range set in upper bound is exclusive.
User defined Upper Bound for Group Factor 3 per Subgroup Warehouse-Level Optimization	Specify the upper bound for the Group Factor 3 for the group/warehouse group. The range set in upper bound is exclusive.

Review Base Level in Subgroups for Warehouse Optimization Worksheet

This worksheet enables you to review the subgrouping information for the items/warehouses in the department/warehouse groups that were selected in the wizard. This worksheet is read-only.

Figure 6–13 shows the worksheet at the item/warehouse intersection.

Figure 6–13 Review Base Level in Subgroups for Warehouse Optimization Worksheet



	warehouse number 1	warehouse number 10	warehouse number 12	warehouse number 14	warehouse number 15	warehouse number 16	wareh
first grouping factor warehouse level optimization	1.58	0.00	0.00	0.00	0.00	0.00	0.00
second grouping factor warehouse level optimization	1.40	0.00	0.00	0.00	0.00	0.00	0.00
third grouping factor warehouse level optimization	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Equalizing matrix used in the grouping warehouse level optimization	82.00	0.00	0.00	0.00	0.00	0.00	0.00
Full mode group label warehouse level optimization							

Table 6–7 Review Base level in Subgroupings for Warehouse Optimization Worksheet Measures

Measure	Description
Equalizing Matrix Used in the Grouping Warehouse Level Optimization	The value of the equalizing matrix used in subgrouping.
Full Mode Group Label Warehouse Level Optimization	Displays the label of the subgroup that the item/warehouse belongs to.
First Grouping Factor Warehouse Level Optimization	The value of grouping Factor 1.
Second Grouping Factor Warehouse Level Optimization	The value of grouping Factor 2.
Third Grouping Factor Warehouse Level Optimization	The value of grouping Factor 3.

Subgroup Criteria for Warehouse Optimization Worksheet

This worksheet enables you to review the subgrouping criteria for a higher level intersection (such as department/warehouse group) 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 is displayed, which 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, when you click **Calculate**, the Subgroup Setup Error Flag measure is selected and an error message is displayed in the Subgroup Setup Error Message measure.

Figure 6–14 shows the worksheet at the department/warehouse group intersection.

Figure 6–14 Subgroup Criteria for Warehouse Optimization Worksheet

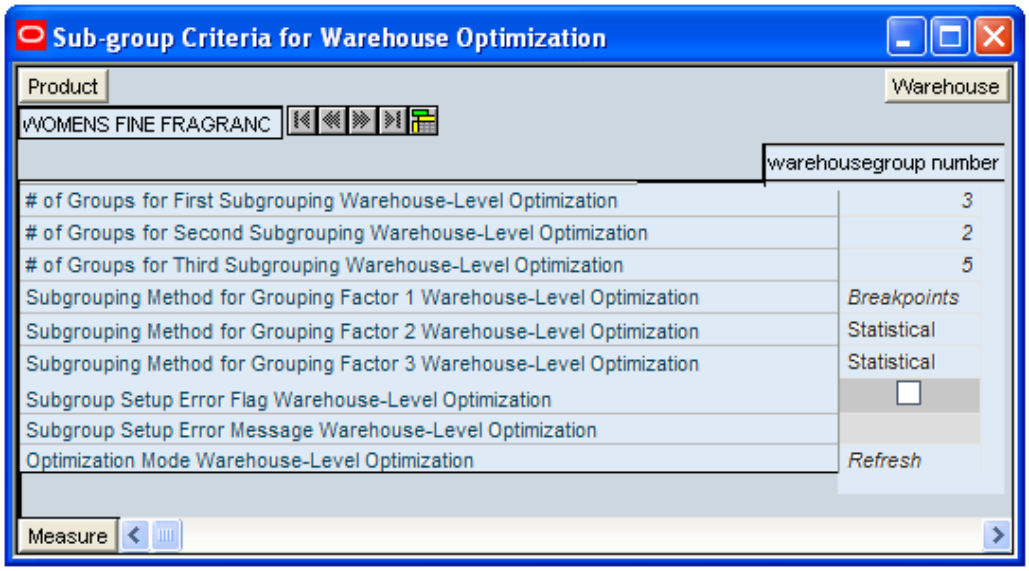


Table 6–8 Subgrouping Criteria Worksheet for Warehouse Optimization Measures

Measure	Description
# of Groups for First SubGrouping Warehouse Level Optimization	Specify the number of group for the first group factor. This is an integer measure based on the department/warehouse group.
# of Groups for Second SubGrouping Warehouse Level Optimization	Specify the number of group for the second group factor. This is an integer measure based on the department/warehouse group.
# of Groups for Third SubGrouping Warehouse Level Optimization	Specify the number of group for the third group factor. This is an integer measure based on the department/warehouse group.
SubGrouping Method for Grouping Factor 1 Warehouse Level Optimization	The subgroup method used for Grouping Factor 1. Options are Breakpoints and Statistical.
SubGrouping Method for Grouping Factor 2 Warehouse Level Optimization	The subgroup method used for Grouping Factor 2. Options are Breakpoints and Statistical.
SubGrouping Method for Grouping Factor 3 Warehouse Level Optimization	The subgroup method used for Grouping Factor 3. Options are Breakpoints and Statistical.
Subgroup Setup Error Flag Warehouse Level Optimization	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.
Subgroup Setup Error Message Warehouse Level Optimization	Displays the message, resulting total subgroup number over limit, if the number of subgroups is larger than the limit, which is 50.
Optimization Mode Warehouse Level Optimization	Specifies the optimization type. Options are Full, Refresh, and None.

7

Replenishment Admin Workbook

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

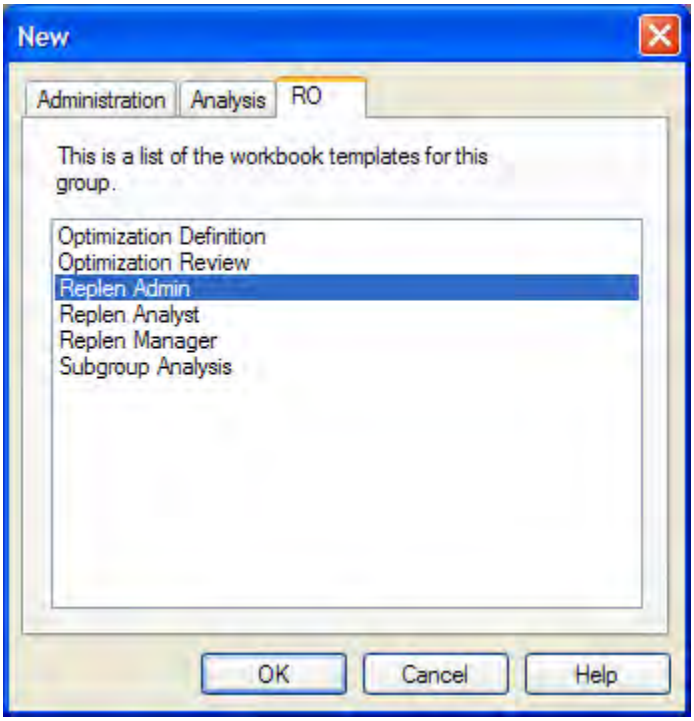
- Admin Thresholds for Store Replenishment Worksheet
- Admin Thresholds for Warehouse Replenishment Worksheet

Replen Admin Wizard

To open a Replen Admin workbook, perform the following:

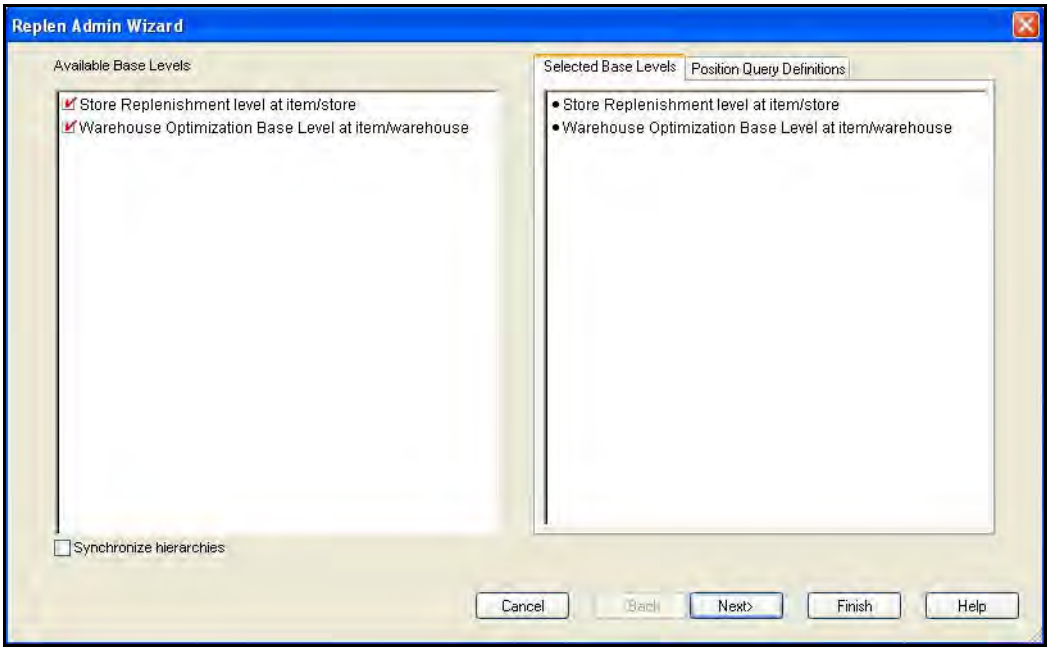
1. Select **File - New** or click **New**.
2. On the **RO** tab, select **Replen Admin** and click **OK**.

Figure 7–1 Creating a New Replen Admin Workbook



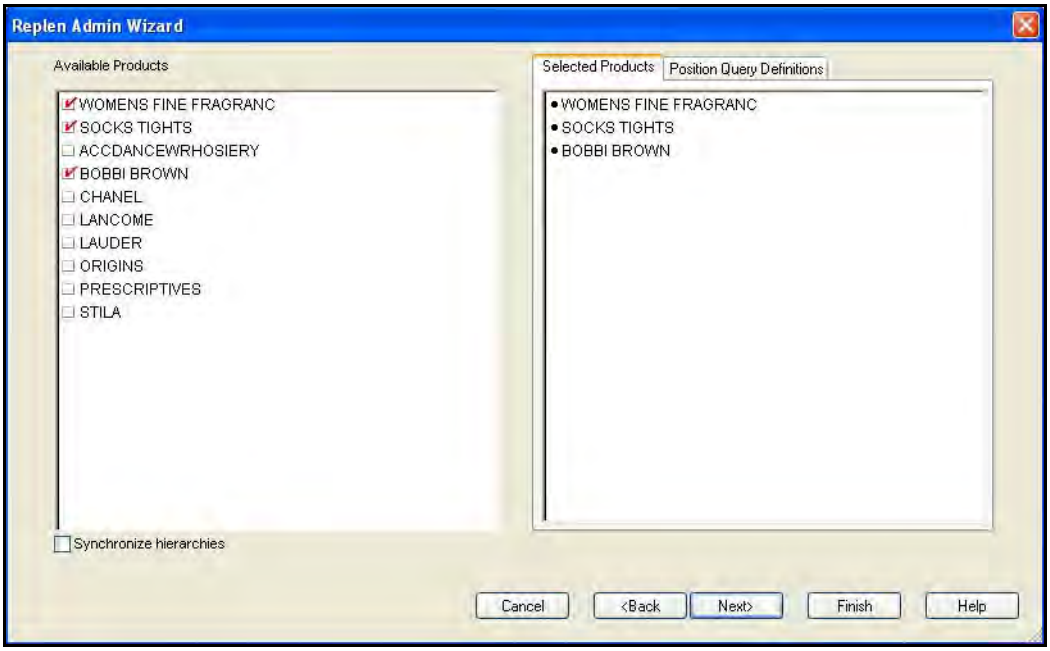
3. The Available Base Levels window opens. Select either or both the store level (SL) or warehouse level (WL) and click **Next**.

Figure 7–2 Available Base Levels



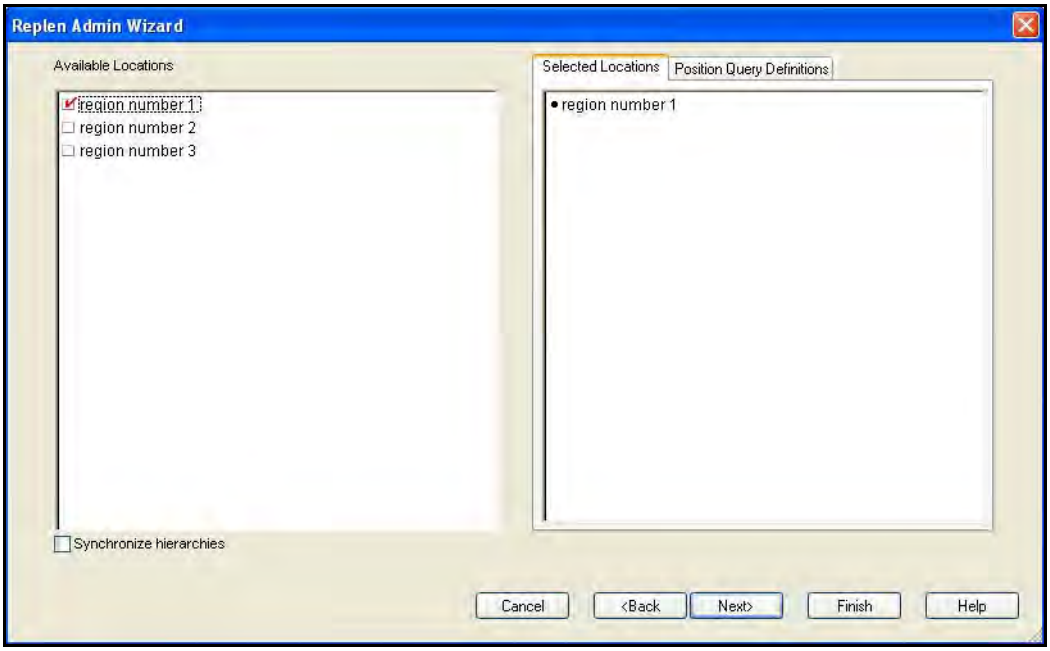
4. The Available Products window opens. Select the departments to be displayed in the workbook and click **Next**.

Figure 7–3 Available Products



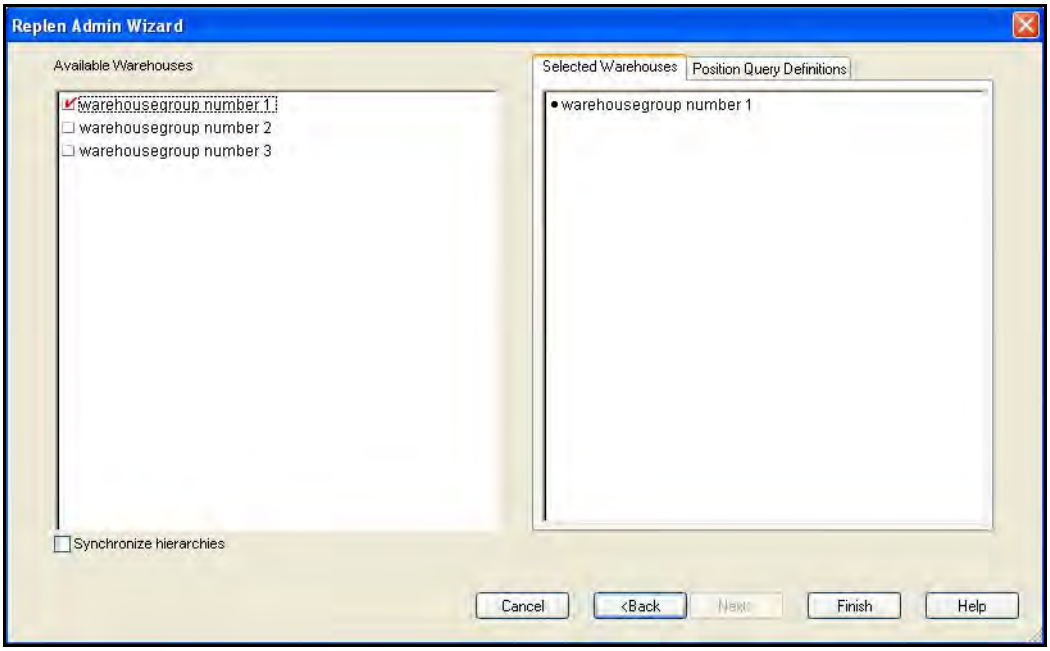
5. The Available Locations window opens. Select the locations for the store level optimization to be displayed in the workbook and click **Next**.

Figure 7–4 Available Locations



6. The Available Warehouses window opens. Select the warehouses to be displayed in the workbook and click **Finish**.

Figure 7–5 Available Warehouses



The Replen Admin workbook is built.

Admin Thresholds for Store Replenishment Worksheet

This worksheet 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 7–6 Admin Thresholds for Store Replenishment Worksheet

Table 7–1 Admin Threshold for Store Replenishment Worksheet Measures

Measure	Description
Order Point Revenue Alert Threshold Store-Level	The maximum value of the order point revenue that an item/location can have before an alert is triggered.
Trend Up in Sales Alert Threshold Store-Level	The maximum value of the trend in sales that an item/location can have before an alert is triggered.
Number of Weeks for Down Trend Store-Level	Determines the number of recent weeks over which store sales are averaged. The average is then divided into the long-term average and compared to a threshold to identify if a Trend Down in Sales alert should be triggered.
Trend Down in Sales Alert Threshold Store-Level	The threshold stores the values which is compared to the ratio of short term versus long term store sales averages. If the ratio is below the threshold value, the Trend Down in Sales alert is triggered.
Number of Weeks for Up Trend Store-Level	Determines the number of recent weeks over which store sales are averaged. The average is then divided into the long-term average and compared to a threshold to identify if a Trend Up in Sales alert should be triggered.
Threshold for Insufficient History Store-Level	This threshold stores the value which determines if an item/location has sufficient store sales. If the store sales history is less than the threshold value, an alert is triggered and RO's recommendations are not automatically approved.

Admin Thresholds for Warehouse Replenishment Worksheet

This worksheet 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 7–7 Admin Threshold for Warehouse Replenishment Worksheet

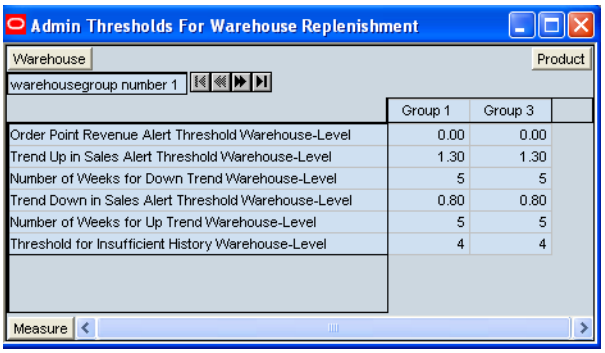


Table 7–2 Admin Thresholds for Warehouse Replenishment Worksheet Measures

Measure	Description
Order Point Revenue Alert Threshold Warehouse Level	The maximum value of the order point revenue that an item/location can have before an alert is triggered.
Trend Up in Sales Alert Threshold Warehouse-Level	The maximum value of the trend in sales that an item/location can have before an alert is triggered.
Number of Weeks for Down Trend Warehouse-Level	Determines the number of recent weeks over which warehouse demand is averaged. The average is then divided into the long-term average and compared to a threshold to identify if a Trend Down in Sales alert should be triggered.
Trend Down in Sales Alert Threshold Warehouse-Level	The threshold stores the values which is compared to the ratio of short term versus long term warehouse demand averages. If the ratio is below the threshold value, then the Trend Down in Sales alert is triggered.
Number of Weeks for Up Trend Warehouse-Level	Determines the number of recent weeks over which warehouse demand is averaged. The average is then divided into the long-term average and compared to a threshold to identify if a Trend Up in Sales alert should be triggered.
Threshold for Insufficient History Warehouse-Level	This threshold stores the value which determines if an item/location has sufficient warehouse demand. If the warehouse demand history is less than the threshold value, then an alert is triggered and RO's recommendations are not automatically approved.