

Oracle® Retail Advanced Inventory Planning
Order Management User Guide
Release 13.1.1

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Preface

The Oracle Retail Advanced Inventory Planning Order Management 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 Advanced Inventory Planning. This may include merchandisers, buyers, and business analysts.

Related Documents

For more information, see the following documents in the Oracle Retail Advanced Inventory Planning Release 13.1 documentation set:

- *Oracle Retail Advanced Inventory Planning Release Notes*
- *Oracle Retail Advanced Inventory Planning Data Management Online - Online Help*
- *Oracle Retail Advanced Inventory Planning Data Management Online User Guide*
- *Oracle Retail Advanced Inventory Planning Order Management - Online Help*
- *Oracle Retail Advanced Inventory Planning Data Model Volume 1 Oracle Database Data Model*
- *Oracle Retail Advanced Inventory Planning Data Model Volume 2 Measure Reference Guide*
- *Oracle Retail Advanced Inventory Planning Installation Guide*
- *Oracle Retail Advanced Inventory Planning Operations Guide*
- *Oracle Retail Advanced Inventory Planning Implementation Guide*
- *Oracle Retail Advanced Inventory Planning Administration Guide*
- *Oracle Retail Advanced Inventory Planning Warehouse Replenishment Planning User Guide*
- *Oracle Retail Advanced Inventory Planning Store Replenishment Planning User Guide*

Customer Support

<https://metalink.oracle.com>

When contacting Customer Support, please provide the following:

- Product version and program/module name
- Functional and technical description of the problem (include business impact)
- Detailed step-by-step instructions to re-create
- 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

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

Conventions

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.”

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.

Welcome to Oracle Retail Advanced Inventory Planning

Oracle Retail Advanced Inventory Planning (AIP) is a suite of products designed to manage the supply chain needs of retailers, from interaction with their suppliers through various layers of warehouses down to individual stores and e-commerce sites. Oracle Retail Advanced Inventory Planning couples time-phased replenishment and allocation algorithms to produce an actionable receipt plan over time, based on demand forecasts, replenishment parameters, and inventory availability at the numerous points within the supply chain.

Oracle Retail Advanced Inventory Planning provides the tactical inventory plan needed to run the business. Its purpose is to optimally forecast consumer demand, source supply, and fulfill demand in a time-phased manner. Because of Oracle Retail Advanced Inventory Planning, the supply chain is aligned into a virtual enterprise, and the retailer gains visibility across the supply chain to demand, supply, and any constraints.

Oracle Retail Advanced Inventory Planning is composed of two parts:

- Oracle Retail Data Management Online (DM Online)
- Oracle Retail Order Management (OM)

Getting Started

How you access AIP depends on how the application is set up at your location. Contact your system administrator for instructions. After starting the application, you are prompted to log in. Your system administrator assigns a user name and a temporary password. You will need to change the password after you log on the first time. Additionally, your password periodically expires, in a period of time as determined by your system administrator.

The following rules apply when you change your password:

- Passwords must be a minimum of six (6) characters and maximum of 128.
- Passwords must contain at least five different characters.
- Passwords must not be simple.
 - Cannot include sequences such as ABCDE or ABCXYZ.
 - Cannot contain more than four consecutive identical characters.
- Passwords cannot be based on from your user name or your full name.
- Passwords cannot be based on a previous password.
- Passwords cannot be based on a dictionary entry.

Logging on to Oracle Retail Advanced Inventory Planning (AIP)

1. On the Login window, enter your user ID in the User Name field.
2. In the Password field, enter your password.
3. Click **Log In**.
4. In the Applications area, click **AIP Online**. The User Console is displayed.

Note: The User Console may be displayed when you log in. If this is the case, proceed to the next step.

5. Select the application you want to use.
6. Click **Start**. The application opens in a new window.

Changing Your Password

1. Log on to Oracle Retail Advanced Inventory Planning (AIP).
2. On the User Console, click **Applications**.
3. Click **Change Password**.
4. In the Current Password field, enter the password you used to log in to the applications
5. In the New Password field, enter the password you want to use in the future.
6. In the Retype password field, enter the password you entered in the New Password field.
7. Click **Change Password**.

Note: You can click the "Return to front page without changing password" link to cancel your changes.

Exiting AIP

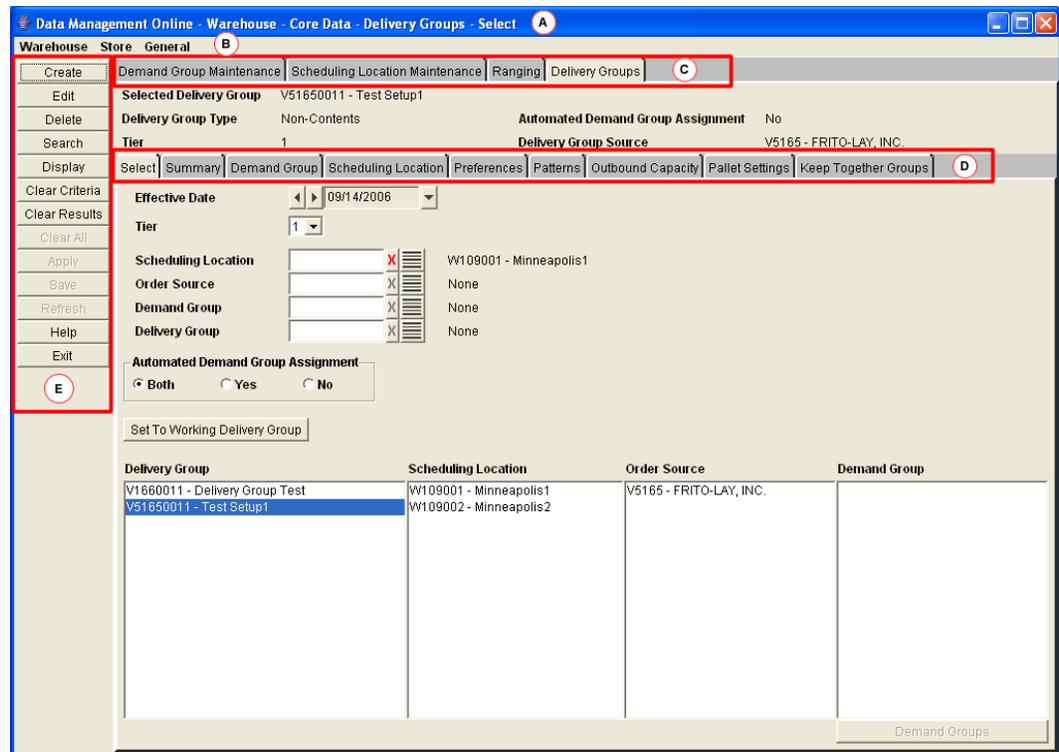
1. Click **Exit**. You are returned to the User Console.

Note: The Exit button is located on the standard button bar in the AIP workspace.

2. Click **Log Out**.

The AIP Workspace

After logging into AIP, you have access to the application window. The primary elements in the application window appear in the image below:



- **A – Title Bar**
Located at the top of the application window. The title bar displays the product name and the area you are currently working in. The three buttons at the far right on the title bar allow you to minimize, restore, maximize, and close the application window.
- **B – Menu Bar**
Located below the title bar. The menu bar provides access to different areas of the application.
- **C – Primary Tabs**
Located at the top of the workspace. The primary tabs give you access to the functional areas available for the selections you made from the menu.

- D – Secondary Tabs
Located in the workspace, beneath the primary tabs. The secondary tabs give you access to the functional area within each primary tab, if they exist for a specific tab.
- E – Standard Buttons
Located at the left of the workspace. The standard buttons are enabled based on the work you have done or the selections you make in the workspace.

Navigating AIP

The basic method for entering data in a text field is to type the text in the field. Some fields, however, restrict the type of data that may be entered. The options for entering or selecting data depend on the type of data that may be required or permitted in the field. For example, some fields permit only numeric data, while others permit only alphabetic or alphanumeric data. Some fields require a date to be entered in a specific format. Some fields permit only one value, while others permit multiple values.

Calendars, drop-down lists and lists of value provide you with access to preformatted, predefined values. Instructions for using these tools are provided below.

Using a Calendar Button

To look up the date, you can access a date picker window.



Date Picker Window

Select a Date

1. Click the calendar button next to a date field. The calendar window opens.

Note: The calendar button appears as a drop down button to the right of the date field.

2. Select the desired date:
 - To select a year, press the left or right arrows next to the year field.
 - To select a month, click on the appropriate month abbreviation.
 - To select a day of the month, click the day on the calendar.
3. Click **OK**. The date field is automatically filled in when you select the day of the month.

Move the Date

You can move the selected date forward or backward.

Using a Drop-down List

Some fields are restricted to a predefined list of values. You access a drop-down list from which you can pick the desired value.



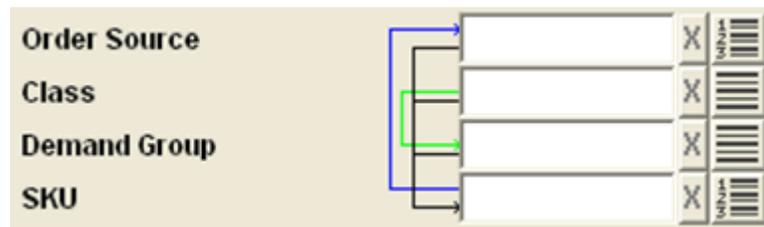
Drop-down List

1. Click on the drop-down  button next to a field. A list of predefined values appears.
2. If necessary, scroll through the list until the appropriate value appears.
3. Select the value. The field is automatically filled in with the selected value.

Field-Level Filtering in AIP

Some fields are filtered by the selections you have made in previous field. These fields are indicated by arrows pointing to them from other fields.

Note: Any fields that are required when searching are indicated with an asterisk (*).



Example of Field Level Filters

In the example:

Field Name	Results in Limits To	Indicated By
Order Source, Class, and Demand Group	SKU	Black arrow
Class	Demand Group	Green arrow
SKU	Order Source	Blue arrow

Note: The colors indicated are specific to this example. The arrows in the window you are working in may be colored differently and serve only to help you distinguish the different lines.

Clear a Selection

After you make a selection, the clear LOV  button is enabled. If two fields filter each other as part of a field-level filter, you must clear your selections before you can make additional selections.

To clear the field, click the clear LOV  button.



Locked Filter Field

Sorting Rules

When certain elements are selected, related fields are filtered to only display data corresponding with the selected element. The following sections detail the impact of selection on these related fields.

Demand Group

When Demand Group is selected, the following field is filtered:

- SKU – Filtered to only display SKUs having a pack size in the selected demand group.

Profile

When Profile is selected, the following field is filtered:

- Class – Filtered to only display classes containing a SKU assigned to the selected profile.

SKU

When SKU is selected, the following fields are filtered:

- Demand Group – Filtered to only display demand groups containing a pack size of the selected SKU.
- Order Source – Filtered to only display suppliers that supply a pack size of the selected SKU, and warehouses that are ranged for a pack size of the selected SKU.

Class

When Class is selected, the following fields are filtered:

- Demand Group – Filtered to only display demand groups containing a SKU belonging to the selected class.
- SKU – Filtered to only display SKUs belonging to the selected class.

Supplier

When Supplier is selected, the following fields are filtered:

- Demand Group – Filtered to only display demand groups containing a SKU pack size that is supplied by the selected supplier.
- SKU – Filtered to only display SKUs having a pack size supplied by the selected supplier.
- Class – Filtered to only display classes containing a SKU that has a pack size supplied by the selected supplier.

Order Source

When Order Source is selected, the following field is filtered:

- SKU – If the selected order source is a supplier, SKU is filtered to only display SKUs having a pack size supplied by the supplier. If the selected order source is a warehouse, SKU is filtered to only display SKUs having a pack size ranged to the warehouse.

Store Format

When Store Format is selected, the following field is filtered:

- Store – Filtered to only display stores of the selected store format.

Warehouse

When Warehouse is selected, the following field is filtered:

- SKU – Filtered to only display SKUs that are ranged to the selected warehouse.

List of Values (LOV) Buttons

Some fields need to filter a large amount of information. To help you select the information, there are two types of LOV buttons:

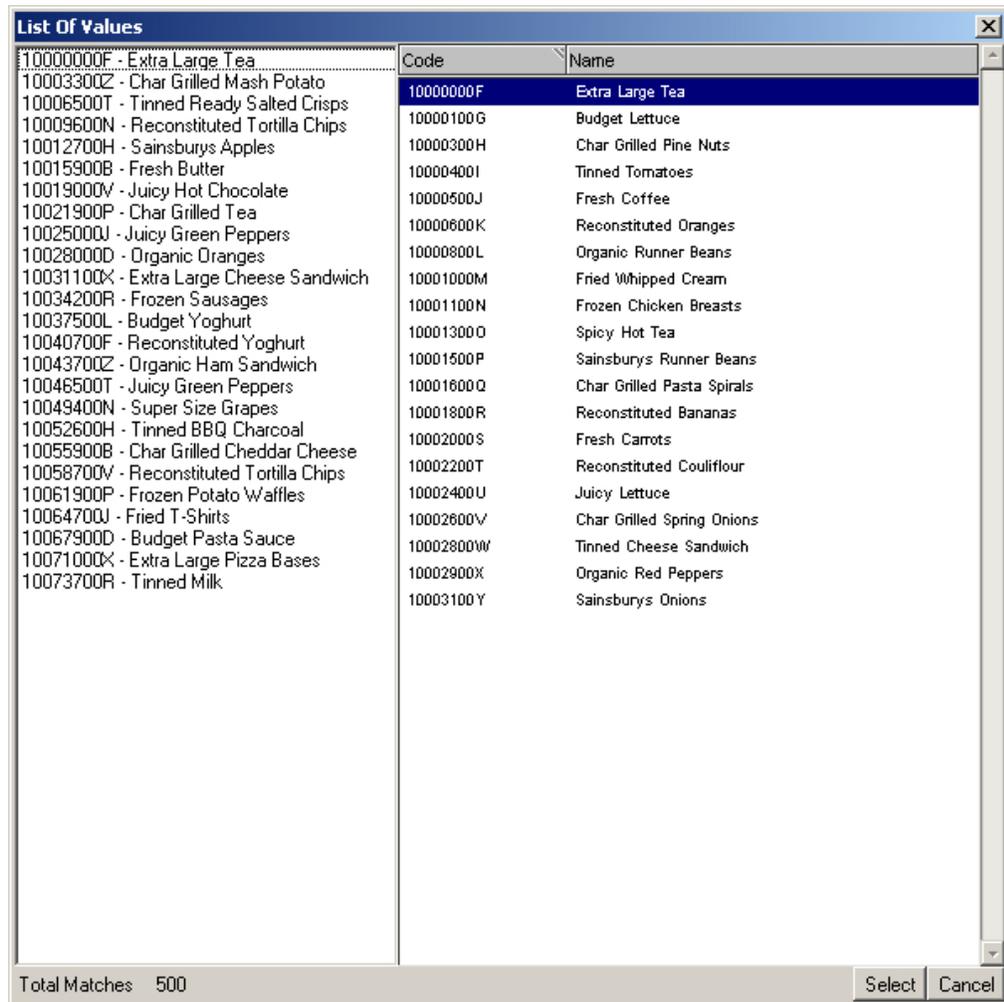
- **LOV  buttons:** Allow you to pick from a list of valid data that can be used in the field. A LOV button only allows you to make one selection.
- **Multi-select LOV  buttons:** For fields that permit multiple values, you can access a list of value window in multi-select view. The box contains two blocks. One block contains the predefined values that are available to you. The second block contains the values that have already been assigned to the field, if any. You have the option of:
 1. Removing assigned values, which places them back in the available list.
 2. Adding values, which places them in the selected list.

When a multi-select LOV button has multiple values selected, the first value that was selected is displayed followed by an ellipse.

The list of values window displays the first set of 20 values and a paging mechanism. To view additional sets of information, select from the list on the left side.

Using a LOV Button

1. Click the LOV  button next to a text field. The list of values window opens. The total number of values appears on the footer of the window.



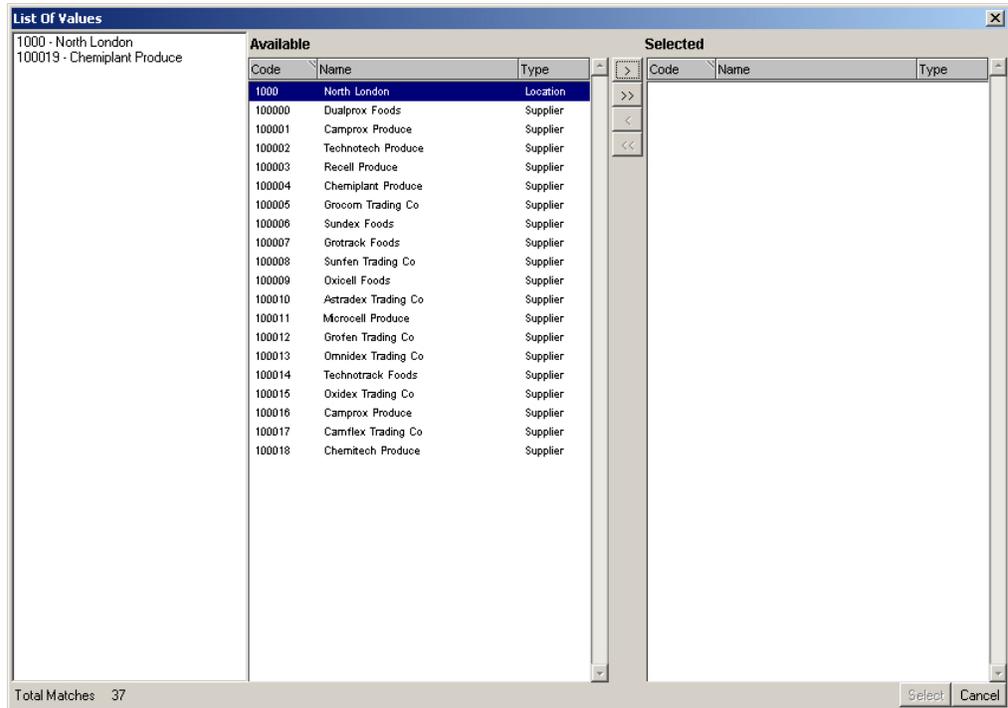
List of Values Window

Note: You can enter information into the field before you click the LOV  button. A partial list of values is return that matches the information you entered. If you enter a complete, valid value and press Enter, the information is displayed without opening the list of values window.

2. Select a value. Page as necessary to find your value.
3. Click **Select**. The field is automatically filled in with the selected value.

Using a Multi-Select LOV Button

1. Click the multi-select LOV  button next to a text field. The list of values window opens. The total number of values appears on the footer of the window.



List of Values window - multi-select view

Note: You can enter information into the field before you click the multi-select LOV  button. A partial list of values is returned that matches the information you entered. If you enter a complete valid value and press **Enter**, the information is displayed without opening the list of values window.

2. Select the appropriate values:
 - Select one or more values in the selected values box. Page as necessary to find your value.
 - Click the move right  button. The values are displayed in the selected values box.

Note: To move all values displayed in the available area, click the move all right  button.

3. Remove unneeded values:
 - Select one or more values in the selected values box.
 - Click the move left  button. The values are removed from the selected values box.

Note: To move all values displayed in the selected area, click the move all left  button.

4. Click **Select**. The field is automatically filled in with the selected values.

Transfer Boxes

For fields that permit multiple values, you can use a transfer box. The box contains two blocks. One block contains the predefined values that are available to you. The second block contains the values that have already been assigned to the field, if any. You have the option of:

1. Removing assigned values, which places them in the available list.
2. Adding values, which places them in the selected list.

Using a Transfer Box

1. Select the appropriate values:
 - a. Select one or more values in the available values box.
 - b. Click the move right  button. The values are moved to the selected values box.

Note: To move all displayed values, click the move all right  button.

2. Remove Unneeded Values:
 - a. Select one or more values in the selected values box.
 - b. Click the move left  button. The values are returned to the available values list.

Note: To move all displayed values, click the move all left  button.

Moving Top Level Folders and Folder Components

- Select the top level folder to move the folder and all components contained within the folder.
- Select the individual component of the folder to move the folder component without including the entire folder.

Sorting a Table

In a table you can sort the results:

- To sort the list, click any column heading. Hatch marks indicate the column that is currently sorted as well as the order: ascending or descending.
- To reverse the current sort order, click the same column heading again.
- To sort on multiple columns, where allowed, click the column heading to select the sort order and then right-click the column heading. The column heading turns red to indicate the column is locked. Repeat this process for other columns displayed on screen.

Alert Status	Alert	Priority	Alert Type	Alert Date
Closed	A source split was assigned to a single source when more than one source exists for Effective Date 11-APR-06, Source 100139, Demand Group 100556 , 2		New Source Split	04/12/2006

Example of Table Data Sorted by Multiple Columns - Alert Status and Priority

Paging through Records

On some tabs, like the Alerts tab where numerous records may be displayed, paging controls appear at the bottom of the tab. This feature allows you to page through the records as needed. The total number of pages appears to the left of the paging controls.



Example of Paging Controls

Using the Paging Controls

- To page forward, click the Next  button. The next page of records appears.
- To page backward, click the Previous  button. The previous page of records appears.
- To view the first page of records, click the First Page  button. The first page of records appears.
- To view the last page of records, click the Last Page  button. The last page of records appears.

Using the Online Help

The following sections provide information about the online help for Oracle Retail Advanced Inventory Planning.

About the Online Help

The online help system uses JavaScript for some of its functionality. Make sure you have enabled JavaScript for your Web browser. Refer to the online help in your Web browser for instructions on enabling JavaScript.

Introduction

The help site provides step-by-step procedures as well as other information about using Oracle Retail Advanced Inventory Planning. We have implemented some tools to assist your navigation of the help site. These tools are explained below.

Formatting Conventions

This section provides information about the documentation conventions used in the online help.

Note: Notes are displayed using this convention. Notes contain additional information about the process or procedure that you are performing.

Navigate: The navigation sections of a procedure provide information about how to access the window that is the starting point of a procedure.

Navigating the Online Help

The help site provides several ways for you to navigate to your topic.

Using the Table of Contents

The table of contents is the most common way that you will navigate to your topic.

1. Select the Contents tab to display the table of contents on the left side of your screen.
2. Double-click a book to expand it and view the topics.
3. Select a topic from the table of contents to view it.

Using the Search Feature

Use the search feature to explore the contents of your topics and find matches to queries that you define. There are some basic rules for making queries in full-text searches.

- You can type your search in uppercase or lowercase characters. Searches are not case sensitive.
- You can search for any combination of letters (a-z) and numbers (0-9).
- Punctuation marks such as the period, colon, semicolon, comma, and hyphen are ignored during a search.
- Group the elements of your search using double quotes or parentheses.
- You cannot search for quotation marks.

Follow this procedure to use the search feature.

1. Select the Search tab to display the search feature on the left side of your screen.
2. In the Search field, enter the word or words that you want to find.
3. Press **Enter**. Topics that match your search criteria display in the left pane.
4. Select a topic to view it.

Order Management

Introduction to Oracle Retail Order Management

Order management allows you to create, edit, and view orders from suppliers and warehouses. An order can be a purchase order or a transfer.

- Purchase orders are orders sourced directly from suppliers.
- Transfers are orders sourced directly from a warehouse.

Orders exist in Order Management as a result of the following processes.

- You can manually create a purchase order in order management.
- Orders are automatically generated by AIP.

Order Quantities

When you create or edit an order, there are several rules that apply to the quantity you enter:

- The quantity must be greater than zero.
- You must order a full case or SKU-pack size.
- If you use eases as your order quantity, you must order multiples of a full SKU-pack size.

Note: As best practice, Oracle Retail recommends ordering in quantities that complete the pallet/order multiple. If you order a quantity that is not a valid pallet/order multiple, you will receive a warning.

Security

You are assigned permissions to the windows in Order Management by your system administrator. The windows and buttons that are available depend on your system settings. Contact your system administrator for details.

Create an Order

The Order Creation window allows you to manually create into-store and into-warehouse purchase orders. When you create purchase orders, you can enter quantities as cases or eases.

After you create a purchase order, the purchase order is displayed on the table in green until it is saved.

Once you save a purchase order, it is:

- Validated against the destination's order cycle.
- Validated for the destination's ability to receive.
- Verified for valid release dates.
- Released immediately to the merchandising system.

Conditions to Create a Purchase Order

The following conditions must be met before you can create a purchase order for a warehouse:

- A delivery group must exist in AIP for the supplier, destination, SKU-pack, and delivery date.
- The source of the order must be a supplier.
- The warehouse selected for the purchase order has a chamber in either release or closing down status and the warehouse is ranged for the SKU type.

Create a Purchase Order

Navigate: Log into Order Management. Select the Order Creation tab.

Order Creation Tab

1. In the Delivery Date field, select the date you want the order delivered.
2. In the Supplier field, enter a supplier ID, or click the LOV  button and select the supplier.
3. In the Destination field, enter the destination ID, or click the LOV  button and select a destination from the list.

Note: All destinations with ranged or on-supply SKU pack-sizes from the supplier are displayed.

4. In the SKU Pack Size field, enter the SKU pack-size you want to order, or click the LOV  button and select a SKU pack size from the list.
5. In the Unit of Measure area, select how you want to enter the order quantity for this purchase order.

6. Click **Create**. This populates the table with the purchase order information.

Note: An unsaved order with the same supplier, destination, SKU-pack, and delivery date cannot be duplicated.

7. In the Quantity field, double-click the column to enter the quantity for the purchase order.

Note: If you are ordering by eaches, you must enter multiples of the pack size.

8. To delete an unsaved purchase order:
 - a. Select the order.
 - b. Click **Delete**. The purchase order is removed from the table.
9. Click **Save**. You are prompted to confirm your decision.
10. Click **OK**. An order number is assigned to your purchase order.

Maintain Orders

The Order Maintenance window allows you maintain, cancel, and release purchase orders for:

- Into-store orders
- Into-warehouse orders

Into-store and into-warehouse orders are displayed in Order Management if they are created manually or are automatically generated by AIP. The orders can be purchase orders or transfers, with received or un-received quantities. On the Order Maintenance window, the pallet/order multiple for the order is displayed in the lower right corner of the window when you select an order.

Any purchase orders with unsaved changes are displayed in green. Once you save a purchase order, your changes are immediately communicated to the merchandising system.

About Maintaining Your Orders

The AIP Online system can be configured to limit the functions a user can perform from the Order Maintenance tab. Based on the AIP configuration implemented at your location, the following functions may not be allowed or may be limited:

- The ability to move un-received quantities of an order.
- The ability to move un-received order quantities if the line item has an open order status and either a) the received quantity is less than the total quantity or b) the received quantity is zero.
- The ability to change the order destination when moving order quantities.
- The ability to input or require a new order number when moving an order. If a new order number is not required, users are allowed to choose whether to retain the existing order number or generate a new one when moving un-received order quantities.
- The ability to cancel un-received order quantities.
- The ability to release unreleased orders.
- The ability to edit the quantities or purchase orders.
- The ability to view all orders. The screen may only display purchase orders, only transfers, or both purchase order and transfers.

This section provides the procedures to perform all tasks available through the Order Maintenance tab, but the tasks you can perform or the options displayed on your system may vary based on your system configuration.

Purchase Orders

When you edit an open or overdue order, you can move the un-received quantity on a purchase order, so that the un-received quantity arrives on a new date or to a new destination. Alternatively, you can edit any un-received quantity on the purchase order. You cannot move a purchase order that has been completely received.

To cancel un-received quantities, your purchase order must be open or overdue. Additionally, the purchase order cannot be fully received.

Release a Purchase Order

You can manually release purchase orders that are forecasted. Once you release a purchase order, it is:

- Verified that the warehouse selected for the purchase order has a chamber in release or closing down status and the warehouse is ranged for the SKU type.

Note: This verification occurs only for warehouse destination types.

- Assigned an order number.
- Released immediately to the merchandising system.

Move a Purchase Order

The following conditions when you move a purchase order with a warehouse destination type:

- A delivery group must exist in AIP for the supplier, destination, SKU-pack, and delivery date.
- The new warehouse selected for the purchase order has a chamber in release or closing down status and the warehouse is ranged for the SKU type.

When you are working with purchase orders, to retain a purchase order number you must select the entire order. To do so, in your search criteria you must:

- Select the Entire Order, and Tree view. On the results table, select the folder.
- Select the Entire Order and Grid. To retain purchase orders at this level, your system settings must be set up to define order numbers at the order source, destination, SKU-pack, and delivery date.
- Select the Matching Line Item and Grid. To retain purchase orders at this level, your system settings must be set up to define order numbers at the order source, destination, SKU-pack, and delivery date.

The status of a purchase order can provide you with various types of information. Purchase orders can exist in several statuses:

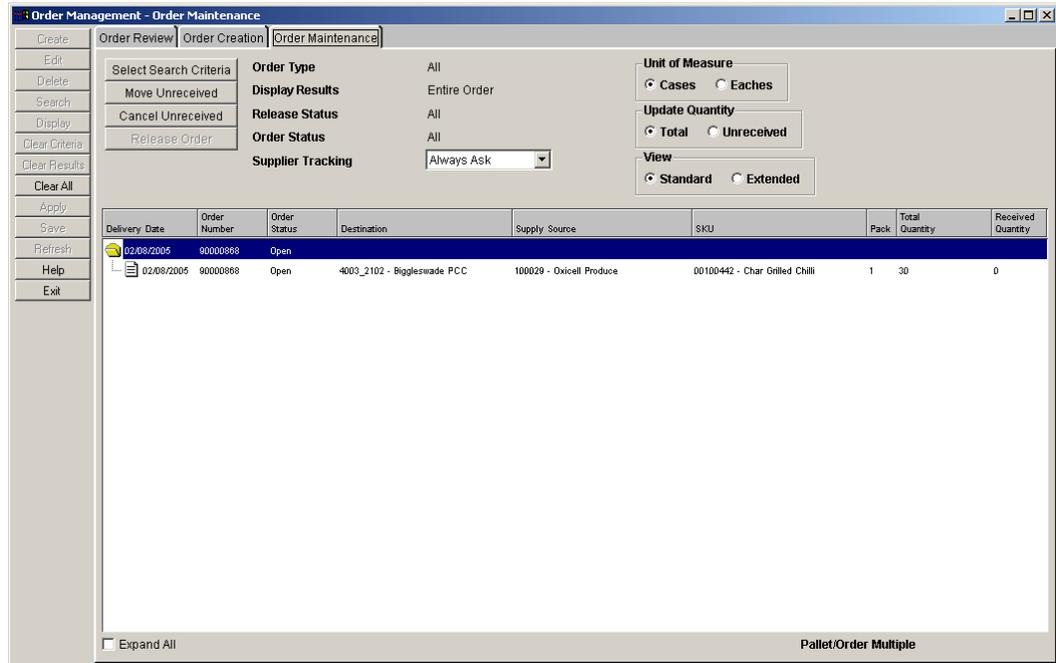
- **Open:** The order has been released.
- **Overdue:** The order has received less than the total order quantity and the delivery date has passed.
- **Closed:** The merchandising system has set the status to Closed.

Transfers

Transfers can only be viewed from the Order Maintenance window. You cannot edit, release, or move the dates or destinations of a transfer.

Search for Orders

Navigate: Log into Order Management. Select the Order Maintenance tab.



Order Maintenance Tab

1. Click **Select Search Criteria**. The Select Search Criteria window opens.

Select Search Criteria Window

2. Enter your search criteria as necessary, choosing one of the following options:
 - a. Order Number. No other criteria required.
 - b. Select one option from each column in the table below:

Select one of the following:	AND	Select one of the following:
Order Source and Destination		Release Dates Note: Available dates are limited by the order purging period and release status selections.
Order Source and Destination Type (Any selection except all)		Delivery Dates Note: Available dates are limited by the order purging period and release status selections.
SKU		Order Status Note: This field is available only if you have selected Released in the Release Status area.

3. You may select additional information to limit your search:
 - **Display Results:** Select how you want to view the results:
 - Matching Line Items returns line items that meet the search criteria.

- Entire Order returns orders that contain the line items that meet the search criteria.
 - **Display Format:** Select how you want to view the results:
 - Tree to display the line items under the common order number.
 - Grid to display the line items in a table format.
4. Click **Search**.

Edit a Purchase Order Quantity

Navigate: Log into Order Management. Select the Order Maintenance tab.

1. Search for and retrieve a purchase order.

Note: If you are working in a tree structure, double click the folder to display the line items contained in the purchase order.

2. In the Quantity field, double click on the quantity number to enter the quantity for the order.

Note: The Quantity column is determined by the view selected in the Update Quantity area. For more information, see the Change display setting of orders procedure.

3. Save your purchase order.

Change the Display Settings of Orders

Navigate: Log into Order Management. Select the Order Maintenance tab.

1. Search for and retrieve a purchase order.

Note: If you are working in a tree structure, double click the folder to display the line items contained in the order.

2. In the grid view of the search table you can sort the results:
 - To sort the list, click any column heading. Hatch marks indicate the column that is currently sorted as well as the order: ascending or descending.
 - To reverse the current sort order, click the same column heading again.
 - To lock the column that has been filtered, right-click the header. It turns red.

Note: Once you lock a column, you can sort additional column by clicking on the appropriate column header.

- To unlock the column, right-click it again.
3. In the Unit of Measure area select:
 - **Cases** displays the order quantity in cases.
 - **Eaches** displays the order quantity in eaches.
 4. In the Update Quantity area, select:
 - **Total** displays the total order quantity and enables you to edit the total quantity.
 - **Un-received** displays the un-received quantity and enables you to edit the un-received quantity.

- In the View area, select the view you want to use to display the following columns:

Standard	Extended
Delivery Date	Delivery Date
Order Number	Order Number
Order Status	Order Status
Destination	Destination
Order Source	Order Source
SKU	Class
Pack	SKU
Quantity (Total/Un-received)	Pack
Received Quantity	Quantity (Total/Un-received)
	Received Quantity
	Supplier Tracking
	Release Date

- If you are working in tree view, select the **Expand All** check box to view all line items in all orders.

Move an Un-received Order

Navigate: Log into Order Management. Select the Order Maintenance tab.

- Search for and retrieve a purchase order.

Note: If you are working in a tree structure, double-click the folder to display the line items contained in the order.

- Select what you want to move:
 - Select the line items of an order you want to move.
 - Select the entire purchase order.

Note: All line items must meet the receive criteria in order to move the purchase order.

- Click **Move Un-received**. The Supplier Tracking window opens.



Supplier Tracking Window

Note: This window opens only when Always Ask is selected in the Supplier Tracking field in the Order Maintenance window.

- Enter Supplier Tracking selection.
- Click **OK**. The Move Un-received Quantity window opens.

Supplier Tracking Supplier Initiated

Unit of Measure Cases

Selected Orders

Delivery Date	Order Number	Destination	Supplier	SKU	Pack	Unreceived Quantity
02/08/2005	90000868	4003_2102 - Biggleswade PCC	100029 - Oxicell Produce	00100442 - Char Grilled Chilli	1	30

Move unreceived quantity to:

Delivery Date

New Destination

 Destination Type All

 * Destination None

Order Number

Retain existing order number

Generate new order number

Save Cancel

Move Un-received Quantity Window

6. To change the delivery date of the un-received quantity:
 - a. Select the **Delivery Date** check box.
 - b. In the next field, select the new date using the calendar button.
7. To change the destination of the un-received quantity:
 - a. Select the **New Destination** check box.
 - b. In the Destination Type field, select the type of location receiving the quantity.
 - c. In the Destination field, enter the Destination ID, or click the Destination LOV and select a destination.
8. In the Order Number area select:
 - a. Retain existing order number to use the same order number for the new order.
9. Click **Save**. You are prompted to confirm your decision.
10. Click **OK**. Your order is saved.

Note: This option is only available if the entire purchase order was selected in the Order Maintenance window.

- b. Generate new order number to create a new order number.

Note: Once you confirm your decision to save, the original purchase order or line item is closed and can no longer be updated.

Cancel Un-received Quantities on a Purchase Order

Navigate: Log into Order Management. Select the Order Maintenance tab.

1. Search for and retrieve a purchase order.

Note: If you are working in a tree structure, double click the folder to display the line items contained in the purchase order.

2. Select the line items or orders that you want to cancel.

Note: All line items must meet the receive criteria in order to move the purchase order.

3. Click **Cancel Un-received**. You are prompted to confirm your decision.
4. Click **OK**. Your order is displayed in green and must be saved.

Release a Forecasted Purchase Order

Navigate: Log into Order Management. Select the Order Maintenance tab.

1. Search for and retrieve an unreleased purchase order with Forecast in the Order Number field.

Note: If you are working in a tree structure, double click the folder to display the line items contained in the purchase order.

2. Select the line items or purchase orders that you want to release.

Note: All line items must meet the receive criteria in order to move the purchase order.

3. Click **Release Order**. You are prompted to confirm your decision.
4. Click **OK**. Your order is displayed in green and must be saved.

Save a Purchase Order

Navigate: Log into Order Management. Select the Order Maintenance tab.

1. Search for and retrieve a purchase order.
2. Complete your work with the purchase order.
3. Click **Save**.

Note: If you have modified a released order and selected Always Ask, the Supplier Tracking window opens

4. In the Supplier Tracking field select:
 - **Supplier Initiated** indicates that order changes were caused by the supplier.
 - **Business Initiated** indicates that order changes were caused by the retailer.

Note: This window opens if you have not already specified supplier tracking in the Order Maintenance window.

5. Click **OK**.

Review Orders

The Order Review tab allows you to review release and unreleased into-store and into-warehouse orders. Orders are available for review until they are a specified number of days past their release or delivery date. Your system administrator specifies the number of days that orders remain available.

Visual clues will help you understand the order status:

- **Quantities in parenthesis:** The purchase order is unreleased. If multiple orders are represented, the quantity displayed is the unreleased amount across purchase orders.
- **Quantities in brackets:** For multiple orders, indicates that released and unreleased quantities exist across purchase orders.
- **Quantities in red:** The purchase order is overdue.

You can review existing orders in Order Management through the Order Review window. The window displays time from left to right across the window. The time periods displayed are determined by your selection in the Select Search Criteria window. You can change the data displayed in the table by updating the information selected in the dynamic fields located in the upper left corner of the window. When you select a cell, information about the order is displayed below the table. Quantities displayed may apply to a single order or multiple orders.

Search results are displayed in numeric order as a result of your selection in the Display in Rows field on the Search Criteria window. The table rows provide a view to the destination, order source, or the SKU-pack size on the order over the period of time you select.

After you search, you may focus your search by selecting a cell and redefining your search by date. This allows you to perfect your search and examine the orders at an appropriate level.

Note: The AIP Online system can be configured to limit the type of orders user can view. Based on your system configuration, the screen may only display purchase orders, only transfers, or both purchase order and transfers. This section provides the procedures to perform all tasks available through the Order Review tab, but the tasks you can perform or the options displayed on your system may vary based on your system configuration.

Search for Orders and Transfers

Navigate: Log into Order Management. Select the Order Review tab.

The screenshot shows the 'Order Management - Order Review' window. The 'Order Review' tab is selected. The 'Order Source' is set to 'V5678900000 - The Furniture Company P/L'. The 'SKU Pack Size' is also set. The 'Display Quantity' and 'Display Zero Values' options are unchecked. The 'Order Type' is set to 'Purchase Order'. The 'Unit of Measure' is set to 'Cases'. A table with columns for dates from 10/02/2006 to 10/08/2006 and a 'Total' column is visible. Below the table are fields for 'Order Number', 'Supplier Tracking', 'Received Quantity', and 'Last Modified By'. There are also 'Previous' and 'Next' buttons.

Destination	10/02/2006	10/03/2006	10/04/2006	10/05/2006	10/06/2006	10/07/2006	10/08/2006	Total
Total	0	0	0	0	0	0	0	0

Order Review Tab

1. Click **Select Search Criteria**. The Select Search Criteria window opens.

Select Search Criteria Window

2. Enter criteria as necessary to retrieve orders.

Field	Description
Order Source	Select the origin of the items on the order.
Class	Select the type of SKUs on the order.
Demand Group	Select the demand group you want to search by.
SKU	Select the SKU on the order.

Note: You must select criteria in one of the above fields and at least one destination.

3. In the Available Destination area:
 - Select the destinations you want to view orders and transfers for:

- Click the move right button to move the destination to the Selected Destinations area.
- Click the move all right arrow button to move all destinations to the Selected Destinations area.

Note: If you do not want a location that is in the Selected Destinations area, use the move left button or move all left button.

4. In the Display in Rows field, select the information you want displayed in the rows of the table:
 - **Destination:** The warehouse or store the order arrives to.
 - **Order Source:** The origin of the order.
 - **SKU Pack Size:** The item on the order.
5. In the Display Time area, select the time period you want displayed for the orders.
 - In the field to the right of the display time select the date or month you want the time period to start from.
6. In the Display Quantity field, select the type of quantity you want displayed in the quantity field.
7. Select the Display Zero Values check box to view zero quantities.

Note: For easier viewing, you may choose not to view zero quantities.

8. In the Order Type area, select what you want to view:
 - **All:** Both orders and transfers are displayed.
 - **Orders:** Only orders that have a supplier as a source are displayed.
 - **Transfers:** Only orders that have a warehouse as a source are displayed.
9. Click **Search** to display the orders that match the initial results.

Refine Your Search Results

Navigate: Log into Order Management. Select the Order Review tab.

1. Search for orders and transfers.
2. Select an order quantity on the table.
3. Click **Select Search Criteria**. The Select Search Criteria window opens.
4. Refine your search results as necessary. Information displayed in the date fields is determined by the cell selected in the table.
5. Click **Search** to display the new orders that match the initial results.

View Orders and Transfers

Navigate: Log into Order Management. Select the Order Review tab.

1. Search for orders and transfers.
2. In the dynamic fields, use the arrows or drop-down arrow to select the supplier you want to view orders for.

Note: The fields contain Destinations, Order Sources, or SKU-pack Sizes, depending on your selection in the Display in Rows field on the Select Search Criteria window.

- Click **Display** to view matching order information.
3. To view additional dates:
 - Click **Next** to view dates after the dates currently displayed.
 - Click **Previous** to view dates before the dates currently displayed.
 4. In the Unit of Measure field, select the appropriate measure to view the quantities.
 5. To view order details for multiple orders:
 - a. Select an order quantity with multiple orders.
 - b. Double-click the order quantity. The Multiple Orders window opens.

Warehouse Store General

Order Cycle: Non Order/Non Delivery Days
Time Balanced Order Source Splits: Location Orderable Units: Supplier Locks: Order Groups

Effective Date: 01/05/2007

* Demand Group: 100035032A - MONITOR,CRT,A91F+, ULTRA BRIGHT

Available Destination Warehouses

4501 - AIP Virtual WH
W10001 - VW for Physical WH1
W1090 - AIP MINNEAPOLIS CSC
W1091 - AIP DETROIT CSC
W111111112 - Cent. Mkt WH 7
W111111113 - Cent. Web WH 8
W111111114 - Cent. Catalog WH 9
W111111115 - Cent. VM WH 10
W1170 - AIP HAMILTON CSC
W20001 - VW for Physical WH2

Selected Destination Warehouses

W1105 - AIP CHICAGO CSC

Displayed Destination Warehouse W1105 - AIP CHICAGO CSC

Order Source	Type	Displayed Split %	New Split %
L680 - MEADWESTVACO	Supplier		100
4501 - AIP Virtual WH	Warehouse		
W10001 - VW for Physical WH1	Warehouse		
W1090 - AIP MINNEAPOLIS CSC	Warehouse		
W1091 - AIP DETROIT CSC	Warehouse		
W1105 - AIP CHICAGO CSC	Warehouse		NA
W111111112 - Cent. Mkt WH 7	Warehouse		
W111111113 - Cent. Web WH 8	Warehouse		
W111111114 - Cent. Catalog WH 9	Warehouse		
W111111115 - Cent. VM WH 10	Warehouse		
W1170 - AIP HAMILTON CSC	Warehouse		
W20001 - VW for Physical WH2	Warehouse		
W2091 - AIP WH for SW_Vfnua	Warehouse		
W2066 - AIP LANSING, IL	Warehouse		
W0071 - AIP GROVE CITY, OH	Warehouse		
Total			100

Reset Order History

Multiple Orders window

- c. Click **Close** to return to the search results.

Edit and View Order Details

Navigate: Log into Order Management. Select the Order Review tab.

1. Search for orders and transfers.
2. Select an order/transfer quantity.
3. Click **Go to Order Detail View**. The Order Maintenance tab opens with your order displayed.

Note: You must have security permissions to edit or view an order on the Order Maintenance window.

4. Edit or view the order as necessary.

Review Orders by Scaling Group

The Scaling Group Order Review tab allows you to:

- view orders for a particular Scaling Group and Order date
- show pre- and post-scaling totals
- view the SKU details used for scaling

The Scaling Group Order Review tab assists you in viewing and resolving Altered scaling group/release days that either haven't met the minimums or have not been scaled at all due to missing SKU details.

When Container Scaling is executed, the provided container information always reflects the information resulting from the batch. User order modifications are reflected in the order itself but not the container, container quantities, and status.

Viewing Orders

To view today's Scaling Group Assignments with a specific release date, follow the instructions below.

Navigate: Log into Order Management. Select the Scaling Group Order Review tab.

Delivery Date	Order Number	Destination	Order Source	SKU	Pack	Total Quantity	Container	Container Quantity	Container Status
07/08/2005	18	S000000001 - Chestham	V100008 - Omniprox Produce	00100034 - Extra Large Kwi Fru	12	400	111111	300	Filed to Minimum
07/09/2005	Forecast	S000000004 - Torfield	V100008 - Duolcom Trading Co	00100471 - Reconstituted Kwi F	24	110	111111	110	Filed to Minimum
07/09/2005	Forecast	S000000004 - Torfield	V100009 - Duolcom Trading Co	00100089 - Reconstituted Dig Fo	1	110	111111	180	Filed to Minimum
07/09/2005	Forecast	S000000008 - Buntingbury	V100014 - Omnicell Produce	00100040 - Sainsbury's Orange Ju	1	60	111112	60	Filed
07/09/2005	Forecast	S000000008 - Buntingbury	V100014 - Omnicell Produce	00100490 - Char Grilled Socks	16	60	111112	60	Filed
07/09/2005	Forecast	S000000010 - Aylesham	V100007 - Microcell Trading Co	00100655 - Frozen Sausages	18	470	111112	470	Filed
07/09/2005	Forecast	S000000010 - Aylesham	V100007 - Microcell Trading Co	00100090 - Super Size Green Pap	18	470	111112, 111113, 111114	470	Multiple
07/12/2005	Forecast	S000000008 - Buntingbury	V100000 - Duolcell Produce	00100090 - Spicy Hot Light But	18	310	111114	310	Filed to Minimum
07/12/2005	Forecast	S000000008 - Buntingbury	V100000 - Duolcell Produce	00100090 - Spicy Hot But	1	310	111114	310	Filed to Minimum
07/14/2005	Forecast	S000000013 - Harborough	V100004 - Chemplant Foods	00100021 - Fresh Coffee	18	150	111114	150	Filed to Minimum
07/14/2005	Forecast	S000000013 - Harborough	V100004 - Chemplant Foods	00100383 - Sainsbury's Shallots	3	150	111115	150	Filed
07/14/2005	Forecast	S000000014 - Nottingdon	V100001 - Technoplant Trading Co	00100006 - Organic Green Pepper	18	90	111115	90	Filed
07/14/2005	Forecast	S000000014 - Nottingdon	V100001 - Technoplant Trading Co	00100064 - Organic Cheese Sandw	6	90	111115	90	Filed
07/15/2005	Forecast	S000000002 - Wellingham	V100010 - Camfen Foods	00100095 - Fried Lard	1	210	111115	210	Filed
07/15/2005	Forecast	S000000002 - Wellingham	V100010 - Camfen Foods	00100010 - Tinned Tomatoes	3	210	111115	210	Filed
07/16/2005	Forecast	S000000007 - Heathham	V100003 - Camcom Trading Co	00100026 - Juicy Oranges	24	70	111116	70	Filed
07/16/2005	Forecast	S000000007 - Heathham	V100003 - Camcom Trading Co	00100029 - Spicy Hot Tomatoes *	3	70	111116	70	Filed
07/17/2005	Forecast	S000000003 - Harbridge	V100000 - Duolcell Produce	00100090 - Spicy Hot But	1	30	111117	30	Exceeded Max
07/17/2005	Forecast	S000000003 - Harbridge	V100000 - Duolcell Produce	00100401 - Juicy Coffee	6	30	111118	30	Filed to Minimum

Scaling Group Order Review tab

1. Enter the desired Release Date if different than the default.
2. Use the LOV  button to select a scaling group or enter a number in the Scaling Group field.
3. Select a Unit of Measure, either Cases or Eaches.
4. Click Search.

Viewing Supplier Details

Using the Supplier Scaling Details window, you can view the supplier minimum constraints, compared to the pre-scaling totals and the post-scaling totals. This view assists you in resolving Altered scaling group/release days.

Note: This view is most useful when only supplier minimums are defined and not container constraints.

Navigate: Log into Order Management. Select the Scaling Group Order Review tab and follow the instructions for "Viewing Orders". Click **Show Supplier Details**.

Supplier Scaling Details	
Release Date	01/25/2008
Scaling Group	1000 - Test Group 1
Minimum(s) Met	Yes
Supplier Minimum Constraints	
Minimum Cost (USD)	5500.00
Minimum Quantity (Cases)	350
Scaling Details	
Original Cost (USD)	3985.00
Scaled Cost (USD)	5700.00
Original Quantity (Cases)	322
Scaled Quantity (Cases)	441
OK	

Supplier Scaling Details window

Viewing Container Details

Using the Container Scaling Details window, you can view the Container Constraints, compared to the pre-scaling totals and the post-scaling totals. This view assists you in resolving Alerted scaling group/release days.

Navigate: Log into Order Management. Select the Scaling Group Order Review tab and follow the instructions for "Viewing Orders". Click **Show Container Details**.

Container Scaling Details			
Release Date	01/25/2008	Container	111111
Scaling Group	1000 - Test Group 1	Container Status	Filled To Minimum
Number of Containers	4		
Container Constraints		Container Totals	
Minimum Volume (Cubic Feet)	2,000.00		
Maximum Volume (Cubic Feet)	2,500.00	Pre Container Scaling	Post Container Scaling
Minimum Weight (Pounds)	None	Volume (Cubic Feet)	2,256.30
Maximum Weight (Pounds)	None	Weight (Pounds)	2,256.30
Minimum Quantity (Cases)	None	Quantity (Cases)	250
Maximum Quantity (Cases)	None	Cost (USD)	250
Minimum Cost (USD)	None		
Maximum Cost (USD)	None		
Primary Constraint	Volume		
Tolerance	%		
Original Order Totals		Scaling Group Totals	
Volume (Cubic Feet)	16,112.50	Pre Container Scaling	Post Container Scaling
Weight (Pounds)		Volume (Cubic Feet)	15,005.80
Quantity (Cases)	3294	Weight (Pounds)	17,053.20
Cost (USD)		Quantity (Cases)	3100
		Cost (USD)	3316
OK			

Container Scaling Details window

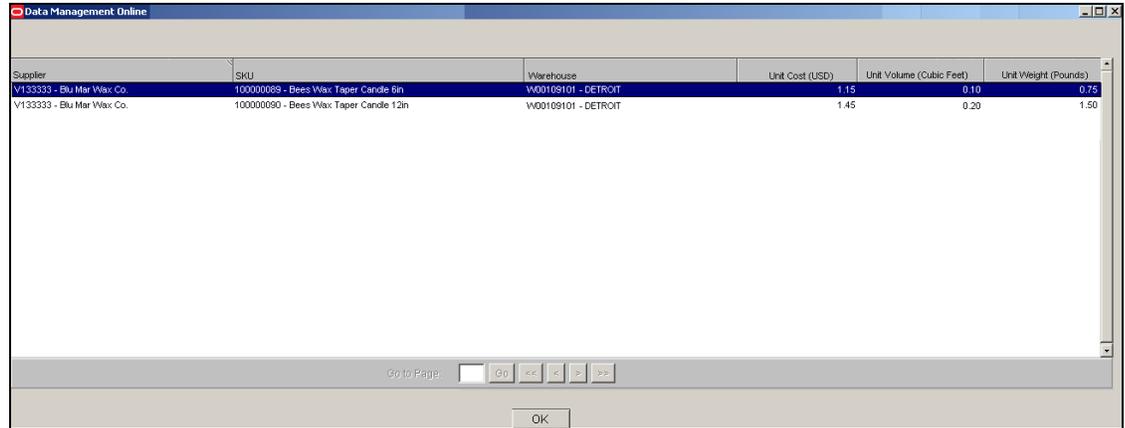
The Container dropdown list has all container numbers associated with Scaling Group/Release Date.

- To change the container number, select an available number from the Container drop-down list and click **OK**.

Viewing SKU Details

Using the Show SKU Details window, you can view the unit cost, volume, and weight that are used for scaling.

Navigate: Log into Order Management. Select the Scaling Group Order Review tab and follow the instructions for “Viewing Orders”. Click **Show SKU Details**.



The screenshot shows a window titled "Data Management Online" with a table of SKU details. The table has five columns: Supplier, SKU, Warehouse, Unit Cost (USD), Unit Volume (Cubic Feet), and Unit Weight (Pounds). Two rows of data are visible, both for "BU Mar Wax Co.".

Supplier	SKU	Warehouse	Unit Cost (USD)	Unit Volume (Cubic Feet)	Unit Weight (Pounds)
V133333 - BU Mar Wax Co.	100000089 - Bees Wax Taper Candle 6in	W00109101 - DETROIT	1.15	0.10	0.75
V133333 - BU Mar Wax Co.	100000090 - Bees Wax Taper Candle 12in	W00109101 - DETROIT	1.45	0.20	1.50

At the bottom of the window, there is a "Go To Page:" field with a "Go" button and navigation arrows. An "OK" button is located at the bottom center of the window.

Calculations

The scaling of Purchase Orders is performed during AIP batch. This process produces scaled receipt plans or purchase orders after replenishment batch has produced the constrained and unconstrained receipt plans.

Scaling

AIP produces an actionable receipt plan based on forecasted demand and stock availability. The receipt plan is actionable because it accounts for/is constrained by receiving calendars, order multiples, lead times, etc. This is sufficient for retailers who wish to replenish purely based on immediate need. However, a number of retailers negotiate contracts with vendors which either require a minimum purchase or provide financial benefit to the retailer for meeting an agreed minimum purchase (usually specified as a cost, quantity, weight or volume).

The combination of supplier/SKU/destination order quantities that count toward meeting the minimum are heavily dependant upon the business driver behind the minimum and the vendor itself.

In certain scenarios a vendor may have multiple manufacturing or distribution locations created as separate entities in the retailer's merchandising and financial systems and therefore the agreed minimum may be addressed by orders for multiple vendors.

In another scenario the minimum purchase may be required in order for the vendor to sufficiently offset the cost associated with setup and production. In this case the vendor simply cares about the total production value regardless of where each order is being shipped.

Another important reality to consider is proper transportation management. Transportation management is generally treated as a separate business process from replenishment planning. However some of the costs associated with the transportation of products may be reduced if the retailer orders quantities that make full use of available container capacity.

AIP is in a unique position to address vendor minimums and to make use of container capacity because of its forward looking plan. Since AIP has visibility to the future planned need it can make intelligent decisions about what items to select to meet the minimum. AIP can use the future plans to identify what the actual expected need is in the short term whereas a system which does not have future visibility would have to make an arbitrary decision about which SKUs will be ordered to meet the minimum.

The Supplier and Container Scaling functionality is designed to enable retailers to pool orders together to achieve higher efficiencies in their purchasing and logistics functions. The scaled receipt plans or scaled orders are a list of order quantities by supplier, SKU-Pack, warehouse-chamber, and delivery date. These order quantities are a result of

comparing supplier and container constraints to total order quantities for each release day and pulling orders forward, where necessary, to meet the constraints. When scaling is complete the pre-scaled totals are visible in Order Management for viewing and comparing to the final order quantities which will reflect any scaling that occurred.

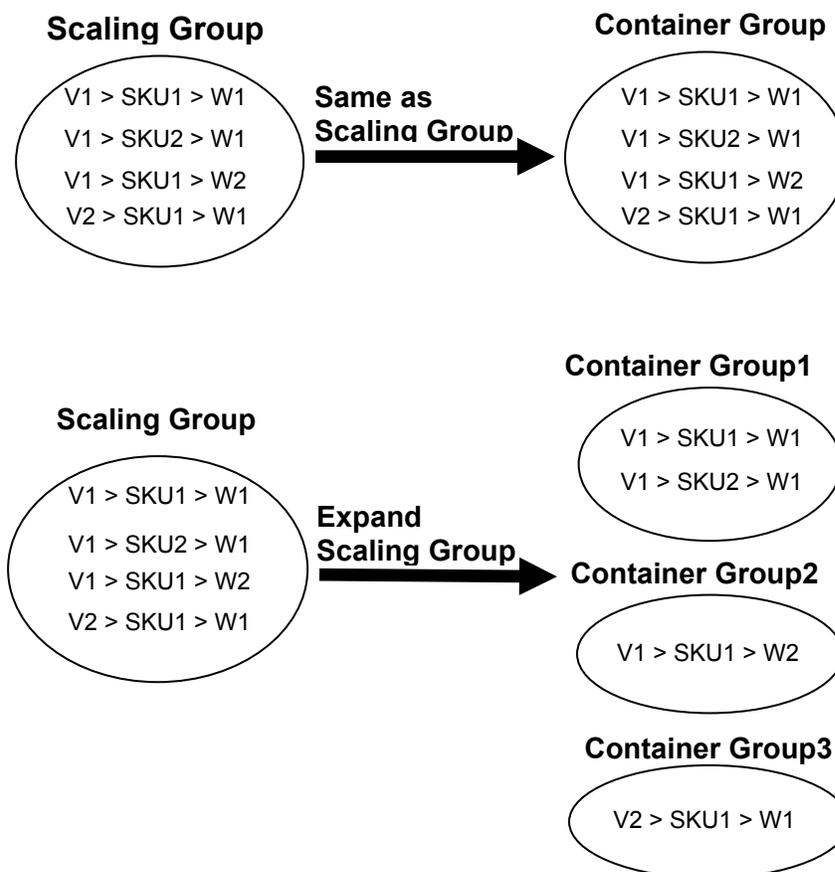
Scaling Prep

Derive Container Groups

A container group is a grouping of suppliers, SKUs, and warehouses derived from the scaling group specified by the User. The container group is derived by the Container Assignment method set on the scaling group.

- Same as Scaling Group indicates the container group and scaling group assignments are identical
- Expand Scaling Group indicates that scaling group assignments will be placed in a container group such that each unique source/destination combination is placed in its own container group.

The following example illustrates the conversion:



Scaling groups and therefore container groups are effective by batch run and do not change over the horizon. Container Groups inherit container scaling properties from the scaling group.

Check Dimension Definitions

If the system finds a scaling group constraint specified (cost, volume, weight, pallets) for active supplier scaling or container scaling, but is unable to find a related value for any one of Today's assignments in the scaling group, effective on the constraint effective date, the scaling group assignment(s) will be flagged as invalid for scaling.

Save Pre-scaled Values

The pre-scaling values will be saved for each order before scaling is performed. The data will be used when viewing scaling group totals in Order Management. Orders for any assignments which have been flagged as invalid for scaling will not count towards the pre-scaling totals viewed in Order Management.

Scaling

Scaling is performed after completion of all Replenishment and Reconciliation functionality and takes Constrained Receipt Plans (planned orders) as inputs. Scaling has two distinct modules—Supplier Scaling (SS) and Container Scaling (CS). For each day the supplier scaling module executes before container scaling.

In order for the scaling module to perform scaling for a scaling group/container group the following must be true

1. The module must be enabled at the global level and the scaling group/container group level.
2. The horizon day being scaled must fall within the scaling group or container group scaling horizon.
3. There must be planned orders on the horizon day being processed. Days with no orders, either as a result of pull-forward or sufficient inventory, will not be scaled.
4. There must be one or more assignments in the scaling group/container group that have all required dimensions defined.

Calculate Dimensions

The calculation of the dimensions of a quantity are the same across scaling whether it applies to a total order quantity, an order multiple, or any other quantity that is expressed in terms of cases.

Volume

$$\text{Volume} = \text{Qty}_{\text{Cases}} \times \text{SKUPackSize} \times \text{Volume}_{\text{Units}}$$

Weight

$$\text{Weight} = \text{Qty}_{\text{Cases}} \times \text{SKUPackSize} \times \text{Weight}_{\text{Units}}$$

Cost

$$\text{Cost} = \text{Qty}_{\text{Cases}} \times \text{SKUPackSize} \times \text{Cost}_{\text{Units}}$$

Pallets

Using the pallet multiple that is effective on the order's Delivery Date

$$\text{Pallets} = \frac{\text{Qty}_{\text{Cases}}}{\text{PalletMultiple}}$$

Cases

$$\text{Cases} = \text{Qty}_{\text{Cases}}$$

Units

$$\text{Units} = \text{Qty}_{\text{Cases}} \times \text{SKU PackSize}$$

Supplier Scaling**Total Orders**

All orders that have met their lead time on the release day being processed are grouped by scaling group then the order totals are calculated and summed using the standard calculations described above.

Pull Forward Orders to Meet Minimum

If all order totals are equal to or greater than the supplier scaling constraints that are effective on the release date then all supplier minimums are satisfied. If one or more supplier scaling constraints are not met pull forward orders to meet the remaining unmet constraint(s).

Criteria

Orders which meet all the following criteria may be pulled forward:

1. Orders for a supplier/sku-pack/warehouse in the scaling group which has a release date on the day being scaled. The release schedule for the supplier/sku-pack/warehouse must have a delivery date with a lead time that results in release/ordering on the day being scaled. The new delivery date must also be less than or equal to the order's original delivery date.
2. Orders with a delivery date that is not more days before the new 'pull-to' delivery date than the Pull-forward Days value.
3. Orders that do not cross a stockless day from the original delivery date to the new delivery date. Orders may be pulled from a stockless day to a non-stockless day as long it does not cross another stockless day in between, unless the system is configured to allow pulling across stockless days.
4. Orders that do not cross a Supplier Purchase Quantity (SPQ) week. Orders will not be pulled into or out of an SPQ week.
5. If the order multiple changes between the order's original delivery date and the new 'pull-to' delivery date there must be a common multiple that is equal to or less than the order quantity.

Least Common Multiple

All pull-forward quantities are restricted to a multiple of the pull-from and pull-to order multiples. The least common multiple will be used. The least common multiple (LCM) of two numbers is the smallest number that is a multiple of both. If the order multiple does not change then the LCM is the order multiple of both the pull-from and pull-to delivery dates.

Remaining Need Percentage

If more than one minimum has been defined the system will compare the two to determine which is farthest from being met. The remaining amount of a minimum not yet achieved is the remaining need. The remaining need compared to the minimum provides a percentage by which to compare various minimums. The supplier minimum with the largest remaining need percentage will be the primary target of each pass of the order selection.

Pull-forward Quantity

The pull-forward quantity (PFQ) is the number of full cases, in terms of the Least Common Multiple, that will be needed to meet the remaining need of all minimums. The pull-forward quantity cannot exceed the original order quantity but may be less than the original order quantity.

1. Calculate the value of 1 LCM for each constraint value.

$$\text{For Example: } \text{LCMCost} = \text{LCM} \times \text{SKUPackSize} \times \text{Cost}_{\text{Units}}$$

2. Calculate the number of full LCMs needed to meet each constraint.

$$\text{For Example: } \text{LCMCostNeed} = \text{Ceil}(\text{RemainingCost} \div \text{LCMCost})$$

3. The actual need to meet all constraints is the maximum number of LCMs

$$\text{LCMsActual} = \text{Max}(\text{LCMCostNeed}, \text{LCMPalletNeed}, \text{LCMCaseNeed}, \text{LCMUnitNeed})$$

4. The need in terms of cases is the number of LCMs needed multiplied by the LCM which is a number of cases.

$$\text{OrderNeed}_{\text{Cases}} = \text{LCMsActual} \times \text{LCM}$$

5. The available quantity is the order quantity rounded down to the nearest multiple of the LCM.

$$\text{AvailableQty} = \text{Floor}\left(\frac{\text{OrderQty}_{\text{cases}}}{\text{LCM}}\right) \times \text{LCM}$$

6. The PFQ is the smaller value of the OrderNeed and AvailableQty

$$\text{PFQ} = \text{min}(\text{AvailableQty}, \text{OrderNeed}_{\text{Cases}})$$

Order Selection

Of the possible orders only a portion of them may be needed to meet the supplier minimum(s). Orders will be sorted in the following order for selection as needed:

1. Earliest original release date to latest release date.
2. Total value of Pull-forward Quantity (PFQ) of the constraint with the largest remaining percentage need. Then, the total PFQ value of the next largest remaining need, if more than one constraint is defined.
3. Difference between original and new delivery date.

For the earliest available original release date select, from the prioritized list, the order with the minimum value that meets or exceeds the constraint with the largest remaining percent (e.g. the order that gets closest to the constraint). If the largest remaining percentage cannot be met by a single order then the largest will be selected. If multiple orders have the same value repeat the selection for the next largest remaining percentage. Repeat the calculation of remaining need, and PFQ, and order selection until all supplier constraints are met.

Container Scaling

The goals of Container Scaling are simultaneously

- Assign orders for a particular release date to the least number of containers
- Assign orders for a destination to the least number of containers
- When specified, meet at least one of the minimum constraints in each container.

After the necessary Supplier Minimum Scaling has been performed Container Scaling can be performed. The aim of Container Scaling (CS) is to break up orders, or portions of an order, into groupings that represent containers. The groupings of orders will not exceed any of the maximum constraints defined for the SG on the release date. The containers will also attempt to meet at least one of the minimum container constraints specified. If any container is partially filled it must meet at least one of the specified minimums otherwise the system must look to future days to find orders that can be pulled forward to satisfy a container minimum.

- An order may be assigned to more than one container.
- A container assigned to an order will have at least one Order Multiple's worth of the order. This is because the Order Multiple is the smallest quantity of the product that can be moved and manipulated while ordering and packing containers.

Orders for a CG that have a release day equal to the day being scaled must be built into a container no later than that release day. Orders quantities are placed in a container by Smallest Ordering Unit (SOU). The purpose of breaking order quantities into their SOU is to enable the placement of orders into containers of a finite size, in the most efficient manner. Packing is most efficient when working with the most granular object. An SOU is the most granular quantity of a product that is manipulated in scaling. Once Orders are broken into SOUs, the size, in terms of the container group constraints, of each is then calculated so that when it is placed into a container, exactly how much of the constraint it consumes is known. The way in which SOUs are assigned to a container will follow a modified First Fit Decreasing method. The traditional First Fit Decreasing method requires that the SOUs be sorted in decreasing order of a single primary constraint in order to achieve the best results. However, it is important that the orders to a particular destination be placed into the same container when possible. Therefore, placement of SOUs will first consider destination, and then constraint size. Ultimately an SOU will be placed on the first container found that has room and does not violate the container rules.

Build Full Containers

All orders that have met their lead time on the release day being processed are grouped by container group for building into containers.

Smallest Ordering Unit (SOU)

1. Break Orders into SOUs

The order multiple is a quantity, in cases, that the order quantity must be a product of. That is, the order quantity (in terms of cases) must be evenly divisible by the order multiple. It is typically a number that is equal to half of a pallet or some multiple of a full pallet (1 or more). Replenishment into the warehouse is planned in terms of Order Multiples. It is deemed the smallest unit of quantity that can be ordered from the supplier, and therefore also placed in a container. All orders will be broken into its component SOUs for loading into containers.

Each SOU that results from an order being broken down inherits a number of properties from the order from which it came – namely the Source, the SKU, the Pack-size, the Destination Chamber, the Delivery Date, and Release Date (the unique identifiers of the order it was derived from).

SOU = 1 Order Multiple

Each SOU has a case quantity equal to 1 Order Multiple.

*Note, the order multiple that is effective on the order Delivery Date should be used.

$$\text{NumberOfSOUs} = \frac{\text{Qty Cases}}{\text{Order Multiple}}$$

2. Calculate SOU Value

In order to sort the SOUs the constraint values of 1 SOU must first be known. After the orders are split into SOUs the amount of each constraint that the SOU will contribute will be calculated for the specified container constraints. The standard cost, weight, volume, and qty calculations described above are used here with a quantity value of one SOU.

3. Sort SOUs

It is important that the orders to a particular destination be placed into the same container, when possible, in order to minimize the amount of stops/unloads. Placement of SOUs will first consider destination.

The SOUs must then be sorted according to the most constraining value so that the 'largest' items are loaded first. The most constraining value is the one that the container typically achieves first. This may be any of the constraints that are enterable in AIP— Volume, Weight, Cost, Pallets, Cases, or Units. The primary container scaling constraint is specified by the User.

SOUs within a Container Group will be sorted by

1. Destination code, increasing
2. Container Group Primary Constraint, decreasing
3. Delivery Date, increasing
4. Parent Order of the SOU (this is equivalent to sorting by Source/SKU-pack. This is relevant to keeping multiple SOUs of the same 'parent' order together)

Build Container

A container is a logical entity that contains groupings of SOUs. An SOU is simply some portion of a full order therefore a container is a grouping of full or portions of Orders.

Containers will:

- Know which container group's Scaling Group and release date it was created for.
- Be uniquely identifiable from other containers built for the same Scaling Group and Release Date.
- Know which Order's SOUs belong to it.
- Have a pre-scaled order quantity set after supplier scaling but before any container scaling pull-forward occurs. This value is saved for later review by the user.
- Have a Status of 'Open', 'Filled', 'Filled to Minimum', or 'Exceeded Max'.

When building a container, the following rules and assumptions will apply:

- A container is assumed to pick-up from all sources on the same release day.
- A container is assumed to route to different destinations based on lead times of sku-packs contained within the container. However, AIP will not do any intelligent routing. (The lead time between 1 source and 1 destination is assumed to take into account any routing time between destinations).
- A container will not visit a destination twice. Therefore, if two SKUs delivered to a destination (from the same or different sources) have different lead times, they cannot be loaded in the same container.

Now that the SOUs have been appropriately sorted and the value of each has been calculated for each constraint, load the SOUs one-by-one by checking the open containers to determine if the SOU fits in the remaining space. Place the SOU into the first open container that has space, without exceeding any maximum constraint(s). If there are no containers open that the SOU fits into, open a new container.

Before any quantity can be placed in a container it must fit without exceeding the maximum container constraints, and the destinations being served by the container's orders are valid to be loaded with the SOU.

To see if the quantity 'fits' in the open container:

1. Determine if any chambers of the destination's parent warehouse is already assigned to the container with a different lead time (delivery date). If so the quantity does not fit.
2. Check the maximum container constraints against the current container totals plus the totals of the quantity being placed. If the container totals will exceed any one of the maximum constraints when the quantity is added that quantity does not fit.

Note: If an SOU doesn't fit in a newly opened container without exceeding the maximum(s) the SOU is excessively large for the container. The container maximum(s) was likely entered wrong or a SKU dimension is inaccurate. The SOU will be placed into a new container and the status set to 'Exceeded Max'. An alert is generated for the Scaling Group and earliest release date encountering the issue.

After placing an SOU into a container check the container maximum(s) and tolerance to determine if at least one has been met. If so, set the container status to 'Filled' and remove it from the list of 'open' containers.

Once all SOUs for the release day have been placed into containers check the open containers to determine if the minimum(s) have been met. If no minimums are defined, or one of the minimums has been met then the container is 'full enough' and can be closed. The container will be set to a status of 'Filled to Minimum'.

Pull Forward Orders to Meet Minimum

When all orders for the release date have been loaded into containers additional orders must be pull-forward to fill any open containers to the smaller value of the minimum or tolerance.

Criteria

Orders which meet all the following criteria are potential candidates for pull forward:

1. Orders for a supplier/sku-pack/warehouse in the container group which has a release date on the day being scaled. The Release Schedule for the supplier/sku-pack/warehouse must have a delivery date with a lead time that results in release/ordering on the day being scaled. The new delivery date must also be less than or equal to the order's original delivery date.
2. Orders with a delivery date that is not more days before the new 'pull-to' delivery date than the Pull-forward Days value.
3. Orders that do not cross a stockless day from the original delivery date to the new delivery date. Orders may be pulled from a stockless day to a non-stockless day as long it does not cross another stockless day in between, unless the system is configured to allow pulling across stockless days.
4. Orders that do not cross a Supplier Purchase Quantity (SPQ) week. Orders will not be pulled into or out of an SPQ week.
5. If the order multiple changes between the order's original delivery date and the new 'pull-to' delivery date there must be a common multiple that is equal to or less than the order quantity.

Least Common Multiple

All pull-forward quantities are restricted to a multiple of the pull-from and pull-to order multiples. The least common multiple will be used. The least common multiple (LCM) of two numbers is the smallest number that is a multiple of both. If the order multiple does not change then the LCM is the order multiple of both the pull-from and pull-to delivery dates.

Remaining Need Percentage

If more than one minimum, or a minimum plus a tolerance, has been defined the system will compare each to determine which is closest to being met. The remaining amount of a minimum or tolerance not yet achieved is the remaining need. The remaining need compared to the minimum (or tolerance) provides a percentage by which to compare various minimums. The minimum or tolerance with the smallest remaining need percentage will be the primary target of each pass of the order selection.

Pull-forward Quantity

In an effort to pull-forward the smallest quantity of an order that will meet one constraint the pull-forward quantity (PFQ) is the smallest number of full cases, in terms of the Least Common Multiple, needed to meet the smallest remaining need. The pull-forward quantity cannot exceed the original order quantity but may be less than the original order quantity.

1. Calculate the value of 1 LCM for each minimum constraint value and tolerance.

For Example: $LCM\text{Cost} = LCM \times SKUPackSize \times Cost_{Units}$

2. Calculate the number of full LCMs needed to meet each constraint.

For Example: $LCM\text{CostNeed} = Ceil(\text{RemainingCost} \div LCM\text{Cost})$

3. The actual need to meet one constraints is the smallest number of LCMs

$LCMs\text{Actual} = \text{Min}(LCM\text{WeightNeed}, LCM\text{VolumeNeed}, LCM\text{CostNeed}, LCM\text{PalletNeed}, LCM\text{CaseNeed}, LCM\text{UnitNeed})$

4. The need in terms of cases is the number of LCMs needed multiplied by the LCM which is a number of cases.

$Order\text{Need}_{Cases} = LCMs\text{Actual} \times LCM$

5. The available quantity is the order quantity rounded down to the nearest multiple of the LCM.

$AvailableQty = Floor\left(\frac{OrderQty_{cases}}{LCM}\right) \times LCM$

6. The PFQ is the smaller value of the OrderNeed and AvailableQty

$PFQ = \text{min}(AvailableQty, Order\text{Need}_{Cases})$

Order Selection

Of the possible orders only a portion of them may be needed to meet the container minimum. Orders will always be pulled from the earliest original release date to latest. For a particular release date the orders will first be broken into two subsets. The first will contain orders for destinations already in the container. The second will contain all the other possible orders. The first subset will be exhausted before selecting orders from the second.

Orders within each subset will be sorted in the following order for selection as needed:

1. Total value of Pull-forward Quantity (PFQ) of the constraint with the smallest remaining percentage need. Then, the total PFQ value of the next smallest remaining need, etc., if more than one constraint is defined.
2. Difference between original and new delivery date.

From the sorted list select the order with the smallest PFQ value that meets or exceeds the constraint with the smallest remaining percentage need (i.e. the order that gets closest to the constraint). If the smallest remaining percentage cannot be met by a single order then the largest PFQ will be selected.

The selected order and PFQ must meet the same load criteria as those required orders/SOUs with a release date equal to the scaling date. However, in this case of the PFQ doesn't fit without exceeding a maximum the PFQ will be reduced until it fits or it is 0. That is:

1. Determine if any chambers of the destination's parent warehouse is already assigned to the container with a different lead time (delivery date). If so the order cannot be loaded.
2. Check the maximum container constraints against the current container totals plus the totals of the quantity being placed. If the container totals will exceed any one of the maximum constraints when the quantity is added that quantity does not fit. Reduce the quantity by the number of cases equal to one LCM until the order fits or is 0.

After placing an order into a container check the container constraints and tolerance to determine if at least one has been met. The container status is set to 'Filled' if a maximum or tolerance has been met, or 'Filled to Minimum' if a minimum has been met. Remove the container from the list of 'open' containers.

Repeat the calculation of remaining need, and PFQ, and order selection until the container is not open or there are no more valid orders. Repeat the process for each open container.