Fitrix™

Inventory Replenishment

User Guide

Version 5.20

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Inventory Replenishment ♦ *User Guide*

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Chapter 1 – Introduction

Features/Function Highlights

- **Modular Integration** – Direct integration with Fitrix Inventory Control, Order Entry, and Purchasing.

- **Tailored Usage Tracking** – usage is tracked whenever an item is sold or transferred to another distribution center. Sales outside the norm like a monthly special to reduce inventory can be excluded from the usage number so as not to inflate them. You define how often this usage should be captured and inserted into the usage tables and how many periods of usage you want to use to calculate your average usage.
- **Replenishment Calculations** – once you have run the Create Usage program to insert the most recent period's activity into the usage tables, you are now ready to run the Create Replenishment Calculations program. This calculation process takes the updated usage numbers and applies formulas to it you have previously defined that determine what your Suggested Order Quantity is. These formulas use predefined and user defined variables such as quantity already on hand, quantity on order, average lead time, next replenishment cycle date, safety factor , and carrying and replacement costs.
- **Generate Buy Recommendations and Purchase Orders** – this process takes the calculated Suggested Order Quantity and creates a buy recommendation to each of your vendors. You can then take these recommended quantities and automatically roll them up to meet any minimum purchase target level you may have with your vendor to receive monetary rewards such as discounts or prepaid shipping. The final step in the replenishment process is to then run the program that automatically creates a purchase order to each vendor.
- **Exception Processing** – The Expedite Report can be set up to run automatically on a nightly or weekly basis. This report helps identify items in between replenishment review dates that need to be ordered because the quantity on hand has fallen below the reorder point. The reorder point is the quantity you never want to fall below or you may experience stock outages.
- **What If Screen** – allows you to see the affect a large customer order or a new customer will have on your inventory in future periods based on average monthly usage and purchase orders coming in so that you can plan your purchases accordingly.

Reporting

Reports available include:

- Usage Summary
- Replenishment Calculations
- Buy Recommendations
- Create PO From Recommendations
- Expedite Report
- Warehouse Buy Comparison Report
- Warehouse Reallocation Report

Overview

This overview 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 User Guide.

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

- **Replenishment Basics**

   This section explains the fundamentals of Inventory Replenishment.

- **The Steps In Replenishment Processing**

   This section describes the methods and processes involved in tracking usage, creating buy recommendations, and 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 Fourth Generation *Business* accounting modules

No one replenishment formula can satisfy the needs of a modern inventory environment. Instead, companies must consider each inventory item and each of its possible locations. Many items fall under similar requirements and may be grouped for the replenishment process to be performed via a common "script."

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."

• Modify usage rate formulas for weighted average to indicate trends.

• 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, necessary lead time, and seasonality. 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 tables and vendor catalogs.

• Shares buyer and discount tables.

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.

• Accesses complete transaction information for usage tracking purposes.

Negotiable Service Level/Price

With its precise analysis of data, Fitrix Replenishment allows you the opportunity to negotiate
price based on service level with your customers. For example, if you sell a costly item ordered
by a single customer approximately twice a year, you may be able to negotiate with that
customer. You could offer a lower price if the customer is willing to wait the lead time for the item.
This would save you the cost of carrying the item all year, a savings which you could then pass
on to your customer. Conversely, a customer may request a service level of never out, in which
case you may need to negotiate a surcharge based on frequency of order.

The Steps in Replenishment Processing

This section describes the procedures involved in setting up and running the replenishment
programs. It covers the basic default and reference definitions that the system accesses for
repetitive data entry.

Setting up Defaults and Reference Files

System Defaults

System defaults allow you to set parameters for company-wide use. These default values are
used in the formulas you set up that when applied to your inventory usage numbers calculate that
suggested order quantity from each of your vendors. These values include:

Carrying cost – this value is used in the Economic Order Quantity formula discussed later in this User Guide when Formulas are covered. It represents the cost to carry inventory (the k factor).

Replenishment Cost – this value is also used in the Economic Order Quantity formula discussed later in this User Guide when Formulas are covered. This dollar amount represents the reorder costs such as purchasing department expense, data entry, etc.

Safety Factor – this safety factor percentage is used in the Safety Allowance formula discussed later in this User Guide when formulas are covered. It is basically adds a safety "pad" to your order point.

Order Quantity Rounding Factor – this factor is used to round the buy recommendation calculated to a whole number.

Vendor Product Lines

You group items from a vendor catalog into product lines. These product lines are reflective of item similarities or ordering requirements. For instance, you may want to set up a product line for vendor ABC for slow moving items that you only want to review once a month and another product line for fast moving items that you want to review every week. Each vendor may have multiple product lines assigned, but each product line must be related to only one vendor. The

vendor / product line relationship is restricted because of the way purchase information is generated. The replenishment advice generates a buy recommendation for each line which can then automatically generate a vendor purchase order. Therefore, a product line must apply to one vendor to whom the purchase order will be sent.

Usage

Usage defaults define the parameters of usage tracking. Replenishment records as activity all transactions involving the movement of inventory entered through the Inventory Control or Order Entry modules. Although all activity is recorded, you may not want to use all activity as data valid for replenishment purposes. To customize what constitutes usage, you define the following defaults:

- Tracking of usage for Inventory Control shipping transactions
- Tracking of usage for Inventory Control transfer transactions
- Usage tracking parameters by order type in Order Entry
- Usage tracking parameters by line type in Order Entry

In addition to defining "what" constitutes usage, you also define "when" and "how" usage is tracked. The following defaults regarding usage periods are available:

- Period definition code - allows you to assign period definitions by entering a short code like MONTH for monthly reviews.
- Duration in days of defined period
- Number of periods used for calculations

Calculations

These programs are used to set up variables used in formulas, the formulas themselves, and then the replenishment code that will be assigned to a script you set up that tells the system when to update the usage numbers so that new buy recommendations can be calculated. Many of the values and formulas you will use are already set up for you.

Here is an example of the type of data set up in each program:

Lookup definition – here is the variable to find current quantity on hand from the inventory table:
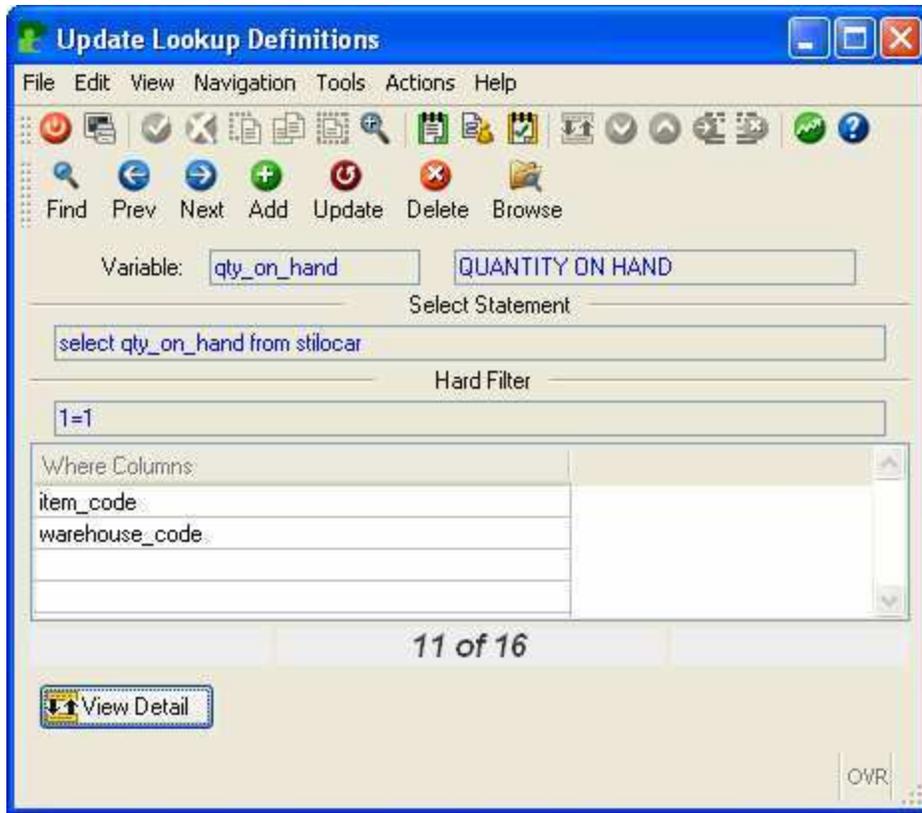
Formula – once the lookup variables are set up, these variables are used in formulas. The formula below is using the quantity on hand variable to calculate the true available quantity defined as:

Quantity On Hand + On Order From Vendor - Pending Customer Orders – Transfers Out + Transfer In

Each one of the values in this formula is a variable.

Calculations – once formulas are set up you assign a group of formulas to a replenishment code. The end result of the group of formulas is the generation of the recommended buy calculation. In the example below the replenishment code is SOQ which stands for Suggested Order Quantity. Notice line 6 is using the Available Quantity formula previously discussed.
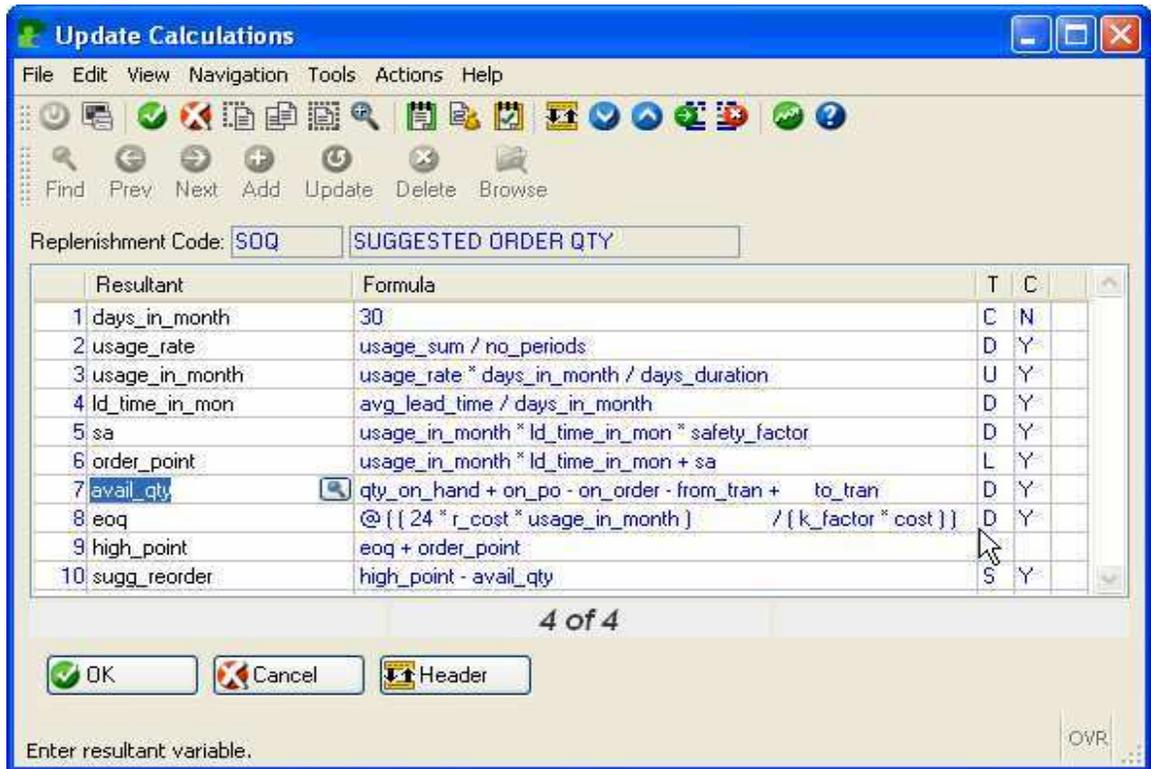
Scripts

The final step in the setup process is to assign the defined replenishment calculation formulas to individual product lines through a "script." These scripts assign a replenishment code (the defined variables, formulas, and ordering of formulas used to generate replenishment advice), review cycle, beginning and ending date of reviews, and period definition to a product code for a specific warehouse.

In the example below we have created a script ATLANT that assigns the SOQ replenishment code to the SCM product line for the Atlanta warehouse. The review cycle will be every thirty days.

Usage Tracking

The first step in the Replenishment process is to update your usage numbers by running the Create Usage program. This program drops the oldest usage period, inserts the most recent usage period and updates the average usage number used in many of the standard replenishment formulas. Here is a screen shot of the results after running this program:

Update Usage Summary

Script Code	ATLANT	Last Activity	06/01/2007	Line Code	SCM
Period	MONTH	Next Activity	07/01/2007	Replenishment	SOQ
Item	12104			Buyer Code	
Warehouse	ATLANTA				

Total Usage 13611.00 Avg Usage 2722.20

Per No	Start	End	Activities	Usage	Override
1	05/03/2007	06/01/2007	6325.00	6325.00	6325.00
2	04/03/2007	05/02/2007	5500.00	5500.00	5500.00
3	03/04/2007	04/02/2007	590.00	590.00	590.00
4	02/02/2007	03/03/2007	500.00	500.00	500.00
5	01/03/2007	02/01/2007	696.20	696.20	696.00

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View Detail

OVR

The program was run on June 1st and period 1 is the new period that has been added to average usage calculation.

Calculate Replenishment Data

Now that the usage has been updated with the most recent activity, we use this usage in the replenishment calculation formula. Here are the results:

Update Replenishment Data

Line	Ty	Resultant	Computed Value	Override
2	D	usage_rate	365.00	365.00
3	U	usage_in_month	365.00	365.00
4	D	ld_time_in_mon	3.00	3.00
5	D	sa	547.50	547.50
6	L	order_point	1642.50	1642.50
7	D	qty_on_hand	1295.00	1295.00
7	D	on_po	0.00	0.00
7	D	to_tran	0.00	0.00
7	D	on_order	1107.00	1107.00
7	D	from_tran	80.00	80.00
8	D	eoq	247.16	247.16
10	D	avail_qty	108.00	108.00
10	S	sugg_reorder	1781.66	1781.66

For item code 12112 in the Seattle warehouse the program has calculated that we should order 1,781.66. This will be rounded to a whole number in the final step of the Replenishment process.

Buy Recommendations

After you have reviewed and made any changes needed to the Suggested Reorder Quantity that was calculated, you run the Generate Recommendations program. This program will group all items by Vendor and Warehouse where a Suggested Order quantity was calculated.

The Rec Qty is the recommended reorder quantity.

Create Vendor Purchase Orders

After you have reviewed the Buy Recommendations and made any necessary changes to the recommended quantities, the last step in the Replenishment process is to run the Create PO from recommendations program.

Exception Processing

Despite frequent reviews and careful replenishment calculations, unusual sales and unforeseen trends may occur, critically depleting a particular inventory item. For this reason, Replenishment provides an Expediency Report feature that may be programmed to run on a daily basis to check for inventory items that have fallen below the order point (critical level).

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. To return to the main Replenishment Definitions menu from any of the definition menu options, press [ESC] or click on Exit. The Replenishment definitions menu options are listed on the menu below. A submenu located under a menu option is indicated by folder icon. In addition, many of the menu options access a main screen from which various pop-up menus, windows, Zoom windows, and list boxes may be located. For information regarding these various menu options, as well as how to navigate in and between the menu options, please refer to the Getting Started With Fitrix User Guide.

Replenishment Definitions Main Menu
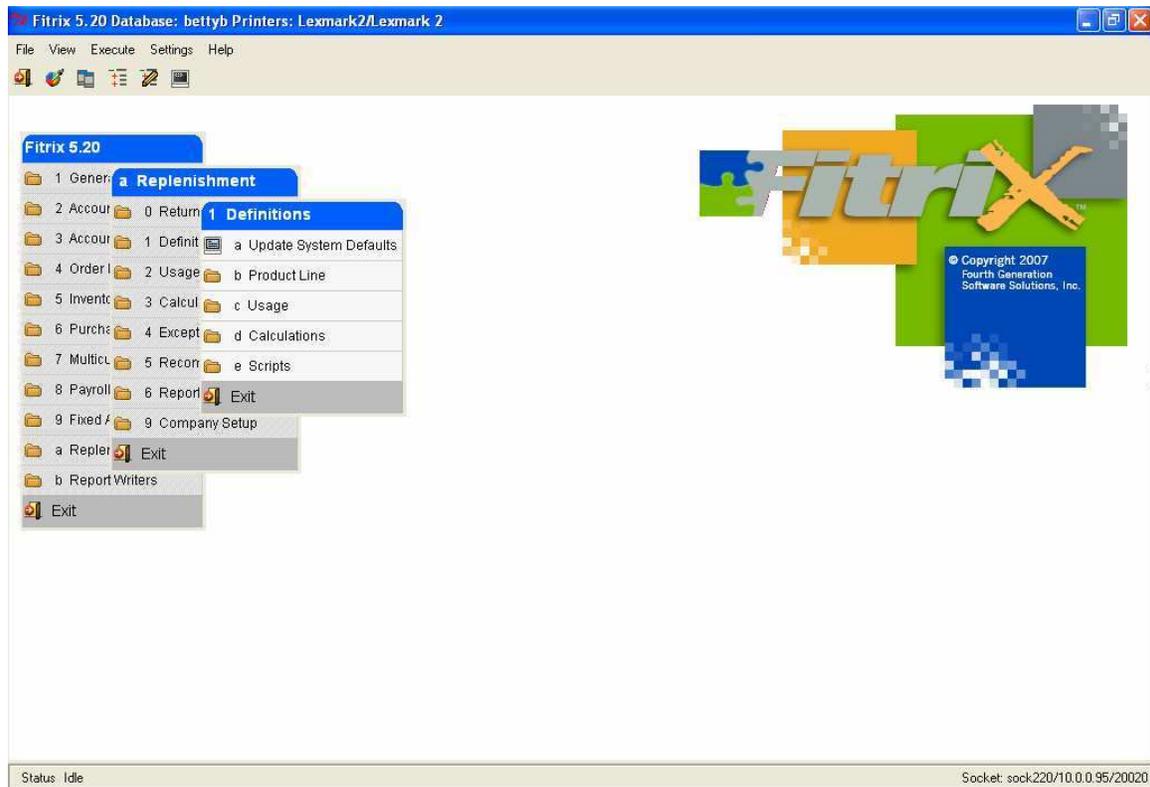
Update System Defaults

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 to $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 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:
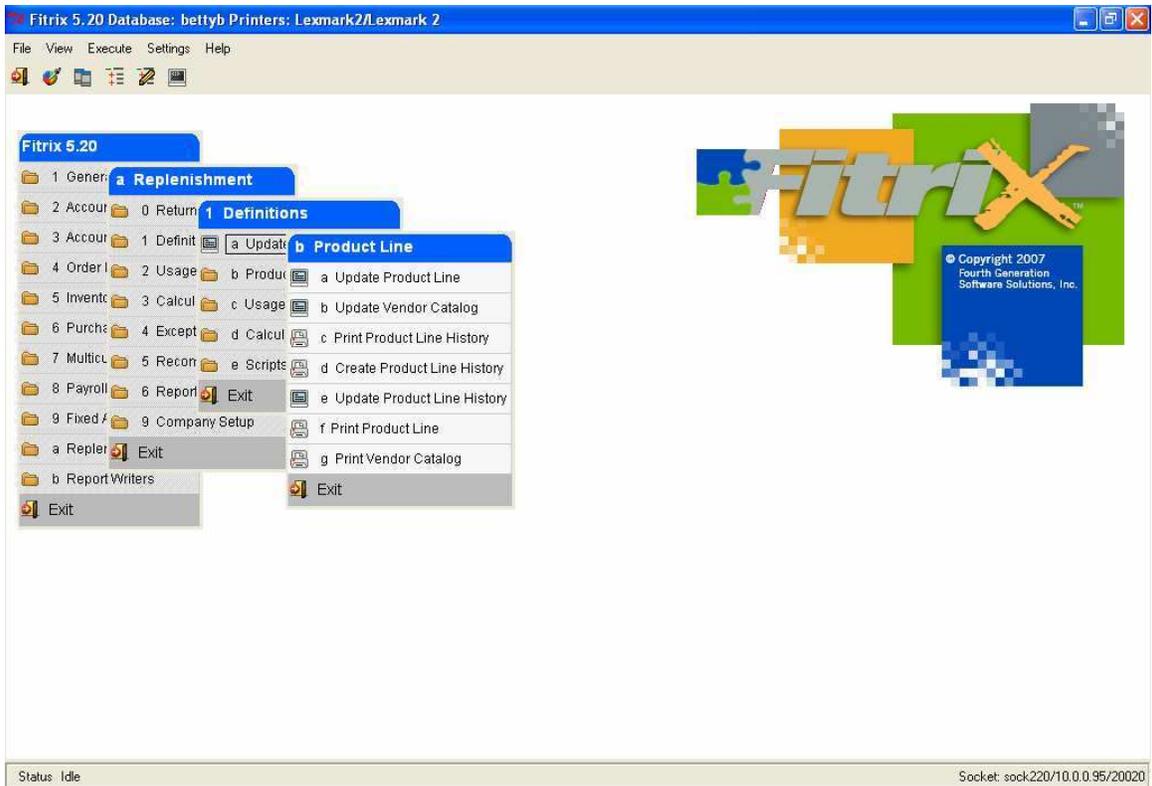
Update Product Line

This is option (a) on the Product Line menu. Use this option to assign a product line code, description, and a vendor to a 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.

Item Cost

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

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.

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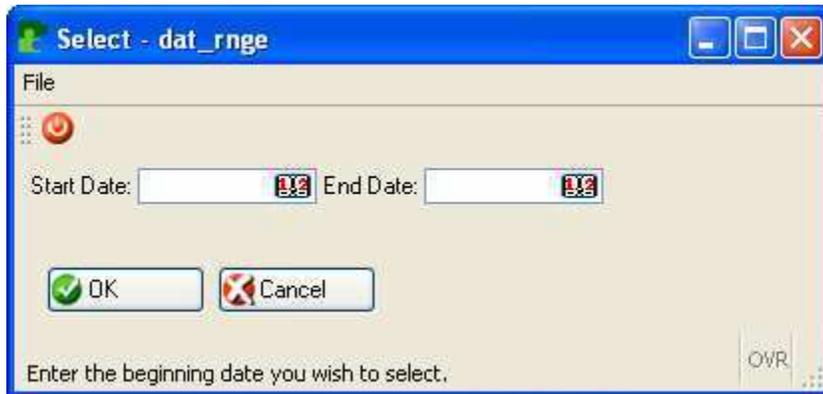
After you select the desired date range for the desired Product Line History, an additional selection criteria screen appears. This feature allows you to print all available information or limit your report to product lines which contain specific values. This gives you the opportunity to print information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

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.

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. After selecting the applicable date range and selection criteria, the system stores this information in a temporary table which is accessed to populate the fields in the following option, Update Product Line History.

Update Product Line History

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

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. Zoom is 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:
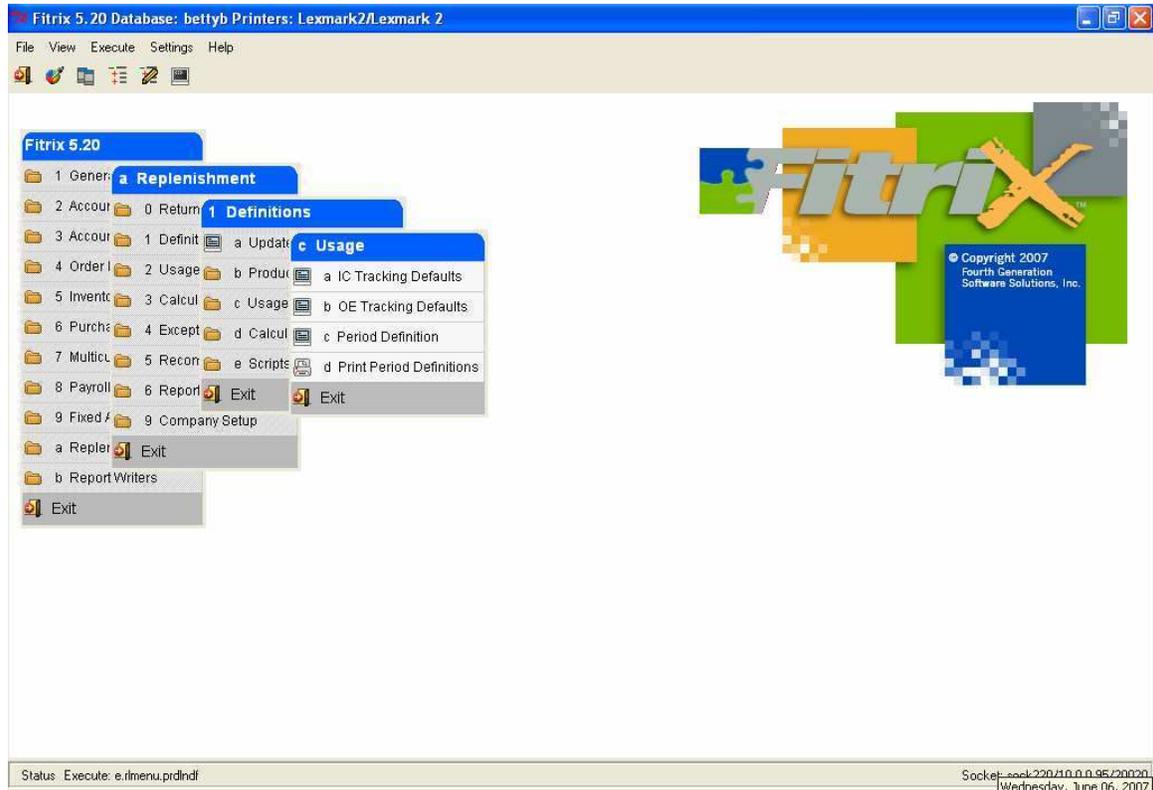
Usage is tracked whenever an item is sold or transferred. When determining the usage rate, sales and transfers that are abnormal must be excluded from the usage calculation. A normal sale to a customer, or a transfer from a parent warehouse to one of its branches is generally considered normal usage. 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).

The Replenishment system reports both usage and non-usage Activity on the Usage Summary screen located under the Usage Tracking menu option. For more information and an example of the Usage Summary screen, please see Chapter Three. The activity field reports all activity, including that considered abnormal usage. The usage field reports only the activity that has been included in usage tracking. You may modify the tracked usage information as needed prior to replenishment calculations through the override field on the Usage Summary screen.

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.

Enter a Y if this should be included in usage numbers used in Replenishment.

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. These values are used as defaults for transactions when using Order Entry (OE) and provide a method for customizing the integration between Order Entry and Replenishment. 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

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. For instance, you can define the period for usage tracking as monthly, but set the review cycle to .50 indicating a review twice per month. Use the screen below to define the length of the period for collection of usage data. In addition to the length of the usage data collection period, you also define the number of periods to be used in calculating the usage rate.

The flexibility in period definition is a powerful advantage of *Business* Replenishment. 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 ofr 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 15). 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 15-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.
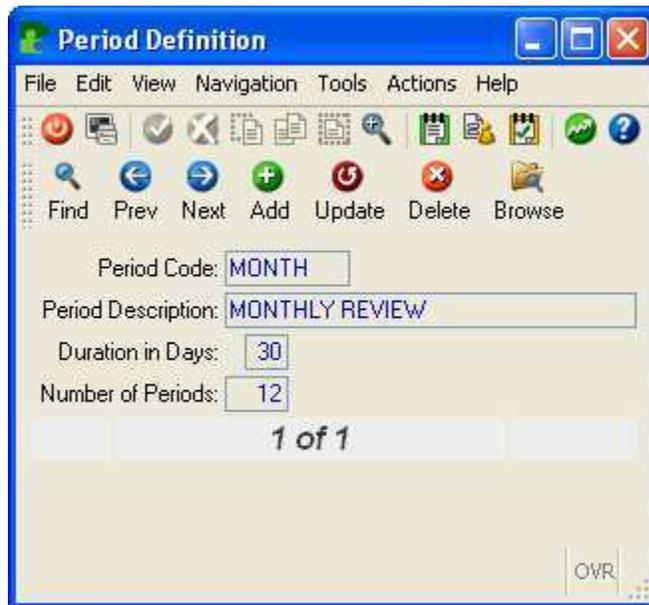
Period Code

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.

Number of Periods

Enter the number of periods to track. This entry determines how many periods the system uses to calculate the usage rate. This entry must be numerical and must be within the range of 1 to 104.

Example:

For products that have heavy usage or are trendy, you may want to track the usage on a weekly basis rather than on a monthly basis. If you choose to define a weekly period, and wish to evaluate an entire year's usage, enter a duration of 7 days, and a number of periods value of 52. If you wish to track the usage in weekly periods, but only wish to track 3 months worth of usage, enter a duration of 7 days, and a number of periods value of 12.

Calculations

Replenishment lets you customize your replenishment calculations to fit not only your unique company needs, but also the unique replenishment characteristics of each of your product lines. 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:
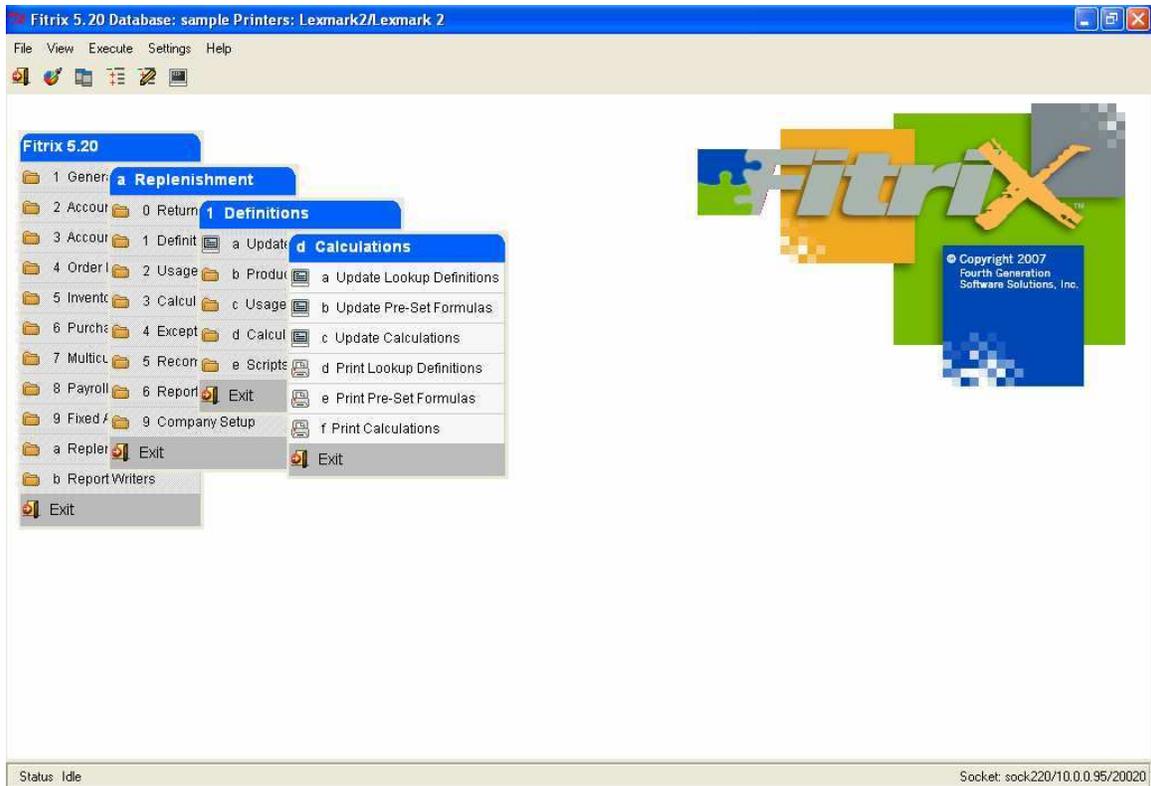
Because each formula may be modified, the system is designed for maximum flexibility. These formulas are generally determined and defined during the setup procedures and are invisible to the end user.

The examples of replenishment calculations used throughout this User Guide relate to the product line replenishment method. You can, however, input formulas to affect other types of replenishment methods, such as the min/max method or the inventory classification method. Product lines can consist of a minimum of one inventory item and you can therefore customize the method used per inventory item if desired. Sample formulas used for implementing various replenishment methods are located in Appendix A.

Examples of Calculations

IMPORTANT NOTE

Although *using* the calculations is simple, understanding and modifying them is the most complex part of the Replenishment system. They require the planner or the system integrator to understand both the formulas required to calculate the various replenishment data and the SQL select statements used to gather the data for the calculations. The following discussion of Replenishment calculations is presented to allow for modifiability of the program to fit your company's unique replenishment needs**. If you are not personally modifying the Replenishment formulas, you may skip the comprehensive information regarding the structure of these formulas contained in this CALCULATIONS section and go to the next section that discusses SCRIPTS.**

An example of the process involved in a Replenishment calculation is listed below. A key element of replenishment advice is to forecast the necessary quantity to order for an inventory item. This forecast is based on past usage. One method of calculating past usage rate would be to collect data for a number of defined periods (for example, 6 months), and then calculate the average usage per period (month).

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 tells the system how often the replenishment process should be run for a specific product line/warehouse (i.e., - monthly).

In the following example, a company considers the average usage over the last six months to be applicable in determining their future purchasing needs. The usage rates of these six months can be stored in the **variables** usage1, usage2, usage3, usage4, usage5, and usage6. The following **formula** is used to compute the average of these values:

Lookup Variable

(usage1 + usage2 + usage3 + usage4 + usage5 + usage6)/6

Usage Rate Formula

To make use of this average , calculate the average and store the value in the variable called "usage_rate." In this example, the variable "usage_rate" is a **resultant variable**, or simply a **resultant** since it holds the calculated value of the usage rate formula.

usage_rate = (usage1+usage2+usage3+usage4+usage5+usage6)/6

Resultant Variable

The resultant variable usage_rate can then be used in subsequent formulas such as the formula shown below, used to determine the amount of safety stock necessary.

Resultant Variable

Safety_allowance = safety_factor * usage_rate * lead time

Resultant   Formula

The following is an example of the formulas necessary to generate a reorder advice (when and how many) for a product line which has a usage period defined as 28 day and you are tracking usage for the last six periods:

usage_rate = (usage1 + usage2 + usage3 + usage4 + usage5 + usage6)/6

The resultant variable, usage_rate, is then used as part of the formula to determine safety_stock.

safety_stock = usage_rate * safety_factor

Both resultants, usage_rate and safety_stock, are then used to calculate order point.

order_point = (usage_rate * avg_lead_time/28) + safety_stock

Order_point (the critical point at which, if not previously reordered, inventory will be depleted prior to receipt), and line_point (the maximum level at which inventory can be economically stocked), indicate *when* the replenishment process should occur. Both resultants, order_point and usage_rate, are used to determine line_point.

line_point = order_point + (usage_rate * review_cycle)

Economic Order Quantity (EOQ) indicates *how many* should be ordered during the replenishment process. In the formula below, 24 represents the replenishment standard annual constant of 2 multiplied by 12 to reflect the monthly review cycle.

The square of (24 x R ordering cost x usage rate)/(K carrying cost x item's catalog cost).

This formula determines how many to buy of a stock item. It balances the cost of carrying inventory with the cost of going through the replenishment process thereby developing the lowest

By knowing the formula set for the five standard Replenishment variables (usage_rate, safety_stock, order_point, line_point, and eoq), the planner can then set the lookup functions to find the data elements that must be retrieved in the calculations.

Update Lookup Definitions

Lookup entry allows the user to define a **variable** of a replenishment formula and assign an SQL selection statement to retrieve the appropriate value for the variable. This variable is then used in a formula to get a **resultant variable.** In the examples above usage1 is a variable set up in Lookup Definitions and this variable is then used in the usage rate formula to determine usage_rate, a resultant variable.

Here is the Update Lookup definitions screen:
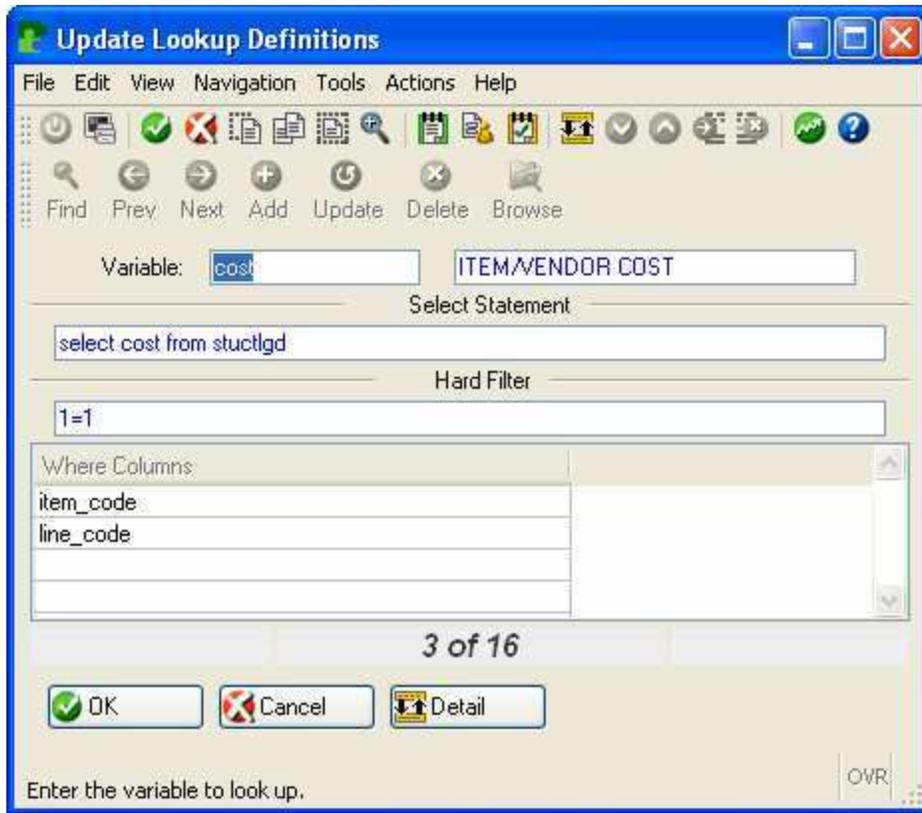
Variable

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. The select statement should include the "from" clause. This "from" clause specifies the location in the data base of the necessary data. For example, in the Lookup screen illustration we are selecting the item cost from the primary vendor's catalog:

select cost from stuctlgd

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. Enter column names up to 37 characters, which tell the system which columns require a value for the selection to succeed. In order to have the select cost from stuctlgd select statement succeed, the specific item code/line_code must be in the where clause. By having item_code and line_code in the Column field, the lookup program builds the selection statement based on item code and line_code passed to it.

Example:

This example shows a select statement that is used to resolve the variable usage1.

Variable: usage1   Description: USAGE ONE

Select Statement: select user_override from stiusger, stiusged   <- (usage tables)

Hard Filter: stiusger.doc_no = stiusged.doc_no and stiusged.per

Where Column: item_code, script_code, warehouse_code

The select statement reads as follows:

select user_override from stiusger, stiusged where stiusger.doc_no = stiusged.doc_no and stiusged.per and item_ code = ? and script_code = ? and warehouse_code = ?

Update Preset Formulas

Now that the variables that are used in the formulas are set up you can define or revise formulas for use in resolving resultant variables needed for replenishment calculations by using this program.
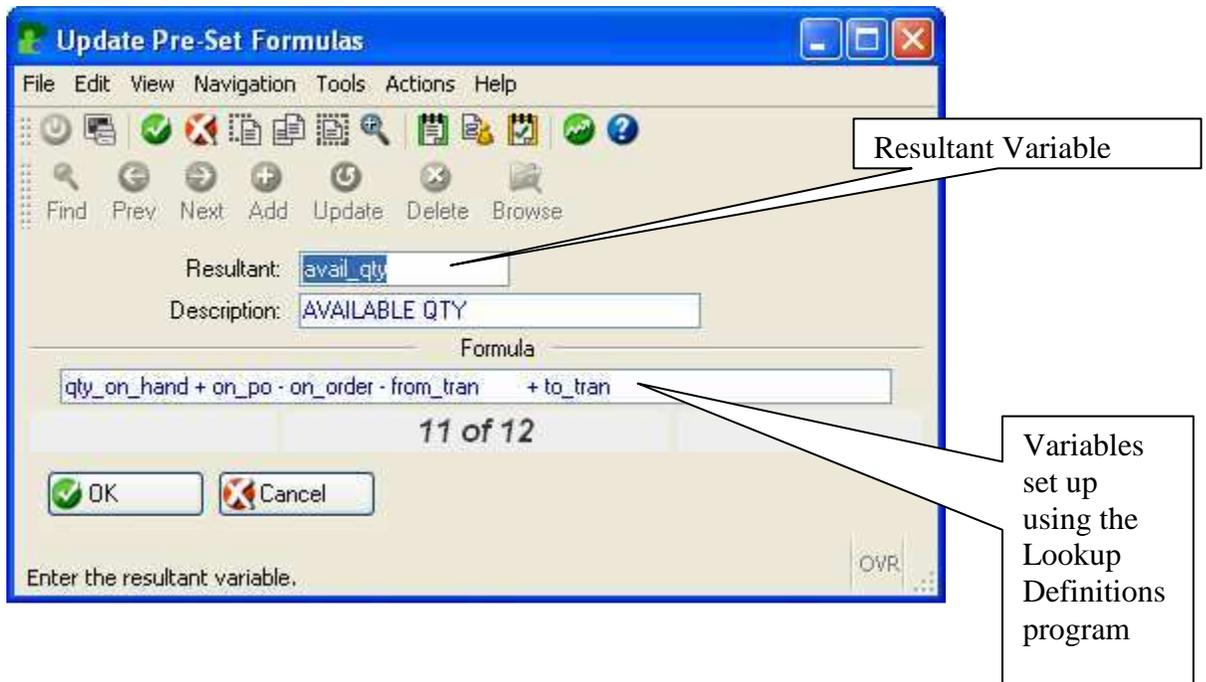
Resultant

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

Now that the formulas are set up, use this program to group the formulas required to compute the usage rate, order point, line point, and suggested order quantity. You use the following screen to enter the variables and formulas in the order needed to compute these into numerical values.

	Resultant	Formula	T	C
1	days_in_month	30	C	N
2	usage_rate	usage_sum / no_periods	D	Y
3	usage_in_month	usage_rate * days_in_month / days_duration	U	Y
4	ld_time_in_mon	avg_lead_time / days_in_month	D	Y
5	sa	usage_in_month * ld_time_in_mon * safety_factor	D	Y
6	order_point	usage_in_month * ld_time_in_mon + sa	L	Y
7	avail_qty	qty_on_hand + on_po - on_order - from_tran + to_tran	D	Y
8	eoq	@ ((24 * r_cost * usage_in_month) / (k_factor * cost))	D	Y
9	high_point	eoq + order_point		
10	sugg_reorder	high_point - avail_qty	S	Y

Replenishment Code

Enter a code for the reorder advice you wish to generate using this calculation.

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 variable the system needs to resolve. If you enter a variable that you have already defined in Update Pre-Set Formulas, then 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

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 on the previous page 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

The Create column accepts a Y if you want the system to save the resulting value from a dynamic or constant formula. 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. If this value is set to Y these formulas and their computed values will display in the Update Replenishment Data program (see Chapter 3) so you know what formulas were used in calculating your Suggested Order Quantity.

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

> 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 and FUT 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.

EOQ – the square of (24 x R ordering cost x usage rate)/(K carrying cost x item's catalog cost). This formula determines how many to buy of a stock item. It balances the cost of carrying inventory with the cost of going through the replenishment process thereby developing the lowest "outgoing" cost.

Replenishment R factor – this $ amount represents reorder costs such as purchasing department expense, data entry, etc.

Annual purchasing expense /(# POs created x line items on POs)

Industry standards suggest the average replenishment cost is between $4.00- $6.00 per item.

Carrying K factor - the percentage of cost to carry inventory.

Annual Whse cost / Average inventory value

Approximately 60% of warehouse costs are carrying costs and not shipping related. The simple formula to get you close is prime + 20%

High Point = EOQ + Order Point

Suggested Reorder = High Point – Available Qty

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.

Scripts

The final step in the Replenishment setup process is to create scripts for your product line/warehouses. These scripts pull together all the various information from the replenishment definitions and tell the system when and how to run the replenishment calculations.

Replenishment scripts assign the various replenishment definitions to an inventory product line. These assignments allow you to customize the method for determining replenishment advice individually for each product line. The Update Script Definitions screen is where you combine the various components of the replenishment module into a working calculation. You determine *when* these calculations occur by defining a starting and ending date for each script. Each product line you wish to review must have at least one script assigned to it, although under certain circumstances you may want to assign more than one script to a particular product line. For example, in the case of seasonal product lines, you can assign one script to the product line that runs during the off-season (determined by the starting and ending dates of the script), and a second script that runs during the peak season. These scripts could differ in period definitions (you may wish to track usage in shorter periods during the peak season), review cycles (you may

need to review usage more often during the peak season), and formulas for determining advice (you may wish to analyze data differently during the peak season). This feature allows you not only to customize by product line, but also to customize for buying trends by product line.

When you select the last option on the Replenishment Definitions menu, Scripts, the following submenu appears:
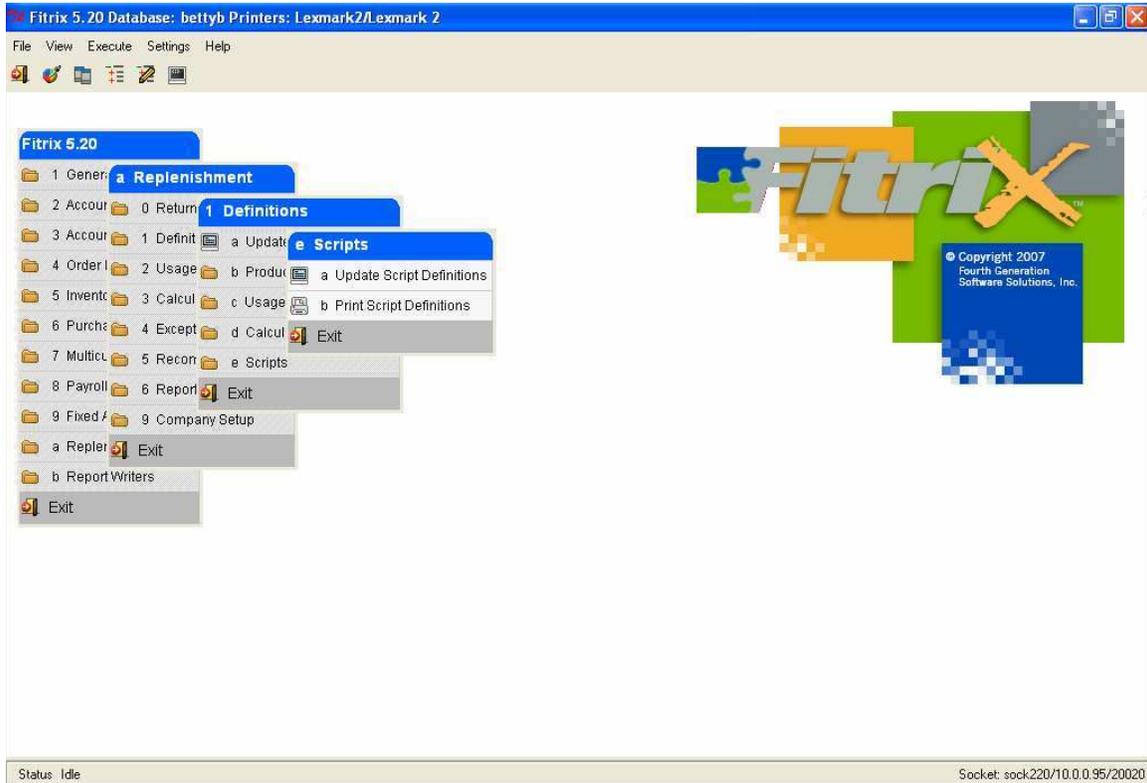
Here is the Update Script Definitions screen:

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, though each product line can have more than one script assigned.

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 *Business* 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. For more information about this review cycle definition

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 a specific process by disabling the other processes. 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 a specific process by disabling the other processes. 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 a specific process by disabling the other processes. 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.

Chapter 3 – Computations and Analysis

This chapter covers the various computations using the formula and calculation definitions set up in the previous chapter. This section explains the options available under the Usage Tracking, Calculations, Exception Processing, and Recommendations options located on the main Replenishment menu. Use these options to create summaries, perform calculations, analyze data, and provide replenishment recommendations. This chapter covers the following topics:

- Creating, updating, and printing usage summaries

- Calculating, updating, and printing replenishment data

- Printing expedite report for exception processing

- Generating, updating, and printing replenishment recommendations

- Creating purchase orders from replenishment recommendations

Overview of Replenishment Computations and Analysis

The Replenishment reorder advice, designed to keep your inventory at its optimum service level with a minimum of investment, is based on projected sales of inventory. Forecasting future sales often depends on past usage. It is therefore crucial to your inventory management that you have accurate inventory usage history available. Replenishment creates comprehensive usage summary reports which you use for calculations to create the replenishment reorder advice. Before you proceed, you can review and modify the usage data. For example, if an item as an unusual usage rate for a certain period, and you know this usage will not be repeated in future sales, you can modify the usage rate to more accurately reflect your usage trend.

Following the review of usage summary reports, the system scans the script definitions and implements the calculation of any applicable scripts. For example, a script is applicable if the date falls on or after the next scheduled review date based on review cycle definition and the script's starting and ending date. After the calculation of the replenishment data, a purchase recommendation is generated. After reviewing and updating the purchase recommendations, you are ready to create purchase orders for all included product lines. Purchase orders are created automatically through the Replenishment module.

Usage Tracking

When you select the second option from the main Replenishment menu, Usage Tracking, the following menu displays:
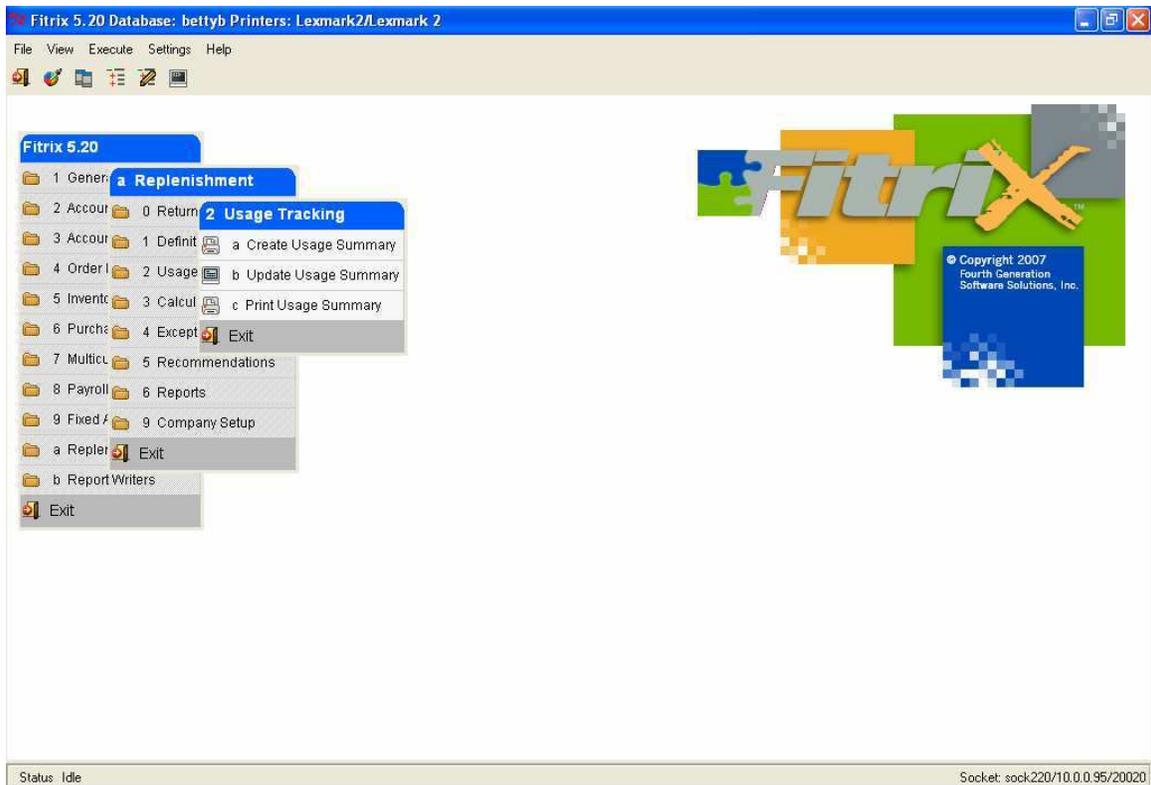
Through the usage tracking options, you create and update your usage numbers before using these updated usage numbers in the next step, the replenishment reorder calculation.

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            05/03/2007  06/01/2007
2            04/03/2007  05/02/2007
3            03/04/2007  04/02/2007
4            02/02/2007  03/03/2007
5            01/03/2007  02/01/2007
6            12/01/2006  01/02/2007
```

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            06/02/2007  07/01/2007
2            05/03/2007  06/01/2007
3            04/03/2007  05/02/2007
4            03/04/2007  04/02/2007
5            02/02/2007  03/03/2007
6            01/03/2007  02/01/2007
```

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."

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:

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 various transactions used for tracking usage. In the example below, the transaction detail screen is shown which corresponds to the Usage shown for period two. Usage in the detail transaction screen is shown as negative numbers, and if added together, equal the usage shown on the main usage summary.
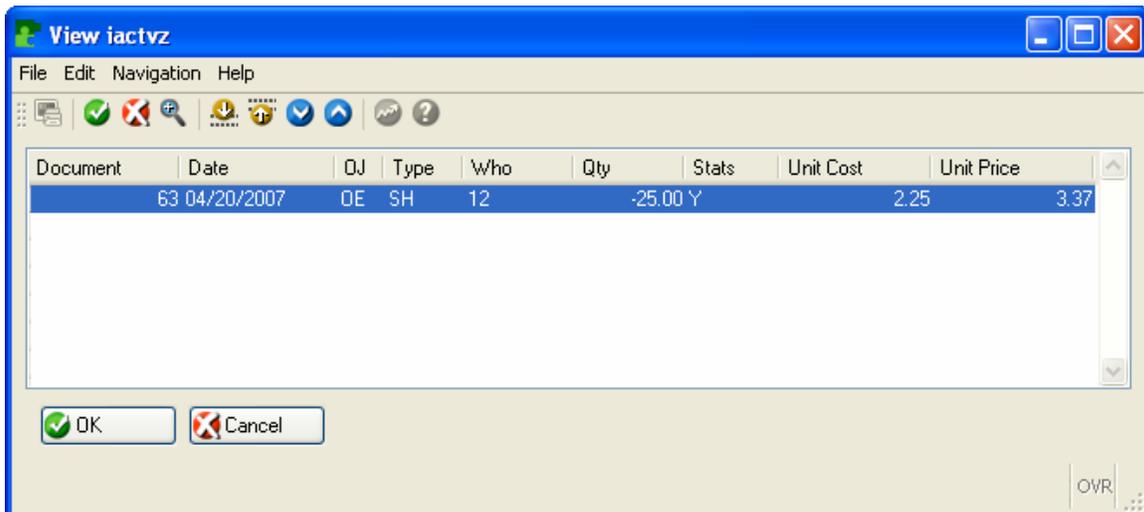
Fields on the Usage Drilldown Screen

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.

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 document in question.

Qty

This field displays the quantity of the item involved in 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 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:
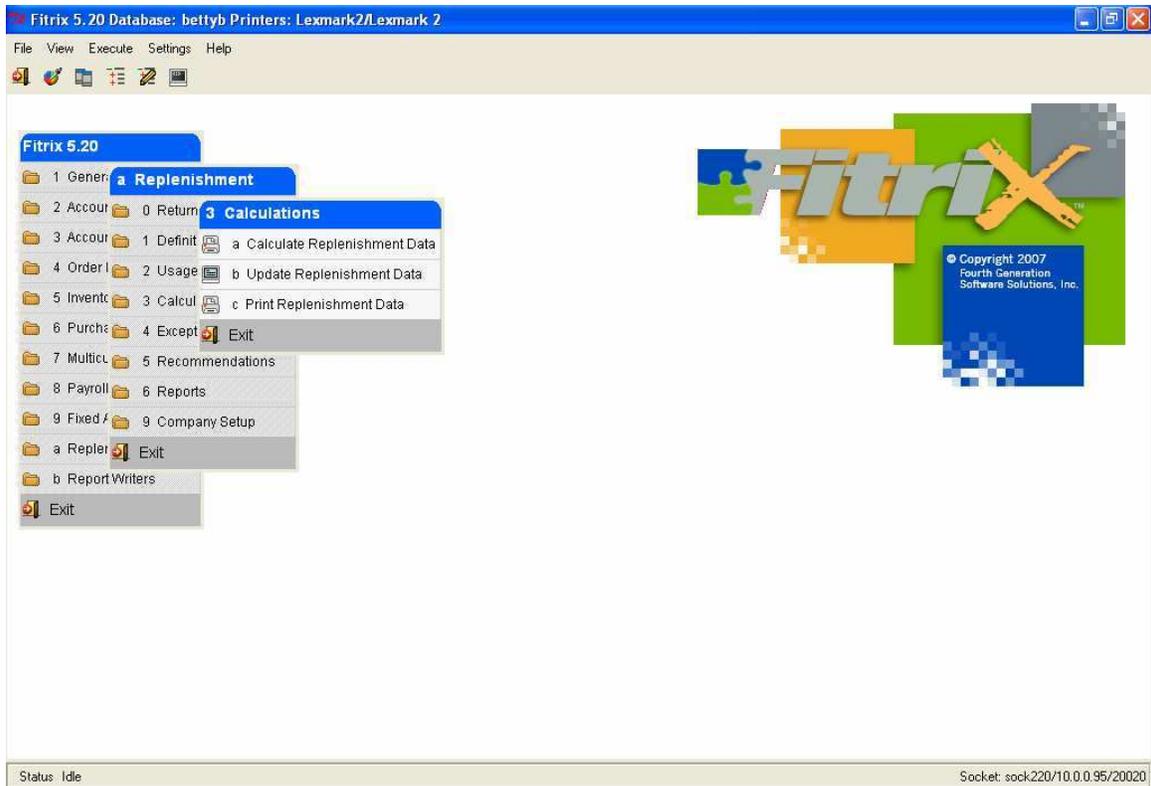
Calculate Replenishment Data

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.

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

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.

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.

Select

File

Selection Criteria

Warehouse Code [   ]

Vendor Code [   ]

Script Code [   ]

Item Code [   ]

OK   Cancel

Enter code part with wildcards (?=any character,*=any character set)   OVR

Print Expedite Report

File Navigate Help

```
Date: 06/11/2007         Emergency Buy Recommendations
Time: 11:09:53               PARTS PLUS DISTRIBUTION                Page: 1

                        Warehouse: SEATTLE
================================================================
 Vend:SCM
 Item:12104                       Recommended:   1531.000 Adj. Qty:_____
      SCM A SERIES MULSTRIKE            Cost:      5.000         7655.00
                                      Volume:
Line:SCM          Script:SEATTL        Weight:      0.250         382.750
Buyr:KEVIN        Period:MONTH      Qty On Hand:   269.000
  UM:EA           Cycle:    1.00       On PO:     1500.000
 ABC:1          Next Rvw:07/01/2007   On Order:    242.000
                Lead Time:   90.00    Transfer:    -25.000
                                     Available:   1502.000
                                  Reorder Point:   2838.749
                                     Difference:   1336.749
                                         Usage:     630.833


PO Detail:

PO No.         Qty To Receive      Required Date       On Board Date

116               1500.00          06/15/2007
```

Buy Recommendations

These programs take the Suggested Order quantity calculated by the Calculate Replenishment Data program and group all items by vendor code.
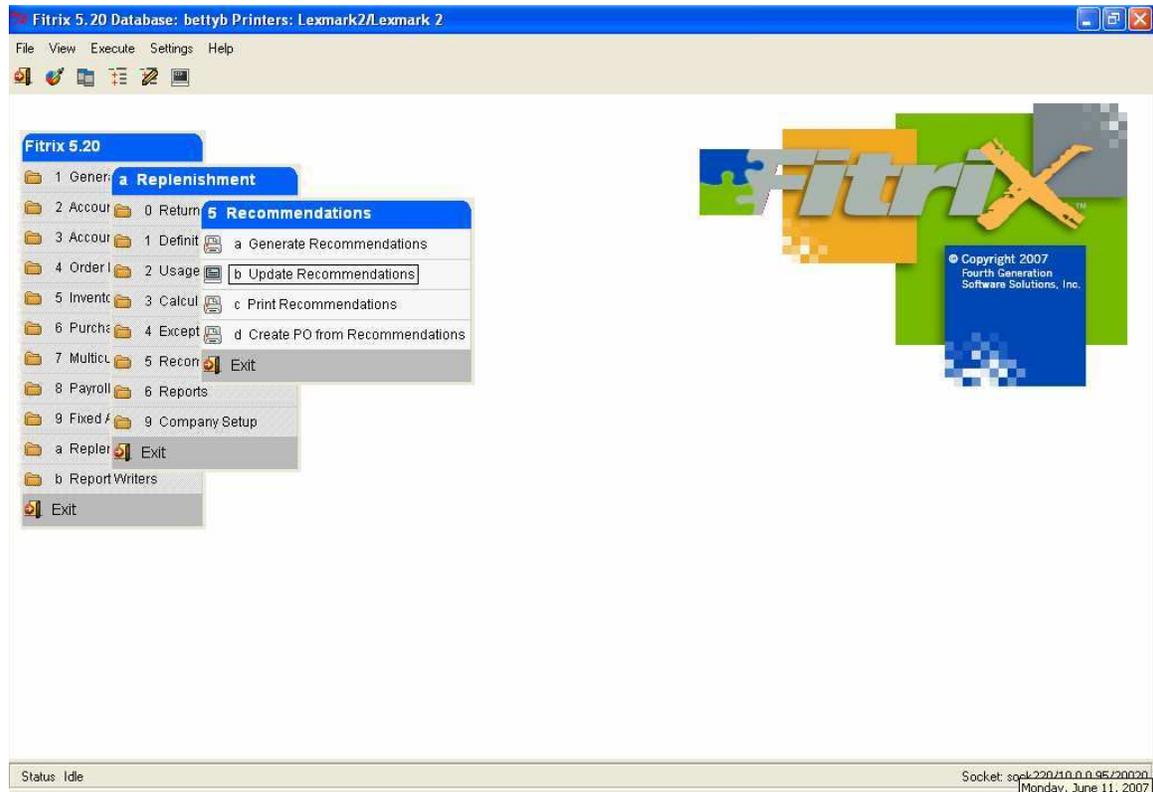
Generate Recommendations

Based on a transaction date which 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. For more information regarding review cycles, please see page 2-20.

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 of 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.

Chapter 4 – Reports

Print / Create Product Line History

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

```
Print Product Line History                                              _ □ X
File  Navigate  Help

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────────────────────────────────────────────────────────────────────────

ate: 06/11/2007            Product Line History
.me: 15:35:12              PARTS PLUS DISTRIBUTION                  Page: 1

                    Between 04/21/2006 and 04/20/2007


.ne   Vendor      Warehouse        Qty       Monetary     Volume      Weight
============================================================================
      123457
                  ATLANTA          0.000        0.00       0.000       0.000
                  CHICAGO          0.000        0.00       0.000       0.000
                  SEATTLE        404.000     1383.45       0.000       0.000
                               ===========  ==========  ===========  ===========
              Total:            404.000     1383.45       0.000       0.000
      123458
                  ATLANTA          0.000        0.00       0.000       0.000
                  CHICAGO         13.000        6.24       0.000       6.500
                  SEATTLE          0.000        0.00       0.000       0.000
                               ===========  ==========  ===========  ===========
              Total:             13.000        6.24       0.000       6.500
```

Print Product Line

Menu Path: RL-1-b-f

Print Vendor Catalog

Menu Path; RL-1-b-g


```
Date: 06/11/2007        Vendor Catalog by Product Line
Time: 15:44:22             PARTS PLUS DISTRIBUTION                        Page: 1
=================================================================================
  Vendor Code: SCM - SMITH-CORONA CORP.
       Contact: VENDOR                        Phone:
  -------------------------------------------------------------------
  Product Line: SCM       SMITH-CORONA

     Item Code/Vend Item---Description------------------------Item Cost
     12104               SCM A SERIES MULSTRIKE              5.57
     12112               SCM A SERIES CVR-UP TAPE            2.39
     12120               SCM A SERIES LIFT-OFF               2.39
     12138               SCM A SERIES CORR (PK/2)            5.30
     12195               SCM A SERIES NYLON                  3.15
     16345               SCM CORONAMATIC LIFT-OFF            2.88
     16352               CORONAMATIC CORRECTABLE             2.88
     17558               SCM CORONAMATIC BLK FILM            2.67
     17616               CORONAMATIC COVER-UP                2.67
     17657               SCM CORONAMATIC NYLON               2.88
     20700               SCM REGENCY 10 P/W                  6.58
     20702               SCM REGENCY 12 P/W                  6.58
     20705               SCM TEMPO ASCII 12                  6.58
     20708               SCM SCRIPT 10/12 P/W                6.58
     20710               SCM LETTER GOTHIC 12 P/W            6.58
```

Print Period Definitions

Menu Path: RL-1-c-d

```
Print Period Definitions                                          [_][□][X]
File  Navigate  Help

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Date: 06/11/2007          Print Period Definitions
Time: 15:48:23            PARTS PLUS DISTRIBUTION                    Page: 1


Code        Description                    Duration   Periods
======================================================================
MONTH       MONTHLY REVIEW                    30        12
```
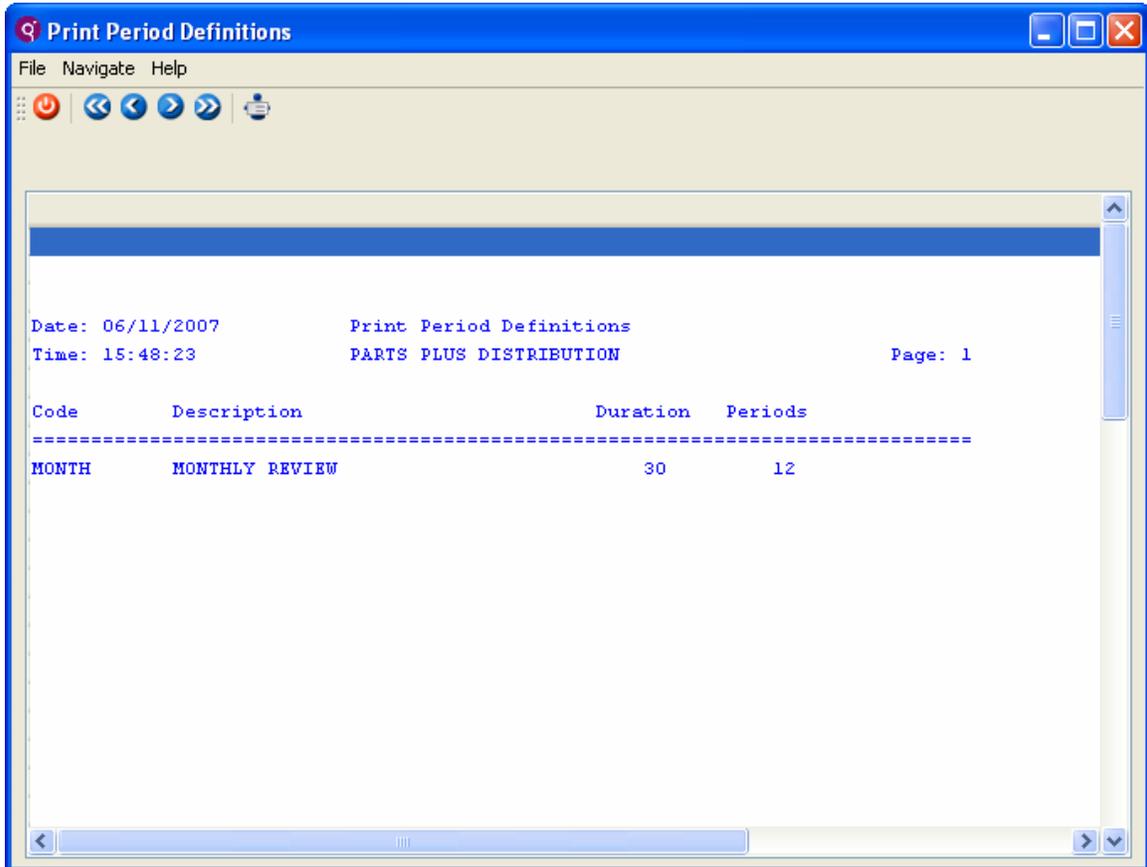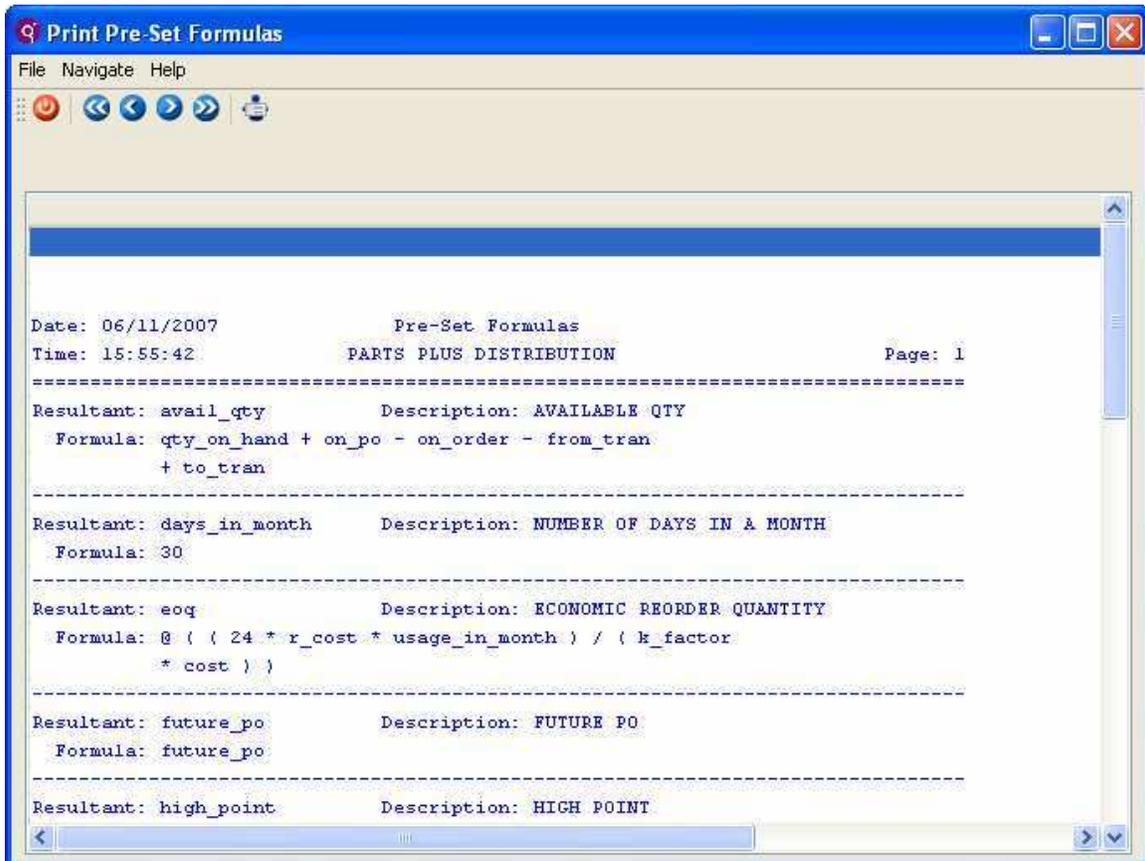
Print Lookup Definitions

Menu Patch: RL-1-d-d
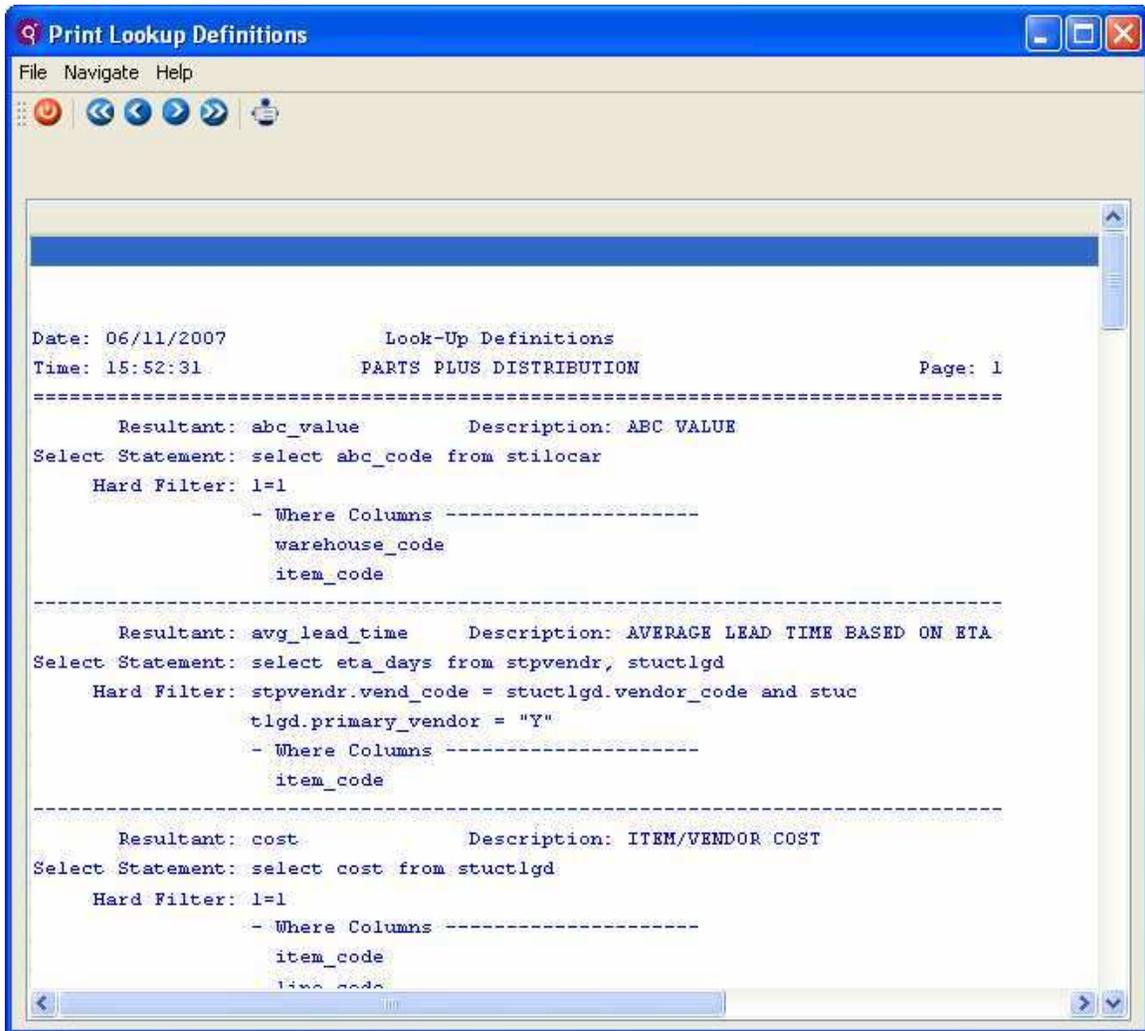
Print Preset Formulas

Menu Path: RL-1-d-e

Print Calculations

Menu Path: Rl-1-d-f

Print Script Definitions

Menu Path: RL-1-e-b

```
Print Script Definitions                                          [_][□][X]
File  Navigate  Help

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Date: 06/11/2007              Print Script Definitions
Time: 16:13:05                PARTS PLUS DISTRIBUTION                    Page: 1
===============================================================================
  Script Code: ATLANT - ATLANTA WAREHOUSE
       Period: MONTH          Replenishment: SOQ
 Product Line: SCM                  Warehouse: ATLANTA
Starting Date: 01/01/2007         Ending Date: 12/31/2016
               Usage Tracking - Calculations - Buy Recommendations
         Skip -  N               N                   N
   Days Delay -                  0
 Last Activity - 05/17/2007      05/17/2007          05/17/2007
 Next Trx Date - 06/16/2007      06/16/2007          06/16/2007
-------------------------------------------------------------------------------
  Script Code: SEATTL - SEATTLE WAREHOUSE
       Period: MONTH          Replenishment: SOQ
 Product Line: SCM                  Warehouse: SEATTLE
Starting Date: 01/01/2007         Ending Date: 12/31/2016
               Usage Tracking - Calculations - Buy Recommendations
         Skip -  N               N                   N
   Days Delay -                  0
 Last Activity - 05/17/2007      05/17/2007          05/17/2007
 Next Trx Date - 06/16/2007      06/16/2007          06/16/2007
```

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 greater than or less than the average usage for the past six months will print.

Select

File

Period Avg. To Use: 6

% Variance: 15.00

OK   Cancel

Enter percentage variance.   OVR

Print Usage Summary

File   Navigate   Help

```
Date: 06/11/2007              Usage Summary Report
Time: 16:26:48              PARTS PLUS DISTRIBUTION                        Page: 1
================================================================================
Script Code: ATLANT     Last Activity: 06/01/2007   Next Activity: 07/01/2007
     Period: MONTH       Replenishment: SOQ              Line Code: SCM
 Buyer Code:
================================================================================
  Warehouse: ATLANTA                              Item: 12104
- Per No - Start ---- End ------- Activities -------- Usage ----- Override ----
      1   05/03/2007  06/01/2007     6325.00         6325.00        6325.00
      2   04/03/2007  05/02/2007     5500.00         5500.00        5500.00
      3   03/04/2007  04/02/2007      590.00          590.00         590.00
      4   02/02/2007  03/03/2007      500.00          500.00         500.00
      5   01/03/2007  02/01/2007      696.20          696.20         696.00
--------------------------------------------------------------------------------
  Warehouse: ATLANTA                              Item: 12112
- Per No - Start ---- End ------- Activities -------- Usage ----- Override ----
      1   05/03/2007  06/01/2007     5175.00         5175.00        5175.00
      2   04/03/2007  05/02/2007     4500.00         4500.00        4500.00
```

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Print Replenishment Data

Menu Path: RL-3-c

Print Expedite Report

Menu Path: RL-4-a

Print Recommendations

Menu Path: RL-5-c

Print Recommendations window:

```
Date: 06/11/2007              Buy Recommendations
Time: 16:37:33              PARTS PLUS DISTRIBUTION                    Page: 1
==================================================================================
Minimum:     25000.00   Stock:     16791.06   Whse: SEATTLE      Script: SEATTL
 Target:    500000.00   Nonstk:        0.00   Line: SCM          Period: MONTH
Current:     16791.06   Volume:       0.000   Buyr:                Cycle:    1.00
 PO No.: 133             Weight:     549.897                   Next Rvw: 07/01/2007
Vendor: SCM  - SMITH-CORONA CORP.
----------------------------------------------------------------------------------
 Item: 12104                      Recommended:   1531.000 Adj. Qty:_____
       SCM A SERIES MULSTRIKE            Price:      5.570          8527.67
                                        Volume:      0.000          0.000
Type: S      ABC: 1                      Weight:     0.250          382.750
  UM: EA    Disc:      ROP:   2838.75  Available:  1520.000
  LT:    90       Usage:    630.000  Future PO:
----------------------------------------------------------------------------------
 Item: 12112                      Recommended:   1781.000 Adj. Qty:_____
       SCM A SERIES CVR-UP TAPE          Price:      2.390          4256.59
                                        Volume:      0.000          0.000
Type: S      ABC:                        Weight:     0.031          55.211
  UM: EA    Disc:      ROP:   1642.50  Available:   108.000
  LT:    90       Usage:    365.000  Future PO:
```

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.

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.
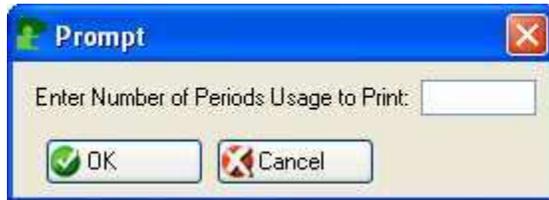
In the example below, the report shows that 31 of item code 12104 should be transferred from the Atlanta warehouse to the Seattle warehouse.

The total allocation formula is:

Revised QOH/Total Usage

The reallocate quantity formula for each warehouse is:

(Total reallocate quantity * warehouse usage)- revise quantity on hand in the warehouse.

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 *Business* 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.