Replenishment Training Guide

Version 6.00

Fitrix Replenishment

Course Workbook

Version 6.00
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Chapter 1 – Introduction

This introduction describes the powerful features of the Replenishment module. Information regarding the specifics of setting up this module and detailed descriptions of the various screens are contained in subsequent chapters of this Training Guide.

We strongly recommend you read this Overview before reading the other sections of this Training Guide. The Overview consists of the following sections:

- **Replenishment Basics**

  This section explains the fundamentals of Inventory Replenishment.

- **The Steps in the Replenishment Processing**

  This section describes the methods and processes involved in tracking usage, creating buy recommendations, and creating vendor purchase orders.

Replenishment Basics

Effective Replenishment strategies are central to economical inventory control. Inventory costs account for a substantial portion of a company's expenses. Inventory costs include not only the initial purchase of inventory, but storage and management costs as well. Successful inventory management requires that a minimum level of inventory be maintained that guarantees excellent customer service and satisfaction.

The Fitrix Inventory Replenishment module, with its powerful tracking, calculating, and analyzing capabilities, increases your ability to manage inventory with an optimum service/ investment balance. It not only provides standard replenishment system functionality, but also adds considerable flexibility to those standards. The innovative programming responds to the demands of inventory control management.

The following are among the many benefits provided by Fitrix Inventory Replenishment:

- Tailored usage tracking
- Definable review periods
- Modifiable advice calculations
- Customized recommendations on "what" and "when to buy"
- Integration with other Fitrix ERP modules

Tailored Usage Tracking

The Replenishment module incorporates many unique features that allow you to tailor usage tracking to fit the structure of your company and the characteristics of individual product lines. With this module you can:

- Define which types of transactions constitute usage when shipping (including definition by order type or line type).

- Include/exclude warehouse transfers from usage.

- Track usage in user-specified period "buckets."

- View details of usage transaction documents for decisions to include/ exclude usage on a per document or line item basis.

- Define usage periods per product line.

- Exclude abnormal sales from usage tracking.

- Modify usage tracked prior to replenishment calculations.

Definable Review Periods

Fitrix Replenishment recognizes that different product lines need review at different intervals. These intervals reflect product line characteristics, including sales trends, cost of item, and necessary lead times. This module allows you to:

- Define Review Periods ranging from one per day to one per month.
- Modify review periods or next review date anytime during the review cycle.
- Set lag time between usage and calculations for management review.
- Run daily expedite report review of all product lines for critical inventory levels outside of the normal replenishment cycles.

Modifiable Advice Calculations

Fitrix Replenishment includes replenishment formulas based on industry standards. In addition to these standard formulas, you have the ability to easily modify the formulas used for calculating replenishment advice. This allows your purchasing department to:

- Calculate Economic Order Quantity (EOQ) using standard formulas provided or customized formulas.
- Reprogram "internal" replenishment calculations by manipulating simple mathematical "external" variables.
- Customize formulas for calculating usage rate, order point, line point, and economic order quantity.

Customized Recommendations on "What" and "When to Buy"

Fitrix Replenishment has been programmed with maximum flexibility and user control in mind. For this reason, you can base minimum and target order levels on various elements of the order.

- Group items into product lines for maximizing discounts.
- Eliminate repetitive paperwork and facilitate qualification for discounts by reviewing the full product line.
- Minimum and target purchases can be based on monetary value, volume, weight, or quantity.
- Define when product lines are subject to recalculation of usage and reorder points.
- Define when product lines are subject to buy review.
- Override calculated replenishment data (usage rate, safety allowance, order

point, line point, and economic order quantity) prior to generation of buy recommendations.

- Set parameters for vendor's minimum order accepted, as well as a target order level for available discounts.

- Roll generated buy recommendations toward user-specified minimum or target levels if necessary.

- Override recommended order quantities for individual items.

Integration with other Fitrix Modules

Replenishment is designed to minimize duplicate data entry by integrating with other Fitrix modules. This integration includes parameters and shared database tables. The following are a few of the ways Replenishment works with other Fitrix modules:

Fitrix Purchasing

- Creates Vendor purchase orders.

- Shares vendor and buyer tables and vendor catalogs.

Fitrix Inventory Control

- Includes or excludes inventory control shipments and warehouse transfers from usage tracking at the system level through defaults.

- Shares inventory item and warehouse tables.

Fitrix Order Entry

- Flags order entry order type/line type to be included or excluded from usage calculations.

- Accesses complete transaction information for usage tracking purposes.

Quick Guide to Set Up Steps

1. Update system defaults.
2. Set up line code for each vendor.
3. Insert line code into vendor catalog.
4. Print product line history for last 12 months.
5. Create product line history for last 12 months.
6. Set up IC tracking flags.
7. Set OE tracking flags.
8. Set up period definition.

9. Select and modify a formula. If using a formula that has lead time in it makes sure each vendor has a lead time in their vendor record.
10. Enter a script for each vendor.

Chapter 2 - Replenishment Definitions

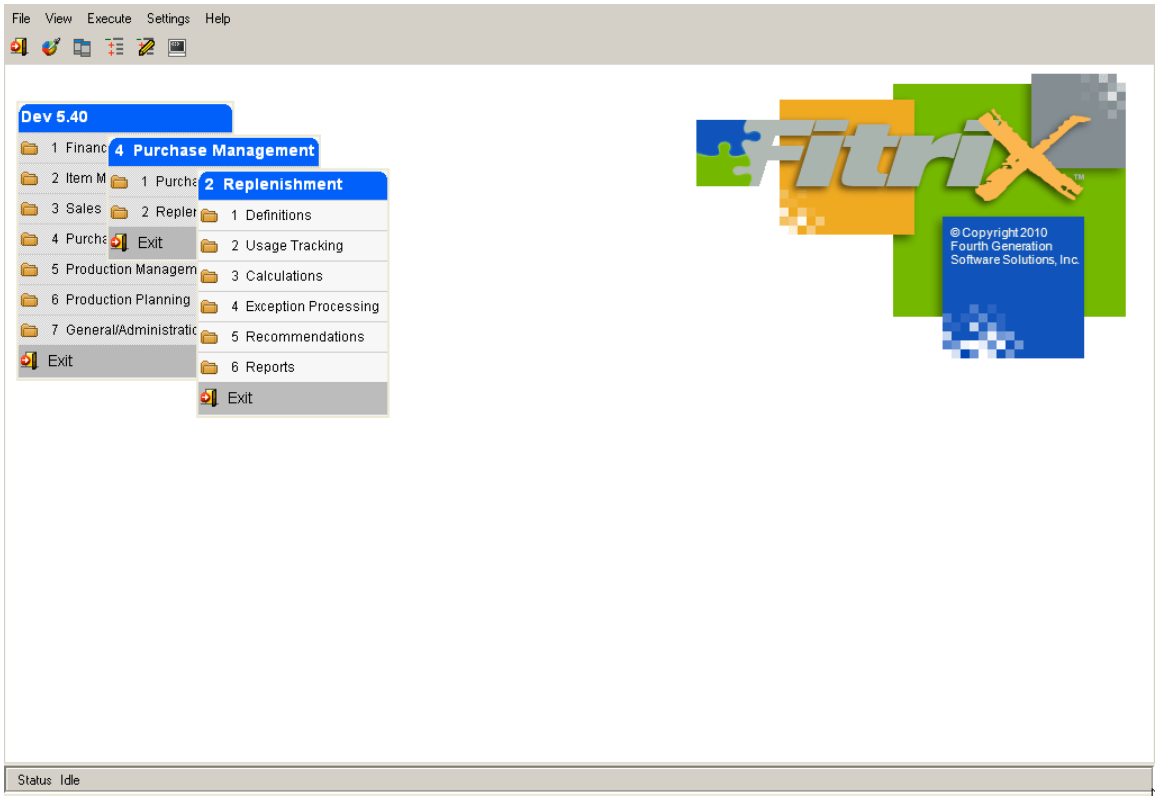
This chapter covers the detail and flow of setting up and defining data the system uses for replenishment calculations. Definitions is the first option on the Main Replenishment menu and is used primarily during the setup procedure. You then use these definitions to assign a replenishment script to a new product line, or to change the definitions of your replenishment scripts. This chapter covers the following topics:

- Defining Replenishment system defaults
- Defining product lines, including review cycles
- Tracking usage, including period definitions
- Customizing replenishment calculations
- Assigning replenishment scripts to product lines

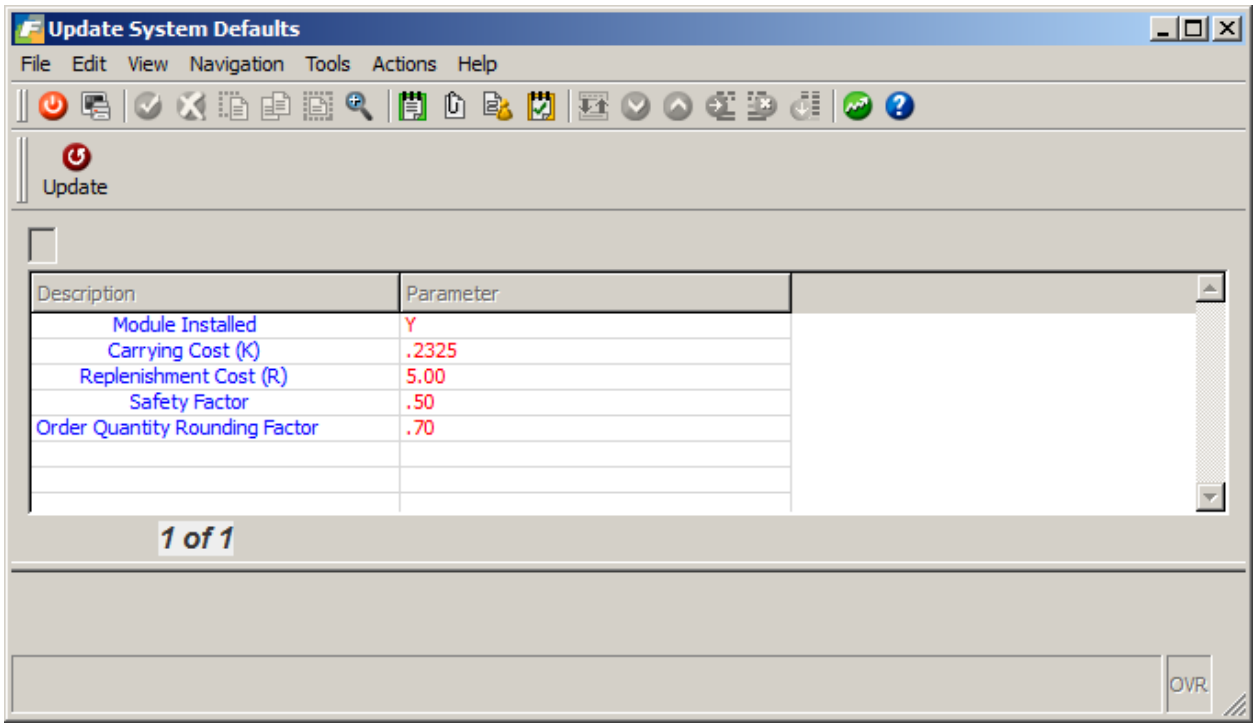
The Replenishment Definitions Menu

The first menu option on the Replenishment menu is Replenishment Definitions. From this main menu, you access the various setup and definition screens.

Replenishment Definitions Main Menu



Update System Defaults



Carrying Cost (K cost)

The Carrying Cost is the cost to your company to carry inventory and this percentage is used in the Economic Order Quantity formula. The formula to calculate the Carrying Cost is:

Annual Warehouse Cost / Average Inventory Value

Industry standards suggest the value should be the current prime lending rate plus 20%. This percentage should be entered in the form of a decimal; for example, enter 30 percent as .30.

Replenishment Cost (R cost)

Enter the cost of replenishing stock. This is a weighted average of the "real" per unit replenishment costs of individual items and is used in the Economic Order Quantity formula. The formula used to calculate this value is:

Annual purchasing expense/(# of Purchase orders created x line items on the purchase orders)

The annual purchasing cost consists of costs such as your Purchasing Department salaries, data entry expenses, etc. Industry standards suggest the average replenishment cost is between $4.00 and $6.00 for most distributors.

Safety Factor

The safety factor percentage is used in the safety allowance formula. The formula is:

Safety Allowance = Usage in month * lead time in months * safety factor %

This is a pad that is added to the order point in the event that usage is heavier than normal or lead time is longer than normal. Industry standards suggest the safety factor % is 50%.

Please note that the safety factor % set here is used globally for all items. If you wish to use a different percentage (ex- fast moving items may use a higher % and slow moving may use a lower %), you can set this % at the item level on the Modify Reorder Detail screen found in the Update Inventory Information program.

Order Quantity (OQ) Rounding Factor

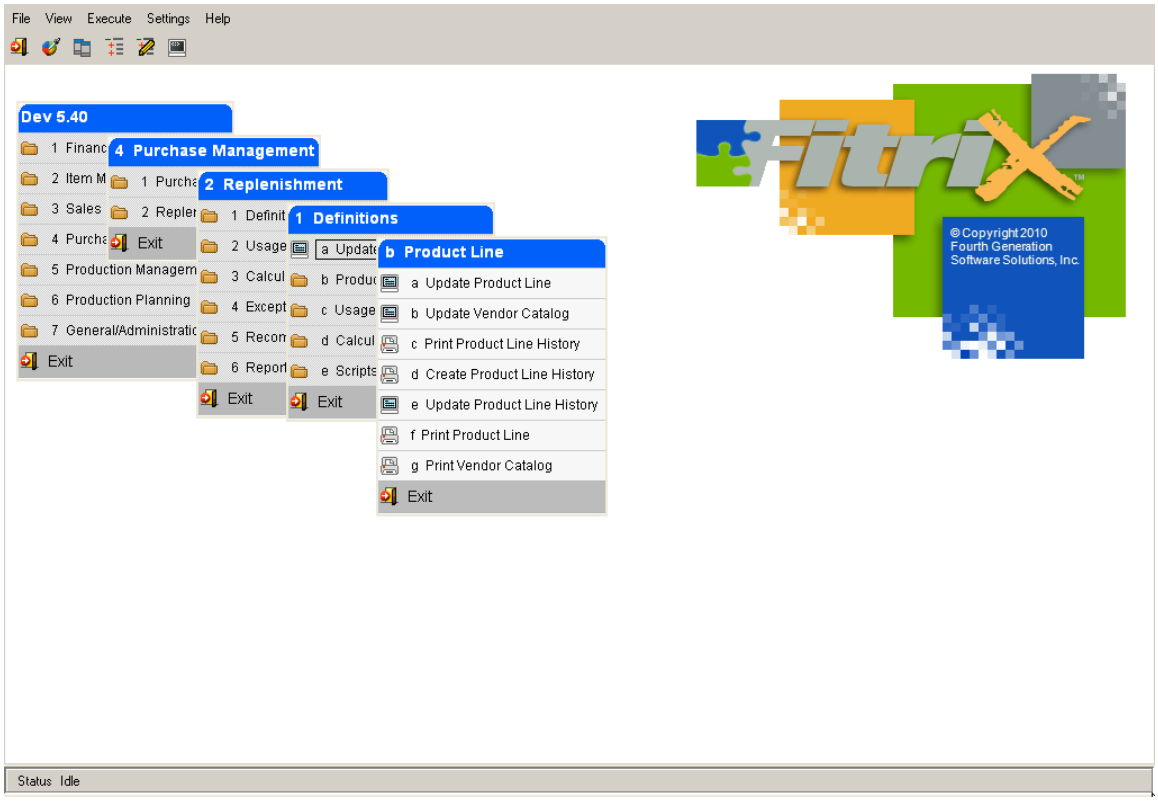
This factor is used to round the buy recommendation to a whole number. If you define it as .5 and the buy quantity is 17.3, it will round it down to 17. Conversely if buy quantity is 17.6, it will round up to 18.

Product Line

A product line is a grouping of products specific to a given vendor. It is not necessarily a class of products. All items purchased from a given vendor may be included in one product line, or the vendor may have a line sub-divided. What characterizes a product line are the attributes a vendor attaches to a line of items that affect the buyer's purchasing behavior. The vendor may not explicitly group any of his products into a line, but implicitly does so by offering total order discounts for certain groupings. You define the product lines, and the Replenishment system uses them to evaluate and generate purchasing recommendations.

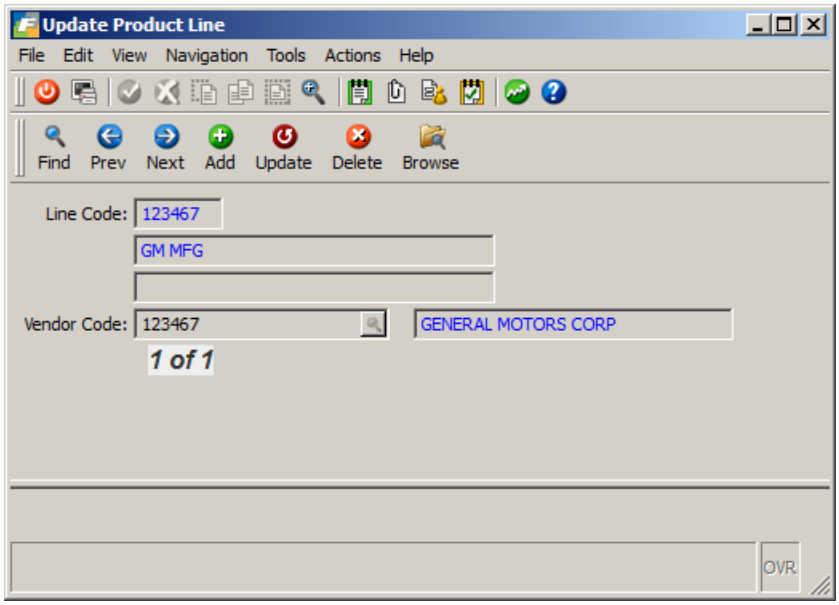
A vendor may have more than one line but each line can only have one vendor. This is because the PO for the line can only be generated to one vendor and it is your primary vendor (marked as primary = Y in item catalog). For example, you cannot use line code ABC for both vendor A and vendor B because the PO created for this line can only be to one vendor.

The Product Line option is option (b) on the Replenishment Definitions menu. Note the folder icon indicating a submenu. When you select the Product Line option, the following submenu appears:



Update Product Line

This is option (a) on the Product Line menu. Use this option to set up a product line code, description, and assign a vendor to the product line. When you select this option, the following screen displays:



Line Code

Enter a unique product line code, up to six characters, representing the product line. This is a required field. Below the Line Code field, there are two lines for entering a description of the product line.

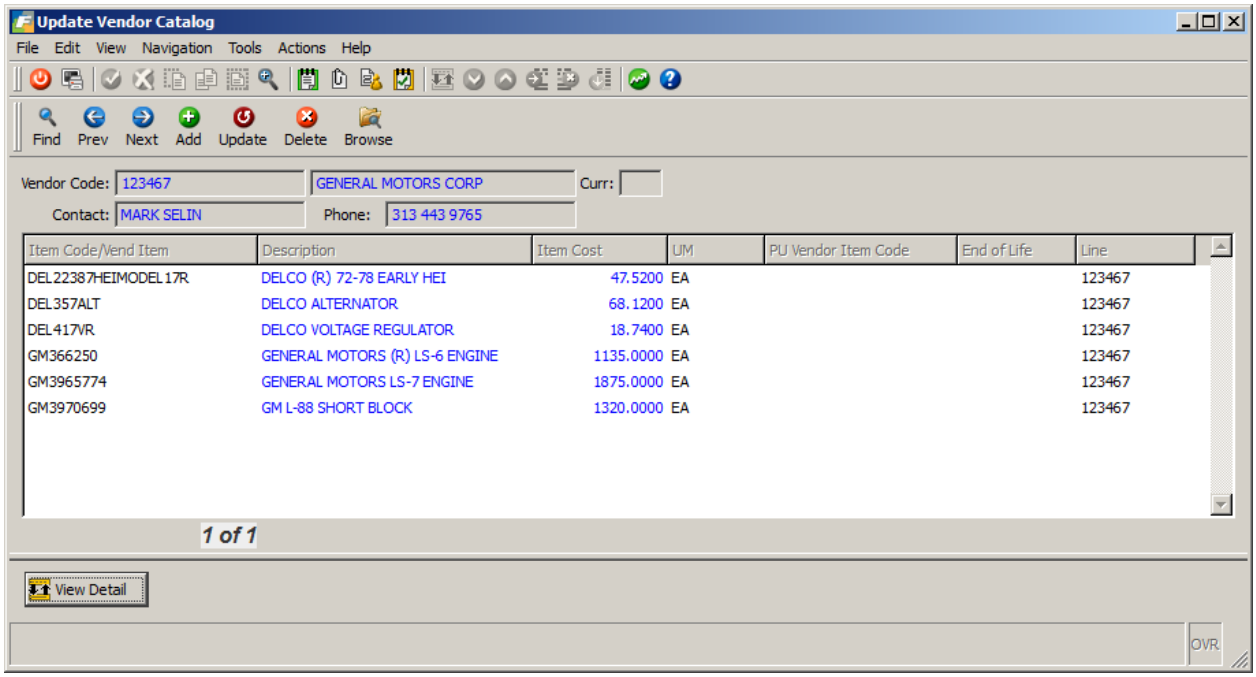
Vendor Code

Enter the main vendor from whom you purchase this line of products. Vendors must have been previously defined through the Update Vendor Information option on the Purchasing Setup menu or through Accounts Payable. Zoom is available to select from among valid vendors.

Every time a new vendor is added that needs to be included in the replenishment process you must set up a product line for the vendor using option (a) on the Product Line submenu. Once the product line has been set up you must now add this line code when you set up the vendor catalog using option (c) on the Product Line submenu

Update Vendor Catalog

Update Vendor Catalog accesses the vendor/item catalogs defined in Purchasing, allowing you to assign the items available from the vendor to a product line. You may use this option to add, find, and/or update a vendor's catalog of items. When you select this option, the following screen displays:



The fields located in the header portion of the screen are available for viewing only.
Any updates to the header vendor information must be entered through the Purchasing module.

Vendor Code

This field displays the code which represents the vendor. The full vendor name is displayed to the right of the vendor code.

Currency

If the Multicurrency module is installed through the Accounts Payable or Purchasing module, this field displays the default currency code defined for the vendor.

Contact

This field displays the name of the contact person associated with the vendor.

Phone

This field displays the telephone of the vendor/contact person.

Item Code

Enter the item code for the item which you would like to add or update. This item code must have been previously set up through the Inventory Control module. A Zoom is available to assist you in choosing from among valid item codes.

Vendor Item Code

Enter the code under which the vendor stocks the item, if you wish. This field is free-form up to 20 characters. This code will print on purchase order along with your item code.

Item Cost

Enter your cost for this item when purchased from this particular vendor.

UM

Unit of measure. This will default to the purchase unit in the item master or, if the item has a UOM list code assigned to it in the item master (meaning it is purchased in multiple units of measure) you will be able to drilldown to the list and select a unit of measure.

End of Life

Optional field to enter the date the vendor will discontinue this product.

Line

Enter the code for the product line to which the item belongs. This field is not required as some items might not belong to a product line. These product line codes must have been previously defined through the Update Product Line screen.

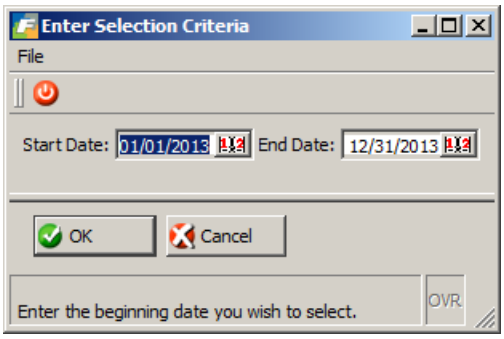
Print Product Line History

This program is run only one time when you are setting up your Replenishment module.

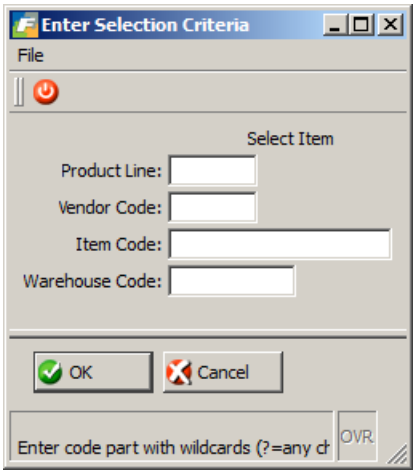
If your vendors do not require minimum purchases or you are not trying to reach a target purchase amount you do not need to run any of the product line history programs

This option lets you print a purchase summary of product lines between any two given dates. The summary includes total monetary, total volume, total weight, and total quantity amounts for product lines selected. These different summary categories are included as these are the same categories that vendors may use to determine minimum and target purchase levels. For example, a vendor may require a minimum order of $20,000 or a minimum order weight of 500 lbs.

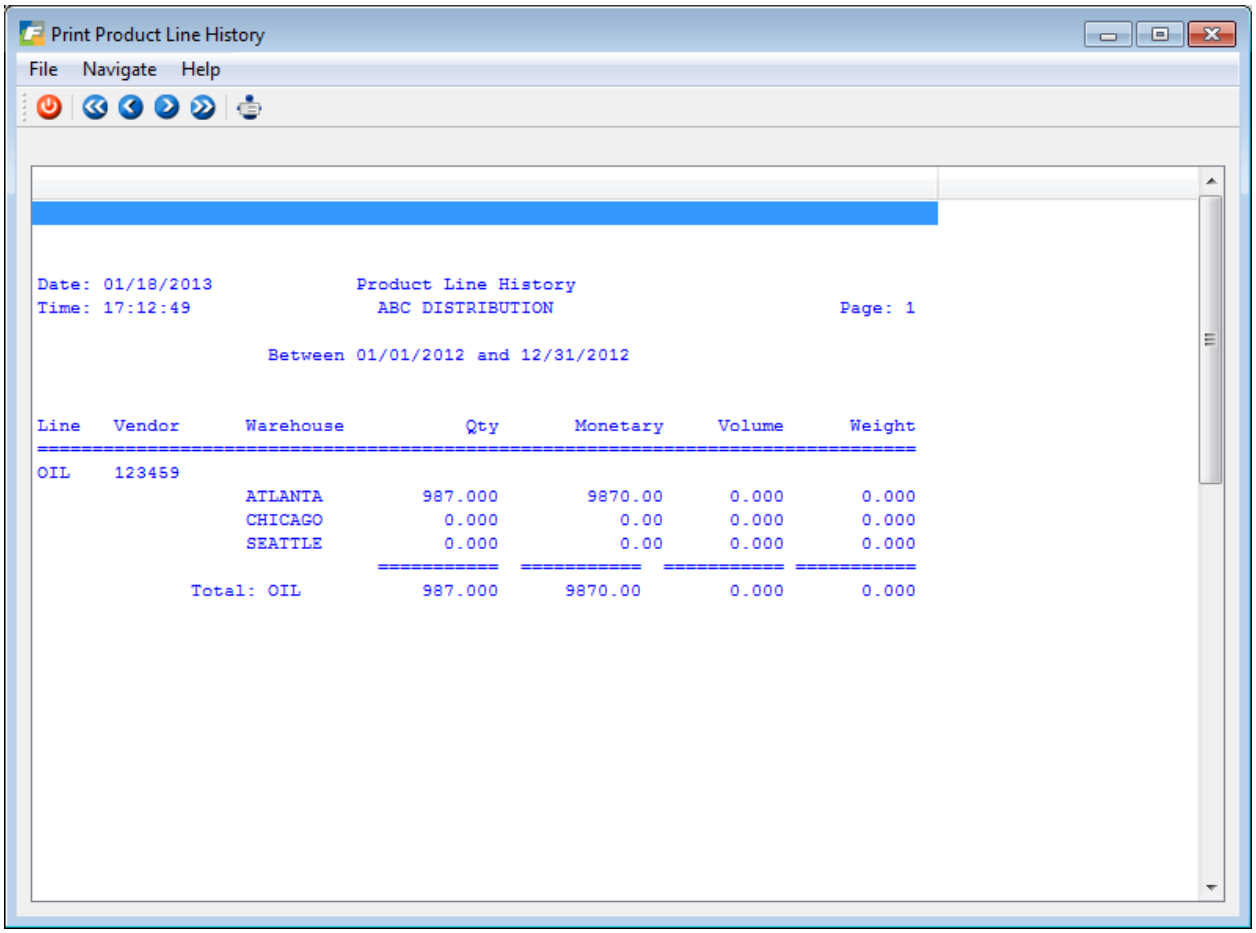
After you select this option, the following screen displays:



After you select the desired date range for the desired Product Line History, an additional selection criteria screen appears. This feature allows you to print all available information or limit your report to product lines which contain specific values. This gives you the opportunity to print information which meets your exact needs.



Here is a sample of the product line history report.



The Product Line History is used as a preview list for the next option, Create Product Line History. The Product Line History Report allows you to view the information to be stored by the replenishment system through the next option. After you look at the preview list, you can decide to choose a different date range or you can expand or limit the product lines included.

Create Product Line History

After you have determined the information you wish to include through the use of the preview option, Print Product Line History, you may select the Create Product Line History option to gather and store the purchase summary data. This option utilizes the same date range and selection criteria screens as used to preview your selections through the previous option.

Update Product Line History

The Create Product Line History option creates the annual purchase information that is displayed on this screen.

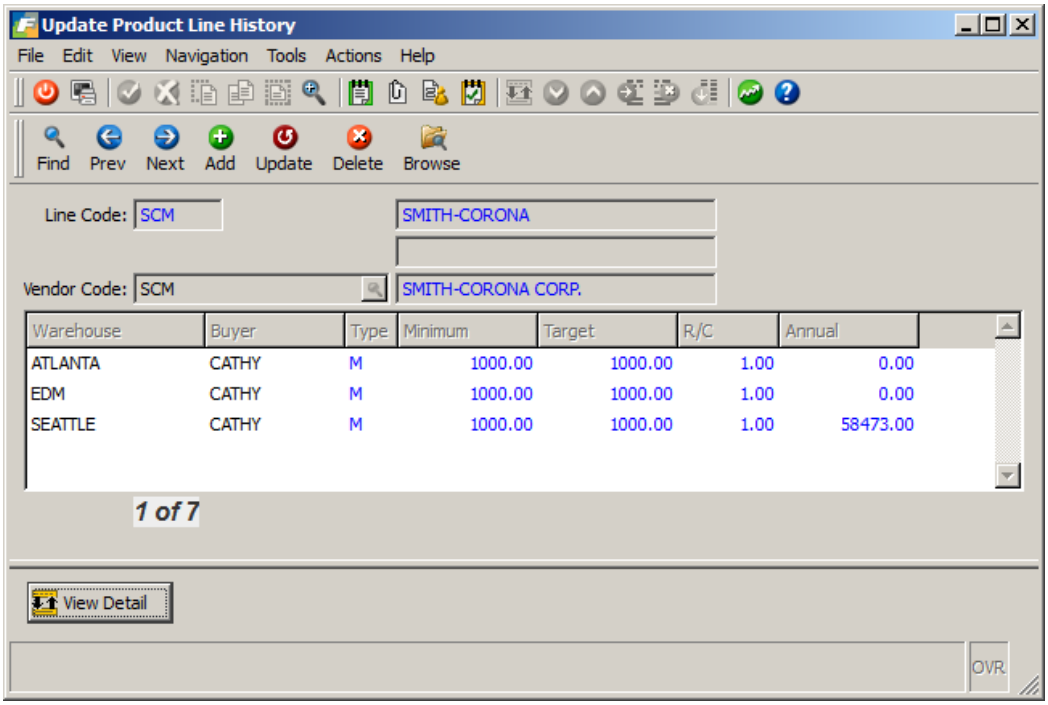
The Update Product Line History option allows you to set the minimum and target purchases as shown in the example below. It also calculates the review cycle based on the entry of the target amount. This calculated review cycle can be changed if you want to review more or less often than what the program recommends.

The target and minimum amounts you enter are used in the Buy Recommendation program. You can automatically roll the recommended amount up or down to your target or minimum if they do not meet one of these by setting the roll flag to T for target or M for minimum.

Target Purchase Amount and Review Cycle

The target purchase is the necessary order amount that allows you a discount from the vendor. This target purchase amount may be based upon monetary value, quantity, weight, or volume. **The replenishment review cycle (the number of reviews per month) is determined by multiplying the target amount times 12 and then dividing the result by the annual purchase amount.** If the review cycle value is 1, then the product line review is performed once a month (28 days). If the review cycle value is .50, then the product line review is performed every 14 days.

Update Product History Screen:



Line Code

To access history for a previously defined product line code, use the Find command.

Description (unmarked field)

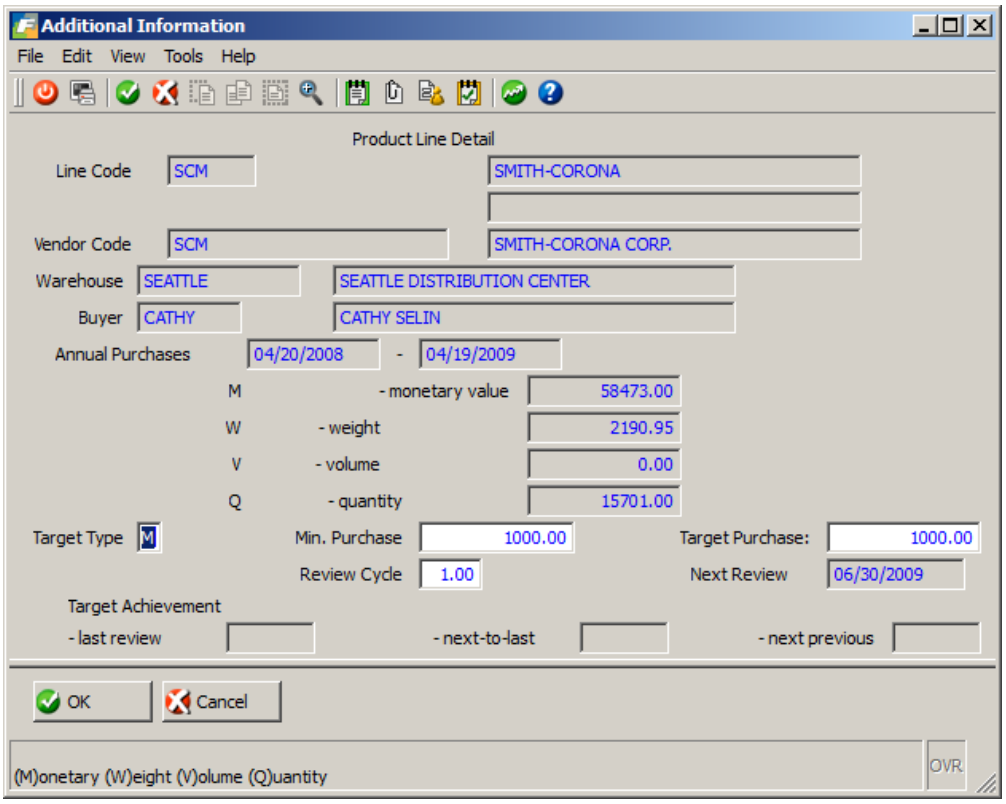
Line code description.

Vendor Code

The vendor code the product line is assigned to.

Warehouse

The warehouse code that you are setting the minimum and target purchase levels for this product line. You can zoom from the warehouse field into the Product Line History screen which displays information set by the Create Product Line History program.



Product Line Detail includes the date range for the annual purchase amount and shows the amount for the four different purchase types (monetary values, weight, volume, and quantity).

Under Target Achievement, there are three system-maintained fields that indicate how close your purchase levels have been to the target over the last three review cycles.

Buyer

The buyer code associated with the warehouse.

Type

You can base the target purchase on any of the following available types of summary information:

M—monetary value
V—volume
W—weight
Q—quantity

Minimum

Enter the minimum acceptable order as defined by the vendor. The unit of this minimum order is defined by target type. For example, if the target type is M (monetary), enter the minimum acceptable purchase amount as defined by the vendor.

Target

Enter the targeted order amount that gives you a discount. The unit of this target order is defined by target type. When you enter a target purchase for a product line, the system calculates the Review Cycle (R/C).

R/C (Review Cycle)

The system calculates the Review Cycle by multiplying the target purchase by 12 (representing calendar months) and then dividing the result by the annual purchase. This field is used to determine how often a review will be generated to assess whether or not a recommendation to purchase items from this product line is included in the replenishment advice. A 1 in the R/C column indicates that you want to review this product line every month. A .50 R/C indicates a review cycle twice a month. Because industry standards indicate a review cycle on all inventory product lines should occur at least once a month, the maximum review cycle determination is 1. Once the system calculates the review cycle, you can modify it to fit the actual review cycle you want. For example, if the system calculated the review cycle as 0.93, you would want to change this to 1.00 so that your review cycle would be once a month.

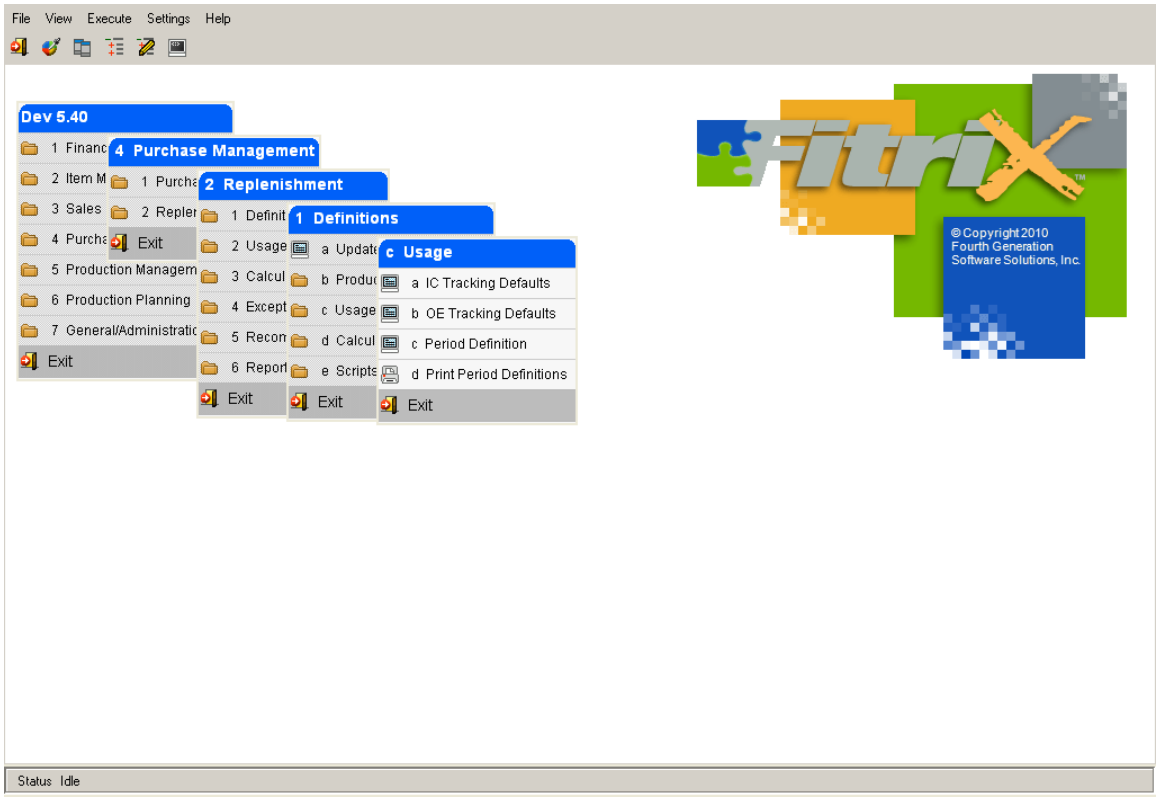
By knowing what your review cycle is for a product line, you can gather usage information and create formulas based on your review cycle to compute the proper replenishment recommendations.

Annual

The system enters the annual amount purchased based on the product line history; however, you can change this amount if needed. The system uses this amount along with the target purchase entered to calculate the review cycle for the product line in a particular warehouse.

Usage Tracking

When you select the Usage option from the Definitions menu, the system returns the following submenu:

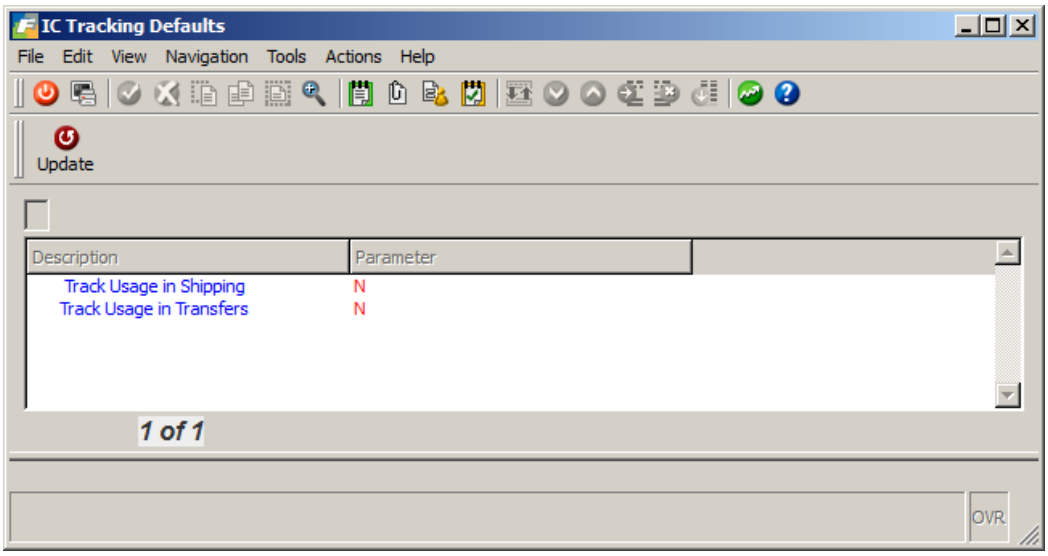


Usage is tracked whenever an item is sold or transferred. When determining the usage rate, sales and transfers that are abnormal should be excluded from the usage calculation. A normal sale to a customer or a transfer from a parent warehouse to one of its branches is generally considered normal usage. Surplus sales when you are getting rid of inventory and special transfers from one warehouse to another may be considered abnormal usage. You can customize which of these transactions your system considers normal usage (thereby including these transactions in usage tracking).

Inventory Control (IC) Tracking Defaults

Using the first option available on the Usage submenu, IC Tracking Defaults, specify whether or not inventory control transactions should be tracked as usage when they are shipped or transferred. Generally you enter usage through Order Entry rather than Inventory Control. You can customize the system to accommodate any normal usage you wish to track from the Inventory Control module. Enter a Y(yes) to indicate that the indicated transactions should be tracked as usage, or an N(no) to indicate that they should not be tracked as usage. These values are used as defaults for shipping and transfer transactions when using Inventory Control(IC).

IC Usage Tracking Screen:



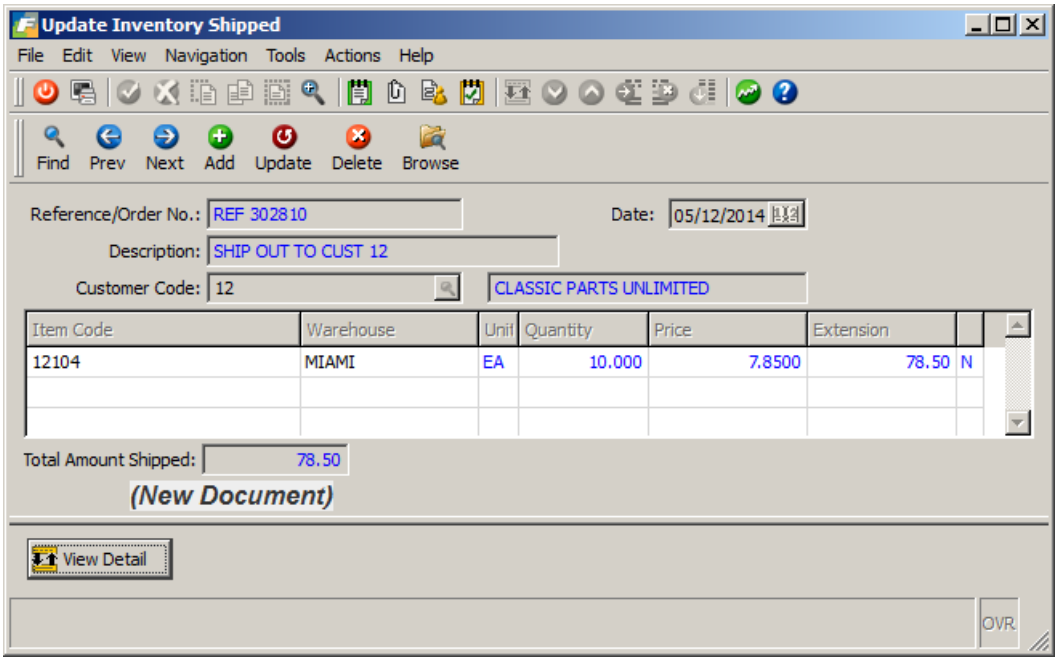
Track Usage in Shipping

Enter a Y(yes) or an N(no) to indicate whether or not shipping transactions should be tracked as usage when entered through the Inventory Control module.

Track Usage in Transfers

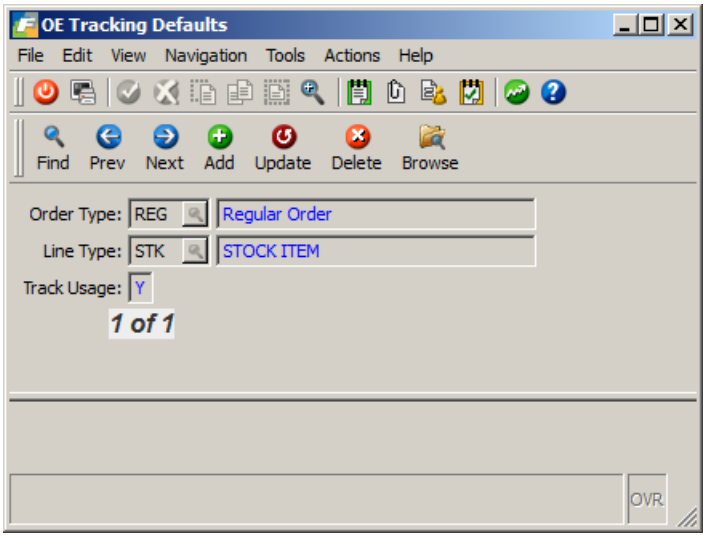
Enter a Y(yes) or an N(no) to indicate whether or not transfer transactions should be tracked as usage when entered through the Inventory Control module.

You may override the Inventory Control usage defaults defined in the above screen per line item when entering transactions. Below is an example of a shipping transaction entered through the Inventory Control module. Note the unlabeled field at the end of the detail lines where you see either N or Y. This field designates whether or not the line item should be considered recurring usage and therefore be tracked as usage. The same field is available on the Inventory Control Transfers screen.



Order Entry (OE) Tracking Defaults

Using the second option available on the Usage submenu, OE Tracking Defaults, define whether or not Order Entry transactions should be tracked as normal usage depending upon order type and/or line type. The following example illustrates how you can base the definition on a combination of both line and order types. In the example below we are only tracking stock (STK) items shipped out of the warehouse (REG order type):



Order Type

Enter the Order Type code which represents the order type you wish to define for usage tracking. These order type codes must have been previously set up through the Update Order Type

Definitions option of the Order Entry module. Zoom is available to assist you in selecting a valid order type. The system displays a description of the order type to the right of the order type code.

Line Type

Enter a Line Type code which represents the line type you wish to define for usage tracking. These line type codes must have been previously set up through the Update Line Type Definitions option of the Order Entry module. Zoom is available to assist you in selecting a valid line type. The system displays a description of the line type to the right of the line type code.

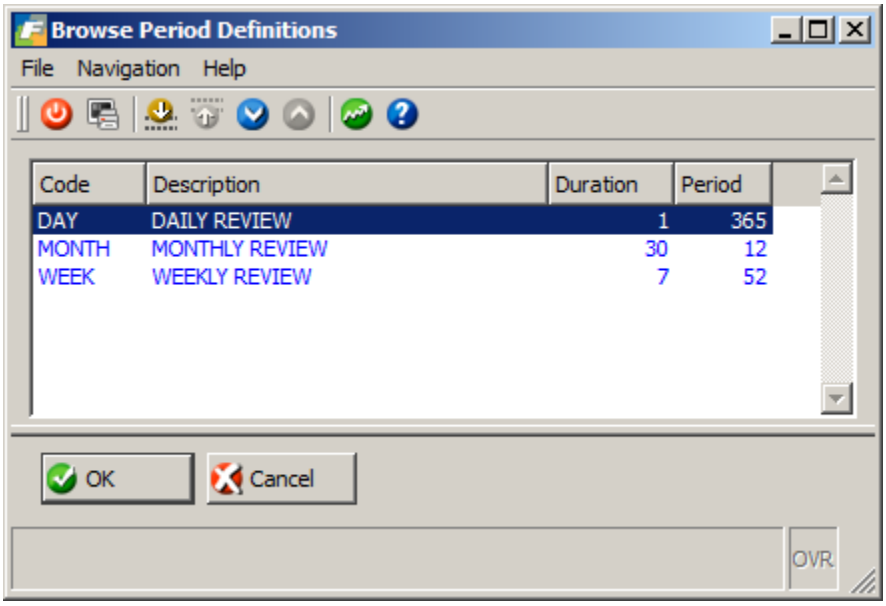
Track Usage

Enter a Y(yes) or an N(no) to indicate whether or not this combination of order type and line type should be tracked as recurring usage. If this order type/line type affects your replenishment needs, you should track it as usage; if it does not affect your replenishment needs, you would not want it included in the usage rate information used to calculate your reordering needs.

Period Definition

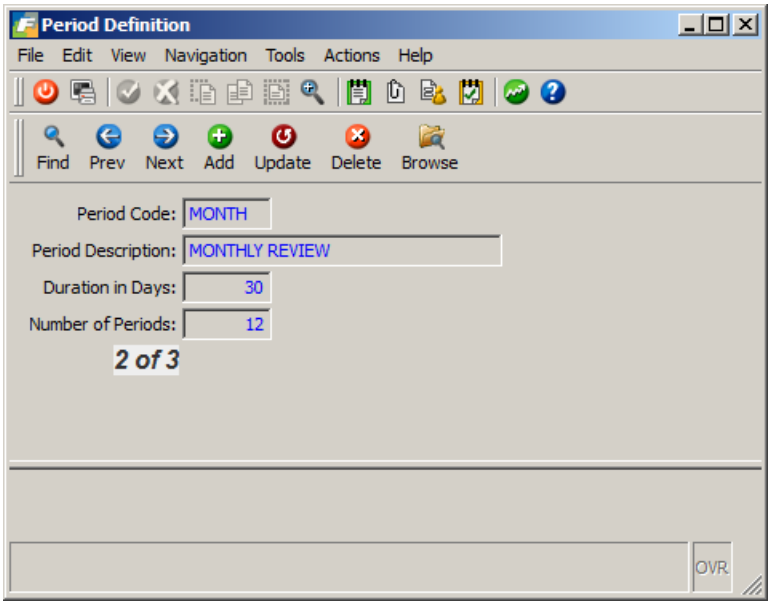
The periods defined here are when setting up your replenishment scripts and deciding how often you want to run the replenishment process.

Period Definition is used to define the number of days in a period and the number of periods of usage to track. The recommended period definition is one that matches the review cycle of your product lines, however, they can differ. Examples of periods include



For normal annual usage, you may want to define your usage collection as shown in the example below: twelve periods, each consisting of 30 days. This definition gathers the usage information into twelve variables. These twelve variables storing usage data determine your average usage rate for the last twelve periods. If this product line historically has a stable usage rate, a review of this information could occur every 30 days (indicated through a review cycle of 1). However, if

you were defining periods and a review cycle for fast-moving items, you may wish to set your period definitions to bimonthly (defining the duration in days as 14). You may only wish to consider the past three months of usage too. The number of periods would still be defined as six since six 14-day periods would equal three months) For very fast-moving product lines such as seasonal items, the usage rate may fluctuate greatly and therefore demand a more frequent review. In this case, you may want to set your review cycle for .25 for a weekly review.



Period Code

Enter up to a six-character code to define the usage collection period

Period Description

Enter a description of the period definition code entered in the previous field.
This description may be up to 30 characters in length.

Duration in Days

Enter the duration in days for the period definition. In the example above there are 30 days in a month.

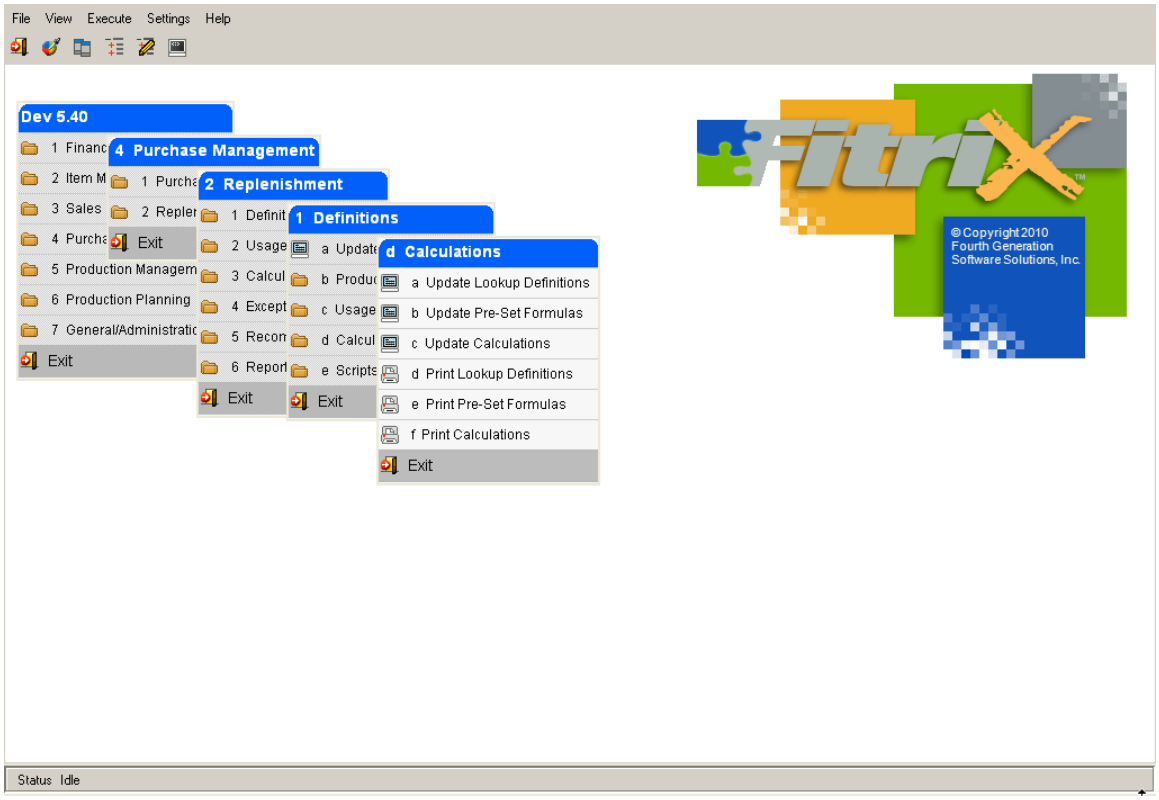
Number of Periods

Enter the number of periods to track. This entry determines how many periods the system uses to calculate the average usage rate. This entry must be numerical and must be within the range of 1 to 104. In the example above we are tracking the last 12 months' worth of usage when determining the average monthly usage.

Calculations

The purpose of replenishment calculations is to generate the usage rate, the order point, the line point, and the suggested order quantity for each item in each warehouse for a given product line.

The system provides standard replenishment calculations. These calculations, as well as any customized by your system integrator, can be implemented without the necessity of knowing complex formulas. When you select the Calculations option from the Definitions menu, the system returns the following submenu:



Because each formula may be modified, the system is designed for maximum flexibility. These formulas are generally determined and defined during the setup procedures and are invisible to the end user.

The Calculation set up flow is as follows:

Update Lookup Definitions – use this program to set up or revise variables that are then used in formulas.

Update Pre-set formulas – use this program to set up or revise formulas that use these variables.

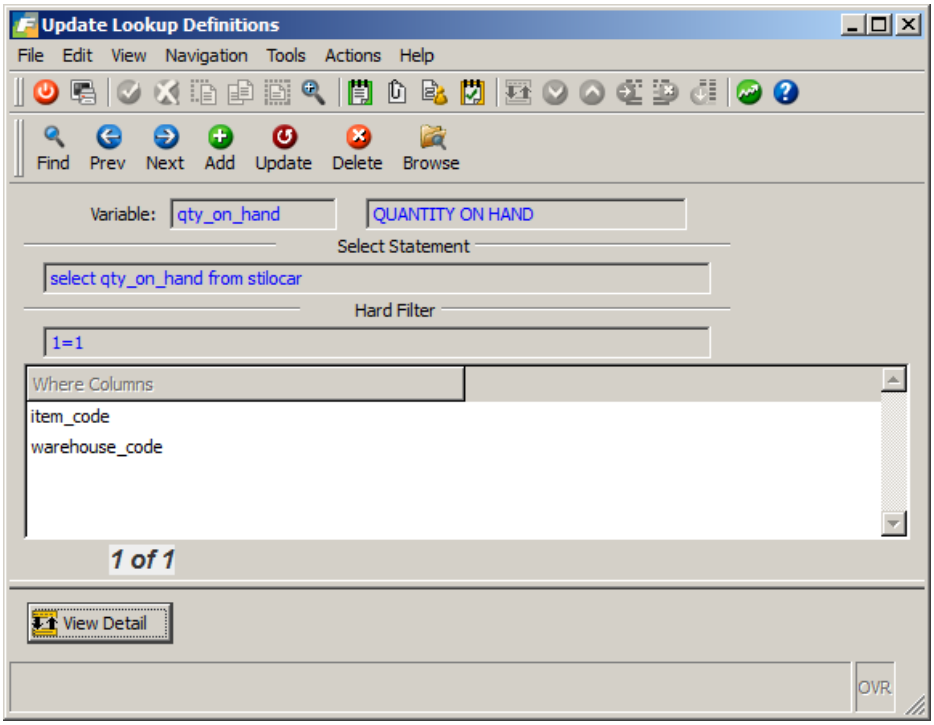
Update Calculations – use this program to assign a group of formulas to a replenishment code which is then assigned to a replenishment script. The replenishment code tells the script what

suggested order quantity formula to use. The script also tells the system how often the replenishment process should be run for a specific product line/warehouse (i.e., - monthly).

Update Lookup Definitions

Use this program to set up or revise variables that are then used in formulas.

In the example below we are selecting the quantity on hand from the table that stores this information (table name stilocar). We can then use this in a formula.



Variable

This field holds the variable for this lookup definition. A lookup variable can be up to 14 characters.

Description

Enter a description of the variable. This description can be up to 30 characters.

Select Statement

This is the main SQL select statement for the lookup. The selection statement must return a single value and that value must be numeric.

Hard Filter

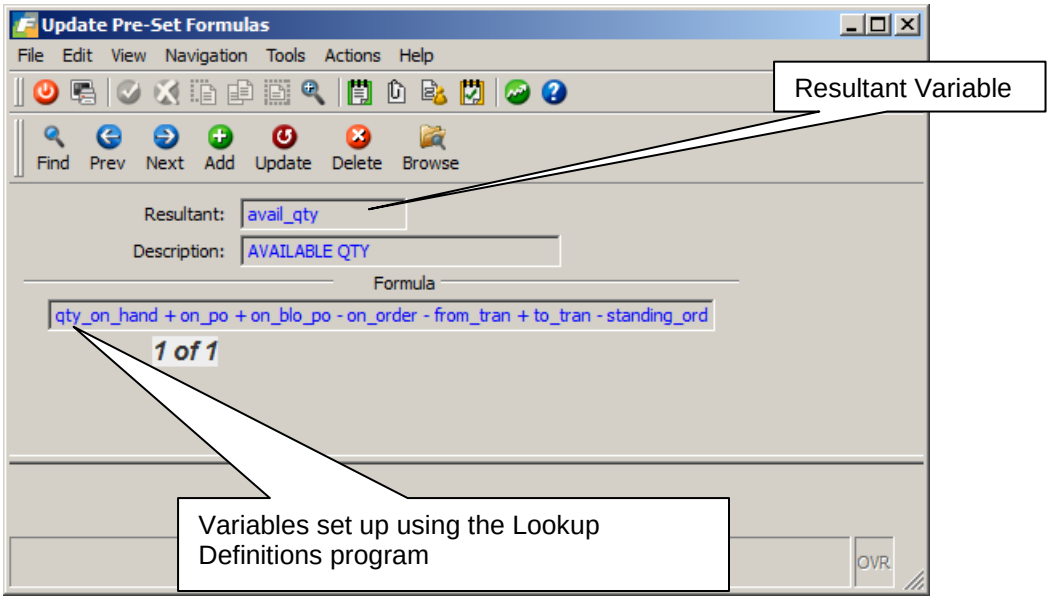
This field holds the "where" clause for a selection that is not based on a specific value passed from the program. The values are usually join statements or columns related to a constant. The filter records what data element should be selected for the statement. A hard filter of 1 = 1 indicates to select all data available, and is usually indicative of only one value available for selection.

Where Columns

Use this section to build the dynamic portion of the where clause in the selection statement. In the example above we are selecting the quantity on hand for each item in each warehouse.

Update Preset Formulas

Use this program to set up or revise formulas that use your lookup definitions/ variables.



In the example above the available quantity on hand is calculated as:

Qty on hand + open POs – customer orders – whse tsfs out + whse tsfs in.

Resultant

Enter the resultant variable to be resolved by the formula. This field is required and can contain up to 14 alphanumeric characters.

Description

Enter a description of the resultant/formula. This field may contain up to 30 alphanumeric characters

Formula

Enter the actual formula which is used to determine the resultant variable. The resultant variable must be resolved to a numeric value. The formula can be up to 200 alphanumeric characters long.

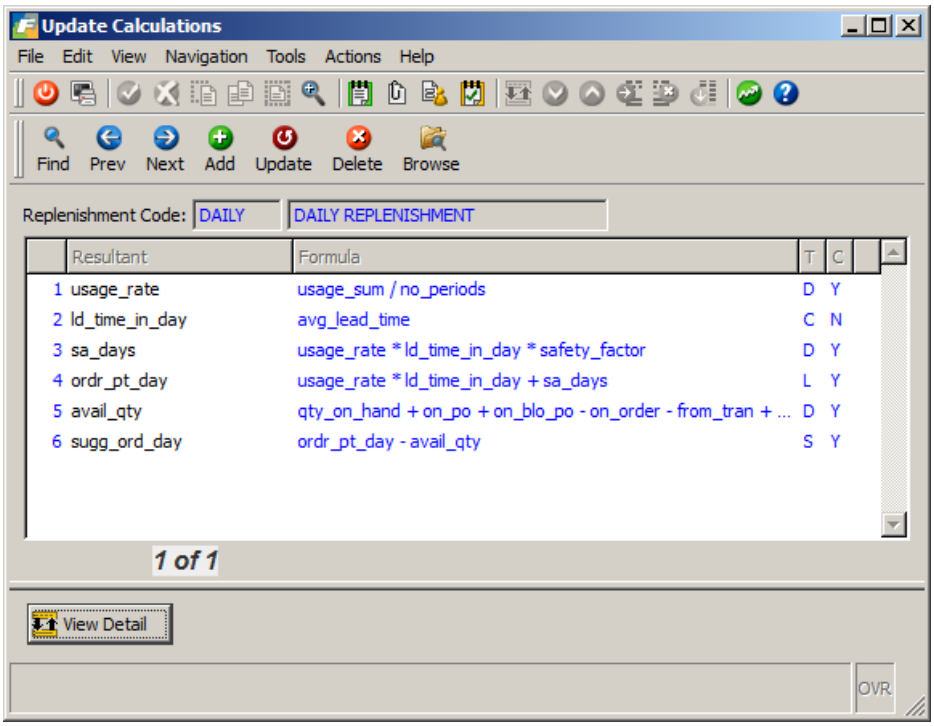
Update Calculations

Once all the formulas are set up you now group these formulas and assign to a replenishment code. This replenishment code is then assigned to a script which tells the usage program when to update usage for each vendor so that the replenishment process can be run by the Purchasing department.

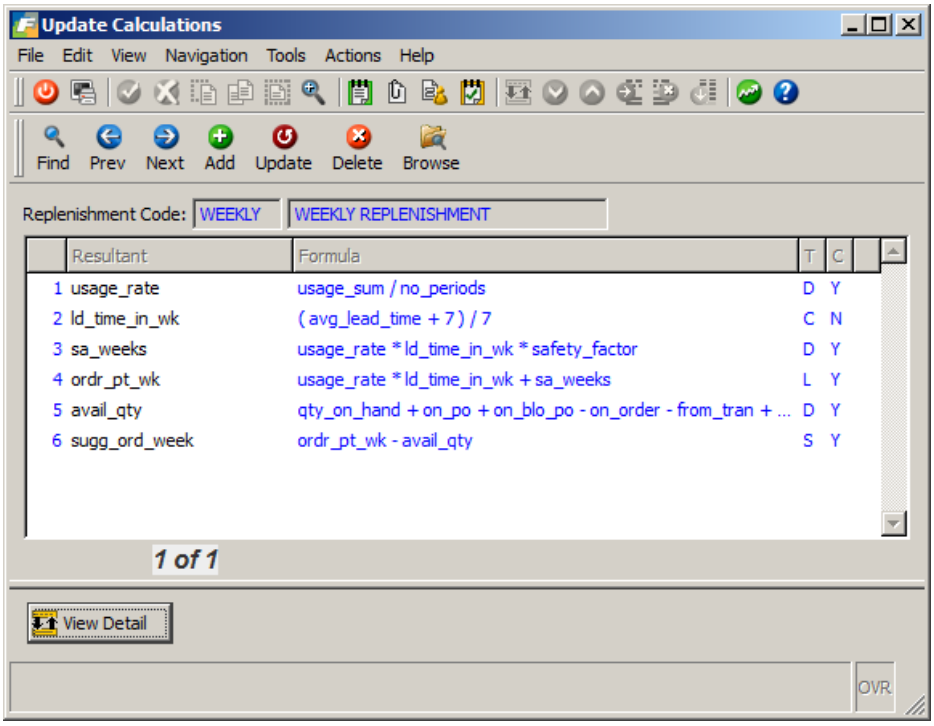
IMPORTANT NOTE:

The ordering of the formulas on the Replenishment Calculation Definitions screen is essential. A resultant variable must be resolved before referencing it in a formula. For example, the resultant variable usage_rate must be calculated before calculation of the order point, because the order point formula uses the value of usage_rate. Also, you must make sure that every variable has a method of resolution. If a lookup fails within a formula, the result would be a null value. The system depends on the generation of order point, line point, and suggested order quantity. You are required to enter formulas that generate values for each of these variables.

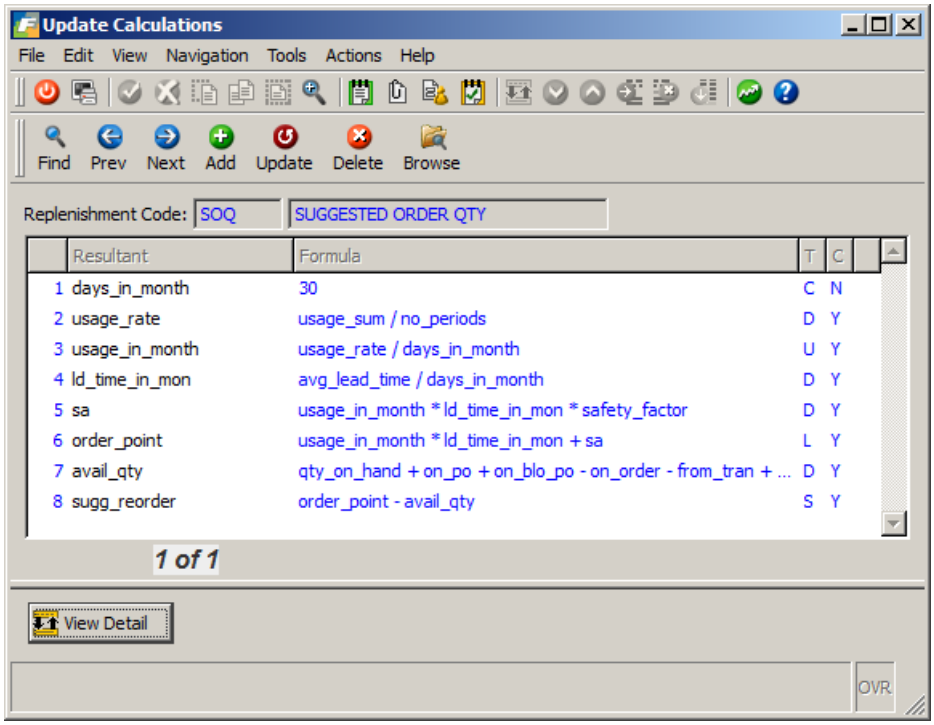
Daily Calculation Example:



Weekly Calculation Example:



Monthly Calculation Example:



Replenishment Code

Enter a freeform code for the reorder advice you want to generate using this calculation. This code is then inserted into the script that will be run to generate updated usage numbers, reorder quantities, buy recommendations, and lastly generate purchase orders for these buy recommendations.

Description

Enter a full description of the Replenishment Code entered in the previous field. This description may contain up to 30 alphanumeric characters.

Resultant

Enter a preset formula. Once entered the system automatically returns the formula, which you can manipulate if needed. You can also enter a variable that is not pre-defined and give it a formula that the system will only use for this calculation. This entry can be up to 14 characters long.

Formula

Define the applicable formula which will resolve the variable entered in the previous field. This definition may consist of up to 200 characters. If the variable has been defined through Update Pre-Set Formulas, the formula is automatically displayed.

T – Type of formula

The T column stands for the variable's "Type." The type is used to determine if the variable requires calculation for each item or should only be computed one time. It is also used as an indicator to the system as to the value computed. This column accepts the following single-character flags that label the type of variable:

C—(Constant) - means the value is calculated one time and then used by the system without recalculation. For example, if you want the sa (safety_factor) variable to always contain the value 50, by setting the type to "C," the variable will not be recalculated for each item.

D—(Dynamic) - re-computes the value for each different item passed to it.

L—(Line Point) – re-computes for each item and is used to indicate the maximum advisable reorder point for this item in the product line purchase.

U—(Usage Rate) - re-computes for each item and is used to indicate the forecasted usage for this item.

R—(Reorder/Order Point) - re-computes for each item and is used to indicate the item's critical reorder level. If an inventory item reaches this order point level, it is imperative that it be reordered immediately, as this order point indicates the risk of depletion of an item from inventory stock.

S—(Suggested Reorder Quantity) – re-computes for each item and is used to indicate the suggested reorder quantity for this item. The screen example shows that there can only be one line that represents each formula that ultimately resolves the usage rate (U), order point (R), line point (L), and the suggested order quantity (S). When the system calculates the values from these formulas, the results are automatically stored. If you want to store other calculations such as the safety stock, which might have a D or C type, you need to enter a "Y" in the Create column.

C- store formula results and display Y or N

If this value is set to Y these formulas and their computed values will display in the Update Replenishment Data discussed later in this Guide so you know what formulas were used in calculating your Suggested Order Quantity. If set to N, the formula will not display in this program.

The system automatically saves the values for the order point, line point, suggested reorder quantity, and usage rate, as their default for the create column is automatically set to Y

Here are the various formulas used by the SOQ replenishment code:

Days in month 30

Usage rate = usage for last 12 periods / 12

Usage in month = usage rate * days in month of 30 / day duration of 30

Lead time in months = Vendor ETA days/ days in month of 30

Ex- if ETA is 90 days then this would be 90/30 or 3 months to get product

Safety Allowance = Usage in month * lead time in months * safety factor %

(aka safety stock)

This is a pad that is added to the order point in the event that usage is heavier than normal or lead time is longer than normal. Industry standards suggest the safety factor % is 50%.

Order Point = Usage in month * lead time in month + safety allowance

This is the quantity that you should have on hand to take care of customer during the time it takes to get in more stock + a safety allowance. You should never fall below this point.

Available Qty = qty_on_hand + on_po – on_order – tsfs out + tsfs in – standing orders

On PO = Remaining receipt qty on open POs where the required receive date is < (today's date + eta days)

On Order= the ship qty on Open REG customer orders where the to ship date is < (today's date + eta days)

Tsfs out – whse transfer out so QOH will decrease.

Tsfs in – whse transfer in so QOH will increase.

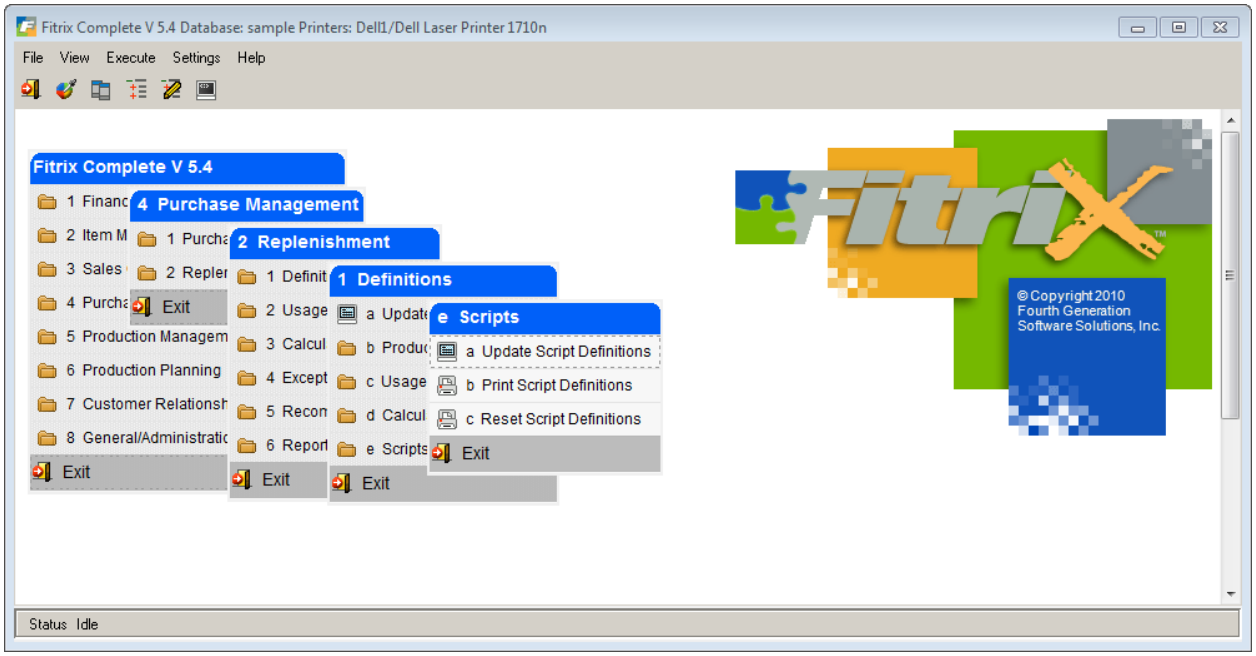
Standing orders – in the next two weeks

Suggested Reorder = Order Point – Available Qty

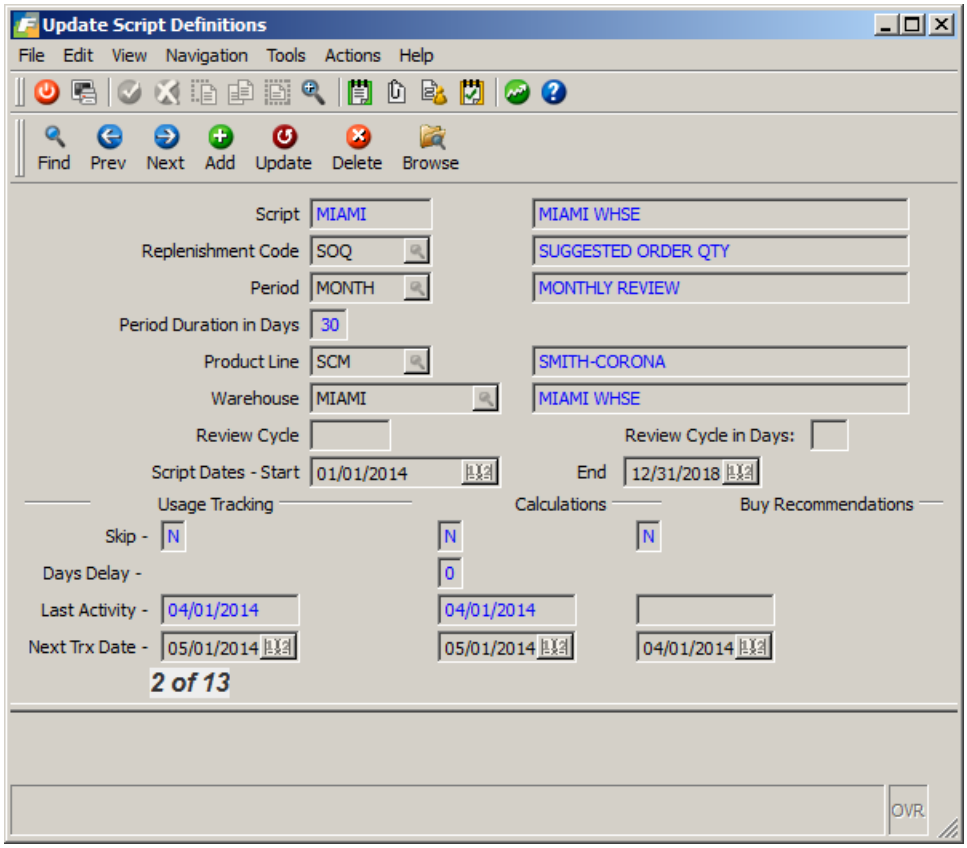
Scripts

The final step in the Replenishment setup process is to create scripts for your product line/warehouses. Each product line you wish to review must have at least one script assigned to it. These scripts pull together all the various information from the replenishment definitions and tell the system when and how to run the replenishment calculations.

When you select the last option on the Replenishment Definitions menu, Scripts, the following submenu appears:



Here is the Update Script Definitions screen:



In this example, we're using script code of ATLANT to calculate reorder quantities for the SCM product line for the Atlanta warehouse and the reorder calculations will be run every thirty days.

The formulas that will be used to make the calculations are based on the Replenishment Code SOQ.

Script

Enter a script code of up to six alphanumeric characters in this field. This code enables you to label a script definition by name, thereby allowing you to access this script easily by entering this short code. **This script code must be vendor specific, and product line-specific**, as in the above example. Each script can only apply to one product line

Script Description

Enter a more lengthy (up to 30 alphanumeric characters) description of the script code entered in the previous field.

Replenishment Code

Enter the replenishment code used by this script definition. This method must have been previously defined through the Update Calculations option under the Definitions-Calculations submenu. Zoom is available to assist you in selecting from among previously validated methods.

Period

Enter the period code used by this replenishment script. This period code must have been previously defined through the Update Period Definition option located under the Definitions-Usage menu option. After entering the period code in this field, the system displays a description of the period code, and the duration in days corresponding to the period code. Zoom is available to assist you in selecting from among previously validated period codes.

Period Duration in Days

This field displays the period duration for the period defined in the previous field. The period duration has been previously defined through the Update Period Definition option. This period duration is expressed in number of days.

Product Line

Enter the product line code used for this replenishment script. This product line code must have been previously defined through the Update Product Line option located under the Definitions-Product Line option. After entering the product line code in the field, a description of the product line code appears in a display only field. Zoom is available to assist you in selecting from among previously validated product line codes.

Warehouse

Enter the warehouse code to be used for this replenishment script. This warehouse code must have been previously defined through the Update Warehouse Definitions option of the Fitrix Inventory Control module. After entering this warehouse code, a description of the warehouse appears in a display-only field. Zoom is available to assist you in selecting from among previously validated warehouse codes.

Review Cycle

This field is display-only and contains the review cycle as defined through the Update Product Line History screen.

Review Cycle in Days

This no-entry field displays the number of days corresponding to the review cycle listed in the previous field.

Script Dates - Starts

Enter the date that you wish the replenishment process to begin.

Script Dates - End

Enter the date that you wish the replenishment process for this script to end.

Skip—Usage Tracking

This field accepts either a Y(yes) or an N(no) to indicate whether or not usage tracking should be skipped when this replenishment script is processed. This skip feature allows you to limit the run to specific product lines. The default for this field is N(no), do not skip usage tracking.

Skip—Calculations

This field accepts either a Y(yes) or an N(no) to indicate whether or not calculations should be skipped when this replenishment script is processed. This skip feature allows you to limit the run to specific product lines. The default for this field is N(no), do not skip calculations.

Skip—Buy Recommendations

This field accepts either a Y(yes) or an N(no) to indicate whether or not buy recommendations should be skipped when this replenishment script is processed. This skip feature allows you to limit the run to specific product lines. The default for this field is N(no), do not skip buy recommendations

Days Delay

Enter the number of days to delay calculations (0-9) from the date the system processes usage tracking. This delay may be used to check the usage summary prior to performing calculations. The default for this field is 0.

Last Activity

This no-entry field displays information regarding the last date of review cycle activity. The system displays this information separately for Usage Tracking activity, Calculations activity, and Buy Recommendations activity.

Next Trx Date

This no-entry field displays information regarding the next transaction date for review cycle activity. The system calculates this date by adding the number of days in your review cycle to the last activity date. The program displays this information separately for Usage Tracking Activity, Calculations activity, and Buy Recommendations activity.

Reset Script Definition Program

If you ever need to zero out usage, calculations, and recommendations and reset all dates use this utility. It will delete all the data for the script code entered and reset all the dates to 01/01/2000 so you can run the replenishment process from beginning to end again for your current cycle. This utility is useful of you decide to change a vendor from a weekly replenishment cycle to a monthly replenishment cycle. It basically resets all data to 0 so you can start from day one.

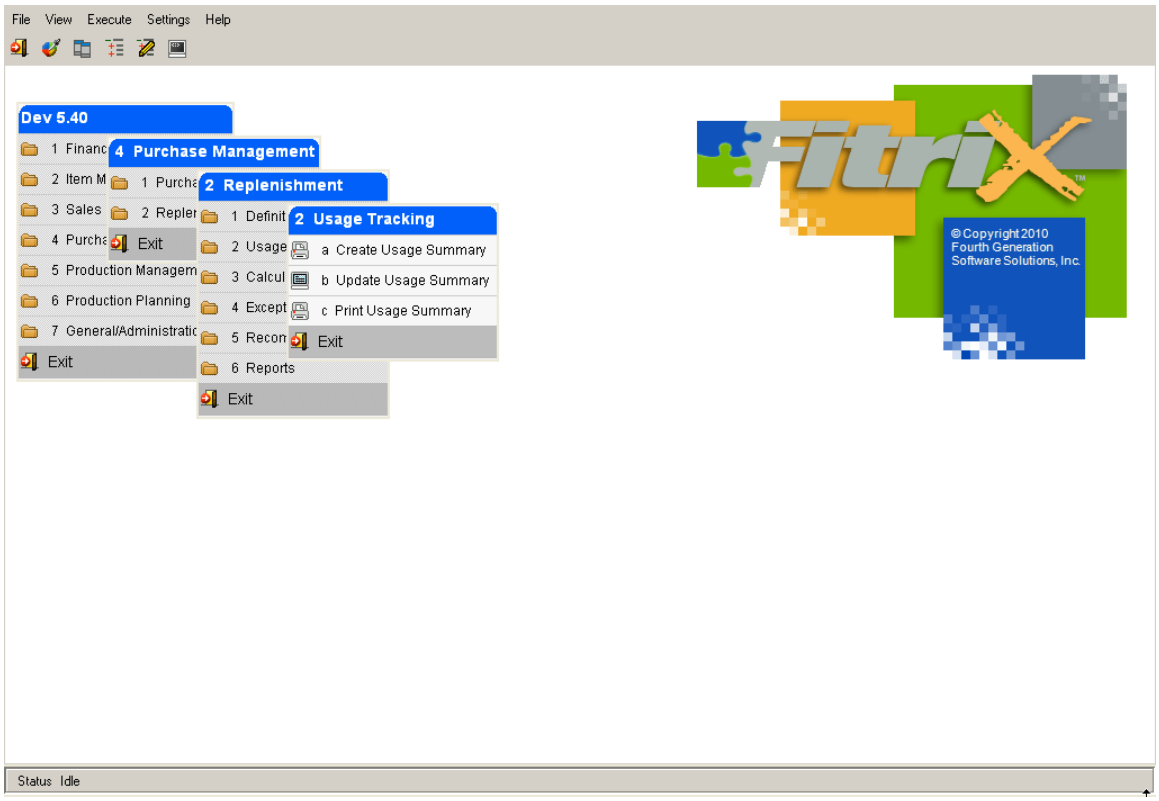
Chapter 3 – Computations and Analysis

This chapter covers the following topics:

- Creating, updating, and printing usage summaries
- Calculating, updating, and printing reorder quantities
- Printing expedite report for exception processing
- Generating, updating, and printing buy recommendations
- Creating purchase orders from buy recommendations

Usage Tracking

When you select the second option from the main Replenishment menu, Usage Tracking, the following menu displays:



Through the usage tracking options, you create and update your usage numbers before using these updated usage numbers in the next step, the replenishment reorder calculation.

Create Usage Summary

This program updates your usage history with your most recent activity. For example, let's say you are collecting the last six months of usage to determine your monthly average usage. Before you run this program, you have this information in the replenishment usage table:

Period	Start date	End Date
1	**05/03/2013**	**06/01/2013**
2	04/03/2013	05/02/2013
3	03/04/2013	04/02/2013
4	02/02/2013	03/03/2013
5	01/03/2013	02/01/2013
6	12/01/2013	01/02/2013

Therefore your current average usage is based on usage from December 1st through June 1st. The next time the usage program is run on July 1st, the period 1 usage will be replaced with updated usage numbers from June 2nd through July 1st .

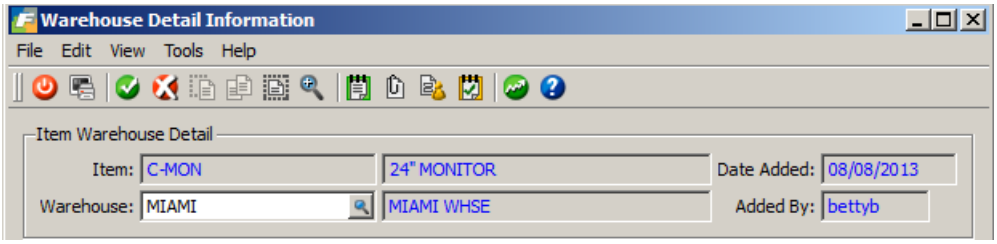
Period	Start date	End Date
1	**06/02/2013**	**07/01/2013**
2	05/03/2013	06/01/2013
3	04/03/2013	05/02/2013
4	03/04/2013	04/02/2013
5	02/02/2013	03/03/2013
6	01/03/2013	02/01/2013

These up to date usage numbers will be used in your replenishment formulas when calculating what you should reorder from your Vendors.

The system selects the product lines for which usage history is collected based on matching all of the following criteria:

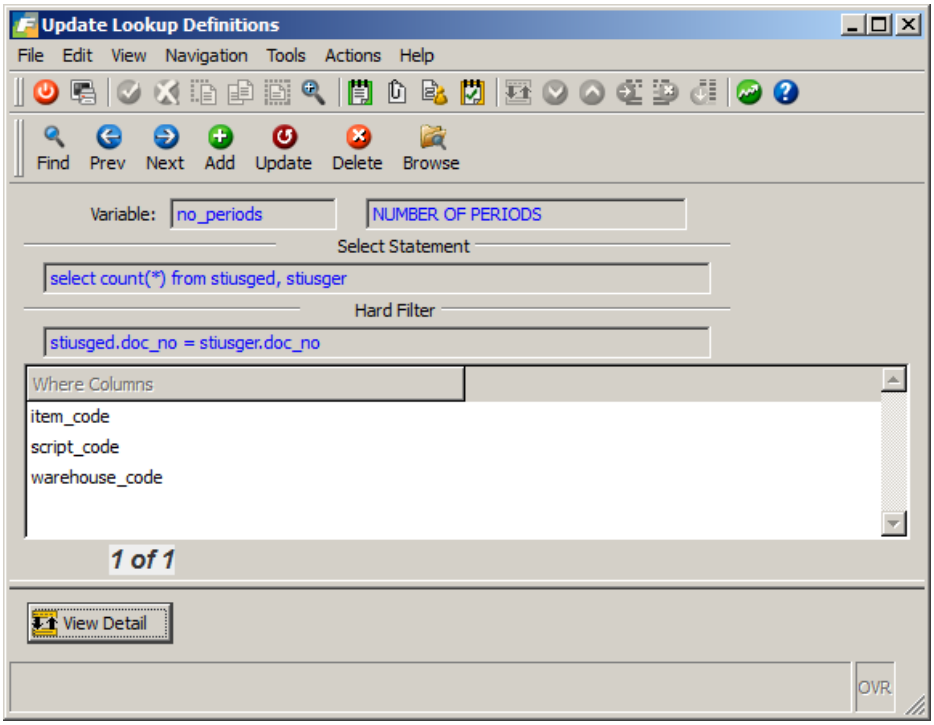
- The script's next usage date is earlier than or equal to the run date.
- The script's start date is earlier than or equal to the run date.
- The script's end date is later than or equal to the run date.
- The script's Skip Usage field is set to "N."

The average usage calculation will be based on the date the item was added if a date added is found in the warehouse detail table, as shown here:

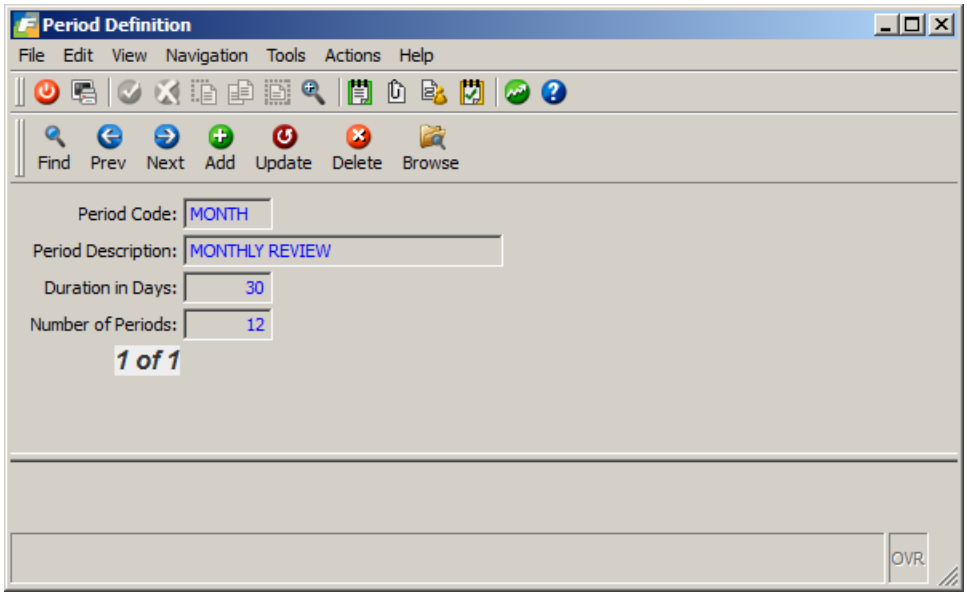


For example if the user is tracking 12 months of usage and the item was added 2 months ago average usage will be usage/2 not usage/12.

The number of periods lookup definition uses this added date when determining the number of periods to use in the average usage calculation.

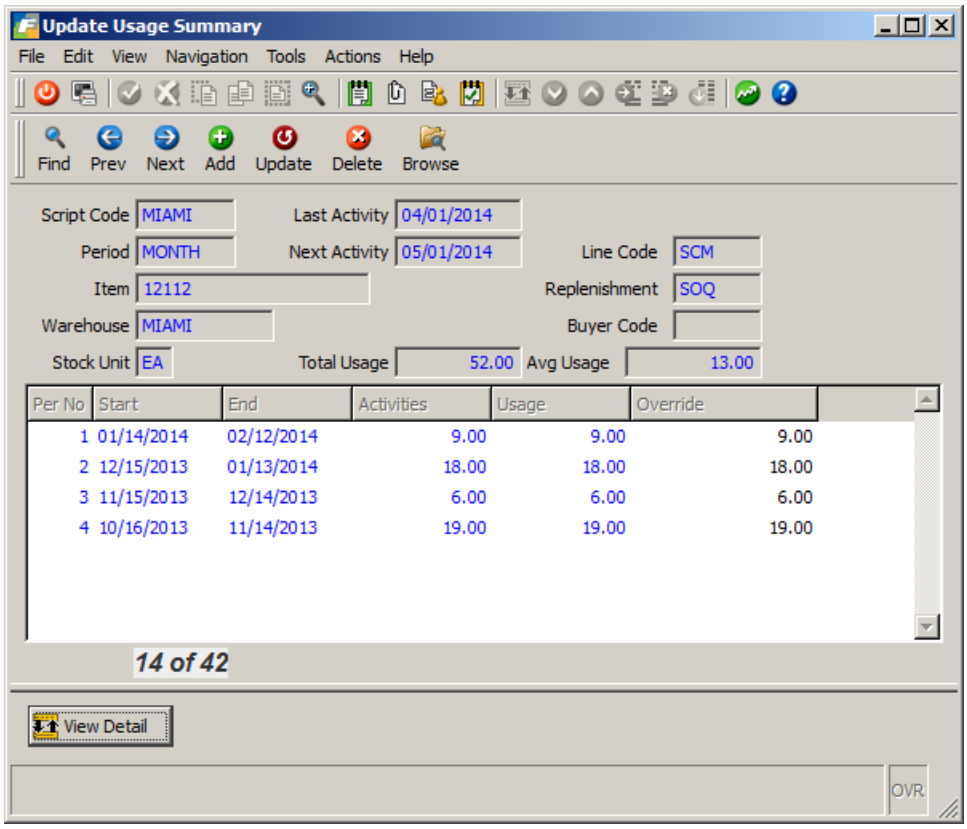


Instead of using the number of periods defined in the period definition table (like 12 periods as shown below) it will instead use the number of actual periods of usage found in the usage table.



Update Usage Summary

Use this screen program to view and modify usage numbers created with the Create Usage Summary program. All fields are no-entry except the Override field described below.



Header Section of Screen (all fields display only):

Script Code

This no-entry field displays the script code previously defined under the Update Script Definitions option.

Last Activity

This field displays the last date that the usage summary process was run for this script code. This is a no-entry field.

Next Activity

This field displays the date of the next scheduled usage summary process for this script code. This is a no-entry field.

Period

This no-entry field displays the period definition previously defined through the Period Definition option.

Replenishment

This no-entry field displays the Replenishment Code previously defined in the Update Calculations screen.

Line Code

This no-entry field displays the Line Code previously defined through the Update Product Line option.

Item

This no-entry field displays the item code for which the usage is reported. Item codes are set up through the *Business* Inventory Control module, and are accessed in the Replenishment module through the Update Vendor Catalog option.

Warehouse

This no-entry field displays the Warehouse Code set up through the Inventory Control module. The Replenishment module accesses the warehouse code through the Update Script Definitions option.

Buyer Code

This is the buyer code fond in the vendor record

Total Usage

This is the sum of the usage numbers in the detail section of the screen.

Avg usage

This is the Total Usage divided by the number of periods in the detail section of the screen.

Detail Section of Screen:

Only the Override field can be entered

Per No.

This no-entry field displays a list of period numbers which corresponds to the number of periods used to determine usage history for this particular product line script. The oldest period is assigned the highest period number. Therefore period number 1 is the current or most recent period reported.

Start

This no-entry field displays the starting date of the period in the corresponding detail line.

End

This no-entry field displays the ending date of the period in the corresponding detail line.

Activities

This no-entry field reports the total usage involved in all transactions that affected the item, whether or not the transactions were tracked as usage. The Activity number may be higher than the Usage number if for example this warehouse received this item in a transfer in from another warehouse and you are not tracking inventory transfers in your usage calculations. You can choose whether or not you want to include transfer transactions in your usage tracking through IC Tracking Defaults. These defaults are located on the Usage submenu of the Definitions main menu.

Usage

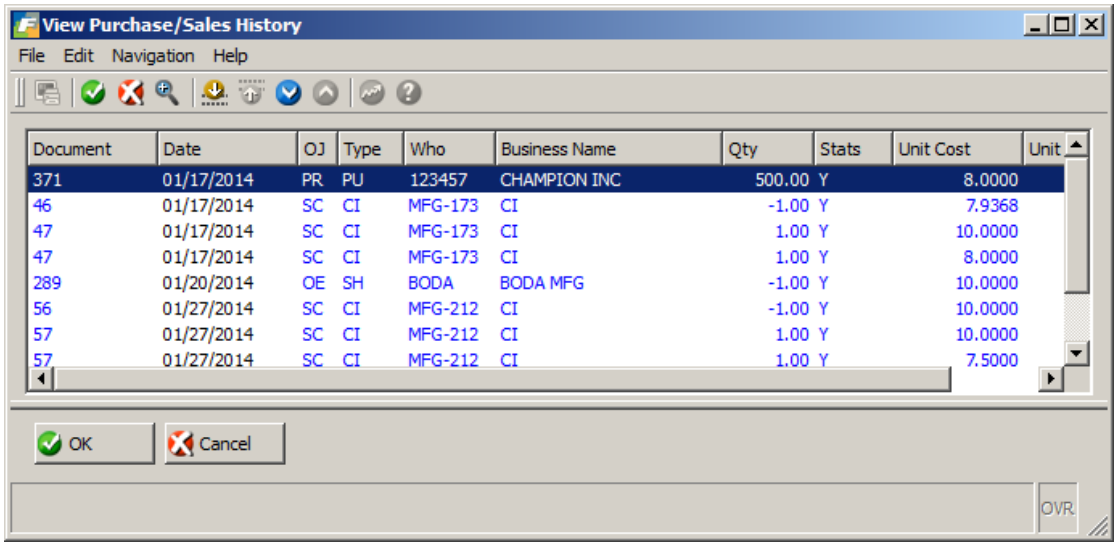
This no-entry field displays the usage involved in transactions that were tracked for the corresponding period. If you wish to modify this information, you can do so through the Override field.

Override

Enter any changes to the usage quantity you want to make through this field. For example, if the Usage Summary screen reports usage of 85, and after reviewing the transactions involved, you wish to modify the usage to 50, simply type 50 in the Override field and Usage automatically updates to 50.

To aid you in this analysis, you can zoom to display detailed information about the transactions that make up the Usage total.

Fields on the Usage Drilldown Screen



Document

This field contains the document number of the transaction included in usage summary tracking.

Date

This field contains the date the transaction document was entered.

OJ

Module the activity came from.

Type

This field displays the journal and activity type for each document on which the usage was included. The following is a list of possible types (the first two letters represent the type of journal; the second two letters represent the type of activity:

```
OE - SH—Order Entry journal, shipping transaction
PU - PU—Purchasing journal, purchase/receipt transaction
IC - PU—Inventory Control journal, purchase/receipt transaction
IC - SH—Inventory Control journal, shipping/sales transaction
IC - TR—Inventory Control journal, transfer transaction
IC - CT—Inventory Control journal, count adjustment
IC - AJ—Inventory Control journal, adjustment
```

Who

This field displays the user name of the person who entered the transaction.

Qty

This field displays the quantity of the transaction.

Unit Cost

This field displays the cost per stock keeping unit of the item involved in the transaction.

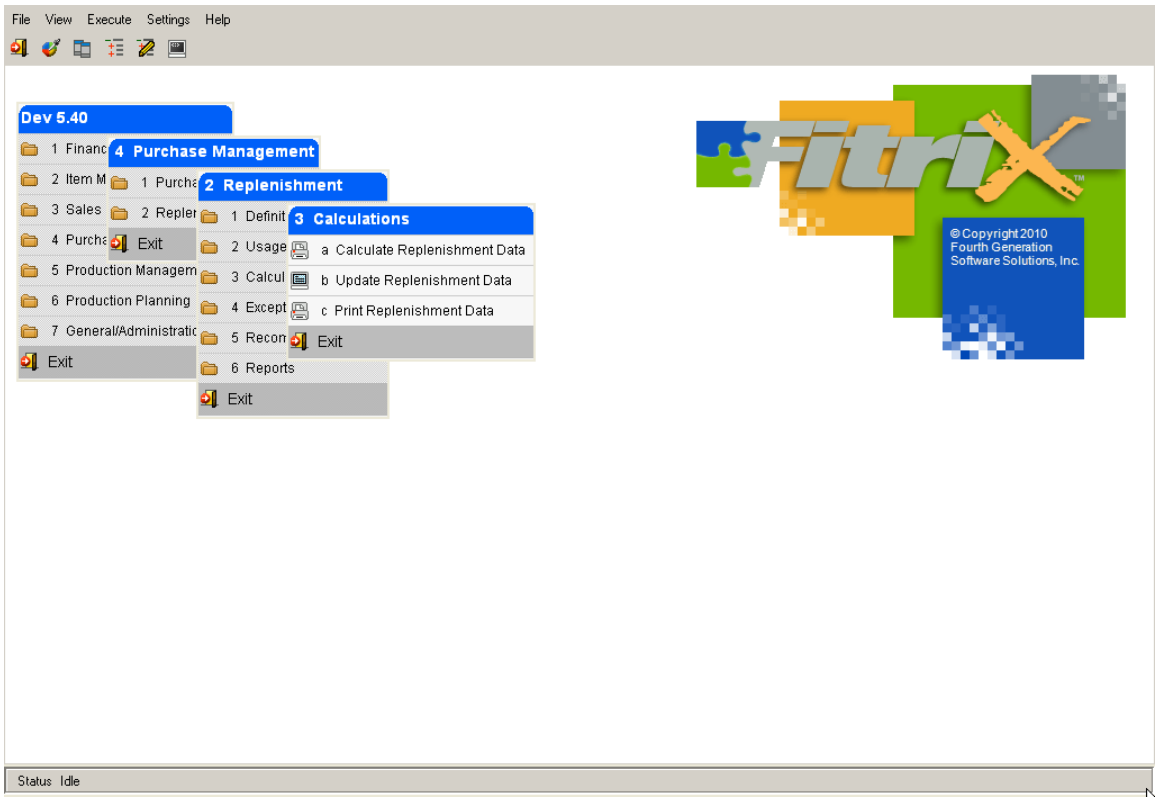
Unit Price

This field displays the price assigned per stock keeping unit of the item involved in the transaction.

Calculations

Use the options on the Calculations menu to calculate Replenishment reorder data using the formulas set up in definitions. Prior to running the calculation program, the Create Usage Summary Program must be run so that up to date usage numbers will be used by the formula that calculates your average usage.

When you choose the third option on the Replenishment menu, Calculations, the following menu displays:



Calculate Replenishment Data

Use option (a) to initiate system calculation of reorder quantities based on a beginning transaction date that you enter. Based on this date, the program scans through the script definitions to determine if calculations are required for a product line. The system selects the product lines for inclusion based on the matching of all the following criteria:

- The script's next calculation date is earlier than or equal to the run date.
- The script's start date is earlier than or equal to the run date.
- The script's end date is later than or equal to the run date.
- The script's Skip Calculations is set to "N."

After selecting the product lines to be included, the system computes the usage rate, order point, line point, and suggested reorder quantity.

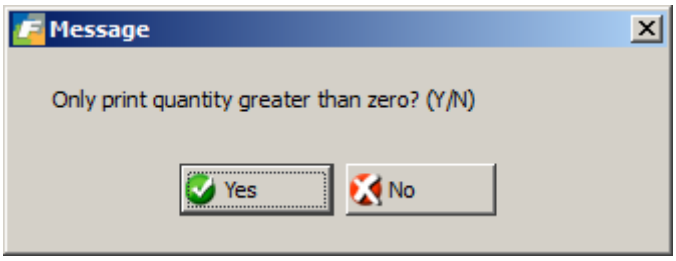
Note: If the item's obsolete flag is set to Y in the item table, there will be no Suggested Reorder Quantity calculated for the item regardless of usage.

Update Replenishment Data

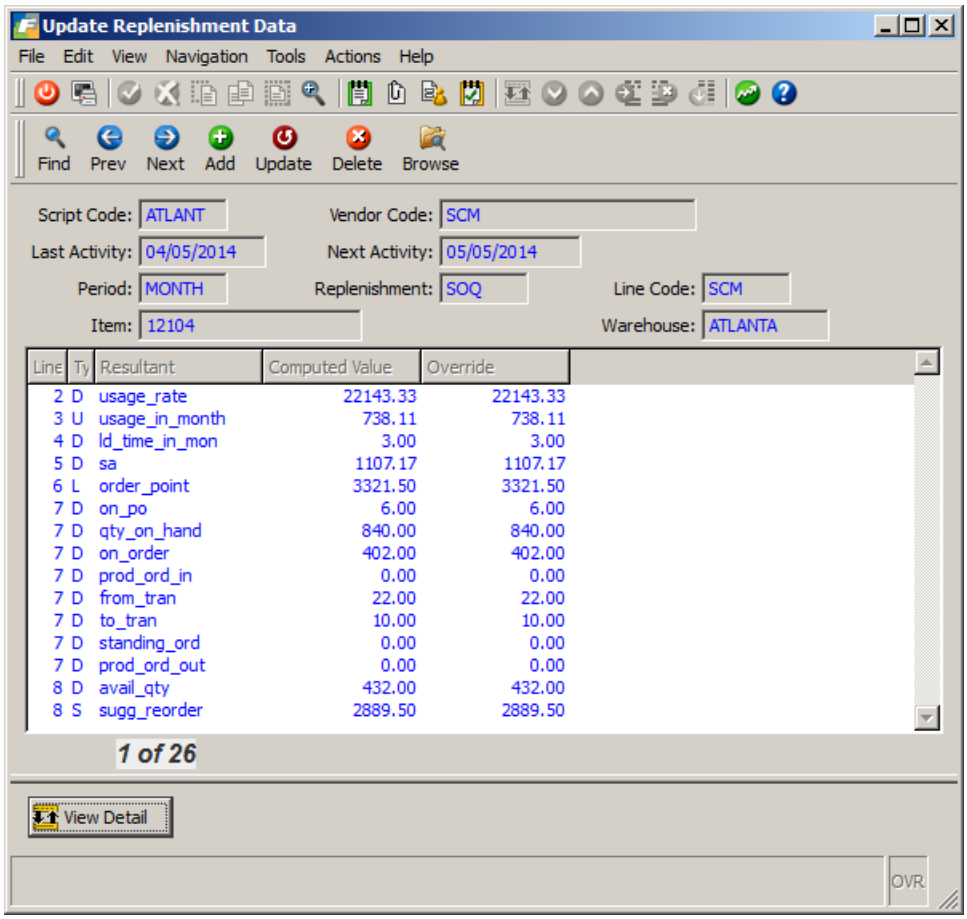
This option allows you to view and update the replenishment data computed by the system prior to running the Generate Buy Recommendations program.

There will be a record for every item and some items may have the formula calculate a negative reorder quantity. If you have many items in your inventory it may be best to run the Print

Replenishment data report to review the suggested order quantities as this report allows you to not view information about items that have a suggested reorder quantity of less than zero:



All fields on the Replenishment Data screen are no-entry fields except for the Override field. When you update a specific record, the system automatically places the cursor in the Override field, so you can enter adjustments to the calculations.



Header Section of Screen (all fields display only):

Script Code

This no-entry field contains the script code previously defined through the Update Script Definitions option.

.

Vendor Code

This no-entry field contains the vendor code previously defined through the Accounts Payable module. Replenishment accesses this code through the Product Line option.

Last Activity

This no-entry field displays the last date the calculation process was run for this product line.

Next Activity

This no-entry field displays the next scheduled date the calculation process will run for this product line.

Period

This no-entry field displays the Period Code associated with the script for this product line. This period code is defined through Period Definition option.

Replenishment

This no-entry field displays the Replenishment Code associated with the script
for this product line. This Replenishment Code is defined through the Update Calculations option.

Line Code

This no-entry field contains the Product Line Code previously defined through the Update Product Line option.

Item

This no-entry field contains the item code for the particular item being processed for replenishment calculations. This item code is defined as part of a product line through the Update Vendor Catalog option.

Warehouse

This no-entry field displays the warehouse code associated with the product line as defined in the replenishment script. Initially, warehouse codes area assigned to inventory items through the Inventory Control module.

Detail Section of Screen

The following fields are located in the detail section of the Update Replenishment Data screen. These fields represent the variables resolved by calculating the defined formulas and the numeric

values assigned to them through the calculations The calculated values may be overridden using the Update selection of the ring menu. Pressing Update automatically locates your cursor in the Override field.

Line No.

This field displays the line number for the detail portion of the screen. The line number is system maintained and cannot be modified. The line number denotes the sequence in which the formulas must be resolved.

Type

This no-entry field displays the type for the resultant variable in the next field. The following is a list of possible type codes:

> **C—(Constant) -** means the variable is calculated one time and then used by the system without recalculation. For example, if you want the sa (safety_factor) variable to always contain the value .50, by setting the type to "C," it will not be recalculated for each item.
>
> **D—(Dynamic)** - re-computes the variable for each different item passed to it.
> **L—(Line Point)** - re-computes the variable for each item and is used to indicate the maximum advisable reorder point for this item in the product line purchase.
>
> **U—(Usage Rate)** - re-computes the variable for each item and is used to indicate the forecasted usage for this item.
>
> **R—(Reorder/Order Point)** - re-computes for each item and is used to indicate the item's critical reorder level. If an inventory item reaches this order point level, it is imperative that it be ordered immediately, as this order point indicates the risk of depletion of an item from inventory stock.
>
> **S—(Suggested Reorder Quantity)** - re-computes the variable for each item and is used to indicate the suggested reorder quantity for this item.

Resultant

This no-entry field displays the resultant variable resolved by the calculations. This is the variable name that represents the computed value that follows. These variables were defined through the Look-up Definitions and Pre-Set Formula screens on the Definitions menu.

Computed Value

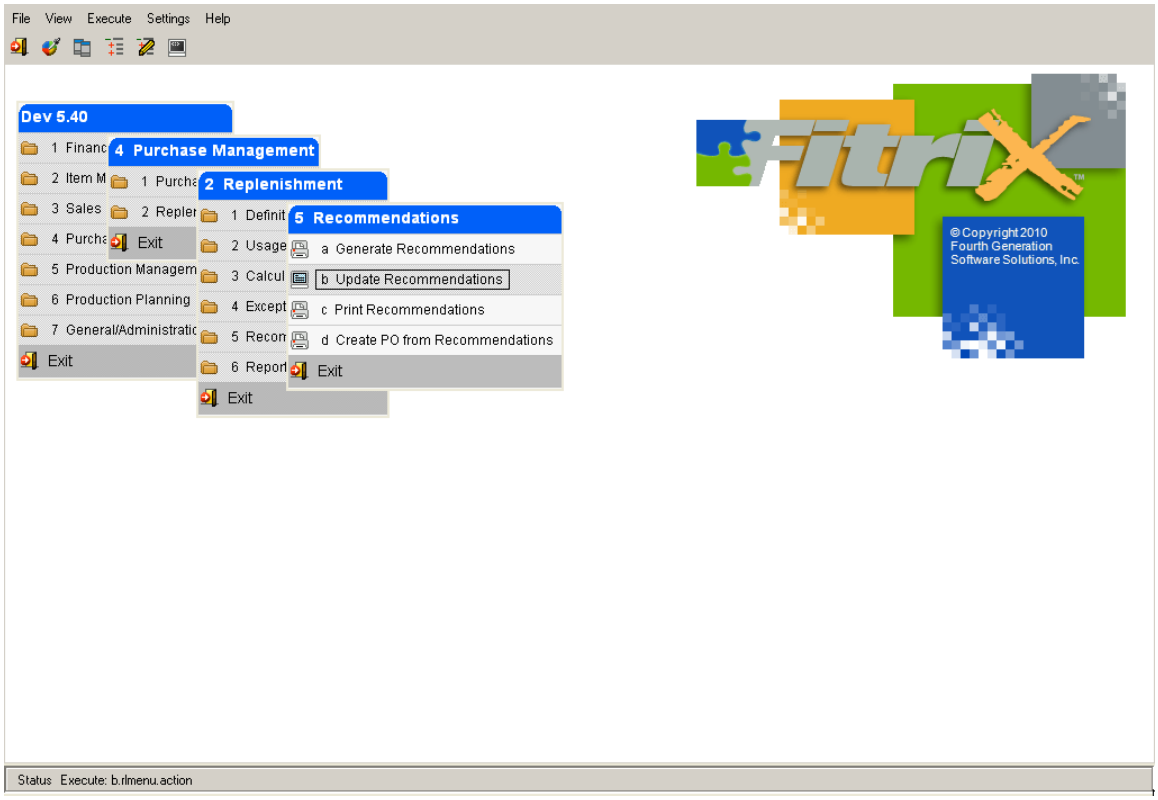
This no-entry field displays the value of the resultant variable displayed in the previous field.

Override

This field allows you to modify the computed value in the previous field.

Buy Recommendations

These programs take the Suggested Order quantity calculated by the Calculate Replenishment Data program and group all items by vendor code by warehouse. After these are reviewed and updated the Create PO program can be run.



Generate Recommendations

Based on a transaction date and vendors you specify, the program scans through the script definitions to determine if the recommendation to purchase program should be run for a given product line. The system selects the scripts which should be run through the recommendation process based on which scripts match all of the following criteria:

- The script's next recommendation date is earlier than or equal to the run date.
- The script's start date is earlier than or equal to the run date.
- The script's end date is later than or equal to the run date.

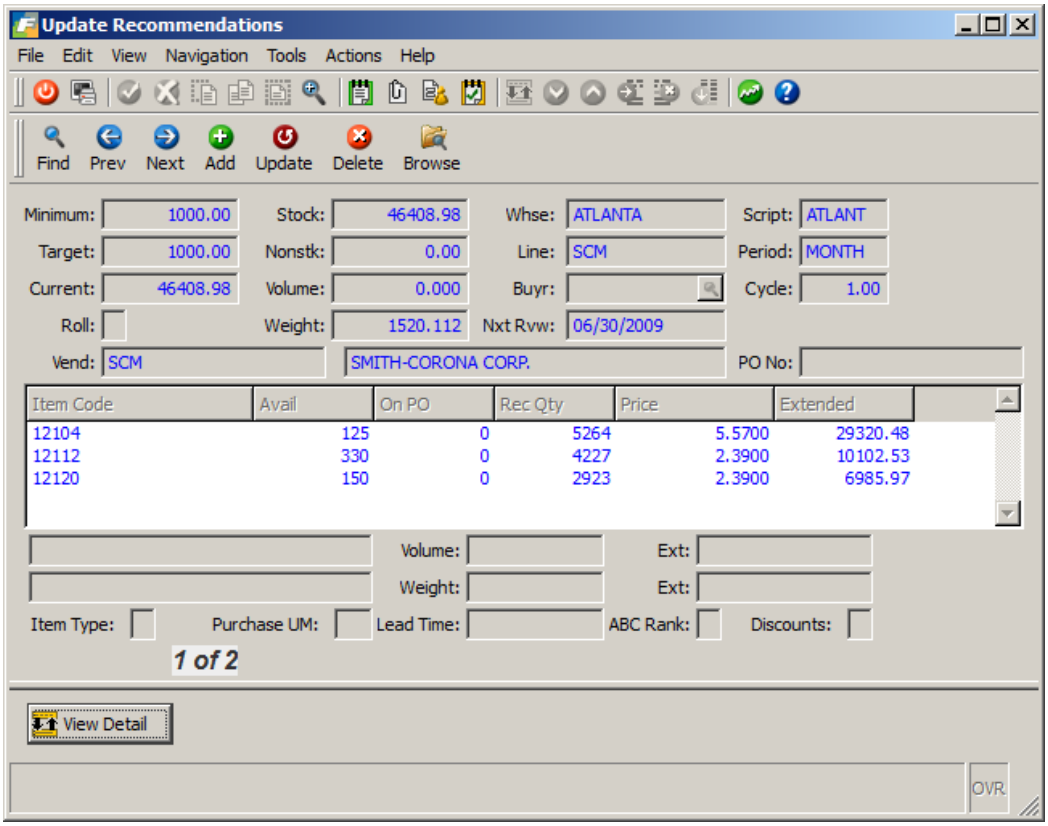
If the program generates a recommendation to purchase, the system converts the suggested order quantities from stock-keeping units to purchasing units. After conversion of the recommendation order quantity to purchase units, the system rounds the recommended order quantity based on the rounding factor defined through the system defaults. It also takes into consideration the item's purchase unit increment factor in the item table. For example, if you can

only purchase an item in increments of 2 and the Suggested Order Quantity calculated is 273, the buy recommendation will be adjusted to 274 (a quantity that is divisible by 2).

After creating the recommendations, the next step is to run the Warehouse Comparison report (see Chapter 4 for a description of this report). It may be that you have an overage of an item in one warehouse location that you can transfer to a warehouse that has a shortage instead of purchasing the item.

Update Recommendations

After running the Generate Recommendations program, you may modify the recommendations prior to finalizing the recommendations for purchasing. The Update Recommendations screen allows you to change the recommendation to the actual quantity to purchase. All the fields in the header section are no-entry with the exception of the Roll Field.



Header Section of Screen:

Minimum

This field displays the minimum order the vendor accepts for the product line. This minimum has been previously defined, and can only be updated through the Update Product Line History program.

Stock

This field displays the total number of stock purchasing units included on the purchasing recommendation. A stock purchasing unit is one which is a normally stocked item.

Whse

This field displays the warehouse for the product line

Script

This field displays the script code for the product line. Script codes are assigned to the product line through the Update Script Definitions program.

Target

This field displays the target order quantity for which the vendor allows a discount. This target quantity is assigned to the product line through the Update Product Line History program.

Nonstk

This displays the total purchasing units of nonstock items included in the purchase recommendation. A nonstock item is one that is not normally held in stock.

Line

This field displays the product line code which was previously set up through the Update Product Line program on the Definitions menu.

Period

This field displays the period definition code which was previously set up through the Period Definitions program.

Current

This field displays the current recommended reorder dollar amount for the total product line. This amount may be based on quantity, monetary value, weight, or volume. It is used for comparison against the minimum and target levels. If you choose to use the roll feature to adjust this current reorder amount toward the minimum or target, the adjustments are made to the individual line items and the total adjustment is reflected in this field. For more information on the roll feature, see below.

Volume

This field displays the total volume for the recommended order. This is used for those product lines whose minimum and target levels are based on volume rather than quantity or amount.

Buyr (Buyer)

Enter the buyer code associated with this product line. Buyer codes must have been previously set up through the Purchasing module.

Cycle

This field displays the review cycle previously defined for this product line. This review cycle was determined through calculations on the Product Line History screen.

Roll

It is through this field that you implement the roll feature. Enter either an "M" to roll the orders toward the minimum purchase amount, or a "T" to roll the orders toward the target purchase amount.

The roll feature is a unique and efficient method for modifying your purchases toward the minimum or target level evenly across your product line. For instance, if a recommendation consists of an order for a product line that totals $1,775.00, and your minimum purchase allowed by the product line's vendor is $2,000.00, rather than adjust the various item quantities in an attempt to reach the minimum order, you can use the roll feature. You enter an M in the Roll field to indicate that you would like the order to roll toward the minimum rather than the target. The system distributes the modification as all the items in the product line are rolled until the quantities meet the required $2,000.00 minimum. This roll feature adjusts according to the type you chose (monetary, quantity, weight, or volume) in the Update Product Line History program. Once you enter your choice of rolling toward the minimum or target levels, the values in the quantity and amount fields are updated. If you want to change the recommended quantity for any of the line items, you may update the quantities individually by pressing Ctrl TAB to move to the detail section and enter the new quantity.

Weight

This field displays the weight of the total recommended order. This is used for those product lines whose minimum and target levels are based on weight rather than quantity or amount.

Vend (Vendor)

This field displays the code of the vendor from whom the purchase of this product line will be made. The vendor is associated with the purchase line through the Update Product Line program on the Definitions menu.

Next Rvw

The system calculates when the next review is scheduled to occur based upon the date of this review and the defined review cycle.

PO No.

When you run the Create PO From Recommendations program discussed later in this User Guide, the number of the purchase order generated will display in this field.

Detail Section of Screen:

Item Code

This field displays the item code for which the purchase recommendation is generated. This field is no-entry and therefore the item code cannot be modified through this screen. If you wish to delete this item code from the list of purchase recommendations, simply enter a zero in the recommended quantity field.

Avail

This field displays the number of purchase units available in inventory for this item at this warehouse.

On Ord

This field displays the number of purchase units on order for this item, scheduled to be shipped to this warehouse. This field together with the previous Avail (available) field, represents the quantity expected prior to receipt of the present recommended purchase.

Rec Qty

In this field, enter any modification you wish to make to the recommended purchase quantity for this item. Enter the corrected amount rather than an adjustment. If you wish to delete this item code purchase recommendation, you may enter a zero into the recommended quantity field.

Price

This field displays the price per purchase unit of the item code that is set up in the vendor catalog. This cost is multiplied by the recommended quantity and displayed in the following Extended field.

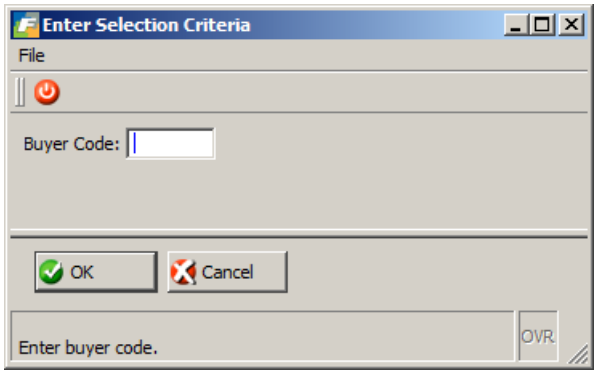
Extended

This field displays the extended price for the item code purchase recommendation. The system multiplies the price per purchase unit times the recommended quantity and displays it in this field. This field automatically updates after any modifications to the recommended quantity field.

Create PO from Recommendation

Once you have reviewed the Buy recommendations and made any changes necessary run this program to create the vendor purchase order.

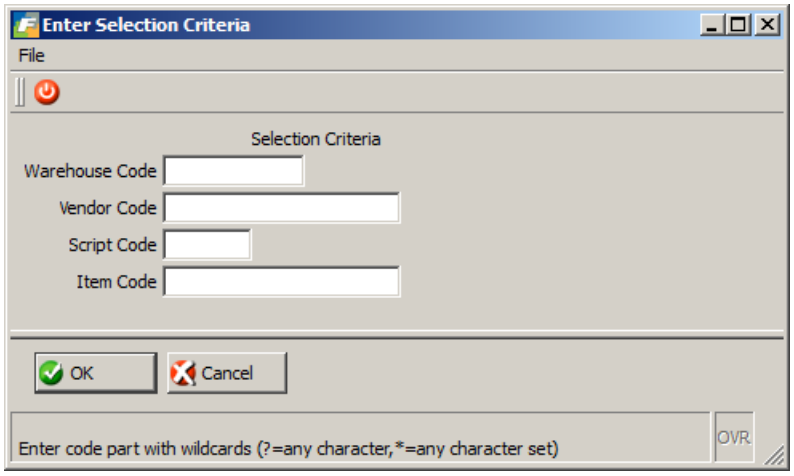
You can create the purchase orders for a single buyer, a group of buyers, or all buyers.

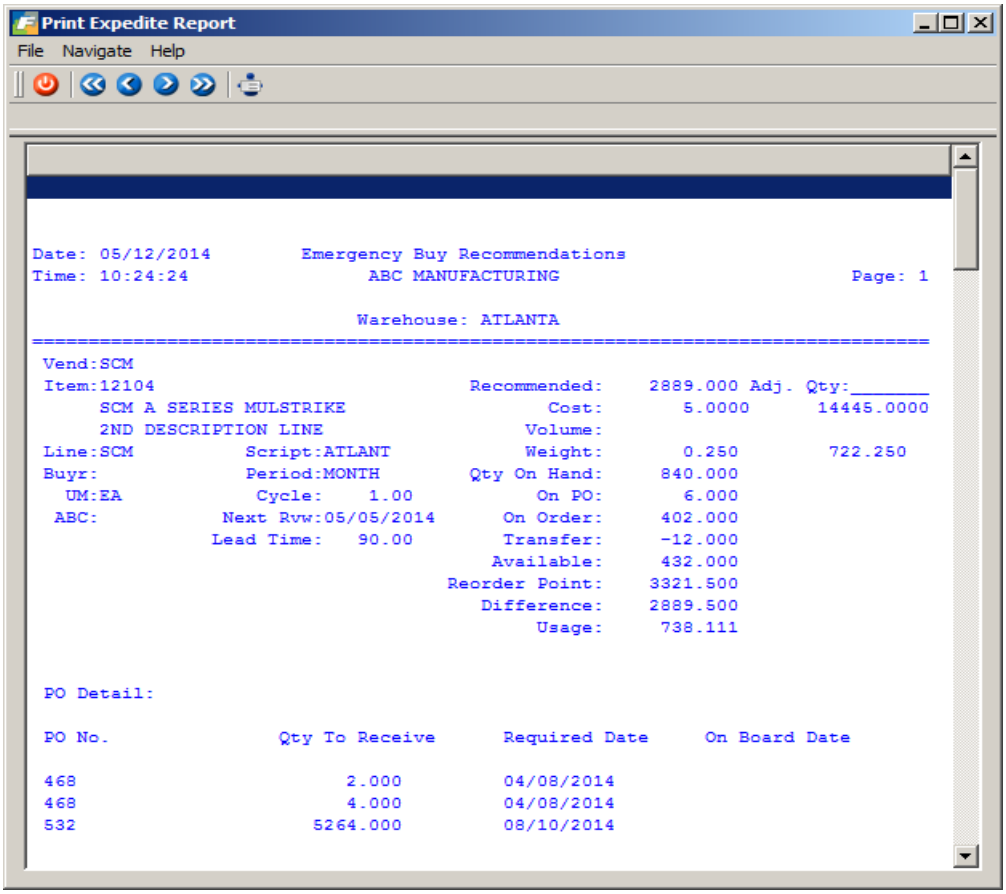


Exception Processing

This is option 4 on the Replenishment main menu. Exception Processing provides you with a method of identifying those items whose inventory level has become critical (available quantity is below the reorder point) and should be ordered immediately prior to the next defined replenishment review. To identify items that need ordering, it is imperative that exception processing is run on a regular basis. You may schedule exception processing to run automatically as a regularly scheduled (or cron job) process. Industry standards recommend running exception processing for every product line daily. As with other Fitrix reports, you limit your selection using the selection criteria screen shown below.

This report can be exported to Excel.





Replacing Vendors

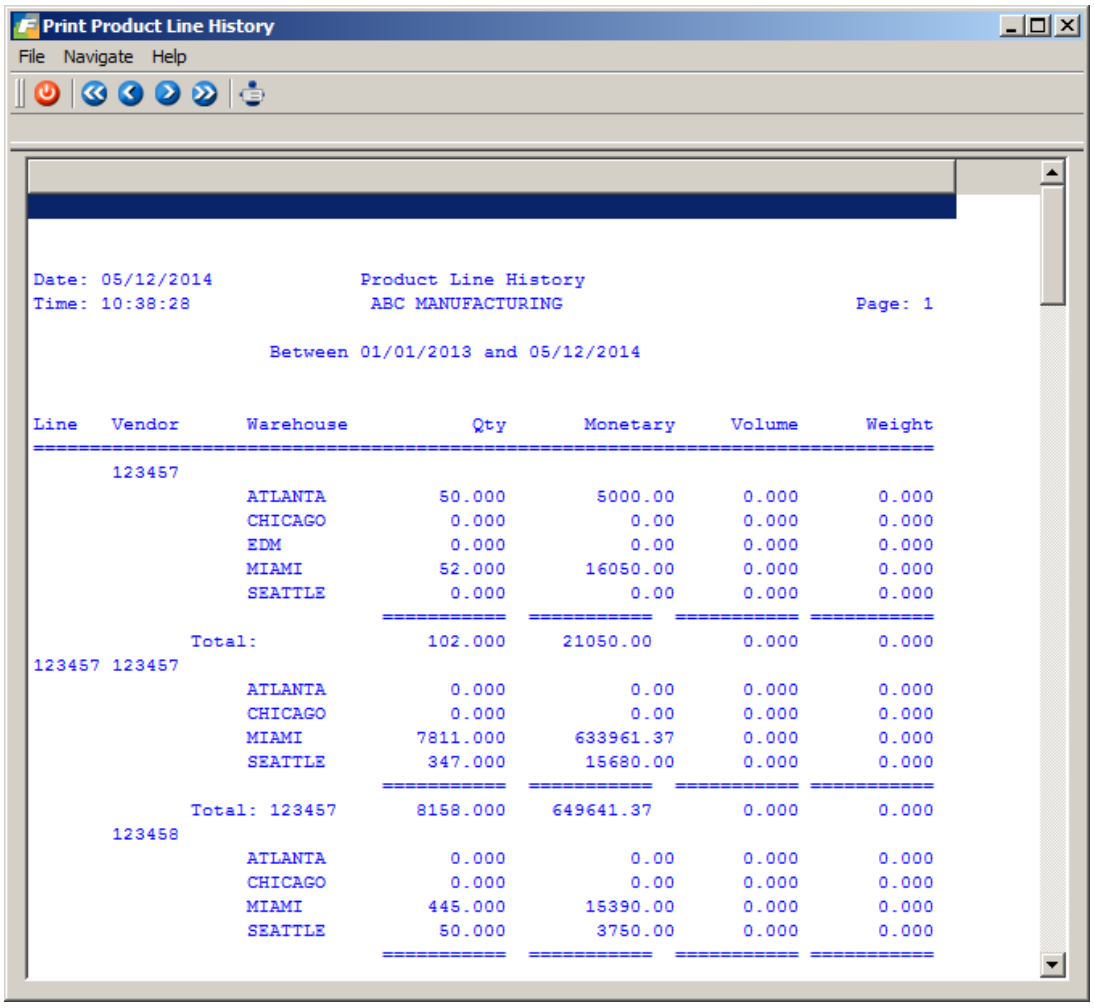
If you need to start buying product from another vendor (current vendor went out of business, new vendor gives better pricing) here is how you reset the data so that the new vendor will be used.

1. Delete the vendor catalog for the old vendor.
2. Create a script code for the new vendor and set the script up using the Update Script Definitions program.
3. Create a vendor catalog for the new vendor.
4. Run the Expedite Report and it will run a function that replaces the old vendor with the new vendor so all buy recommendations/purchase orders will now be for the new vendor.

Chapter 4 – Reports

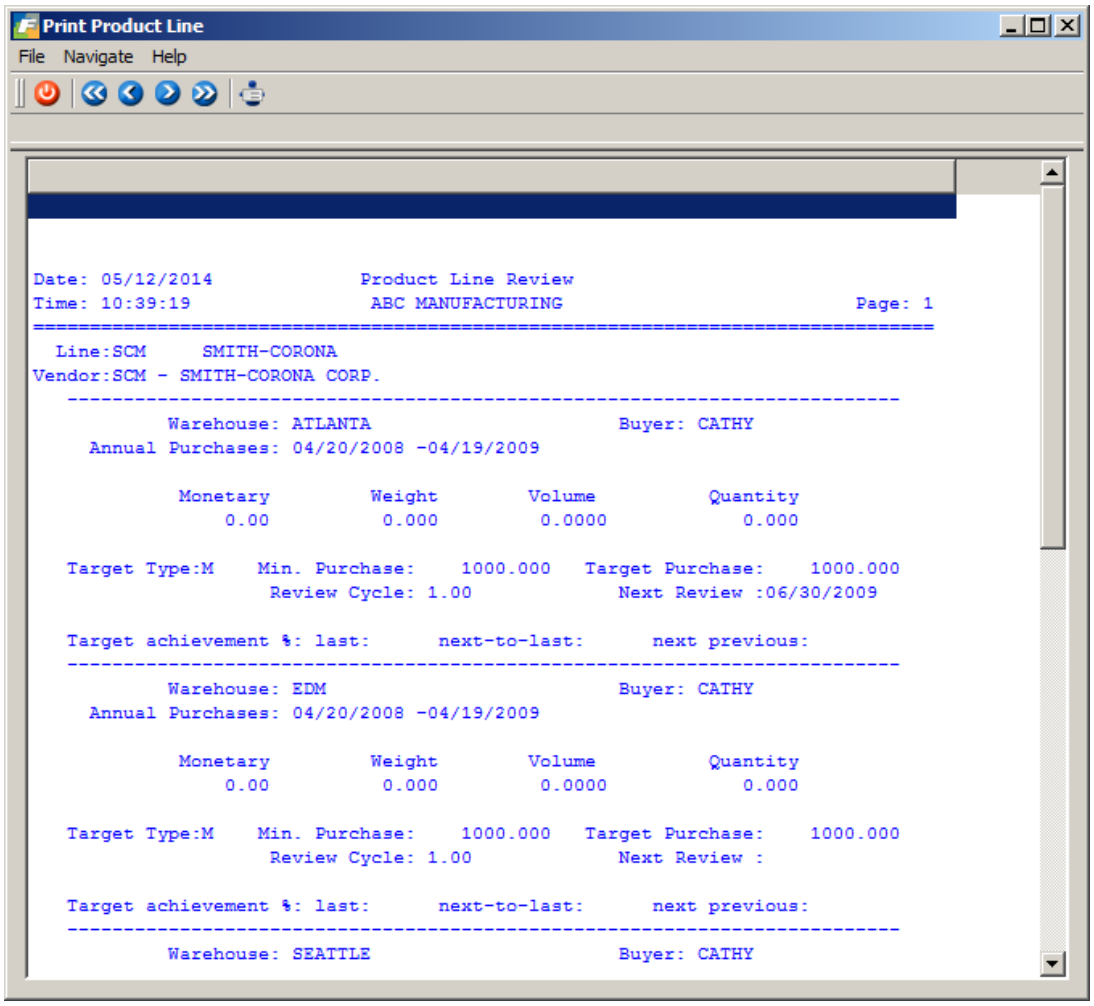
Print / Create Product Line History

Menu Path: RL- 1-b-c and d



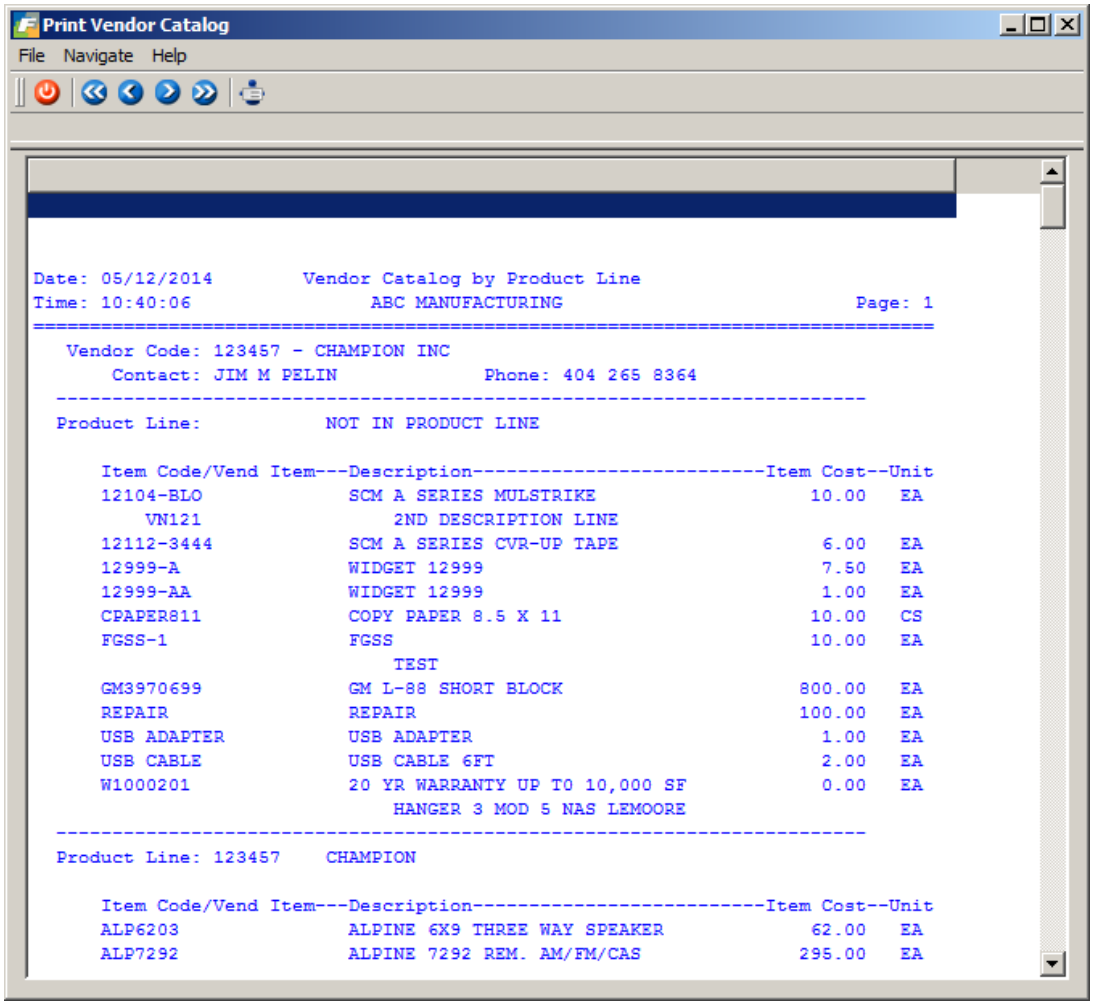
Print Product Line

Menu Path: RL-1-b-f



Print Vendor Catalog

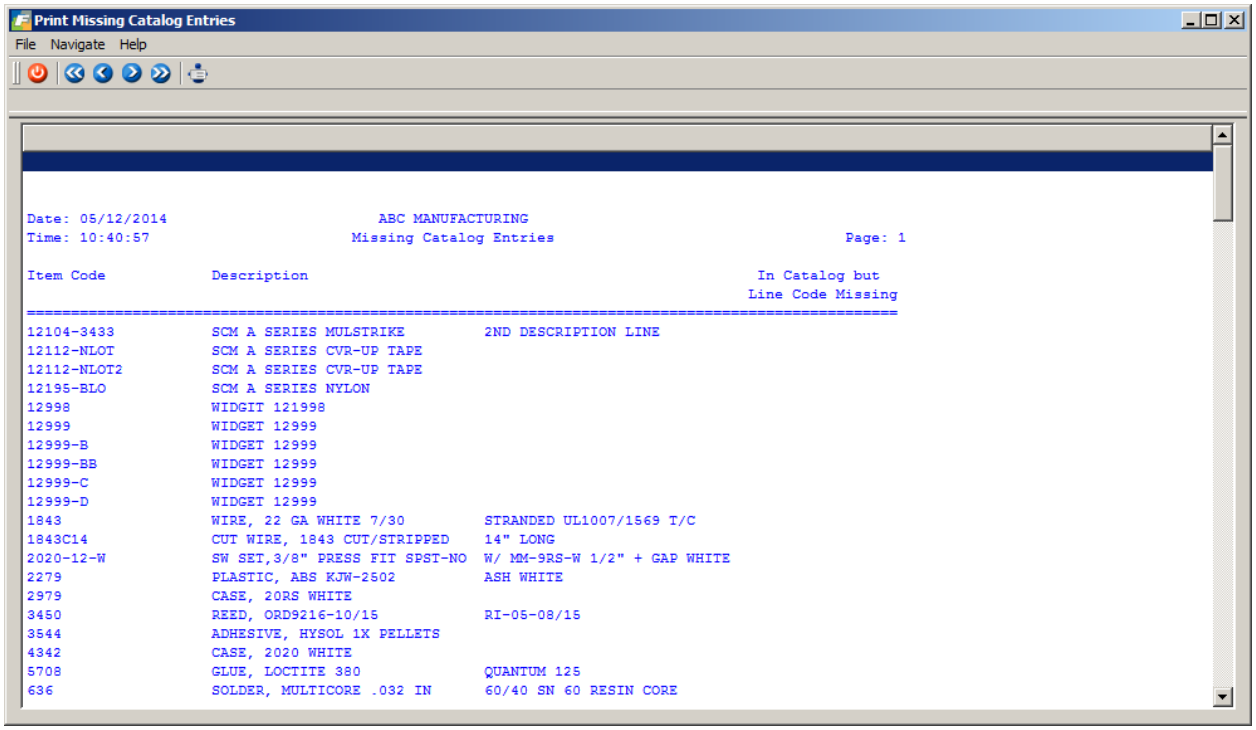
Menu Path; RL-1-b-g



Print Missing Catalog Entries

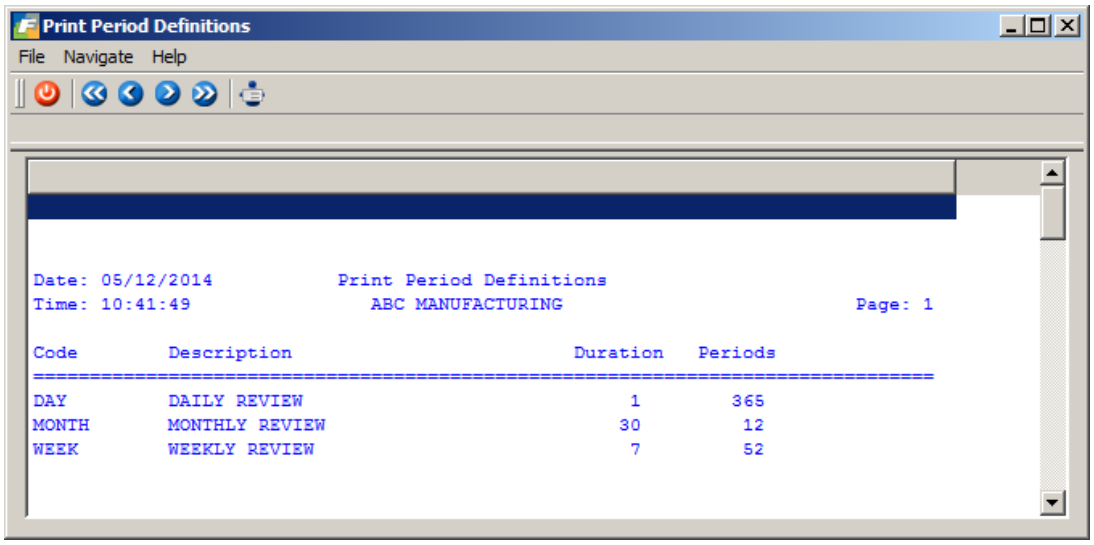
Menu Path: RL-1-b-h

This report that lists items not set up in the item catalog or in the catalog but missing the script code and therefore not picked up in the replenishment process.



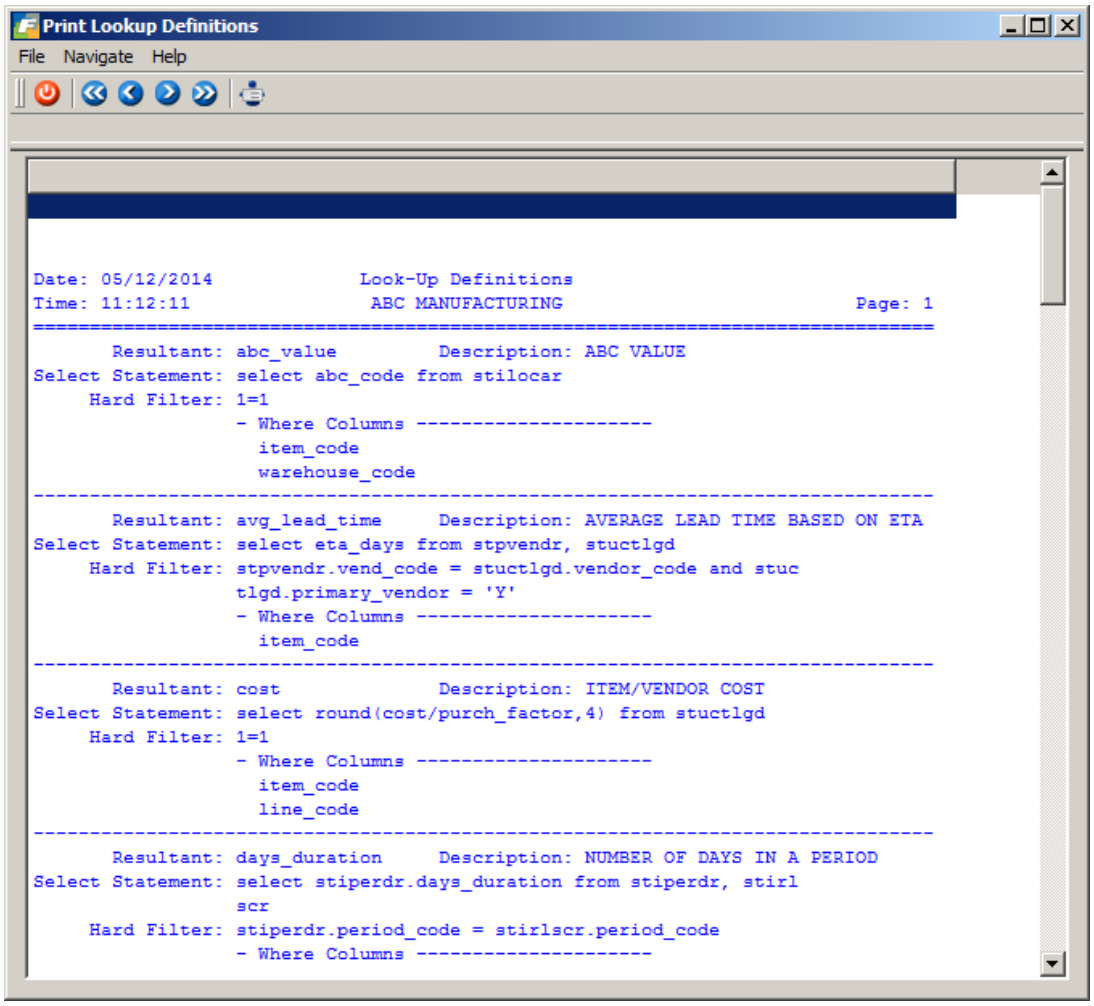
Print Period Definitions

Menu Path: RL-1-c-d



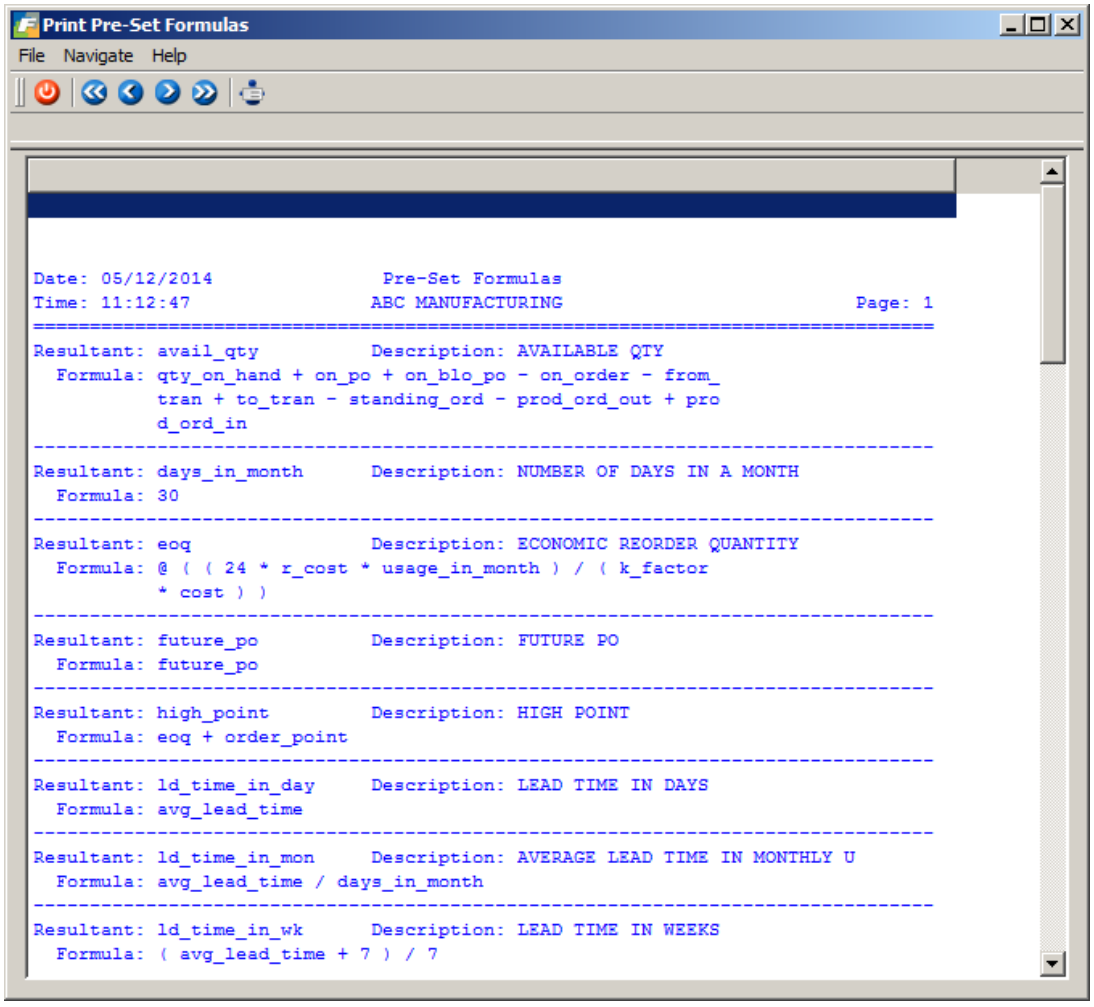
Print Lookup Definitions

Menu Patch: RL-1-d-d



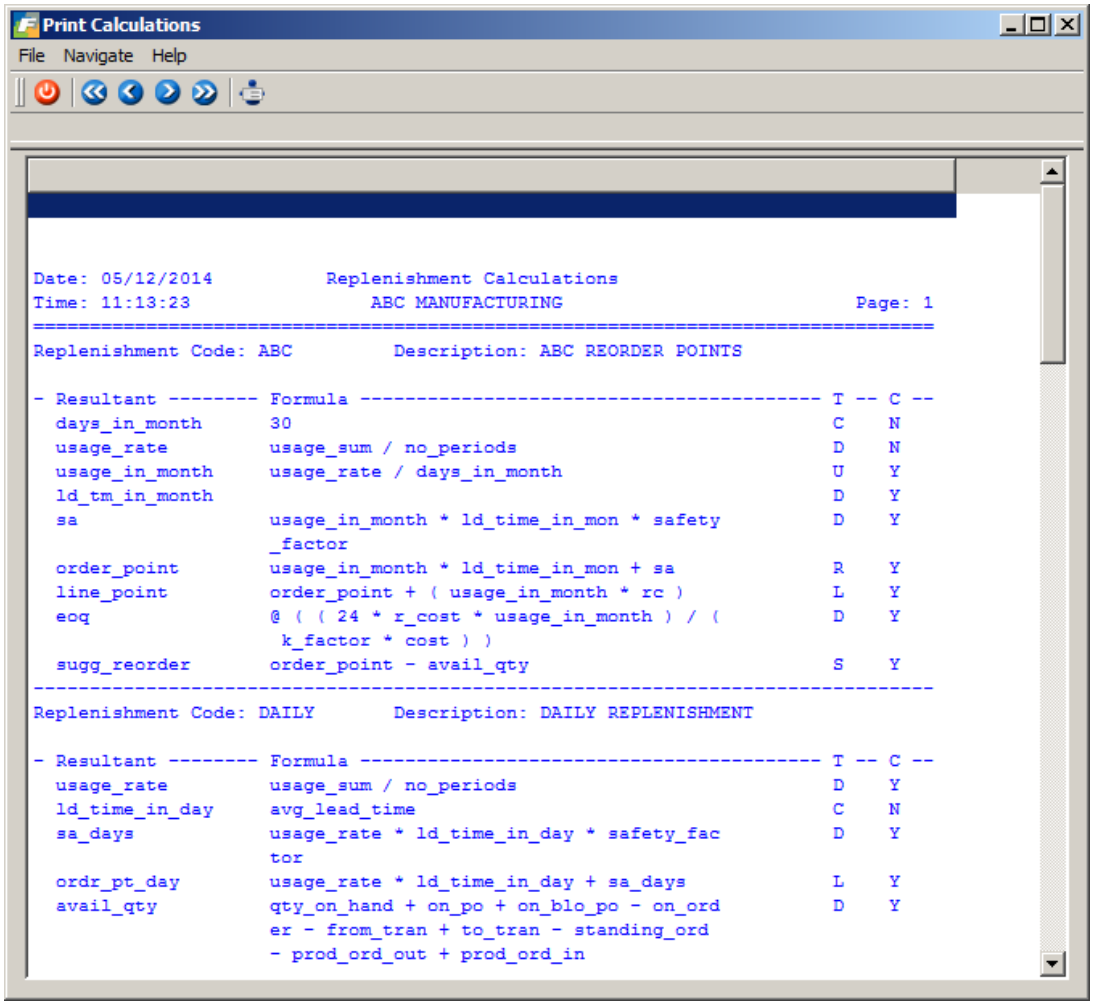
Print Preset Formulas

Menu Path: RL-1-d-e



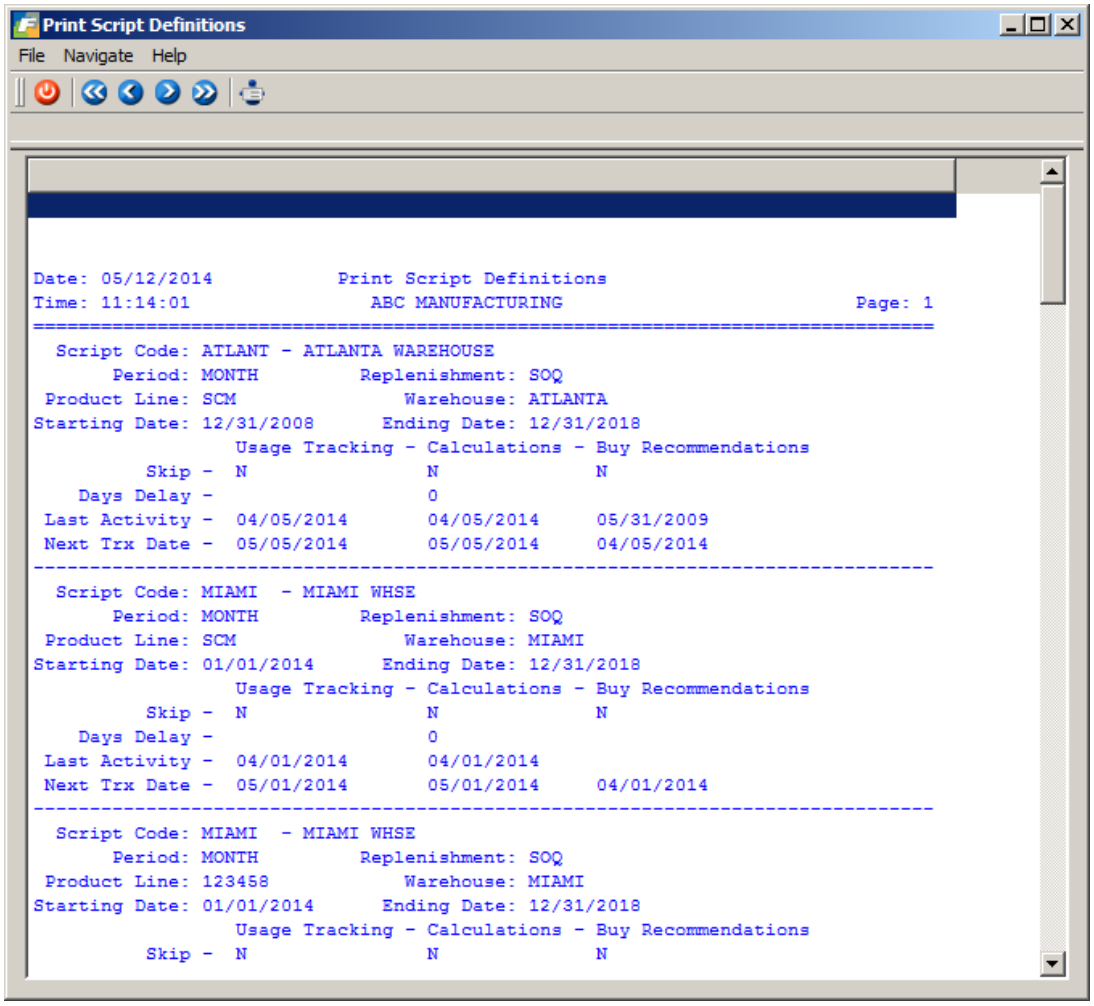
Print Calculations

Menu Path: Rl-1-d-f



Print Script Definitions

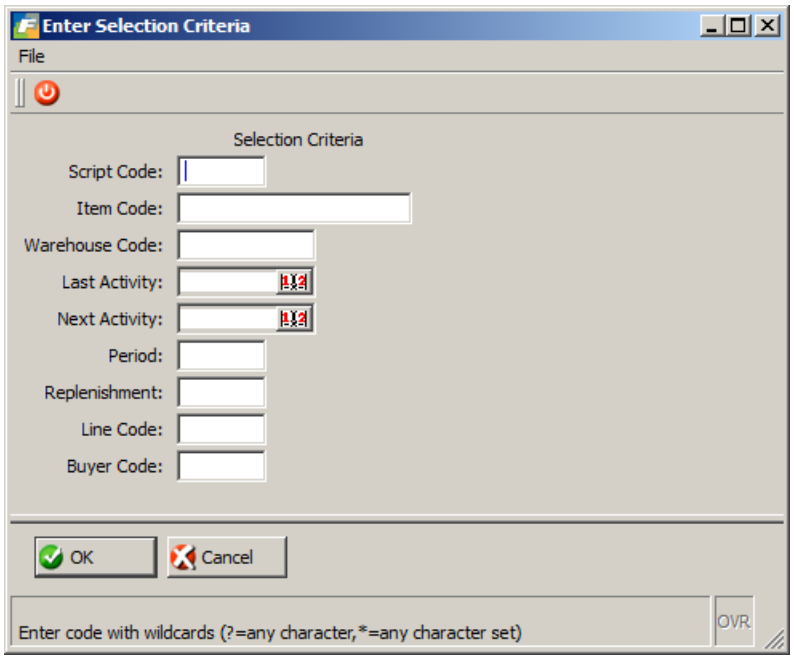
Menu Path: RL-1-e-b



Print Usage Summary

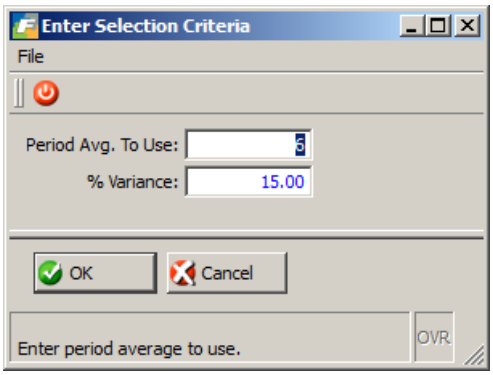
Menu Path: RL-2-c

First selection criteria screen:



Second selection criteria screen:

If you only want to print the report for items where usage is a percentage greater than or less than the average usage for a certain number of periods enter your selection criteria in this screen. In this example only items with usage that is 15% greater than or less than the average usage for the past six months will print.



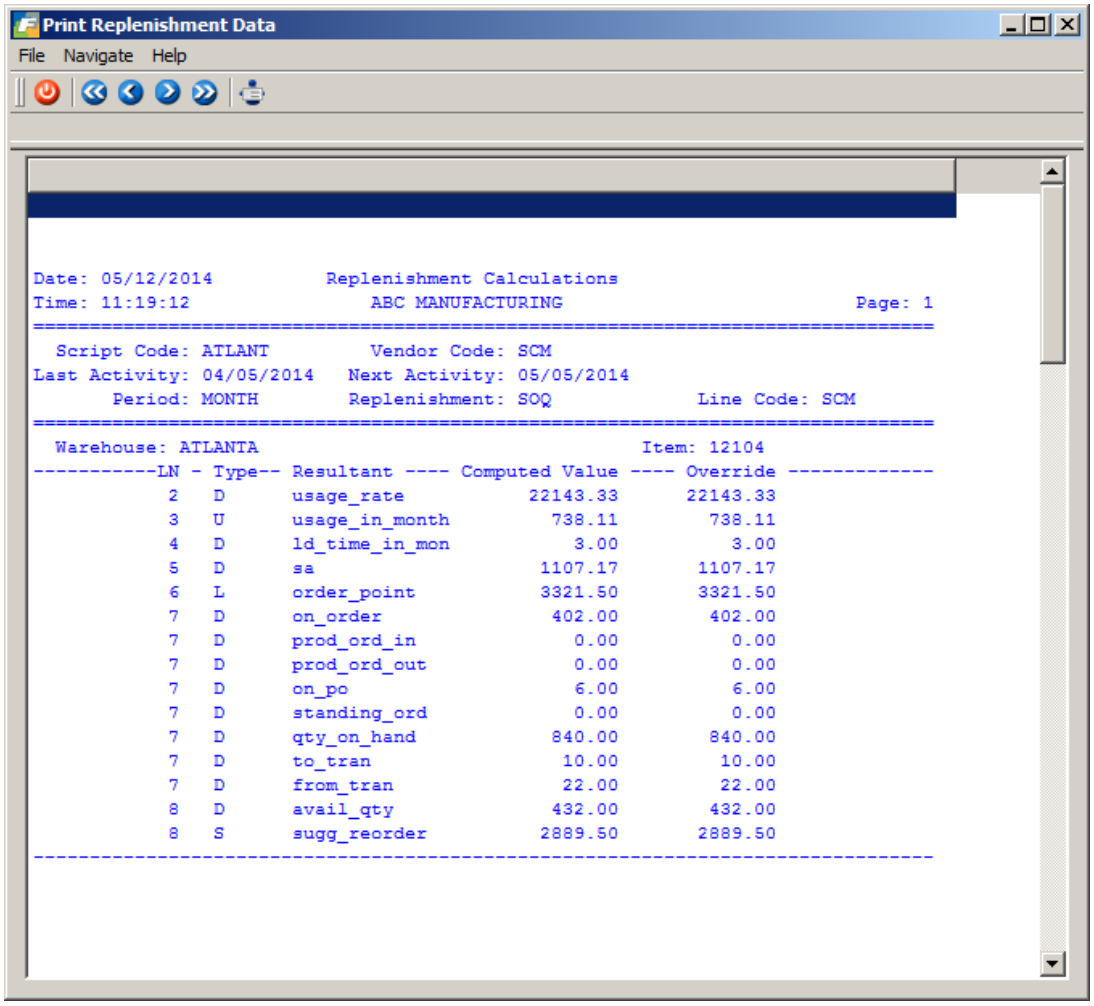
Print Usage Summary

File Navigate Help

```
Date: 05/12/2014              Usage Summary Report
Time: 11:18:25                 ABC MANUFACTURING                          Page: 1
================================================================================
Script Code: ATLANT      Last Activity: 04/05/2014   Next Activity: 05/05/2014
     Period: MONTH       Replenishment: SOQ             Line Code: SCM
 Buyer Code:
================================================================================
  Warehouse: ATLANTA       Item: 12104                  Stock Unit: EA
- Per No - Start ---- End ------- Activities -------- Usage ----- Override ----
      1  12/07/2013  01/05/2014         1.00           1.00           1.00
      2  11/07/2013  12/06/2013         3.00           3.00           3.00
      3  10/08/2013  11/06/2013         9.00           9.00           9.00
      4  09/08/2013  10/07/2013        27.00          27.00          27.00
      5  08/09/2013  09/07/2013        81.00          81.00          81.00
      6  07/10/2013  08/08/2013       243.00         243.00         243.00
      7  06/10/2013  07/09/2013       729.00         729.00         729.00
      8  05/11/2013  06/09/2013      2187.00        2187.00        2187.00
      9  04/11/2013  05/10/2013      6561.00        6561.00        6561.00
     10  03/12/2013  04/10/2013     19683.00       19683.00       19683.00
     11  02/10/2013  03/11/2013     59049.00       59049.00       59049.00
     12  01/11/2013  02/09/2013    177147.00      177147.00      177147.00
--------------------------------------------------------------------------------
  Warehouse: ATLANTA       Item: 12112                  Stock Unit: EA
- Per No - Start ---- End ------- Activities -------- Usage ----- Override ----
      1  12/07/2013  01/05/2014         0.00           0.00           0.00
      2  11/07/2013  12/06/2013         0.00           0.00           0.00
      3  10/08/2013  11/06/2013         0.00           0.00           0.00
      4  09/08/2013  10/07/2013         0.00           0.00           0.00
      5  08/09/2013  09/07/2013         0.00           0.00           0.00
```

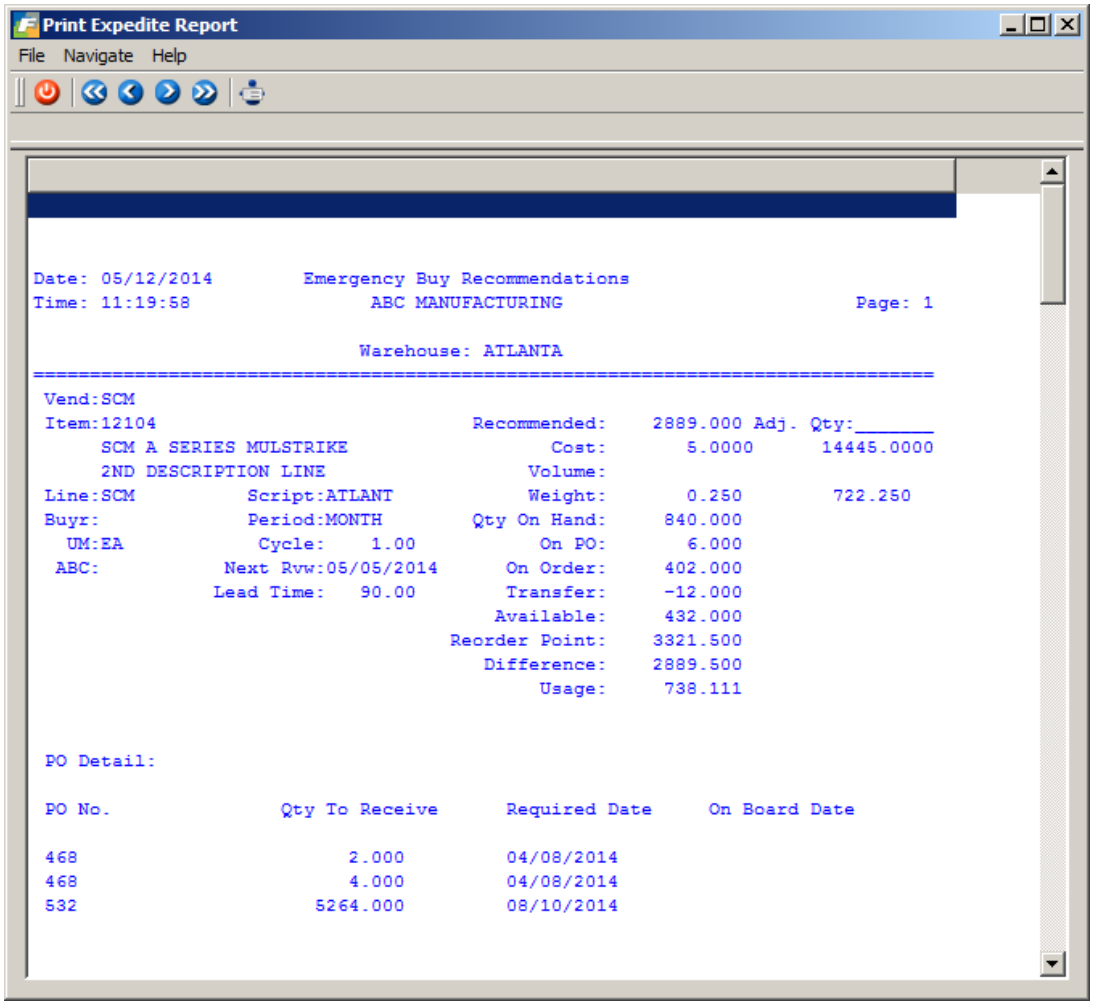
Print Replenishment Data

Menu Path: RL-3-c



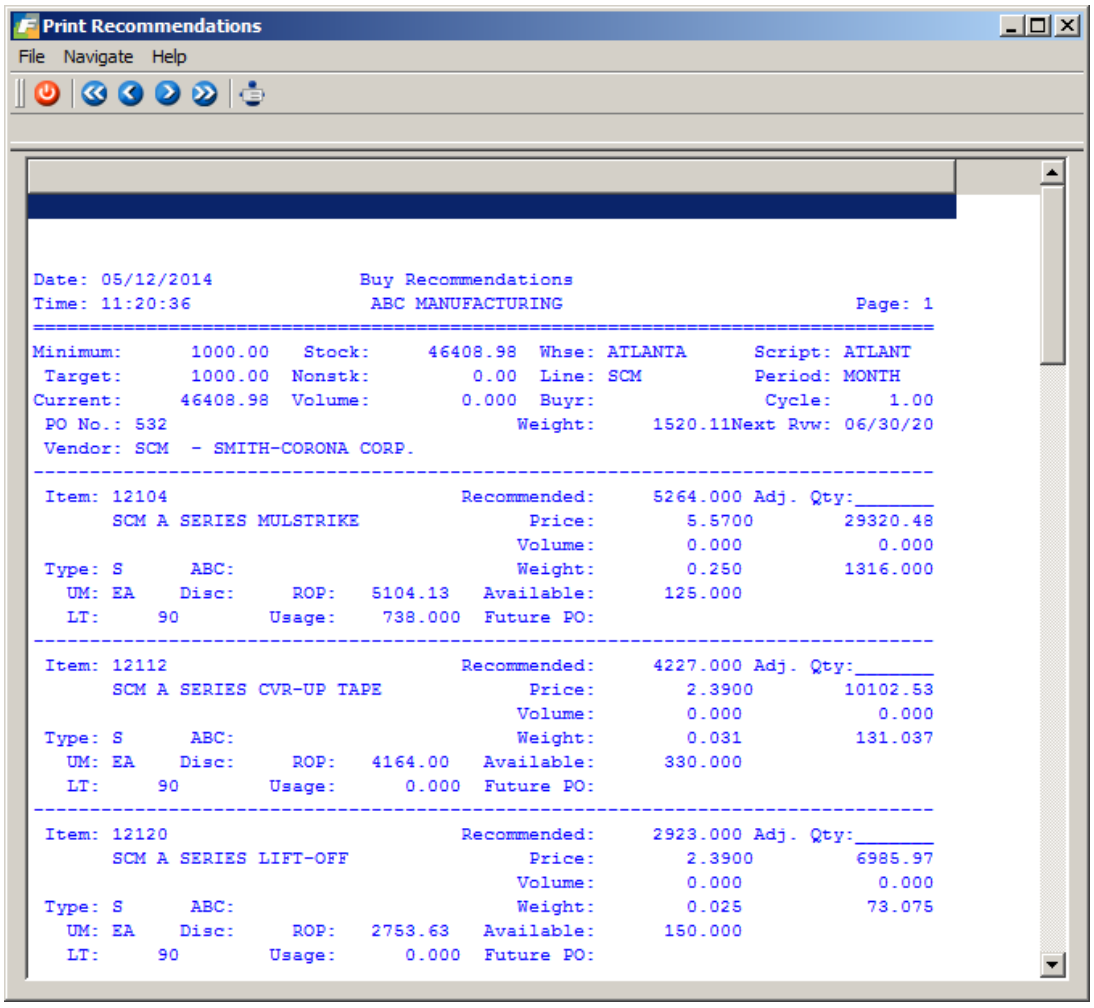
Print Expedite Report

Menu Path: RL-4-a



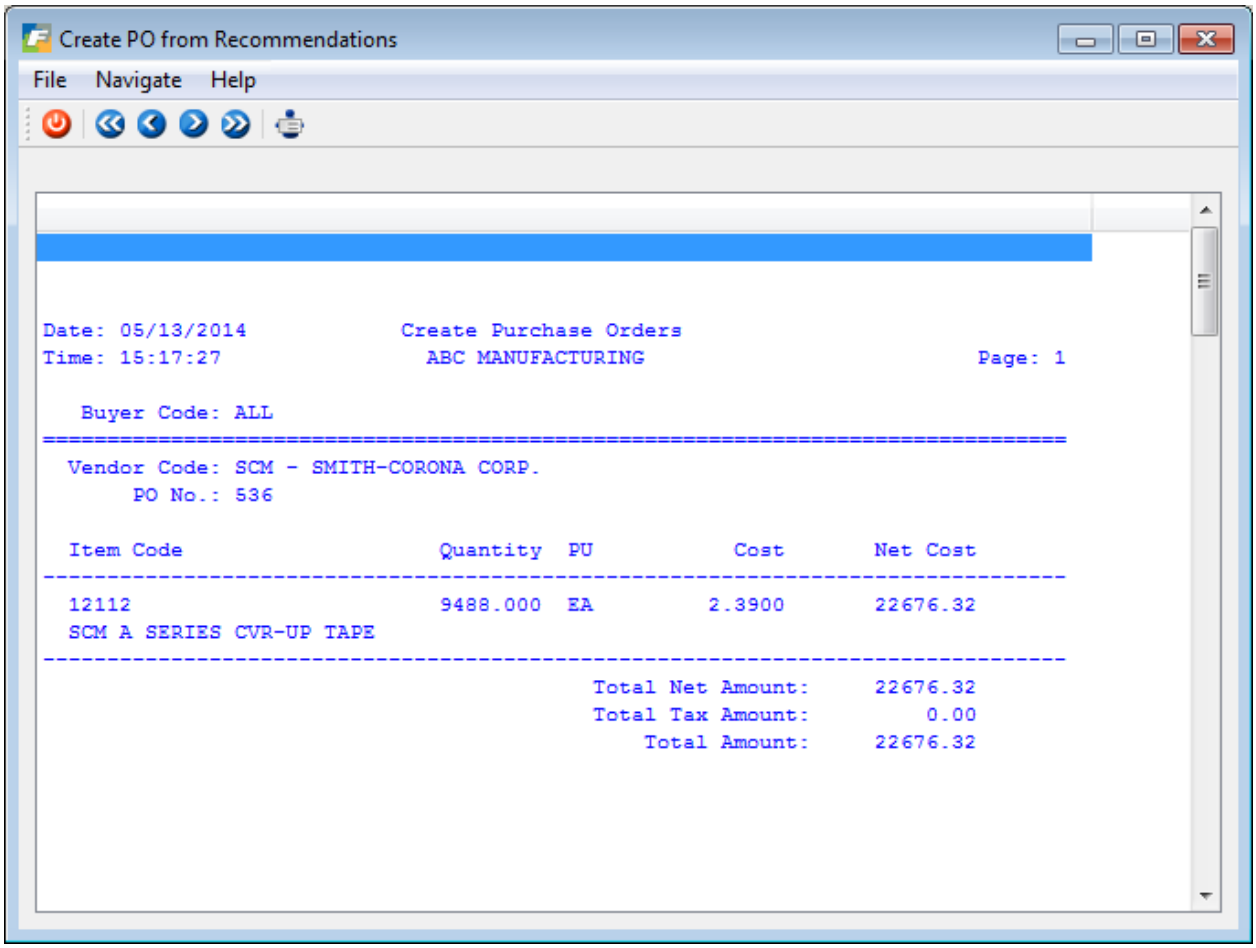
Print Recommendations

Menu Path: RL-5-c



Create PO from Recommendations

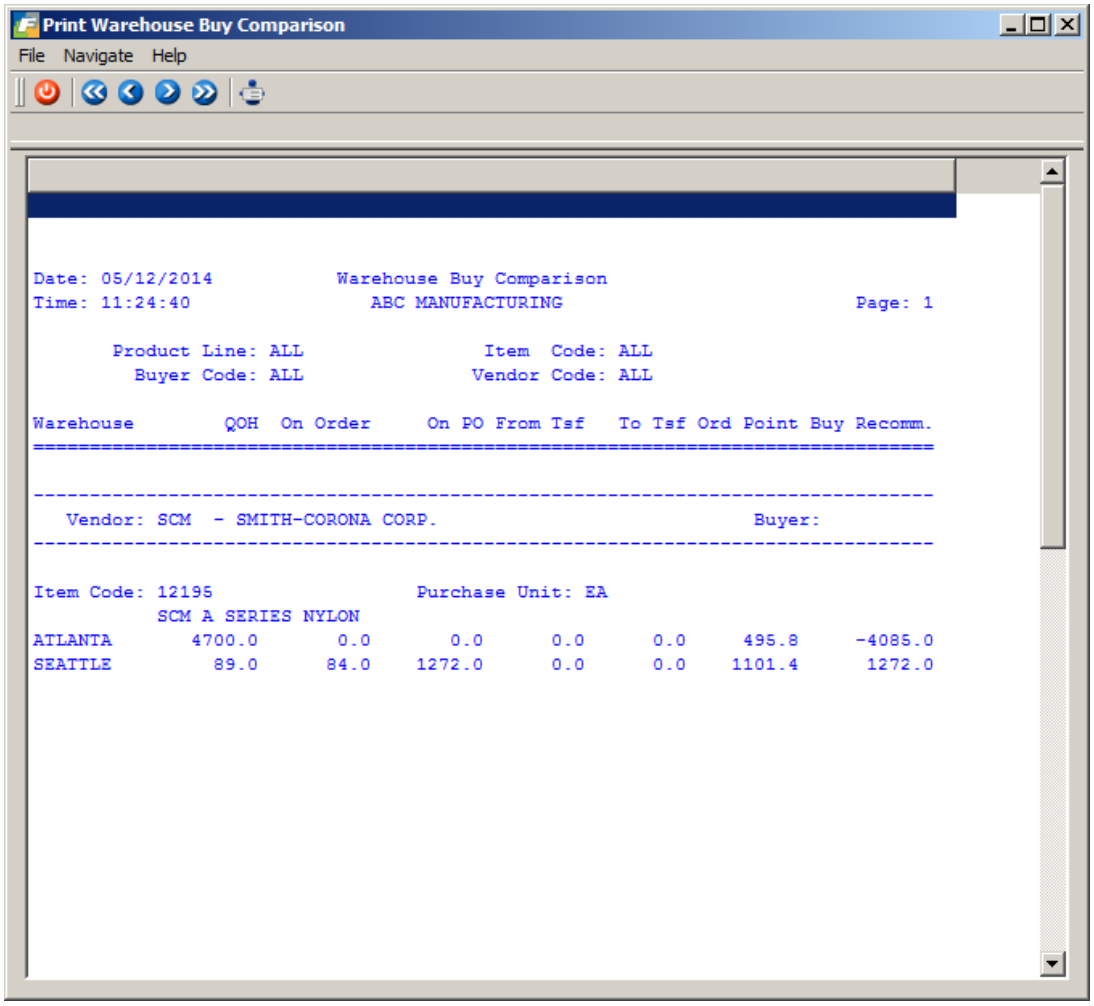
Menu Path: RL-5-d



Print Warehouse Buy Comparison

Menu Path: RL-6-a

If you have multiple warehouse locations, it may that you have excess stock in one warehouse but the recommendations program is recommending you purchase stock for items that you are short on in another warehouse. This report lists all items where this is the case. The proper action to take in this situation is to transfer the product from the warehouse where there is an overage to the warehouse where there is a shortage and set the buy recommendation to 0 as you do not need to order at this time. In the example below you can transfer from your Atlanta warehouse instead of buying for the Seattle warehouse.

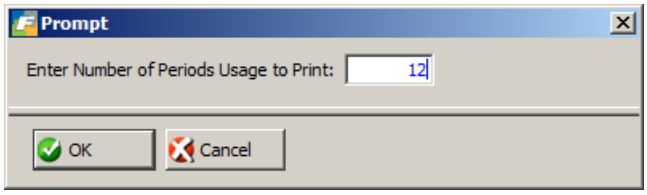


Print Warehouse Reallocation Report

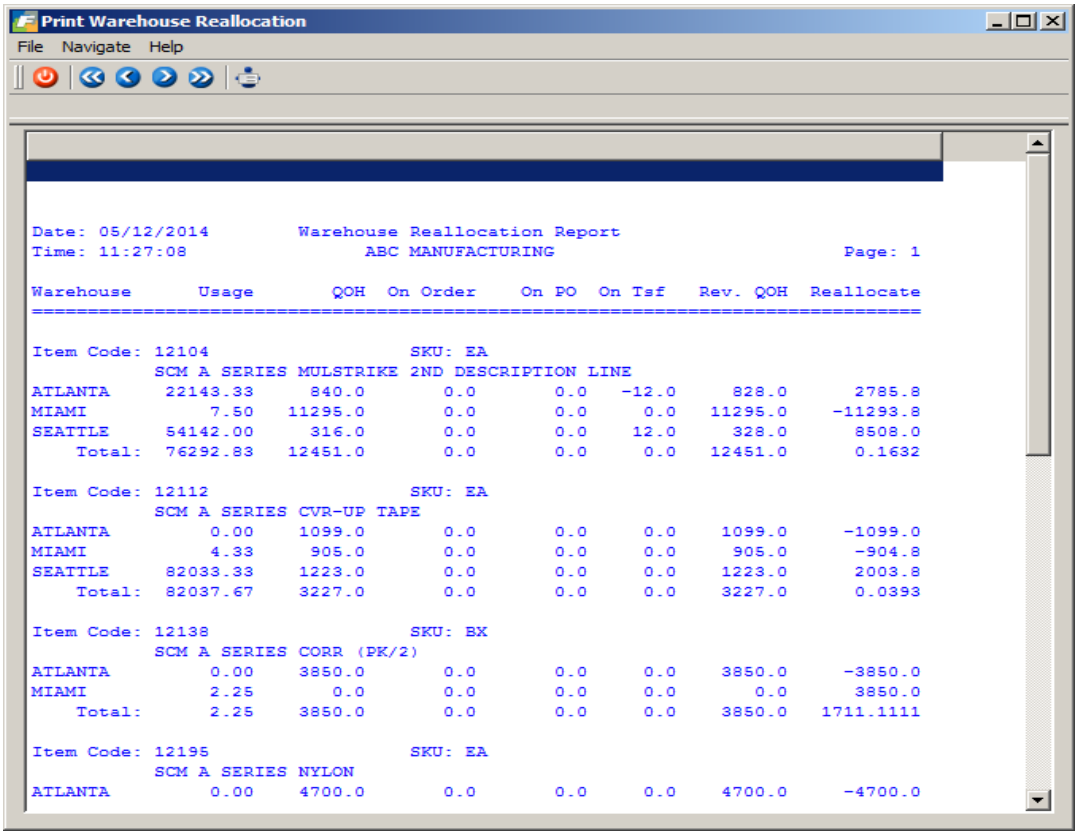
Menu Path; RL-6-b

This report can be run at any time and lists those items where there is an overstock in one warehouse location that should be transferred to another warehouse location.

You are first prompted to enter the number of periods of usage you like to base the results on. The # of periods is your replenishment periods. For example of you run replenishment daily one period is equal to one day.



In the example below, the report shows there is excess of item code 12104 in Miami that should be transferred to Atlanta and Seattle.



The reallocate quantity formula for each warehouse is:

Total Reallocation Qty = Total available OH/Total Usage

Reallocate qty per warehouse = (Total reallocate quantity above * warehouse usage)- revised quantity on hand in the warehouse.

Chapter 5 - Sample Formulas

The following are sample formulas used for implementing various replenishment methods:

EOQ - Line Point

days_in_month = 28
usage_rate = usage_sum / no_periods
usage_in_month = usage_rate * days_in_month / days_duration
ld_tm_in_month = avg_lead_time / days_in_month
sa = usage_in_month * ld_tm_in_month * safety_factor
order_point = usage_in_month * ld_tm_in_month + sa
line_point = order_point + (usage_in_month * rc)
eoq = @ ((24 * r_cost * usage_in_month) / (k_factor * cost)

MIN/MAX

To implement the min/max replenishment method, define the replenishment code as MNM when assigning a script to the product line. The MNM (Min/Max) replenishment code consists of the following calculations:

days_in_month = 28
usage_rate = usage_sum / no_periods
usage_in_month = usage_rate * days_in_month / days_duration
ld_tm_in_month = avg_lead_time / days_in_month
sa = usage_in_month * ld_tm_in_month * safety_factor
order_point = usage_in_month * ld_tm_in_month + sa
line_point = order_point
eoq = @ ((24 * r_cost * usage_in_month) / (k_factor * cost)
high_point = eoq + order_point
sugg_reorder = high_point - qty_on_hand

Inventory Class Analysis (ABC)

This method requires that the item/location record have an inventory class of 1-13 assigned to it and entered into the ABC classification field. At this time it must be entered by the user. In the near future, a separate report/posting will be run to assign the [1-13] values into the ABC code field in the item/location (stilocar) record. To implement the ABC or Inventory Class Analysis method of replenishment, define the replenishment code as ABC when assigning a script to a product line. The ABC (Inventory Class Analysis) replenishment code consists of the following calculations:

days_in_month = 28
usage_rate = usage_sum / no_periods
usage_in_month = usage_rate * days_in_month / days_duration
ld_tm_in_month = avg_lead_time / days_in_month
sa = usage_in_month * ld_tm_in_month * safety_factor

order_point = usage_in_month * ld_tm_in_month + sa
line_point = order_point
sugg_reorder = abc_value * usage_in_month

Lookup Definitions

usage_sum = select sum(user_override) from stiusged, stiusger
join = stiusged.doc_no = stiusger.doc_no
filter= script_code, warehouse_code, item_code

no_periods = select no_periods from stiperdr
join = 1=1
filter = period_code

days_duration = select days_duration from stiperdr
join = 1=1
filter = period_code

qty_on_hand = select qty_on_hand from stilocar
join = 1=1
filter= item_code, warehouse_code

abc_value = select abc_code from stilocar
join = 1=1
filter= item_code, warehouse_code
Resultant Variables

Resultant: avg_lead_time Description: AVERAGE LEAD TIME
Select Statement: select avg_ld_tm from stilocar
Hard Filter: 1=1
Where Columns
item_code
warehouse_code

Resultant: cost Description: ITEM/VENDOR COST
Select Statement: select cost from stuctlgd
Hard Filter: 1=1
Where Columns
item_code
line_code

Resultant: k_factor Description: CARRYING FACTOR
Select Statement: select parm_value from stxparmd
Hard Filter: language = 'ALL' and module = 'rlsetup' and
access_key = "k_factor"

Resultant: r_cost Description: REPLACEMENT COST
Select Statement: select parm_value from stxparmd
Hard Filter: language = 'ALL' and module = 'rlsetup' and
access_key = 'r_cost'

Resultant: rc Description: REVIEW CYCLE
Select Statement: select review_cycle from stiprlnd
Hard Filter: 1=1
line_code
warehouse_code

Resultant: sa_factor Description: SAFETY ALLOWANCE FACTOR
Select Statement: select parm_value from stxparmd
Hard Filter: language = 'ALL' and module = 'rlsetup' and
access_key = 'safety_factor'

Glossary

The following is a list of terms used in the Fitrix Replenishment module:

Activity: For replenishment, it is any demand placed on an item in a specific warehouse where the transaction represents a shipment of inventory in the activity table.

Buy Recommendations: Buy recommendations are the recommendations to purchase generated through the Replenishment module. These recommendations include when to order, and the quantity to order per product line.

Cycle Count: Cycle count identifies what group of inventory items require a physical inventory. Once identified, the items are then counted and the results are used to update the inventory records.

Distribution: Channel or path by which products are distributed from the manufacturer to the end user.

Economic Order Quantity (EOQ): One of the standard variables resolved by a replenishment formula that takes into account the costs of procurement and carrying inventory when determining the optimum quantity to buy.

Exception Processing: The Replenishment module uses exception processing to run a regularly scheduled (i.e., nightly) process to check for those items which may have fallen below the critical order point. Exception processing generates an expedite report listing all items which need ordering prior to the next replenishment review cycle.

Formula: The *Business* Replenishment module calculates replenishment advice based on user-defined formulas applied to the various product lines. These formulas consist of a defined series of variables manipulated mathematically to result in a numerical value.

Independent Demand: A determination of demand based on a model of sales history and usage.

Inventory Class Analysis: Class analysis is based on the 80/20 rule: 80% of your business comes from 20% of your inventory items. The first step in the analysis is to rank products by sales or more preferably by contribution to corporate profitability. This module's class analysis follows the model where the traditional ABC classes are expanded to 13 classes. You can enter what percentage of your inventory you want represented in each of the classes 1-12. Class 13 is reserved for those non-moving inventory items and are recommended for disposal.

Inventory Turnover: Inventory turnover measures how often stock (shelf inventory) is used. It is measured as inventory-monetary use calculated as follows for a single warehouse:
Annual Cost of Goods Sold (stock only) / Average Annual Inventory Value

K Cost (Carrying Cost): The *Business* Replenishment module uses a defined K Cost or the cost of carrying inventory in its formulas to determine buy recommendations.

Lead Time: This represents the amount of time it takes to replenish inventory; more specifically, it is the amount of time it takes (in days) from when you request or order inventory until it is actually received, stocked, and in the computer as available for sale.

Line Point: This is the upper limit set for line-buying. It is greater than the order point and represents the maximum level of stock on hand and on order that can occur and still require an additional procurement. The line point is the order point + (usage x review period [in months]).

Order Point: This is the critical point at which the item needs to be reordered. The combination of the Qty. on Hand + Qty. on Order should never drop below the order point. When the order point is reached, you need to order more stock immediately. It is the safety allowance and one lead time's usage.

Period Definition: Period Definitions are used by the Replenishment module to determine the length of time and number of periods in which inventory usage data is tracked. For example, you may define your period definitions to track usage in increments of 28 days for six separate periods.

Product Line: A product line is a group of products specific to a given vendor. This allows the buyer to purchase a group of inventory items from the vendor at one time to minimize paperwork and maximize discounts. Once the items are defined in a product line, the system can then summarize all purchases between a given period for that product line. Inventory items should be grouped based on a commonality of order characteristics, such as discounts available, seasonality, ordering requirements, etc.

Pure Usage: It represents inventory activity transactions flagged for recurring usage.

Pull System: A *re*active inventory system that utilizes consumer orders to pull the product through the channels of distribution.

R Cost (Replenishment Cost): The *Business* Replenishment module uses the user defined R Cost information as part of its replenishment formulas used to determine buy recommendations. R Cost is the cost of replenishing inventory, including purchase order generation costs, shipping costs, warehouse restocking costs, etc.

Reorder Point: See Order Point.

Replenishment Calculations: A series of defined replenishment formulas which resolve the variables into numerical data for use in determining replenishment advice.

Replenishment Script: A series of formulas (grouped as a replenishment calculation) assigned to each product line. Since this assignment instructs the system when and how to process the data, it is called a replenishment script.

Resultant Variable: The variable which is resolved into a numeric value as a result of a replenishment formula.

Review Cycle: The defined frequency of review for a product line. The review cycle is computed by dividing the total annual purchases in the line by the discount threshold. It must not be greater than once per month.

Safety Allowance: The Replenishment module uses a safety allowance in restocking inventory to account for fluctuation in usage and lead time. Safety allowance is the user-defined safety factor x (average usage x lead time).

Safety Stock: A "buffer" of stock to account for forecasting errors (i.e., extra inventory to prevent stock-outs). See Safety Allowance.

Script: See Replenishment Script

Seasonality: Inventory items which have a different selling history for certain periods of the year than others (normally 80% of demand is in six months or less) are considered seasonal. This seasonality affects the stocking requirements and is reflected in the replenishment methods used to determine buy recommendations.

Select Statement: A statement written in SQL to retrieve or select data from the database. SQL selection statements are used in replenishment to tag data to the variables used in replenishment formulas.

Usage Rate: Computed value based on a defined formula that determines usage.

Usage Tracking: The manner in which you define how the system should collect data on inventory usage.

Target Purchase: Target purchase levels are defined by the user in the Replenishment module as the target amount (quantity, monetary, volume, or weight) which grants a discount from the vendor.

Variable: The Replenishment module tags variables to the database through SQL select statements, allowing the user to, in effect, "reprogram" the replenishment formulas. Replenishment formulas consist of a series of mathematically manipulated variables.