

**Oracle® Retail Replenishment Optimization**  
User Guide  
Release 13.0

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# Preface

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

## Audience

This document is intended for the users and administrators of Oracle Retail Replenishment Optimization. This may include merchandisers, buyers, and business analysts.

## Related Documents

For more information, see the following documents in the Oracle Retail Replenishment Optimization Release 13.0 documentation set:

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

## Customer Support

<https://metalink.oracle.com>

When contacting Customer Support, please provide:

- 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

For a base release ("0" release, such as 13.0), Oracle Retail strongly recommends that you read all patch documentation before you begin installation procedures. Patch documentation can contain critical information related to the base release, based on new information and code changes that have been made since the base release.

## Oracle Retail Documentation on the Oracle Technology Network

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

[http://www.oracle.com/technology/documentation/oracle\\_retail.html](http://www.oracle.com/technology/documentation/oracle_retail.html)

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

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## Conventions

**Navigate:** This is a navigate statement. It tells you how to get to the start of the procedure and ends with a screen shot of the starting point and the statement “the Window Name window opens.”

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**Note:** This is a note. It is used to call out information that is important, but not necessarily part of the procedure.

---

This is a code sample

It is used to display examples of code

[A hyperlink appears like this.](#)



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# Introduction

## What is Replenishment Optimization?

The primary goal of Replenishment Optimization (RO) is to harness the replenishment methods available in the client's replenishment system. To make best use of the available replenishment capabilities, RO recommends optimized replenishment parameters at the SKU/Location level. 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.

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

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

Replenishment Optimization can help you address the following, which vary for every client:

- Improve service levels
- Reduce inventory
- Increase turns
- Maximize stock profitability

## Keys to Success in Implementing RO

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

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

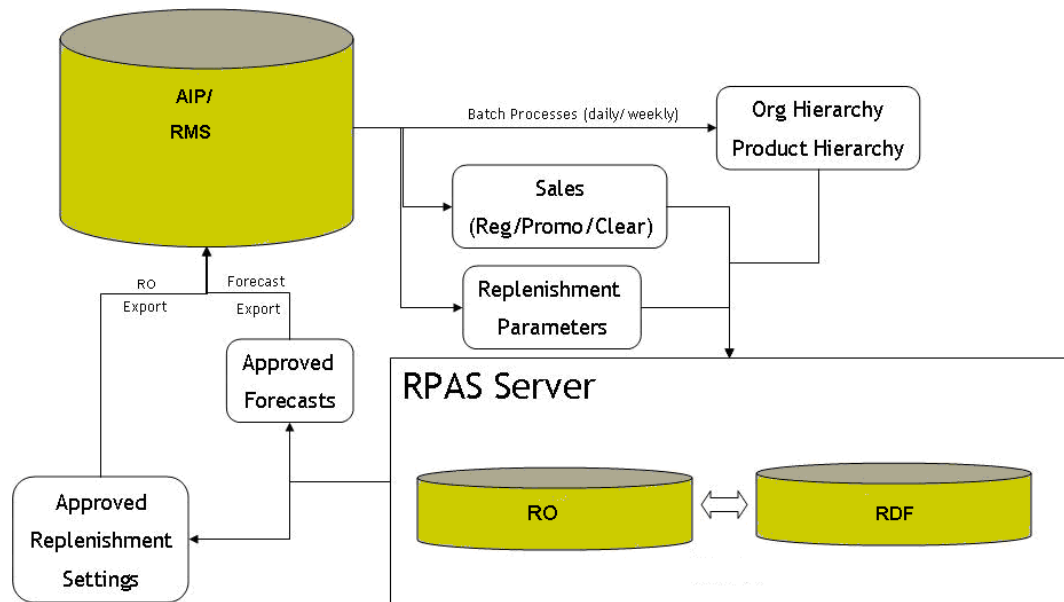
- Clearly define critical replenishment strategies in place at your business today.
- Understand how RO fits into your business process.
- Involve key business users in the RO implementation process. Make sure they get training in RO and its capabilities.
- Establish technical ownership of the RO implementation and maintenance.

- Validate that you have the resources to take ownership for RO maintenance going forward.
- Commit to support the replenishment targets that fit your aggregate business goals. This may require you to adopt strategies that are quite different from how you replenish today.

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

## RO and the Oracle Retail Enterprise

The illustration below displays where RO fits in the Oracle Retail product footprint. Note that while the figure below shows RO integrating with AIP or RMS for replenishment and RDF for forecasting, it could just as well integrate with a legacy replenishment system and any other forecasting system.



Oracle Retail Replenishment Optimization is designed to work with AIP, RMS, or any legacy replenishment system. RO receives historic sales and inventory data from the replenishment system and receives forecasts from RDF or another forecasting system. Using this information, RO produces the optimal replenishment methods and parameters to support replenishment processes in AIP, RMS, or legacy systems.

## RO Users

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

Replenishment Analysts are typically responsible for item/location level replenishment settings. They monitor inventory levels and historic lost sales at Item/Location levels.

These users can approve, reject, or override replenishment recommendations. They can perform “what-if” analysis to determine impact of each of these settings to make informed decisions. Users can restrict their analysis to only alerted Item/Locations using the Alert Manager.

The Replenishment Managers are responsible for Inventory, Revenue, and Service level targets at aggregate levels of the business. These users may not necessarily be interested in individual Item/Location level replenishment settings, but rather, they may be primarily interested in monitoring performance, for example, at a Department level. These users may also be interested in monitoring how Inventory and Service levels are tracking against the optimal replenishment strategies recommended by RO Specialist consultants.

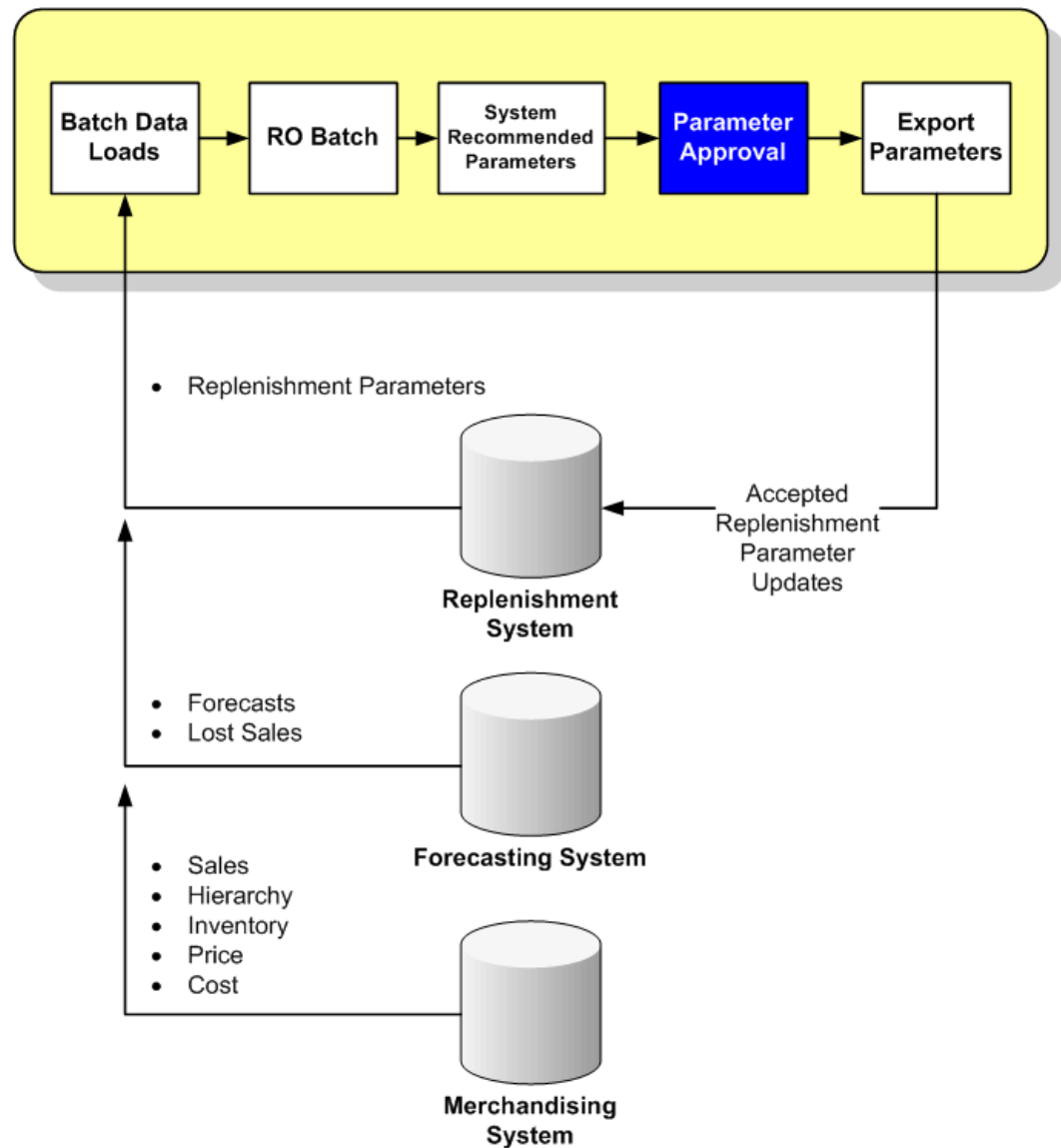
Replenishment Administrators are required to set up RO Replenishment Rule settings that are developed by RO Specialist Consultants. They are not the primary end users of the application.

## RO Solution Process Overview

The following diagram is a high-level view of the RO process flow. Inventory, sales, and replenishment parameters are loaded from the merchandising system and the replenishment system. Forecasts and lost sales information are loaded from the forecasting system.

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

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



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# Setting RO Administration Parameters – Replenishment Admin Workbook

This chapter provides information on Replenishment Optimization administration activities, such as defining and maintaining the parameters that drive the optimized replenishment settings and maintain alert thresholds. The Replenishment Admin workbook is used to perform these activities and contains the following tabs:

- Rule Thresholds tab
  - This tab provides administration interface to maintain settings that drive optimized replenishment recommendations.
- Exception Thresholds tab
  - This tab supports management of alert thresholds.

## Rule Threshold Tab

The Rule Threshold tab consists of two replenishment worksheets:

- Replen Thresholds
- Replen Methods and Parameters

## Replenishment Rules Overview

This section defines foundational concepts for managing the settings in the Rule Threshold tab. The Replenishment Administrator should understand the following key concepts:

- Replenishment Rule Groups
- Replenishment Rule IDs
- Replenishment Rule Thresholds
- Replenishment Rules

Replenishment Rules assign optimal replenishment methods and parameters to each Item/Location via a Replenishment Rule Group. A Replenishment Rule Group consists of sub-groups called Replenishment Rule IDs. These sub-groups are defined by Replenishment Rule Thresholds.

Optimal replenishment settings are typically based on historic selling characteristics of each Item/Location. For example, average selling level and variability in sales will usually impact the recommended replenishment settings. Within a Replenishment Rule Group, Item/Locations might be clustered into Replenishment Rule IDs based on the following characteristics:

- Low selling/low variability
- Low selling/high variability
- High selling/low variability
- High selling/high variability

Optimal replenishment methods and parameters are then assigned to each Replenishment Rule ID. The table below provides an example of a Replenishment Rule Group.

Replenishment Rule Group 1 - Default				
	Low Sales		High Sales	
	Low Variability	High Variability	Low Variability	High Variability
	Group 1, Partition 1 (Repl 1_1)	Group 1, Partition 2 (Repl 1_2)	Group 1, Partition 3 (Repl 1_3)	Group 1, Partition 4 (Repl 1_4)
<b>Replenishment Rule Thresholds</b>	If Mean Sales between 0 & 20 and STD between 0 & 15	If Mean Sales between 0 & 20 and STD between 15 & 9999999	If Mean Sales between 20 & 9999999 and STD between 0 & 15	If Mean Sales between 20 & 9999999 and STD between 15 & 9999999
<b>Replenishment Parameter Recommendations</b>	Replenishment Method: Min/Max, Min: 350; Max 510; Safety Stock Factor:0; WOS Factor:0	Replenishment Method: Dynamic, Service Level: 0.70; Inventory Selling Days: 7	Replenishment Method: Time Supply, MinTS: 10; Max TS: 45; TSHorizon: 0	Replenishment Method: Min/Max, Min: 535; Max 700; Safety Stock Factor:0; WOS Factor:0

#### Example Replenishment Rule Group

A retailer may have more than one Replenishment Rule Group to drive optimal replenishment settings. For example, a retailer may have different strategies that drive their jewelry business than their food and beverage business. For this reason, jewelry is assigned to a different Replenishment Rule Group than food and beverage. These Replenishment Rule Groups, their Replenishment Rule Ids, and the corresponding Replenishment Parameter Recommendations define the Replenishment Rules for the retailer.

The Replenishment Rules are a result of the best practices, analytical modeling, and business strategies. These rules are optimized to meet business goals, such as minimizing inventory and maximizing service levels. A Replenishment Administrator may update these rules based on new business practices, updated modeling, or changing business strategies.

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**Note:** Item/Locations are grouped into Replenishment Rule Groups based on configuration managed by a system administrator. The process of setting up and managing these groups is described in the *Replenishment Administration Guide*.

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## Replenishment Thresholds Worksheet

The Replenishment Thresholds worksheet allows the user or replenishment administrator to enter replenishment settings. The user sets the Upper and Lower Thresholds on the measures that are used to group Item/Locations. The measures in the following example are Mean Sales and Standard Deviation of Sales. These measures are specified in the configuration.

**Replenishment Rule IDs**

**Replenishment Rule Group**

	Basics: High Sales	Basics: High Sales-Stable	Basics: High Sales-Volatile	Basics: Low Sales	Basics: Low Sales-Stable
Lower Mean	200.00	200.00	200.00	0.00	0.00
Upper Mean	999999.00	999999.00	999999.00	50.00	50.00
Lower Std Over LeadTime	100.00	0.00	500.00	20.00	0.00
Upper Std Over LeadTime	500.00	100.00	999999.00	200.00	20.00
Replenishment Method	Minmax	Minmax	Minmax	Dynamic	Minmax
Replenishment Param Name 1	Min	Min	Min	ServiceLevel	Min
Replenishment Param Name 2	Max	Max	Max	InventorySellingDay	Max
Auxiliary Repl Param Name1	SafetyStock factor	SafetyStock factor	SafetyStock factor		SafetyStock factor
Auxiliary Repl Param Name2	WOS factor	WOS factor	WOS factor		WOS factor

**Replenishment Parameter Recommendations**

**Replenishment Rule Thresholds**

### Rule Threshold Measures

#### Lower Mean

Lower bound on Mean Sales. The value of this measure is used to group Item/Locations into Replenishment Rule IDs. This is a writable measure.

#### Upper Mean

Upper bound on Mean Sales. The value of this measure is used to group Item/Locations into Replenishment Rule IDs. This is a writable measure.

#### Lower Std Over Lead Time

Lower bound on Standard Deviation of Sales aggregated to the Lead time. The value of this measure is used to group Item/Locations into Replenishment Rule IDs. This is a writable measure.

#### Upper Mean

Upper bound on Standard Deviation of Sales aggregated to the Lead time. The value of this measure is used to group Item/Locations into Replenishment Rule IDs. This is a writable measure.

## Replenishment Methods and Parameters Worksheet

**Replenishment Parameter Recommendations**

Replen Methods and Parameters					
	Replen Rule				
	Basics: High Sales	Basics: High Sales-Stable	Basics: High Sales-Volatile	Basics: Low Sales	Basics: Low Sales-Stable
Replenishment Method	Minmax	Minmax	Minmax	Dynamic	Minmax
Replenishment Param Name 1	Min	Min	Min	ServiceLevel	Min
Replenishment Param Value 1	120.00	400.00	150.00	0.85	0.00
Replenishment Param Name 2	Max	Max	Max	InventorySellingDay	Max
Replenishment Param Value 2	135.00	4410.00	160.00	14.00	0.00
Auxiliary Repl Param Name1	SafetyStock factor	SafetyStock factor	SafetyStock factor		SafetyStock factor
Auxiliary Repl Param1	0.00	0.00	0.00	0.00	1.00
Auxiliary Repl Param Name2	WOS factor	WOS factor	WOS factor		WOS factor
Auxiliary Repl Param2	0.00	0.00	0.00	0.00	2.00
User Message					

Measure

**Replenishment Method=MinMax**  
**Min=120**  
**Max=135**

### Replenishment Method

Replenishment Method to be applied to all Item/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 the user with what Replenishment Parameters need to be entered for the selected Replenishment Method. This measure gets populated once the user enters a Replenishment Method and hits calculate.

### Replenishment Param Name2

This is a Read only measure that prompts the user with what Replenishment Parameters need to be entered for the selected Replenishment Method. This measure gets populated once the user enters a Replenishment Method and hits calculate.

### Auxiliary Replenishment Param Name1

This is a Read only measure that prompts the user with what Replenishment Parameters need to be entered for the selected Replenishment Method. This measure gets populated once the user enters a Replenishment Method and hits calculate.

### Auxiliary Replenishment Param Name2

This is a Read only measure that prompts the user with what Replenishment Parameters need to be entered for the selected Replenishment Method. This measure gets populated once the user enters a Replenishment Method and hits 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 user chooses 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 the user chooses 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 allows users to specify minimum and maximum values that are a function of mean sales and standard deviation, as an alternate to having to specify 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 in the following way for arriving at the Min and Max values:

$$\begin{aligned} \text{Min} & @ \text{ceil}(\text{LeadTime} \cdot \text{ReviewTime}) * \text{Mean} \cdot \text{SafetyStockFactor} * \sqrt{\text{LeadTime}} * \text{std} \\ \text{Max} & @ \text{ceil}(\text{Min} \cdot \text{WOSfactor} * \text{Mean}) \end{aligned}$$

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

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**User Message**

This is a read only measure that contains any error or warning messages from the system. When the user selects calculate, the system validates the user input values and populates this measure with any error or warning messages.

## Replenishment Parameters and Validity

The following table lists replenishment methods and valid values of corresponding parameters.

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

## Replenishment Rule Groups

### Business Motivation for Replenishment Rule Groups

A retailer may require different replenishment strategies for different products based on business needs. For example, popular items in Department 1310 (Printer Ink) and Department 1110 (Cell Phones) should have a higher service levels because these are key items to maintain customer satisfaction. To accomplish this, a Replenishment Rule Group will be created for high-selling items in Departments 1310 and 1110. All other items will fall into the default Replenishment Rule Group.

### Replenishment Rule Group Setup

Replenishment Rule Groups are not defined through the user interface. The process of Replenishment Rule Group Definition is described in the *RO Administration Guide*. The Replenishment Rule Groups are defined based on business criteria, such as department or average revenue. Once Replenishment Rule Groups are created, the Replenishment Thresholds can be updated in the Replenishment Admin Workbook. These thresholds define the Replenishment Rule IDs.

## Replenishment Rule Group Results

Each Item/Location is assigned to a Replenishment Rule Groups based on the relevant business criteria. The Replenishment Rule Thresholds then assign the Item/Locations to Replenishment Rule IDs within the Replenishment Rule Groups. The system recommends settings based on the Replenishment Method and its parameters assigned to each Replenishment Rule ID.

**Note:** A “Default” Rule Group is assigned to all SKU/Stores that do not meet any of the specific business constraints specified in the Rule Group Definition Files.

**Note:** Replenishment Rule ID rolls up to Replenishment Rule Group. Replenishment Rule Groups and Replenishment Rule IDs are dimensions along a special hierarchy called the Replenishment Rule hierarchy.

## Replenishment Rule Group Example

### Replenishment Rule Group 1: Default Rule Group

	Low Seller	High Seller
<b>Low Variability</b>	<b>Replenishment Rule ID 1_1</b> If Mean Sales between 0 & 25 and STD between 0 & 10, then recommend MinMax; Min=10, Max=28.	<b>Replenishment Rule ID 1_3</b> If Mean Sales greater than 25 and STD between 0 & 15, then recommend Dynamic; ServiceLevel=0.93, ISD=14.
<b>High Variability</b>	<b>Replenishment Rule ID 1_2</b> If Mean Sales between 0 & 25 and STD greater than 10, then recommend MinMax; Min=40, Max=48.	<b>Replenishment Rule ID 1_3</b> If Mean Sales greater than 25 and STD greater than 15, then recommend Dynamic; ServiceLevel=0.92, ISD=7.

### Replenishment Rule Group 2: High-Selling Items in Depts. 1310 and 1110 (Printer Ink and Cell Phones)

	Low Seller	High Seller
<b>Low Variability</b>	<b>Replenishment Rule ID 2_1</b> If Mean Sales between 0 & 10 and STD between 0 & 7, then recommend MinMax; Min=3, Max=8.	<b>Replenishment Rule ID 2_3</b> If Mean Sales greater than 10 and STD between 0 & 13, then recommend Dynamic; ServiceLevel=0.85, ISD=14.
<b>High Variability</b>	<b>Replenishment Rule ID 2_2</b> If Mean Sales between 0 & 10 and STD greater than 7, then recommend MinMax; Min=20, Max=38.	<b>Replenishment Rule ID 2_4</b> If Mean Sales greater than 10 and STD greater than 13, then recommend Dynamic; ServiceLevel=0.80, ISD=7.

The screens below displays the Rule Thresholds tab worksheets corresponding to this example.

Replen Thresholds				
Replen Rule				
	Repl Grp 1-Default			
	Repl 1_1	Repl 1_2	Repl 1_3	Repl 1_4
Lower Mean	0.00	0.00	25.00	25.00
Upper Mean	25.00	25.00	999999.00	999999.00
Lower Std Over LeadTime	0.00	10.00	0.00	15.00
Upper Std Over LeadTime	10.00	999999.00	15.00	999999.00
Replenishment Method	Minmax	Minmax	Dynamic	Dynamic
Replenishment Param Name 1	Min	Min	ServiceLevel	ServiceLevel
Replenishment Param Name 2	Max	Max	InventorySellingDays	InventorySellingDays
Auxiliary Repl Param Name1	SafetyStock factor	SafetyStock factor		
Auxiliary Repl Param Name2	WOS factor	WOS factor		
Measure				

**Replen Thresholds Worksheet**

Replen Methods and Parameters				
Replen Rule				
	Repl Grp 1-Default			
	Repl 1_1	Repl 1_2	Repl 1_3	Repl 1_4
Replenishment Method	Minmax	Minmax	Dynamic	Dynamic
Replenishment Param Name 1	Min	Min	ServiceLevel	ServiceLevel
Replenishment Param Value 1	10.00	40.00	0.93	0.92
Replenishment Param Name 2	Max	Max	InventorySellingDays	InventorySellingDays
Replenishment Param Value 2	28.00	48.00	14.00	7.00
Auxiliary Repl Param Name1	SafetyStock factor	SafetyStock factor		
Auxiliary Repl Param1	0.00	0.00	0.00	0.00
Auxiliary Repl Param Name2	WOS factor	WOS factor		
Auxiliary Repl Param2	0.00	0.00	0.00	0.00
User Message				
Measure				

**Replen Methods and Parameters Worksheet**

The Replenishment Rules and Replenishment Rule Groups are a result of the best practices, analytical modeling and business strategies. These rules are optimized to meet business goals, such as minimizing inventory and maximizing service levels. Replenishment rules may be refreshed based on new business practices, updated modeling or changing business strategies. These rules may be updated via the Replenishment Admin Workbook and through system administration setup as described in the *RO Administration Guide*.

## Exception Thresholds Worksheet

This worksheet allows users to specify thresholds to trigger pre-configured alerts. It is possible to specify different thresholds for a different group of Item/Locations. Item/Locations can be grouped based on business constraints and so forth. For example, it is possible to set higher alert thresholds for high revenue SKU/Stores for a certain Department.

	Default	Exception
Order Point Revenue Alert Threshold	3300.00	3000.00
Trend in Sales Alert Threshold	0.30	0.20

**Exception Thresholds Worksheet**

### Order Point Revenue Alert Threshold

This is a writable measure, which can either be loaded or entered through this workbook. This measure allows the user to specify thresholds to trigger the Order Point Revenue alert. This alert gets triggered whenever the Projected System Recommended Order Point exceeds the threshold specified in this measure.

### Trend in Sales Alert Threshold

This is a writable measure, which can either be loaded or entered through this workbook. This measure allows the user to specify thresholds to trigger the trend in Sales alert. This alert gets triggered whenever the absolute value of trend in Sales over the last month exceeds the threshold specified in this measure.

### Change in Replenishment Rule Alert

This Alert gets triggered whenever the Replenishment Rule ID for a SKU/Store changes. Since there is no threshold associated with this alert, this alert does not show up in the Exception Thresholds worksheet.



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# Replenishment Parameters Management – Replenishment Analyst Workbook

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## Overview

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

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

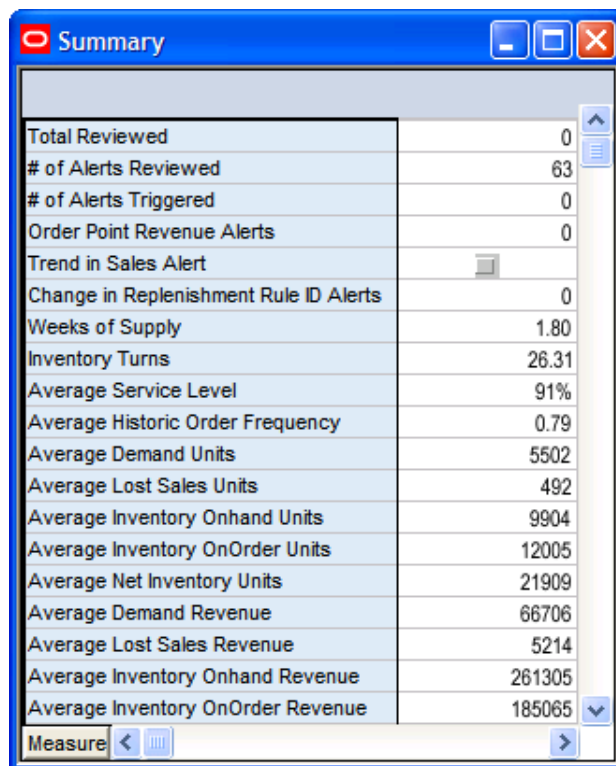
This workbook is intended to include all Item/Locations for which the Replenishment Analyst is responsible.

The Replenishment Analyst worksheet contains three tabs:

- Summary tab
  - Summarizes alert review progress, performance statistics and system recommendations.
- Details tab
  - Provides item/location and weekly details
  - Provides “what-if” capabilities
  - Gives user the option to select system recommended, previous approved, or user updated settings by updating Replenishment Status
- Approval tab
  - User finally Approves the settings

## Replenishment Analyst – Summary Tab

The Summary tab contains one worksheet. The Summary worksheet gives overall summary statistics for all Item/Locations that are included in this workbook. This workbook gives the Replenishment Analyst a high level summary of Inventory, Sales, Service Level and other performance statistics of all Item/Locations for which they are responsible.



Summary	
Total Reviewed	0
# of Alerts Reviewed	63
# of Alerts Triggered	0
Order Point Revenue Alerts	0
Trend in Sales Alert	<input type="checkbox"/>
Change in Replenishment Rule ID Alerts	0
Weeks of Supply	1.80
Inventory Turns	26.31
Average Service Level	91%
Average Historic Order Frequency	0.79
Average Demand Units	5502
Average Lost Sales Units	492
Average Inventory Onhand Units	9904
Average Inventory OnOrder Units	12005
Average Net Inventory Units	21909
Average Demand Revenue	66706
Average Lost Sales Revenue	5214
Average Inventory Onhand Revenue	261305
Average Inventory OnOrder Revenue	185065
Measure	< >

Summary Worksheet

## Alert Statistical Measures

### Total Reviewed

The total number of Item/Locations that have been reviewed so far.

### # of Alerts triggered

The total number of Item/Locations that have any alerts triggered.

### Total # of Alerts Reviewed

The total number of Item/Locations that have been reviewed and have any alert triggered.

### Order Point Revenue Alert

The number of Item/Locations that have the Order Point Revenue alert triggered. The Order Point Revenue alert is triggered when Order Point Revenue exceeds a threshold. The threshold is the value entered in the Exception Threshold Workbook.



**Trend in Sales Alert**

The number of Item/Locations that have the Trend in Sales alert triggered. The Trend in Sales alert is triggered when the absolute value of trend in Sales over the last one month exceeds a threshold. The threshold is the value entered in the Exception Threshold Workbook.

**Change in Replenishment Rule ID Alert**

The number of Item/Locations that have the Change in Replenishment Rule ID alert triggered. The Change in Replenishment Rule ID alert is triggered when System Recommended Replenishment Rule ID changes from the Previous System Recommended Replenishment Rule ID. The Previous System Recommended Replenishment Rule ID is what the system had recommended the last time the RO batch was run.

**Inventory Performance Statistical Measures****Weeks of Supply**

The number of Weeks of Supply or Weeks on Hand, calculated as average On Hand Inventory divided by average Demand.

**Inventory Turns**

The Average Inventory Turns calculated as Sales over that last 52 weeks divided by average On Hand Inventory the last 52 weeks.

**Average Service Level**

The percentage of demand that was met. Calculated as average sales/average Demand

**Average Historic Order Frequency**

The Average number of Orders in a week.

**Demand and Inventory Units Measures****Average Demand Units**

The Average demand in units value. Demand is calculated as historic sales plus historic Lost Sales.

**Average Lost Sales Units**

The Average Lost Sales units.

**Average Inventory On hand Units**

The Average On Hand Inventory in units.

**Average Inventory On Order Units**

The Average On Order Inventory in units.

**Average Net Inventory Units**

The Average Net Inventory in units.

## Demand and Inventory Revenue Measures

### **Average Demand Revenue**

The Average demand in Revenue value is calculated by multiplying Average Demand Units by Unit Price. Demand is calculated as historic sales plus historic Lost Sales.

### **Average Lost Sales Revenue**

The Average Lost Sales revenue value.

### **Average Inventory On hand Revenue**

The Average On Hand Inventory in revenue value.

### **Average Inventory On Order Revenue**

The Average On Order Inventory in revenue value.

### **Average Net Inventory Revenue**

The Average Net Inventory in revenue value.

## Demand and Inventory Cost Measures

### **Average Demand Cost**

The Average demand in cost value is calculated by multiplying Average Demand Units by Unit Cost. Demand is calculated as historic sales plus historic Lost Sales.

### **Average Lost Sales Cost**

The Average Lost Sales cost value.

### **Average Inventory On hand Cost**

The Average On Hand Inventory in cost value.

### **Average Inventory On Order Cost**

The Average On Order Inventory in cost value.

### **Average Net Inventory Cost**

The Average Net Inventory in cost value.

### **Number of Weeks for Stats**

The Number of weeks in history over which the above statistics have been calculated.

## Replenishment Settings Statistical Measures

### **System Recommended Item/Locations on MinMax**

The number of Item/Locations for which the System is recommending MinMax Replenishment Method.

### **System Recommended Item/Locations on TimeSupply**

The number of Item/Locations for which the System is recommending Time Supply Replenishment Method.

**System Recommended Item/Locations on Dynamic**

The number of Item/Locations for which the System is recommending Dynamic Replenishment Method.

**System Recommended Item/Locations on Hybrid**

The number of Item/Locations for which the System is recommending Hybrid Replenishment Method.

**System Recommended Item/Locations on Poisson**

The number of Item/Locations for which the System is recommending Poisson Replenishment Method.

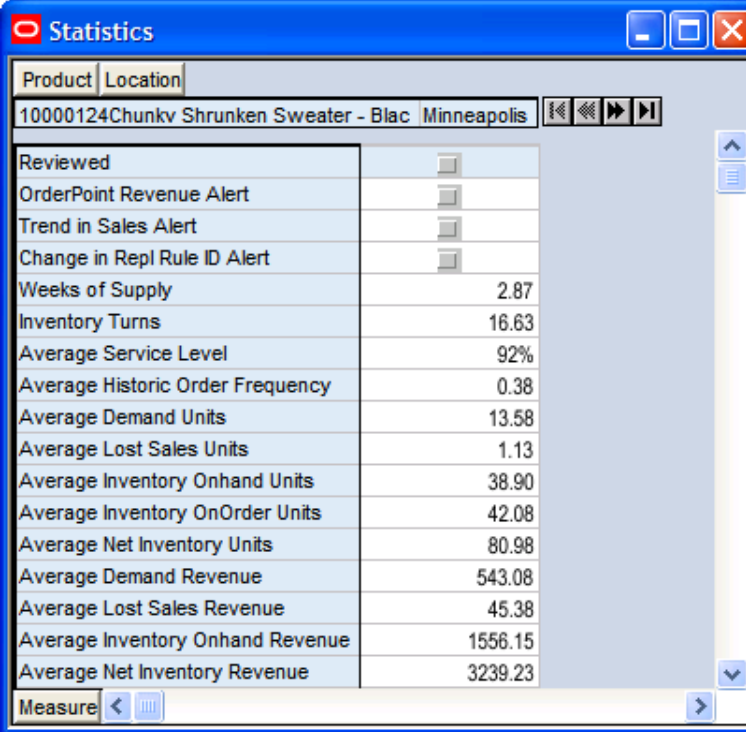
## Replenishment Analyst – Details Tab

The Details tab gives the user Item/Location level detailed information. This tab contains the following worksheets:

- Statistics worksheet
  - Lists Item/Location level Inventory performance and other statistics.
- Analysis worksheet
  - Allows the user to perform the following:
    - Compare different Replenishment Settings.
    - Perform what-if analysis to determine impact of these setting.
    - Select system recommended, previous approved, or user-updated replenishment settings by updating the Replenishment Status.
- Weekly Details worksheet
  - Gives the user Item/Location/Week level information on Inventory, Demand, Lost Sales, Forecasts, etc.

## Statistics Worksheet

A number of the statistics listed in this worksheet are the same as those listed in the Summary worksheet of this workbook, but at the Item/Location level. Please refer to the section on the Summary Workbook for Measure descriptions. Below is a list of Measure descriptions, not included in the Summary tab.



The screenshot shows a window titled "Statistics" with a blue header. Below the header, there are tabs for "Product" and "Location". The "Product" tab is selected, showing the text "10000124Chunky Shrunken Sweater - Blac" and "Minneapolis". To the right of the text are navigation buttons. Below this, there is a list of measures and their corresponding values. The measures are listed in a table with two columns: the measure name and the value. The measures include "Reviewed", "OrderPoint Revenue Alert", "Trend in Sales Alert", "Change in Repl Rule ID Alert", "Weeks of Supply", "Inventory Turns", "Average Service Level", "Average Historic Order Frequency", "Average Demand Units", "Average Lost Sales Units", "Average Inventory Onhand Units", "Average Inventory OnOrder Units", "Average Net Inventory Units", "Average Demand Revenue", "Average Lost Sales Revenue", "Average Inventory Onhand Revenue", and "Average Net Inventory Revenue". The values are displayed to the right of each measure name. At the bottom of the window, there is a "Measure" label and a list of measure icons.

Measure	Value
Reviewed	
OrderPoint Revenue Alert	
Trend in Sales Alert	
Change in Repl Rule ID Alert	
Weeks of Supply	2.87
Inventory Turns	16.63
Average Service Level	92%
Average Historic Order Frequency	0.38
Average Demand Units	13.58
Average Lost Sales Units	1.13
Average Inventory Onhand Units	38.90
Average Inventory OnOrder Units	42.08
Average Net Inventory Units	80.98
Average Demand Revenue	543.08
Average Lost Sales Revenue	45.38
Average Inventory Onhand Revenue	1556.15
Average Net Inventory Revenue	3239.23

Statistics Worksheet

## Statistics Worksheet Measures

### Reviewed

This is a writable measure indicating whether or not this Item/Location has been reviewed by the user. This measure is only used for tracking purposes and updates the # of Alerts Reviewed and Total Reviewed measures.

### Lead Time

The Total Lead Time of the Item/Location value.

### Pack Size

The Item Pack Size value.

### Presentation Stock

The Minimum Presentation Stock value.

### Review Time

The Frequency at which inventory is reviewed for replenishment value.

**Price**

The Unit Retail Price of the Item value.

**Cost**

The Unit Cost of the Item value.

**System Recommended Rule ID**

Replenishment Rule ID that the System is recommending for the Item/Location

**Target Weeks of Supply for Replenishment Rule ID**

The Overall Target or Optimal Weeks of Supply Recommended by RO for the group of Item/Locations that belong to this Replenishment Rule ID. While tracking Inventory and Service Level performance against this optimal target, it is important to track performance for the entire group of item/Locations that belong to this Replenishment Rule ID as opposed to the performance of individual Item/Locations.

**Target Service Level for Replenishment Rule ID**

The Overall Target or Optimal Service Level Recommended by RO for the group of Item/Locations that belong to this Replenishment Rule ID. While tracking Inventory and Service Level performance against this optimal target, it is important to track performance for the entire group of item/Locations that belong to this Replenishment Rule ID as opposed to the performance of individual Item/Locations.

**Working Version**

The working version reflects the replenishment settings based on the current Replenishment Status selection (system recommended, previous approved, or user-defined settings.). See the Analysis Worksheet for more details on the Replenishment Status measure.

**Working Replenishment Method**

Replenishment Method currently chosen by the user for this Item/Location. The user can choose between System recommended, Previous Approved and Special User input settings. This measure is updated based on the Replenishment Status Measure. This measure represents the Replenishment Method that will be exported by the System, if the user approves the settings now.

**Working Replenishment Param1**

Replenishment Parameter1 currently chosen by the user for this Item/Location. The user can choose between System recommended, Previous Approved and Special User input settings. This measure is updated based on the Replenishment Status Measure. This measure represents the Replenishment Method that will be exported by the System, if the user approves the settings now.

**Working Replenishment Param2**

Replenishment Parameter2 currently chosen by the user for this Item/Location. The user can choose between System recommended, Previous Approved and Special User input settings. This measure is updated based on the Replenishment Status Measure. This measure represents the Replenishment Method that will be exported by the System, if the user approves the settings now.

**Working Auxiliary Replenishment Param1**

Auxiliary Replenishment Parameter1 currently chosen by the user for this Item/Location. The user can choose between System recommended, Previous Approved and Special User input settings. This measure is updated based on the Replenishment Status Measure. This measure represents the Replenishment Method that will be exported by the System, if the user approves the settings now.

**Working Auxiliary Replenishment Param2**

Auxiliary Replenishment Parameter2 currently chosen by the user for this Item/Location. The user can choose between System recommended, Previous Approved and Special User input settings. This measure is updated based on the Replenishment Status Measure. This measure represents the Replenishment Method that will be exported by the System, if the user approves the settings now.

**Working Replenishment Settings Statistical Measures**

The following measures provide statistics based on the Working Replenishment Settings. The statistics help provide the user with supporting information on the impact of the chosen replenishment Settings on future Inventory and Service levels to help the user choose the correct Replenishment Settings.

**Working Order Point Units**

Order Point Units calculated by the System based on the Working Replenishment Method and Parameters.

**Working Order Up to Level Units**

Order Up to Point Units calculated by the System based on the Working Replenishment Method and Parameters.

**Working Projected Average Inv OH over next Quarter Units**

Projected Average On hand Inventory units over next Quarter based on Working Replenishment settings. This measure represents the long term steady state average On hand Inventory, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.

**Working Projected Average Service Level over next quarter**

Projected Average Service Level over next Quarter based on Working replenishment settings. This measure represents the long term steady state Service Level, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.

**Working Projected Lost Sales Units over next**

Projected Average Lost Sales over next Quarter based on Working replenishment settings. This measure represents the long term steady state Lost Sales, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.

**System Recommended Replenishment Settings Statistical Measures**

The following measures provide statistics based on the System Recommended Replenishment Settings. The statistics help provide the user with supporting information on the impact of the chosen replenishment Settings on future Inventory and Service levels to help the user choose the correct Replenishment Settings.

**System Recommended Projected Average Inv OH over next Quarter Units**

Projected Average On hand Inventory units over next Quarter based on System Recommended Replenishment settings. This measure represents the long term steady state average On hand Inventory, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.

**System Recommended Projected Average Service Level over next quarter**

Projected Average Service Level over next Quarter based on System Recommended replenishment settings. This measure represents the long term steady state Service Level, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.

**System Recommended Projected Lost Sales Units over next**

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**

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

**Analyst Comment**

This is an editable measure where the Analyst can enter any comments.

## Analysis Worksheet

The Analysis worksheet allows the user to compare different Replenishment Settings, perform what-if analysis to determine impact of these settings and ultimately select the settings to be used. The user can apply System Recommended, Previously Approved or Special User Input Settings, by updating the Replenishment Status. The workbook calculates OP, OUTL, Projected Order Quantity and the user can compare these values for various choices.

Reviewed	Replen Status
	Apply Prev Approv
Net Inventory Units	200
Approved Replenishment Method	Dynamic
Approved Replenishment Param Value 1	0.85
Approved Replenishment Parm Value 2	14.00
Approved Auxiliary Repl Param1	0.00
Approved Auxiliary Repl Param2	0.00
Approved Order Point Units	98
Approved Order up to Level Units	122
Previous Approved Replenishment Method	TimeSupply
Previous Approved Replenishment Param Value 1	3.00
Previous Approved Replenishment Parm Value 2	9.00
Previous Approved Auxiliary Repl Param1	0.00
Previous Approved Auxiliary Repl Param2	0.00
Previous Approved Order Point Units	0

Analysis Worksheet

## Analysis Worksheet Measures

### Reviewed

This is a writable measure indicating whether or not this Item/Location has been reviewed by the user. This measure is only used for tracking purposes and updates the # of Alerts Reviewed and Total Reviewed measures.

### Replen Status

The Replenishment Status is a writable measure that determines which set of Replenishment parameters to be apply. This is a measure list provides the following options:

- Apply System Recommended Settings
- Apply Previous Approved Settings
- Apply User Input

This measure defaults to Apply System Recommended Settings if no alerts are triggered for the Item/Locations. If any alert is triggered, this measure defaults to Apply Previous Approved. This measure will directly impact the Working Replenishment Method and Parameters.



**Net Inventory Units**

The current Net Inventory position.

**Approved Replenishment Method**

This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the “Approve” menu. The system will then copy the Replenishment Settings indicated in the Replen Status measure to the Approved Replenishment Method. The Approved flag will then be unchecked to allow the user to re-approve at a later time if needed.

**Approved Replenishment Param Value 1**

This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the “Approve” menu. The system will then copy the Replenishment Param1 indicated in the Replen Status measure to the Approved Replenishment Param1. The Approved flag will then be unchecked to allow the user to re-approve at a later time if needed.

**Approved Replenishment Param Value 2**

This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the “Approve” menu. The system will then copy the Replenishment Param2 indicated in the Replen Status measure to the Approved Replenishment Param1. The Approved flag will then be unchecked to allow the user to re-approve at a later time if needed.

**Approved Auxiliary Replenishment Param1**

This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the “Approve” menu. The system will then copy the Auxiliary Replenishment Param1 indicated in the Replen Status measure to the Approved Replenishment Param1. The Approved flag will then be unchecked to allow the user to re-approve at a later time if needed.

**Approved Auxiliary Replenishment Param2**

This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the “Approve” menu. The system will then copy the Auxiliary Replenishment Param1 indicated in the Replen Status measure to the Approved Replenishment Param1. The Approved flag will then be unchecked to allow the user to re-approve at a later time if needed.

**Approved Order Point Units**

This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the “Approve” menu. The system will then update this measure with the Order Point corresponding to the Approved Replenishment Method and Parameters.

**Approved Order Up to Level Units**

This measure gets updated when the user goes to the Approval tab, checks on Approve and invokes the “Approve” menu. The system will then update this measure with the Order Up to Level corresponding to the Approved Replenishment Method and Parameters.

**Previous Approved Replenishment Method**

Previous Approved Replenishment Method

**Previous Approved Replenishment Param Value 1**

Previous Approved Replenishment Parameter Value 1

**Previous Approved Replenishment Parm Value 2**

Previous Approved Replenishment Parameter Value 2

**Previous Approved Auxiliary Repl Param1**

Previous Approved Auxiliary Replenishment Parameter Value 1.

**Previous Approved Auxiliary Repl Param2**

Previous Approved Auxiliary Replenishment Parameter Value 2.

**Previous Approved Order Point Units**

The Previous Approved Order Point Units value.

**Previous Approved Order Up to Level Units**

The Previous Approved Order Up to Level Units value.

**System Recommended Replenishment Method**

The System Recommended Replenishment Method value.

**System Recommended Replenishment Param Value 1**

The System Recommended Replenishment Parameter Value 1 value.

**System Recommended Replenishment Parm Value 2**

The System Recommended Replenishment Parameter Value 2 value.

**System Recommended Auxiliary Repl Param1**

The System Recommended Auxiliary Replenishment Parameter 1 value.

**System Recommended Auxiliary Repl Param2**

The System Recommended Auxiliary Replenishment Parameter 2 value.

**System Recommended Order Point Units**

The Order Point Units based on the System Recommended Methods and Parameters value.

**System Recommended Order Up to Level Units**

The Order Up to Level Units based on the System Recommended Methods and Parameters value.

**System Recommended Order Revenue**

The System Recommended Order Revenue measure value.

**System Recommended Order Units**

The Projected Order units calculated based on the System Recommended Methods and Parameters value.

**User Replenishment Method**

This measure list provides the following Replenishment Methods options:

- MinMax
- Dynamic
- TimeSupply
- Poisson
- Hybrid.

Please refer to Chapter 1 for valid Replenishment Parameter inputs for information about each method.

**User Replenishment Parm Value 1**

This is a writable measure where the user inputs replenishment parameter 1 based on the Replenishment Method chosen. Please refer to Chapter 1 for valid Replenishment Parameter inputs for each Method.

**User Replenishment Param Value 2**

This is a writable measure where the user inputs replenishment parameter 2 based on the Replenishment Method chosen. Please refer to Chapter 1 for valid Replenishment Parameter inputs for each method.

**User Auxiliary Repl Param1**

This is a writable measure where the user inputs auxiliary replenishment parameter 1 based on the Replenishment Method chosen. Please refer to Chapter 1 for valid Replenishment Parameter inputs for each method.

**User Auxiliary Repl Param2**

This is a writable measure where the user inputs auxiliary replenishment parameter 2 based on the Replenishment Method chosen. Please refer to Chapter 1 for valid Replenishment Parameter inputs for each method.

**User Order Point Units**

This read only measure is the Order Point Units based on the user Input Methods and Parameters. This measure gets updated when the user inputs valid Replenishment Method and Parameters and clicks **Calculate**.

**User Order Up to Level Units**

This read-only measure is the Order Up to Level Units based on the user Input Methods and Parameters. This measure gets updated when the user inputs valid Replenishment Method and Parameters and clicks **Calculate**.

**User Order Units**

This read only measure is the Projected Order Units based on the User Input Methods and Parameters. This measure gets updated when the user inputs valid Replenishment Method and Parameters and clicks **Calculate**.

**User Order Point Cost**

The Order Point units multiplied by unit cost, calculated based on User Input Replenishment settings.

**User Order up to Level Revenue**

The Order up to Level units multiplied by unit retail price, calculated based on User Input Replenishment settings.

**User Order Revenue**

The Order units multiplied by unit retail price, calculated based on User Input Replenishment settings.

**User Message**

This is a read only measure that contains any error or warning messages returned by the system based on the user input values.

## Understanding the “Working” Version of the Replenishment Settings

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

The side-by-side view of the worksheets in Figure 1 shows the relationship between the assigned Replenishment Status setting and the user measures in the Analyst worksheet and the “Working” version of measures applied to the Statistics worksheet. In the following example, the Replenishment Status is set to **Apply System**, which means that the System Recommended measures in the Analysis worksheet (on the right) are used as the “Working” version of measures in the Statistics worksheet (on the left).

Statistics		Analysis	
Product	Location	Product	Location
10000010Leather Loafer - Black 6 B	Minneapolis	10000010Leather Loafer - Black 6 B	Minneapolis
Reviewed	<input checked="" type="checkbox"/>	Reviewed	<input checked="" type="checkbox"/>
OrderPoint Revenue Alert	<input checked="" type="checkbox"/>	Replen Status	Apply System
Trend in Sales Alert	<input checked="" type="checkbox"/>	Net Inventory Units	200
Change in Repl Rule ID Alert	<input checked="" type="checkbox"/>	Approved Replenishment Method	Dynamic
Weeks of Supply	2.87	Approved Replenishment Param Value 1	0.85
Inventory Turns	16.63	Approved Replenishment Param Value 2	14.00
Average Service Level	92%	Approved Auxiliary Repl Param1	0.00
Average Historic Order Frequency	0.38	Approved Auxiliary Repl Param2	0.00
Average Demand Units	14	Approved Order Point Units	98
Average Lost Sales Units	1	Approved Order up to Level Units	122
Average Inventory Onhand Units	39	Previous Approved Replenishment Method	TimeSupply
Average Inventory OnOrder Units	42	Previous Approved Replenishment Param Value 1	3.00
Average Net Inventory Units	81	Previous Approved Replenishment Param Value 2	9.00
Average Demand Revenue	543	Previous Approved Auxiliary Repl Param1	0.00
Average Lost Sales Revenue	45	Previous Approved Auxiliary Repl Param2	0.00
Average Inventory Onhand Revenue	1556	Previous Approved Order Point Units	0
Average Net Inventory Revenue	3239	Previous Approved Order up to Level Units	0
Average Demand Cost	272	System Recommended Replenishment Method	Dynamic
Average Lost Sales Cost	23	System Recommended Replenishment Param Value 1	0.85
Average Net Inventory Cost	1620	System Recommended Replenishment Param Value 2	14.00
Lead Time	21	System Recommended Auxiliary Repl Param1	0.00
Pack Size	4	System Recommended Auxiliary Repl Param2	0.00
Presentation Stock	0	System Recommended Order Point Units	98
Review Time	7	System Recommended Order up to Level Units	122
Target Weeks of Supply for Group	5.80	System Recommended Order Revenue	0
Target Service Level for Group	78%	System Recommended Order Units	0
System Recommended Replen Rule Group	Repl Grp 1-Basics	User Replenishment Method	
System Recommended Replen Rule ID	Basics: Low Sales	User Replenishment Param Value 1	0.00
Working Replenishment Method	Dynamic	User Replenishment Param Value 2	0.00
Working Replenishment Param Value 1	0.85	User Auxiliary Repl Param1	0.00
Working Replenishment Param Value 2	14.00	User Auxiliary Repl Param2	0.00
Working Auxiliary Repl Param1	0.00	User Order Point Units	0
Working Auxiliary Repl Param2	0.00	User Order up to Level Units	0
Working Order Point Units	98	User Order Units	0
Working Order up to Level Units	122	User Order Point Cost	0
Working Projected Average Inv OH over next Quarter Units	44	User Order Cost	0
Working Projected Average Service Level over next quarter	100%	User Order up to Level Cost	0
Working Projected Average Lost Sales over next quarter Units	0	User Order Point Revenue	0
ManagerComment		User Order up to Level Revenue	0
		User Order Revenue	0
		User Message	

Figure 1

In Figure 2, 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).

**Statistics Worksheet:**

Product	Location
10000010Leather Loafer - Black 6 B	Minneapolis
Reviewed	<input checked="" type="checkbox"/>
OrderPoint Revenue Alert	<input checked="" type="checkbox"/>
Trend in Sales Alert	<input checked="" type="checkbox"/>
Change in Repl Rule ID Alert	<input checked="" type="checkbox"/>
Weeks of Supply	2.87
Inventory Turns	16.63
Average Service Level	92%
Average Historic Order Frequency	0.38
Average Demand Units	14
Average Lost Sales Units	1
Average Inventory Onhand Units	39
Average Inventory OnOrder Units	42
Average Net Inventory Units	81
Average Demand Revenue	543
Average Lost Sales Revenue	45
Average Inventory Onhand Revenue	1556
Average Net Inventory Revenue	3239
Average Demand Cost	272
Average Lost Sales Cost	23
Average Net Inventory Cost	1620
Lead Time	21
Pack Size	4
Presentation Stock	0
Review Time	7
Target Weeks of Supply for Group	5.80
Target Service Level for Group	78%
System Recommended Replen Rule Group	Repl Grp 1-Basics
System Recommended Replen Rule ID	Basics: Low Sales
Working Replenishment Method	MinMax
Working Replenishment Param Value 1	110
Working Replenishment Param Value 2	150
Working Auxiliary Repl Param1	0
Working Auxiliary Repl Param2	0
Working Order Point Units	110
Working Order up to Level Units	150
Working Projected Average Inv OH over next Quarter Units	83
Working Projected Average Service Level over next quarter	100%
Working Projected Average Lost Sales over next quarter Units	0
ManagerComment	

**Analysis Worksheet:**

Product	Location
10000010Leather Loafer - Black 6 B	Minneapolis
Reviewed	<input checked="" type="checkbox"/>
Replen Status	Apply User Input
Net Inventory Units	200
Approved Replenishment Method	
Approved Replenishment Param Value 1	0
Approved Replenishment Param Value 2	0
Approved Auxiliary Repl Param1	0
Approved Auxiliary Repl Param2	0
Approved Order Point Units	0
Approved Order up to Level Units	0
Previous Approved Replenishment Method	TimeSupply
Previous Approved Replenishment Param Value 1	3
Previous Approved Replenishment Param Value 2	9
Previous Approved Auxiliary Repl Param1	0
Previous Approved Auxiliary Repl Param2	0
Previous Approved Order Point Units	0
Previous Approved Order up to Level Units	0
System Recommended Replenishment Method	Dynamic
System Recommended Replenishment Param Value 1	1
System Recommended Replenishment Param Value 2	14
System Recommended Auxiliary Repl Param1	0
System Recommended Auxiliary Repl Param2	0
System Recommended Order Point Units	98
System Recommended Order up to Level Units	122
System Recommended Order Revenue	0
System Recommended Order Units	0
User Replenishment Method	MinMax
User Replenishment Param Value 1	110
User Replenishment Param Value 2	150
User Auxiliary Repl Param1	0
User Auxiliary Repl Param2	0
User Order Point Units	110
User Order up to Level Units	150
User Order Units	0
User Order Point Cost	2200
User Order Cost	0
User Order up to Level Cost	3000
User Order Point Revenue	4400
User Order up to Level Revenue	6000
User Order Revenue	0
User Message	

**Update "Working"**

**Figure 2**

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

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

## Weekly Details Worksheet

This worksheet provides Item/Location/Week level details of historic Inventory, Demand, Lost Sales, Forecasts to help the user easily identify trends in Inventory and demand, large stock out situations, etc.

	10/3/2008	10/10/2008	10/17/2008	10/24/2008	10/31/2008
Weekly Demand Over Lead time	0.00	0.00	0.00	0.00	0.00
Weekly Demand Units	0.00	0.00	0.00	0.00	0.00
Weekly Forecast Units	0.00	0.00	0.00	0.00	0.00
Weekly Inventory Onhand Units	0.00	0.00	0.00	0.00	0.00
Weekly Inventory OnOrder Units	0.00	0.00	0.00	0.00	0.00
Weekly Lost Sales Units	0.00	0.00	0.00	0.00	0.00

**Weekly Details Worksheet**

## Weekly Details Worksheet Measures

### Weekly Demand Over Lead Time

Weekly demand units aggregated over Lead time for each week.

### Weekly Demand Units

Weekly Demand Units

### Weekly Forecast Units

Weekly Forecast Units

### Weekly Onhand Inventory Units

Weekly On Hand Inventory Units

### Weekly OnOrder Inventory Units

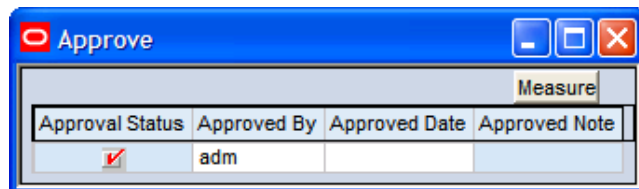
Weekly On Order Inventory Units

### Weekly Lost Sales Units

Weekly Lost Sales Units

## Approval Tab

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



**Approve Worksheet**

## Approval Measures

### Approval Status

This is a writable check box measure. When the user checks this measure and invokes the “Approve” menu, the Approved Replenishment settings get updated.

### Approved By

This is a read only measure that gets updated with the user ID when the user checks the Approval Status measure and invokes the “Approve” menu.

### Approved Date

This is a read only measure that gets updated with the current date when the user checks the Approval Status measure and invokes the “Approve” menu.

### Approved Note

This is a writable measure where the user can input Approval notes at the time of Approval.

## Approval Process Flow

The Approval Process Flow is a combination of front-end and backend batch processes. The RO batch updates the System Recommended replenishment settings. The user can view the System Recommended and Previously Approved Replenishment settings in the Replenishment Analyst workbook. The user can enter User Input Replenishment settings, compare the impacts on Inventory, Service levels, etc. and update the Replenishment Status appropriately. For Item/Locations which do not have any alerts triggered, the Replenishment Status defaults to Apply System Recommended settings. For Item/Locations that have at least one alert triggered, the Replenishment Status defaults to Apply Previous Approved setting.

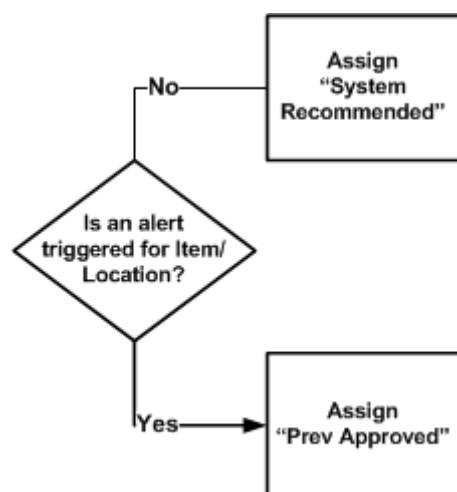
The Working Replenishment Settings get updated based on the Replenishment Status. When the user approves these settings, the Working Replenishment settings get copied to the Approved Replenishment settings.

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

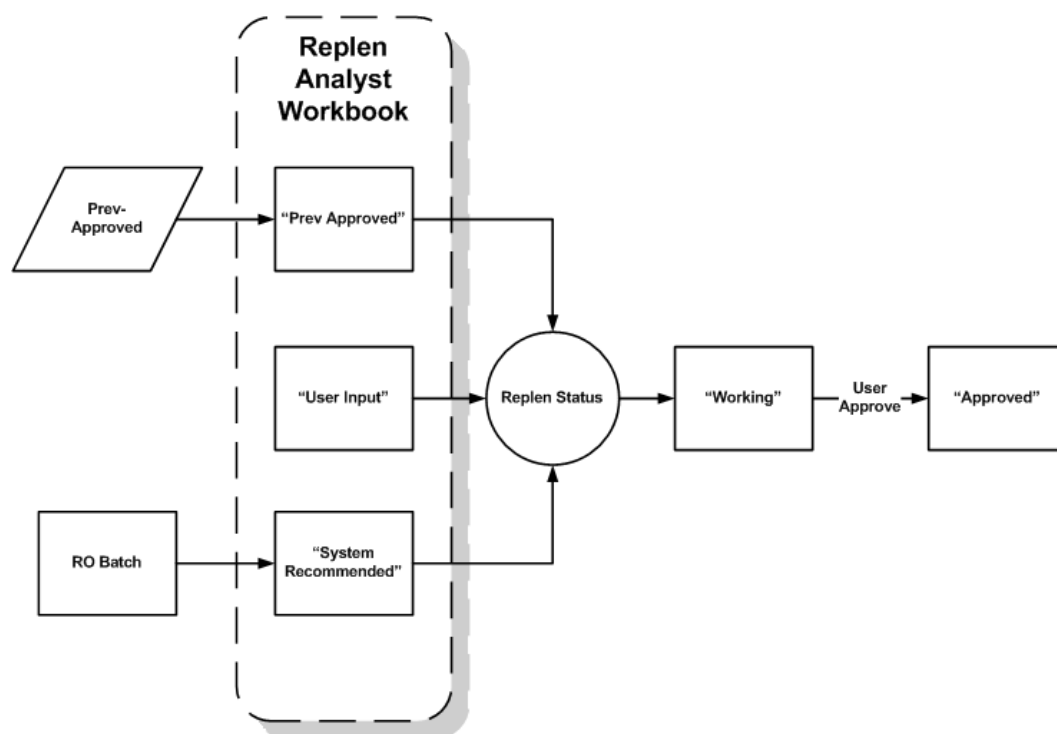
The approval batch is responsible for updating the Approved Replenishment Settings for any item/Locations that the user has not manually approved.



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



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



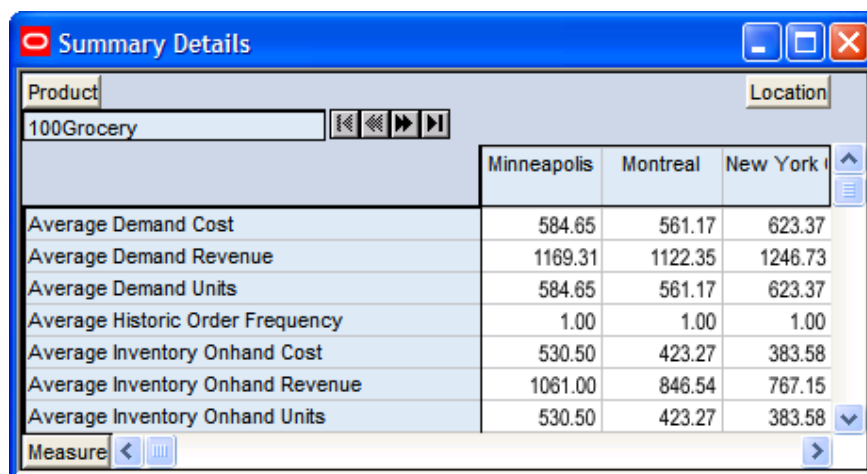


# Inventory Review and Tracking – Replenishment Manager Workbook

## Overview

The Replenishment Manager Workbook allows the user to 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 Dept/Region etc.

## Summary Details Worksheet



Product	Location	Minneapolis	Montreal	New York
100Grocery				
Average Demand Cost		584.65	561.17	623.37
Average Demand Revenue		1169.31	1122.35	1246.73
Average Demand Units		584.65	561.17	623.37
Average Historic Order Frequency		1.00	1.00	1.00
Average Inventory Onhand Cost		530.50	423.27	383.58
Average Inventory Onhand Revenue		1061.00	846.54	767.15
Average Inventory Onhand Units		530.50	423.27	383.58

Summary Details Worksheet

## Inventory Performance Statistical Measures

### Weeks of Supply

The number of Weeks of Supply or Weeks on Hand, calculated as average On Hand Inventory divided by average Demand.

### Inventory Turns

Average Inventory Turns calculated as Sales over that last 52 weeks divided by average On Hand Inventory the last 52 weeks.

### Average Service Level

The percentage of demand that was met. Calculated as average sales/average Demand.

### Average Historic Order Frequency

The average number of Orders in a week.

## Demand and Inventory Units Measures

### **Average Demand Units**

The average demand in units. Demand is calculated as historic sales plus historic Lost Sales.

### **Average Lost Sales Units**

The Average Lost Sales units value.

### **Average Inventory On hand Units**

The Average On Hand Inventory in units.

### **Average Inventory On Order Units**

The Average On Order Inventory in units.

### **Average Net Inventory Units**

The Average Net Inventory in units.

## Demand and Inventory Revenue Measures

### **Average Demand Revenue**

The average demand in Revenue, obtained by multiplying Average Demand Units by Unit Price. Demand is calculated as historic sales plus historic Lost Sales.

### **Average Lost Sales Revenue**

The Average Lost Sales Revenue value.

### **Average Inventory On hand Revenue**

The Average On Hand Inventory in revenue value.

### **Average Inventory On Order Revenue**

The Average On Order Inventory in revenue value.

### **Average Net Inventory Revenue**

The Average Net Inventory in revenue value.

## Demand and Inventory Cost Measures

### **Average Demand Cost**

Average demand in cost, obtained by multiplying Average Demand Units by Unit Cost. Demand is calculated as historic sales plus historic Lost Sales.

### **Average Lost Sales Cost**

Average Lost Sales cost.

### **Average Inventory On hand Cost**

The Average On Hand Inventory in cost.

**Average Inventory On Order Cost**

The Average On Order Inventory in cost.

**Average Net Inventory Cost**

The Average Net Inventory in cost.

**Number of Weeks for Stats**

The number of weeks in history over which the above statistics have been calculated.

**Replenishment Settings Statistical Measures****System Recommended Item/Locations on Dynamic**

The number of Item/Locations for which the System is recommending Dynamic Replenishment Method

**System Recommended Item/Locations on Hybrid**

The number of Item/Locations for which the System is recommending Hybrid Replenishment Method.

**System Recommended Item/Locations on MinMax**

The number of Item/Locations for which the System is recommending MinMax Replenishment Method.

**System Recommended Item/Locations on Poisson**

The number of Item/Locations for which the System is recommending Poisson Replenishment Method.

**System Recommended Item/Locations on TimeSupply**

The number of Item/Locations for which the System is recommending Time Supply Replenishment Method.

**Projected Inventory and Service Level Statistics**

The following measures provide projected statistics on Inventory, Service Level, and Lost Sales. The Working and System Recommended statistics allow the Manager to view the projected impacts of both statistical versions at the same time.

**System Recommended Projected Average Inv OH over next Quarter Units**

Projected Average 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 Lost Sales Units over next quarter Units**

Projected Average Lost Sales over next Quarter based on System Recommended replenishment settings. This measure represents the long term steady state Lost Sales, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.

**System Recommended Projected Average Service Level over next quarter Units**

Projected Average Service Level over next Quarter based on System Recommended replenishment settings. This measure represents the long term steady state Service Level, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.

**System Recommended Projected Weeks of Supply over next quarter**

Projected Weeks of Supply over next Quarter based on System Recommended replenishment settings. The number of Weeks of Supply or Weeks on Hand is calculated as average On Hand Inventory divided by average Demand.

**Working Projected Average Inv OH over next Quarter Units**

Projected Average On hand Inventory units over next Quarter based on Working Replenishment settings. This measure represents the long term steady state average On hand Inventory, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.

**Working Projected Average Lost Sales over next quarter Units**

Projected Average Lost Sales over next Quarter based on "Working" replenishment settings. This measure represents the long term steady state Lost Sales, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.

**Working Projected Average Service Level over next quarter**

Projected Average Service Level over next Quarter based on "Working" replenishment settings. This measure represents the long term steady state Service Level, assuming current Inventory level is not too high or too low to drive long term Inventory and Service levels.

**Working Projected Weeks of Supply for next quarter**

Projected Weeks of Supply over next Quarter based on "Working" replenishment settings. The number of Weeks of Supply or Weeks on Hand is calculated as average On Hand Inventory divided by average Demand.

## Summary Weekly Worksheet

This worksheet provides weekly information to help Replenishment Managers track inventory movement.

	10/3/2008	10/10/2008	10/17/2008	10/24/2008
Weekly Demand Units	0.00	0.00	0.00	0.00
Weekly Lost Sales Units	0.00	0.00	0.00	0.00
Weekly Inventory Onhand Units	0.00	0.00	0.00	0.00
Weekly Inventory OnOrder Units	0.00	0.00	0.00	0.00
Weekly Net Inventory Units	0.00	0.00	0.00	0.00
Weekly Demand Revenue	0.00	0.00	0.00	0.00
Weekly Lost Sales Revenue	0.00	0.00	0.00	0.00
Weekly Inventory Onhand Revenue	0.00	0.00	0.00	0.00
Weekly Inventory OnOrder Revenue	0.00	0.00	0.00	0.00
Weekly Net Inventory Revenue	0.00	0.00	0.00	0.00
Weekly Demand Cost	0.00	0.00	0.00	0.00
Weekly Lost Sales Cost	0.00	0.00	0.00	0.00
Weekly Inventory Onhand Cost	0.00	0.00	0.00	0.00
Weekly Inventory OnOrder Cost	0.00	0.00	0.00	0.00
Weekly Net Inventory Cost	0.00	0.00	0.00	0.00

Summary Weekly Worksheet

## Summary Weekly Worksheet Measures

### Weekly Demand Units

The Weekly Demand Units value.

### Weekly Lost Sales Units

The Weekly Lost Sales Units value.

### Weekly Inventory Onhand Units

The Weekly On Hand Inventory Units value.

### Weekly Inventory OnOrder Units

The Weekly On Order Inventory Units value.

### Weekly Net Inventory Units

The Weekly Net Inventory Units value.

### Weekly Demand Revenue

The Weekly Demand Revenue value.

### Weekly Lost Sales Revenue

The Weekly Lost Sales Revenue value.

**Weekly Inventory Onhand Revenue**

The Weekly On Hand Inventory Revenue value.

**Weekly Inventory OnOrder Revenue**

The Weekly On Order Inventory Revenue value.

**Weekly Net Inventory Revenue**

The Weekly Net Inventory Revenue value.

**Weekly Demand Cost**

The Weekly Demand Cost value.

**Weekly Lost Sales Cost**

The Weekly Lost Sales Cost value.

**Weekly Inventory Onhand Cost**

The Weekly On Hand Inventory Cost value.

**Weekly Inventory OnOrder Cost**

The Weekly On Order Inventory Cost value.

**Weekly Net Inventory Cost**

The Weekly Net Inventory Cost value.



## Track Performance Worksheet

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

Track Performance			
	Replen Rule		
	Basics: High Sales	Basics: High Sales-Stable	Basics: High Sales-Volatil
Average Inventory Service Level	100%	90%	100%
Weeks of Supply	0.00	0.92	0.00
Target Service Level	94%	93%	94%
Target Weeks of Supply	3.00	2.00	4.00
Average Demand Units	0.00	2860.81	0.00
Average Lost Sales Units	0.00	299.69	0.00
Average Inventory Onhand Units	0.00	2630.60	0.00
Average Inventory On Order Units	0.00	4923.48	0.00
Average Net Inventory Units	0.00	7554.08	0.00
Average Demand Revenue	0.00	12194.52	0.00
Average Lost Sales Revenue	0.00	687.48	0.00
Average Inventory Onhand Revenue	0.00	12496.21	0.00
Average Inventory On Orders Revenue	0.00	19421.29	0.00
Average Net Inventory Revenue	0.00	31917.50	0.00
Average Demand Cost	0.00	2860.81	0.00
Average Net Inventory Cost	0.00	7554.08	0.00
Average Inventory Onhand Cost	0.00	2630.60	0.00
Average Inventory On Order Cost	0.00	4923.48	0.00
Average Lost Sales Cost	0.00	299.69	0.00
Manager Comment			
Measure			

Track Performance Worksheet

## Inventory Performance Measures

### Average Inventory Service Level

The percentage of demand that was met. Calculated as historic average sales/average Demand over the last one year.

### Weeks of Supply

The number of Weeks of Supply or Weeks on Hand, calculated as average On Hand Inventory divided by average Demand over the last one year.

### Target Service Level

The target optimal Service Level recommended by RO for this Replenishment Rule ID.

### **Target Weeks of Supply**

The target optimal Weeks of Supply recommended by RO for this Replenishment Rule ID.

## **Demand and Inventory Units Measures**

### **Average Demand Units**

The average demand in units for this Replenishment Rule ID over the last one year. Demand is calculated as historic sales plus historic Lost Sales.

### **Average Lost Sales Units**

The Average Lost Sale in units for this Replenishment Rule ID over the last one year.

### **Average Inventory Onhand Units**

The Average On Hand Inventory in units.

### **Average Inventory On Order Units**

The Average On Order Inventory in units.

### **Average Net Inventory Units**

The Average Net Inventory in units.

## **Demand and Inventory Revenue Measures**

### **Average Demand Revenue**

The average demand in Revenue for this Replenishment Rule ID over the last one year. Demand is calculated as historic sales plus historic Lost Sales.

### **Average Lost Sales Revenue**

The Average Lost Sale in Revenue for this Replenishment Rule ID over the last one year.

### **Average Inventory Onhand Revenue**

The Average On Hand Inventory in Revenue value.

### **Average Inventory On Orders Revenue**

The Average On Order Inventory in Revenue value.

### **Average Net Inventory Revenue**

The Average Net Inventory in Revenue value.

## **Demand and Inventory Cost Measures**

### **Average Demand Cost**

The average demand in Cost for this Replenishment Rule ID over the last one year. Demand is calculated as historic sales plus historic Lost Sales.

### **Average Net Inventory Cost**

The Average Net Inventory in Cost value.

**Average Inventory Onhand Cost**

The Average On Hand Inventory in Cost value.

**Average Inventory On Order Cost**

The Average On Order Inventory in Cost value.

**Average Lost Sales Cost**

The Average Lost Sale in Cost for this Replenishment Rule ID over the last one year.

**Manager Comment Measure****Manager Comment**

This is a writable measure that allows the Replenishment Manager to enter comments on the performance of the Replenishment Rule ID. These comments can be reviewed by the Replenishment Analyst in the Replenishment Analyst Workbook at an Item/Location level.