PeopleSoft®

EnterpriseOne B73.3.1 Forecasting PeopleBook

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Forecasting Overview

Forecasting Overview

Effective management of distribution and manufacturing activities begins with understanding and anticipating the needs of the market. Forecasting is the process of projecting past sales demand into the future. Implementing a forecasting system allows you to quickly assess current market trends and sales so that you can make informed decisions about your operations.

You can use forecasts to make planning decisions about:

- Customer orders
- Inventory
- Delivery of goods
- Work load
- Capacity requirements
    - Warehouse space
    - Labor
    - Equipment
- Budgets
- Development of new products
- Workforce requirements

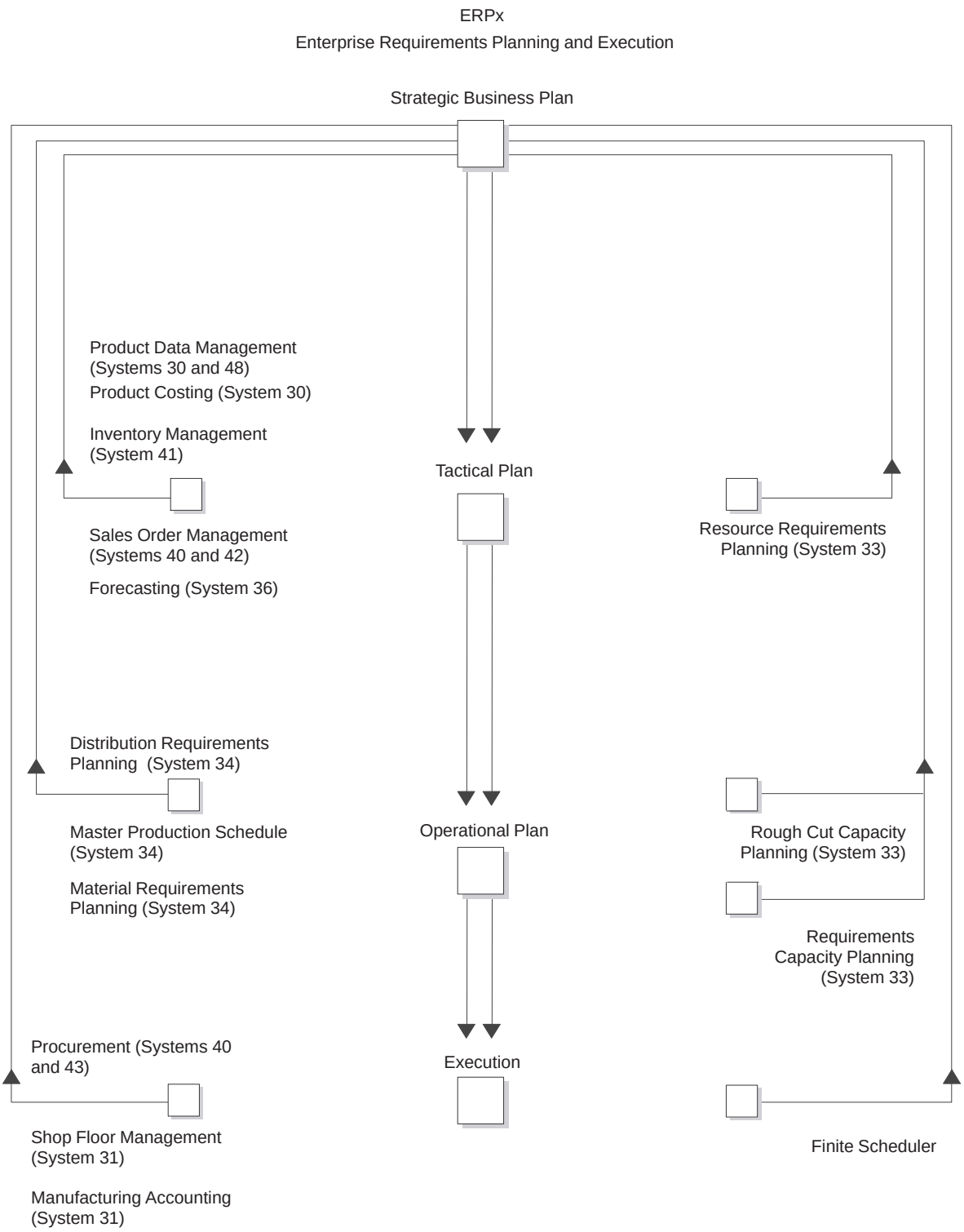
The Forecasting system generates the following types of forecasts:

Detail forecasts	Detail forecasts are based on individual items.
Summary forecasts	Summary (or aggregated) forecasts are based on larger product groups, such as a product line.
Planning bill forecasts	Planning bill forecasts are based on groups of items in a bill of material format that reflect how an item is sold, not how it is built.

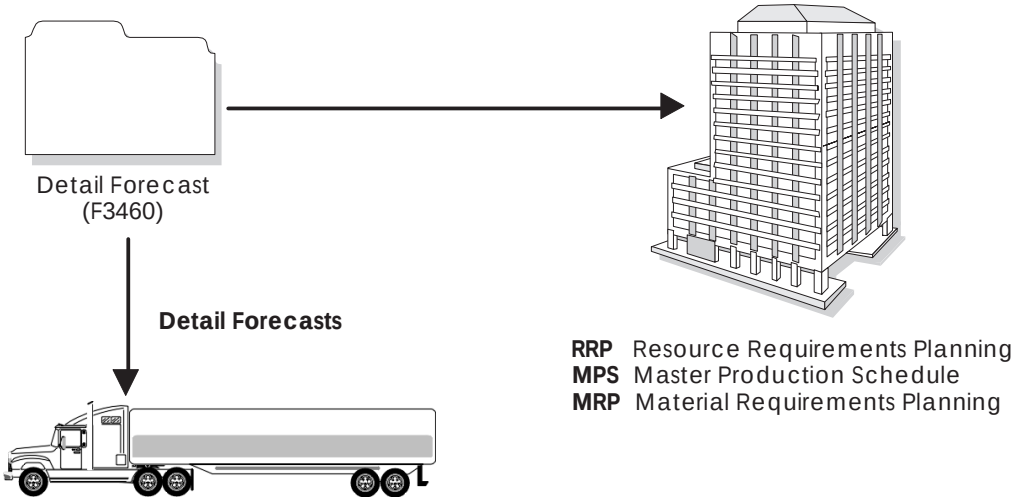
System Integration

The Forecasting system is one of many systems that make up the Enterprise Requirements Planning and Execution (ERPx) system. Use the ERPx system to coordinate your inventory, raw material, and labor resources to deliver products according to a managed schedule. ERPx is fully integrated and ensures that information is current and accurate across your business operations. It is a closed-loop manufacturing system that formalizes the activities of company and operations planning, as well as the execution of those plans.

The following graphic shows the systems that make up the J.D. Edwards ERPx product group.



The Forecasting system generates demand projections that you use as input for the J.D. Edwards planning and scheduling systems. The planning and scheduling systems calculate material requirements for all component levels, from raw materials to complex subassemblies.



The Resource Requirements Planning (RRP) system uses forecasts to estimate the time and resources needed to make a product.

The Master Production Schedule (MPS) system plans and schedules the products your company expects to manufacture. Forecasts are one MPS input that helps determine demand before you complete your production plans.

Material Requirements Planning (MRP) is an ordering and scheduling system that explodes the requirements of all MPS parent items to the component levels. You can also use forecasts as input for lower-level MRP components that are service parts with independent demand, which is demand not directly or exclusively tied to production of a particular product at a particular branch or plant.

Distribution Requirements Planning (DRP) is a management system that plans and controls the distribution of finished goods. You can use forecasts as input for DRP so you can more accurately plan the demand that you supply through distribution.

Features

You can use the Forecasting system to:

- Generate forecasts
- Enter forecasts manually
- Maintain both manually entered forecasts and forecasts generated by the system
- Create unique forecasts by large customer
- Summarize the sales order history data in weekly or monthly time periods
- Generate forecasts based on any or all of 12 different formulas that address a variety of forecast situations you might encounter
- Calculate which of the 12 formulas provides the best fit forecast
- Define the hierarchy that the system uses to summarize sales order histories and detail forecasts
- Create multiple hierarchies of address book category codes and item category codes, which you can use to sort and view records in the detail forecast table
- Review and adjust both forecasts and sales order actuals at any level of the hierarchy
- Integrate the detail forecast records into DRP, MPS, and MRP generations
- Force changes made at any component level to both higher levels and lower levels
- Set a bypass flag to prevent changes generated by the force program being made to a level
- Store and display both original and adjusted quantities and amounts
- Attach descriptive text to a forecast at the detail and summary levels

Flexibility is a key feature of the J.D. Edwards Forecasting system. The most accurate forecasts take into account quantitative information, such as sales trends and past sales order history, as well as qualitative information, such as changes in trade laws, competition, and government. The system processes quantitative information and allows you to adjust it with qualitative information. When you aggregate, or summarize, forecasts, the system uses changes that you make at any level of the forecast to automatically update all other levels.

You can perform simulations based on the initial forecast to compare different situations. After you accept a forecast, the system updates your manufacturing and distribution plan with any changes you have made.

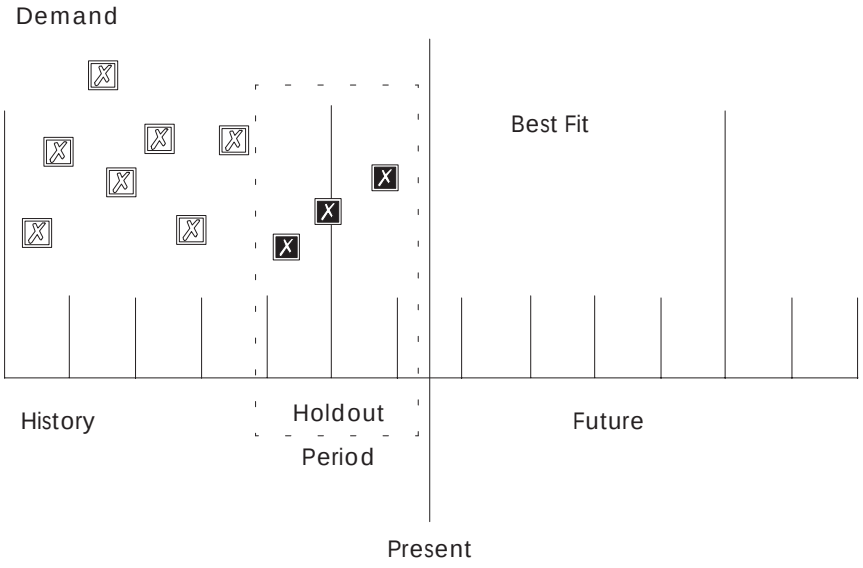
The system writes zero or negative detail records. For example, if the quantities or amounts in Extract Sales Order History, Detail Forecast Generation, or Enter/Change Actuals are zero or negative, the system creates zero or negative records in the Forecast table (F3460).

Forecasting Levels and Methods

You can generate both detail forecasts (single-item) and summary (product line) forecasts that reflect product demand patterns. The system analyzes past sales to calculate forecasts using 12 forecasting methods. The forecasts include detail information at the item level and higher-level information about a branch or the company as a whole.

Best Fit

The system recommends the best fit forecast by applying the selected forecasting methods to past sales order history and comparing the forecast simulation to the actual history. When you generate a best fit forecast, the system compares actual sales order histories to forecasts for a specific time period and computes how accurately each different forecasting method would have predicted sales. Then, the system recommends the most accurate forecast as the best fit.



The system uses the following sequence of steps to determine the best fit:

1. Use each specified method to simulate a forecast for the holdout period.
2. Compare actual sales to the simulated forecasts for the holdout period.
3. Calculate the percentage of accuracy or the Mean Absolute Deviation (MAD) to determine which forecasting method most closely matched the past actual sales. The system uses either the percentage of accuracy or the MAD based on the processing options that you select.
4. Recommend a best fit forecast by the percentage of accuracy that is closest to 100% (over or under) or the MAD closest to zero.

MAD is the mean of the absolute values of the deviations between actual and forecast data. It is a measure of the average magnitude of errors to expect, given a forecasting method and data history.

Forecasting Methods

The Forecasting system uses 12 methods for quantitative forecasting and indicates which method provides the best fit for your forecasting situation. Specify the method you want the system to use in the processing options for the Create Detail Forecast program (P34650).

Method 1 – **Percent Over Last Year**	This method uses the Percent Over Last Year formula to multiply each forecast period by the specified percentage increase or decrease. This method requires the number of periods for the best fit plus one year of sales history to forecast demand. This method is useful to forecast demand for seasonal items with growth or decline.
Method 2 – **Calculated Percent Over Last Year**	This method uses the Calculated Percent Over Last Year formula to compare the past sales of periods specified of sales from the same periods of the previous year. The system determines a percentage increase or decrease, then multiplies each period by the percentage to determine the forecast. This method requires the number of periods of sales order history plus one year of sales history to forecast demand. This method is useful to forecast short-term demand for seasonal items with growth or decline.

Method 3 –

Last Year to This Year

This method uses last year's sales for the following year's forecast.

This method requires the number of periods best fit plus one year of sales order history to forecast demand. This method is useful to forecast demand for mature products with level demand or seasonal demand without a trend.

Method 4 –

Moving Average

This method uses the Moving Average formula to average the specified number of periods to project the next period. You should recalculate it often (monthly or at least quarterly) to reflect changing demand level.

This method requires the number of periods best fit plus the number of periods of sales order history to forecast demand. This method is useful to forecast demand for mature products without a trend.

Method 5 –

Linear Approximation

This method uses the Linear Approximation formula to compute a trend from the number of periods of sales order history and project this trend to the forecast. You should recalculate the trend monthly to detect changes in trends.

This method requires the number periods best fit plus the number of specified number of periods of sales order history. This method is useful to forecast demand for new products or products with consistent positive or negative trends that are not due to seasonal fluctuations.

Method 6 –

Least Square Regression (LSR)

This method derives an equation describing a straight-line relationship between the historical sales data and the passage of time. LSR fits a line to the selected range of data such that the sum of the squares of the differences between the actual sales data points and the regression line are minimized. The forecast is a projection of this straight line into the future.

This method requires sales data history for the period represented by the number of periods best fit plus the specified number of historical data periods. The minimum requirement is two historical data points. This method is useful to forecast demand when there is a linear trend in the data.

Method 7 –

Second Degree Approximation

This method uses the Second Degree Approximation formula to plot a curve based on the number of periods of sales history to project the forecast.

This method requires the number periods best fit plus the number of periods of sales order history times three. This method is not useful to forecast demand for long term.

Method 8 –

Flexible Method (Percent Over n Months Prior)

This method allows you to select the number of periods best fit block of sales order history starting *n* months prior and apply a percentage increase or decrease with which to modify it. This method is similar to Method 1, Percent Over Last Year, except that you can specify the number of periods that you use as the base.

Depending on what you select as *n*, this method requires periods best fit plus the number of periods of sales data indicated. This method is useful to forecast demand for a planned trend.

Method 9 –

Weighted Moving Average

The Weighted Moving Average formula is similar to Method 4, Moving Average formula, because it averages the previous month's sales history indicated to project the next month's sales history. However, with this formula you can assign weights for each of the prior periods.

This method requires the number of weighted periods selected plus periods best fit data. Similar to Moving Average, this method lags demand trends, so it is not recommended for products with strong trends or seasonality. This method is useful to forecast demand for mature products with demand that is relatively level.

Method 10 –

Linear Smoothing

This method calculates a weighted average of past sales data. In the calculation, this method uses the number of periods of sales order history (from 1 to 12) indicated in the processing option. The system uses a mathematical progression to weigh data in the range from the first (least weight) to the final (most weight). Then, the system projects this information to each period in the forecast.

This method requires the month's best fit plus the sales order history for the number of periods specified in the processing option.

Method 11 –

Exponential Smoothing

This method calculates a smoothed average, which becomes an estimate representing the general level of sales over the selected historical data periods.

This method requires sales data history for the time period represented by the number of periods best fit plus the number of historical data periods specified. The minimum requirement is two historical data periods. This method is useful to forecast demand when there is no linear trend in the data.

Method 12 –

Exponential Smoothing with Trend and Seasonality

This method calculates a trend, a seasonal index, and an exponentially smoothed average from the sales order history. The system then applies a projection of the trend to the forecast and adjusts for the seasonal index.

This method requires the number of periods best fit plus two years of sales data, and is useful for items that have both trend and seasonality in the forecast. You can enter the alpha and beta factor or have the system calculate them. Alpha and beta factors are the smoothing constant the system uses to calculate the smoothed average for the general level or magnitude of sales (alpha) and the trend component of the forecast (beta).

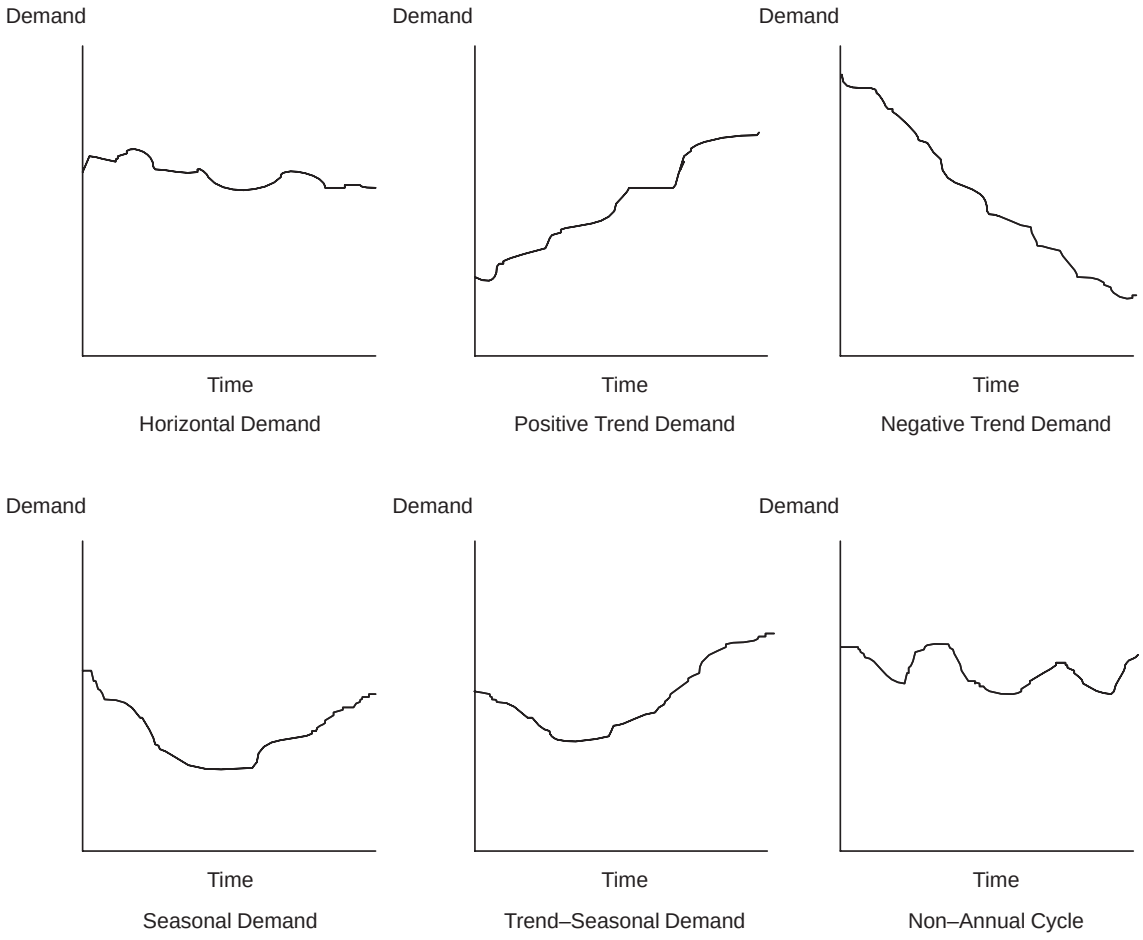
See Also

- *Appendix A: Forecast Calculation Methods* for more detail and samples of each method

Demand Patterns

The Forecasting system uses sales order history to predict future demand. Six typical examples of demand patterns follow. Forecast methods available in the J.D. Edwards Forecasting system are tailored for these demand patterns.

Six Typical Demand Patterns



You can forecast the independent demand of the following information for which you have past data:

- Samples
- Promotional items
- Customer orders
- Service parts
- Interplant demands

You can also forecast demand for the following manufacturing strategy types using the manufacturing environments in which they are produced:

Make-to-stock	The manufacture of end items that meet customers' demand occurring after the product is completed.
Assemble-to-order	The manufacture of subassemblies that meet customers' option selections.
Make-to-order	The manufacture of raw materials and components that are stocked in order to reduce leadtime.

Forecast Accuracy

The following statistical laws govern the accuracy of a forecast:

- A long-term forecast is less accurate than a short-term forecast because the further into the future you project the forecast, the more variables can impact the forecast.
- A forecast for a product family tends to be more accurate than a forecast for individual members of the product family. Some errors cancel each other as the forecasts for individual items summarize into the group, creating a more accurate forecast.

Forecast Considerations

You should not rely exclusively on past data to forecast future demands. The following circumstances might affect your business and require you to review and modify your forecast:

- New products that have no past data
- Plans for future sales promotion
- Changes in national and international politics
- New laws and government regulations
- Weather changes and natural disasters
- Innovations from competition
- Economic changes

You can also use the following kinds of long-term trend analysis to influence the design of your forecasts:

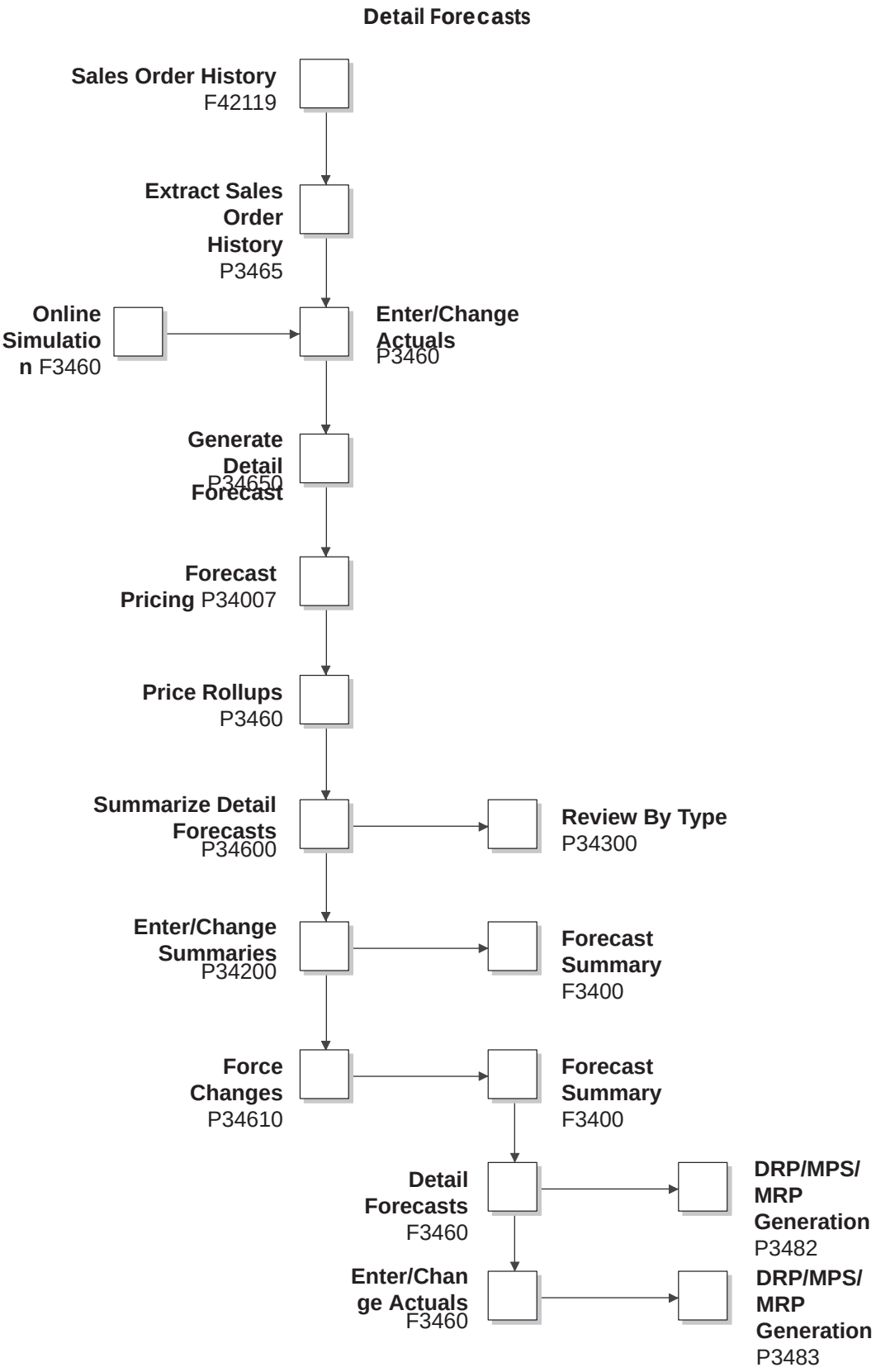
- Market surveys
- Leading economic indicators

Forecasting Process

You use Extract Sales Order History to copy data from the Sales Order History table (F42119), the Sales Order Detail table (F4211), or both, into either the Forecast table (F3460) or the Forecast Summary table (F3400), depending on the kind of forecast you plan to generate.

You can generate detail forecasts or summaries of detail forecasts based on data in the Forecast table. Data from your forecasts can then be revised.

The following graphic illustrates the sequences you follow when you use the detail forecasting programs.


Detail Forecasts
Sales Order History F42119
Extract Sales Order History P3465
Online Simulation F3460
Enter/Change Actuals P3460
Generate Detail Forecast P34650
Forecast Pricing P34007
Price Rollups P3460
Summarize Detail Forecasts P34600
Review By Type P34300
Enter/Change Summaries P34200
Forecast Summary F3400
Force Changes P34610
Forecast Summary F3400
Detail Forecasts F3460
DRP/MPS/ MRP Generation P3482
Enter/Change Actuals F3460
DRP/MPS/ MRP Generation P3483

Tables Used by Forecasting

Business Unit Master (F0006)	Identifies branch, plant, warehouse, or business unit information, such as company, description, and assigned category codes.
Address Book Master (F0101)	Stores all address information pertaining to customers, vendors, employees, prospects, and other information.
Forecast Summary (F3400)	Contains the summary forecasts generated by the system and the summarized sales order history created by the Extract Sales Order History program.
Forecast Summary Work (F34006)	Ties the summary records from the Forecast Summary table (F3400) to the detail records in the Forecast table (F3460).
Forecast Prices (F34007)	Stores price information for item, branch, customer, and forecast type combinations.
Forecast (F3460)	Contains the detail forecasts generated by the system and the sales order history created by the Extract Sales Actuals program.
Category Code Key Position (F4091)	Stores the summary constants that you have set up for each product hierarchy.
Item Master (F4101)	Stores basic information about each defined inventory item, such as item numbers, description, category codes, and units of measure.
Item Branch (F4102)	Defines and maintains warehouse or plant level information, such as costs, quantities, physical locations, and branch level category codes.
Sales Order Detail (F4211)	Provides sales order demand by the requested date. The system uses this table to update the Sales Order History table (F42119) for forecast calculations.
Sales Order History (F42119)	Contains past sales data, which provides the basis for the forecast calculations.

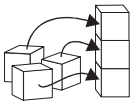
Menu Overview

Forecasting (G36)

Periodic Forecasting Operations (G3421)

Advanced and Technical Operations (G3630)

- Forecasting Interpretability (G36301)



Forecasting Setup (G3441)

Fast Path Commands

The following table illustrates the fast path commands that you can use to access the Forecasting menus. From any menu, enter the fast path command at the command line.

Fast Path Command	Menu	Title
FC	G3421	Periodic Forecasting Operations
PFOR	G3421	Periodic Forecasting Operations
SFOR	G3441	Forecasting Setup

Detail Forecasts

Detail Forecasts

Detail forecasts are based on individual items. Use detail forecasts to project demand at the single-item level according to each item's individual history.

Forecasts are based on sales data from the Sales Order History table (F42119) and the Sales Order Detail table (F4211). Before you generate forecasts, you use the Extract Sales Order History program to copy sales order history information from the Sales Order History table and the Sales Order Detail table into the Forecast table (F3460). This table also stores the generated forecasts.

Detail forecasts consists of the following tasks:

- Setting up detail forecasts
- Working with sales order history
- Working with detail forecasts

Setting Up Detail Forecasts

Before you generate a detail forecast, you set up criteria for the dates and kinds of data on which the forecasts will be based, and set up the time periods the system should use to structure the forecast output.

To set up detail forecasts, you must:

- Set up inclusion rules to specify the sales history records and current sales orders on which you want to base the forecast
- Specify beginning and ending dates for the forecast
- Indicate the date pattern on which you want to base the forecast
- Add any forecast types not already provided by the system

Setting up detail forecasts consists of the following tasks:

- ❑ Set up forecasting supply and demand inclusion rules
- ❑ Set up forecasting fiscal date patterns
- ❑ Set up the 52-period date pattern (optional)
- ❑ Set up forecast types
- ❑ Define large customers

Setting Up Forecasting Supply and Demand Inclusion Rules

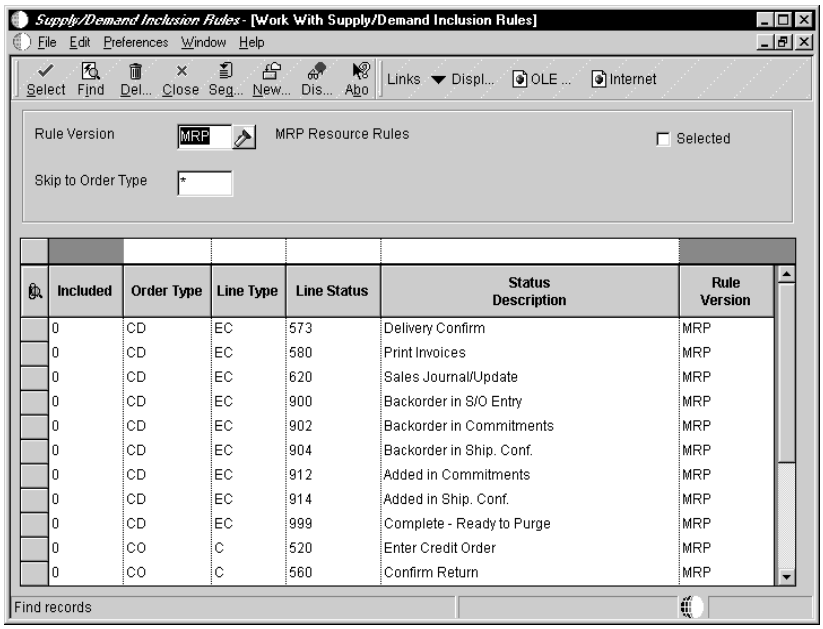
The Forecasting system uses supply and demand inclusion rules to determine which records from the Sales Order History table (F42119) and Sales Order Detail table (F4211) to include or exclude when you run the Extract Sales Order History program. Supply and demand inclusion rules allow you to specify the status and type of items and documents to include in the records. You can set up as many different inclusion rule versions as you need for forecasting.

To forecast by weeks, set up a 52-period calendar.

▶ To set up forecasting supply and demand inclusion rules

From the Material Planning Setup menu (G3442), choose Supply/Demand Inclusion Rules.

On Work With Supply/Demand Inclusion Rules



1. Complete the following field and click Find:
   - Rule Version
2. Review the following fields:
   - Included
   - Order Type
   - Line Type
   - Line Status

3. Choose the lines that you want to include and click Select.

   The program changes the Included value of each line you selected from 0 (not included) to 1 (included).

Field	Explanation
Rule Version	A user defined code (40/RV) that identifies an inclusion rule that you want the system to use for this branch/plant. The Manufacturing and Warehouse Management systems use inclusion rules as follows: • For Manufacturing: Allows multiple versions of resource rules for running MPS, MRP, or DRP. • For Warehouse Management: Allows multiple versions of inclusion rules for running putaway and picking. The system processes only those order lines that match the inclusion rule for a specified branch/plant. If you leave this field blank, the system does not update the capacity plan when you create a work order or change the status of a work order.
Included	A code used to prompt detail selection from a list of items. 0 Not included 1 Included
Order Type	A user defined code (00/DT) that identifies the type of document. This code also indicates the origin of the transaction. J.D. Edwards has reserved document type codes for vouchers, invoices, receipts, and time sheets, which create automatic offset entries during the post program. (These entries are not self-balancing when you originally enter them.) The following document types are defined by J.D. Edwards and should not be changed: P Accounts Payable documents R Accounts Receivable documents T Payroll documents I Inventory documents O Purchase Order Processing documents J General Accounting/Joint Interest Billing documents S Sales Order Processing documents

Field	Explanation
Line Type	A code that controls how the system processes lines on a transaction. It controls the systems with which the transaction interfaces (General Ledger, Job Cost, Accounts Payable, Accounts Receivable, and Inventory Management). It also specifies the conditions under which a line prints on reports and is included in calculations. Codes include the following: S Stock item J Job cost N Nonstock item F Freight T Text information M Miscellaneous charges and credits W Work order
Line Status	A user defined code (system 40/type AT) that indicates the status of the line.

See Also

- *Setting Up Supply and Demand Inclusion Rules* in the *Manufacturing and Distribution Planning Guide*

Setting Up Forecasting Fiscal Date Patterns

Fiscal date patterns are user defined codes (H00/DP) that identify the year and the order of the months of that year for which the system uses to create the forecast. The Forecasting system uses fiscal date patterns to determine the time periods into which the sales order history is grouped. Before you can generate a detail forecast, you must set up a standard monthly date pattern. The system divides the sales history into weeks or months, depending on the processing option you choose. If you want to forecast by months, you must set up the fiscal date pattern. If you want to forecast by weeks, you must set up both the fiscal date pattern and a 52-period date pattern.

To set up fiscal date patterns, specify the beginning fiscal year, current fiscal period, and which date pattern to follow. The Forecasting system uses this information during data entry, updating, and reporting. Set up fiscal date patterns for as far back as your sales history extends, and as far forward as you want to forecast.

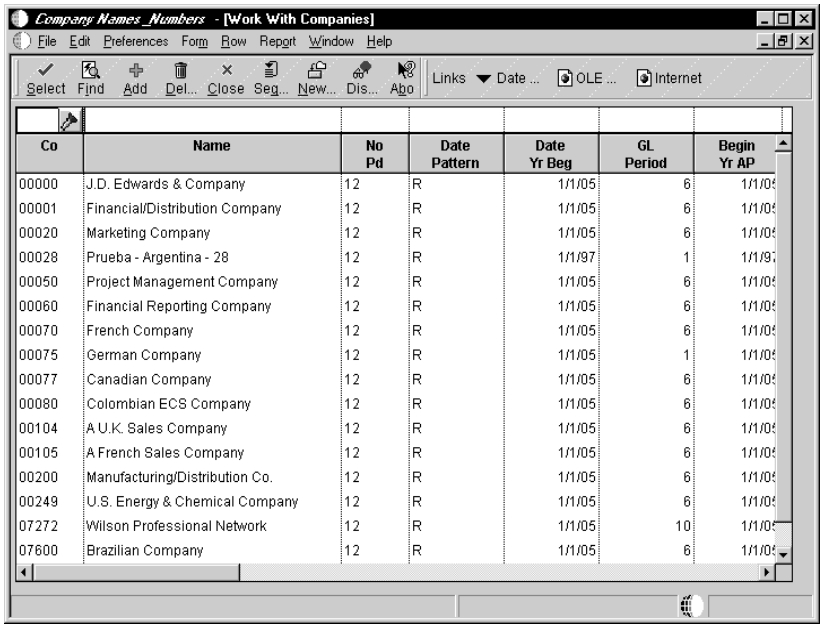
Use the same fiscal date pattern for all forecasted items. A mix of date patterns across items that will be summarized at higher levels in the hierarchy causes unpredictable results. The fiscal date pattern must be an annual calendar, for example, from January 1 1999 through December 31 1999 or from June 1 1999 through May 31 2000.

J.D. Edwards recommends you set up a separate fiscal date pattern for forecasting only, so you can control the date pattern. If you use the date pattern already established in the Financials system, the financial officer controls the date pattern.

To set up forecasting fiscal date patterns

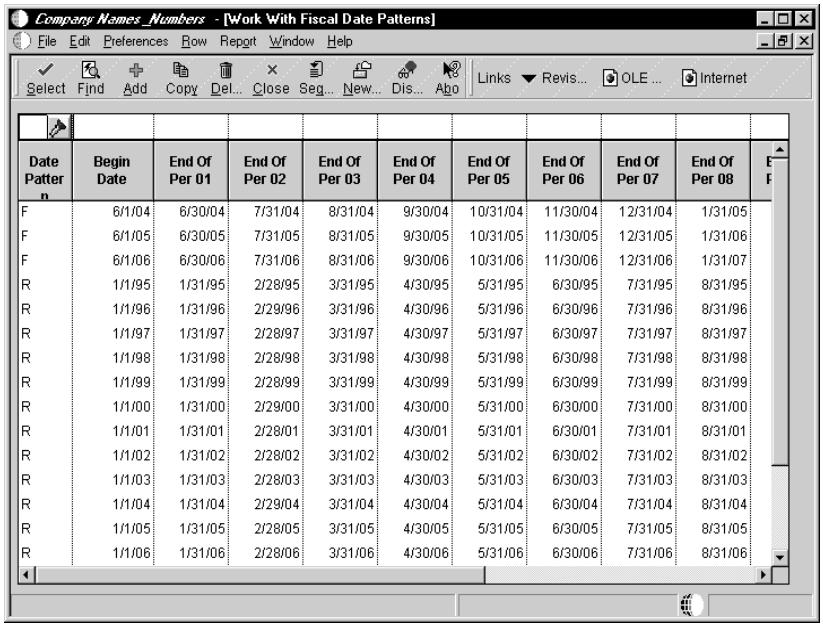
From the Organization & Account Setup menu (G09411), choose Company Names & Numbers.

On Work With Companies



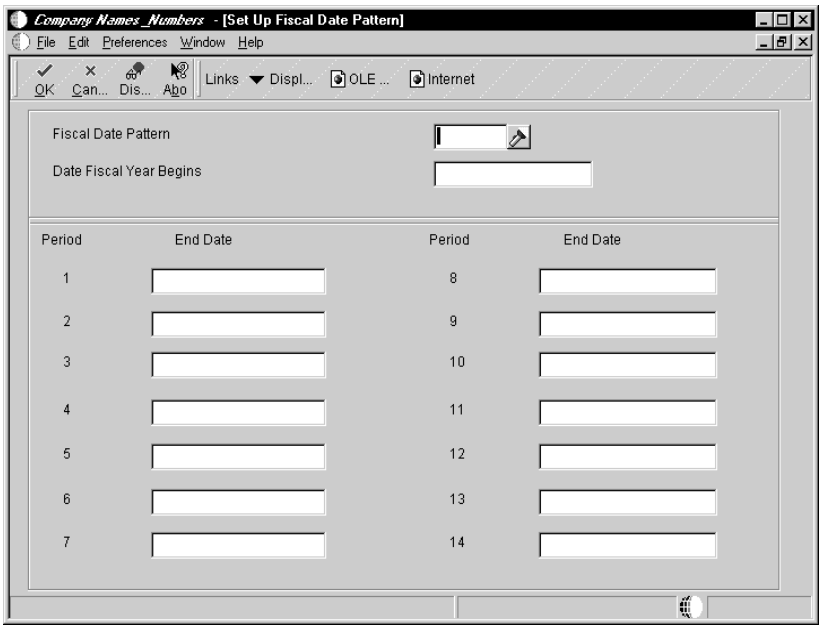
Co	Name	No Pd	Date Pattern	Date Yr Beg	GL Period	Begin Yr AP
00000	J.D. Edwards & Company	12	R	1/1/05	6	1/1/05
00001	Financial/Distribution Company	12	R	1/1/05	6	1/1/05
00020	Marketing Company	12	R	1/1/05	6	1/1/05
00028	Prueba - Argentina - 28	12	R	1/1/97	1	1/1/97
00050	Project Management Company	12	R	1/1/05	6	1/1/05
00060	Financial Reporting Company	12	R	1/1/05	6	1/1/05
00070	French Company	12	R	1/1/05	6	1/1/05
00075	German Company	12	R	1/1/05	1	1/1/05
00077	Canadian Company	12	R	1/1/05	6	1/1/05
00080	Colombian ECS Company	12	R	1/1/05	6	1/1/05
00104	A U.K. Sales Company	12	R	1/1/05	6	1/1/05
00105	A French Sales Company	12	R	1/1/05	6	1/1/05
00200	Manufacturing/Distribution Co.	12	R	1/1/05	6	1/1/05
00249	U.S. Energy & Chemical Company	12	R	1/1/05	6	1/1/05
07272	Wilson Professional Network	12	R	1/1/05	10	1/1/05
07600	Brazilian Company	12	R	1/1/05	6	1/1/05

1. To locate the companies in the system, click Find.
2. Choose a company, and then choose Data Pattern from the Form menu.



Date Pattern	Begin Date	End Of Per 01	End Of Per 02	End Of Per 03	End Of Per 04	End Of Per 05	End Of Per 06	End Of Per 07	End Of Per 08
F	6/1/04	6/30/04	7/31/04	8/31/04	9/30/04	10/31/04	11/30/04	12/31/04	1/31/05
F	6/1/05	6/30/05	7/31/05	8/31/05	9/30/05	10/31/05	11/30/05	12/31/05	1/31/06
F	6/1/06	6/30/06	7/31/06	8/31/06	9/30/06	10/31/06	11/30/06	12/31/06	1/31/07
R	1/1/95	1/31/95	2/28/95	3/31/95	4/30/95	5/31/95	6/30/95	7/31/95	8/31/95
R	1/1/96	1/31/96	2/29/96	3/31/96	4/30/96	5/31/96	6/30/96	7/31/96	8/31/96
R	1/1/97	1/31/97	2/28/97	3/31/97	4/30/97	5/31/97	6/30/97	7/31/97	8/31/97
R	1/1/98	1/31/98	2/28/98	3/31/98	4/30/98	5/31/98	6/30/98	7/31/98	8/31/98
R	1/1/99	1/31/99	2/28/99	3/31/99	4/30/99	5/31/99	6/30/99	7/31/99	8/31/99
R	1/1/00	1/31/00	2/29/00	3/31/00	4/30/00	5/31/00	6/30/00	7/31/00	8/31/00
R	1/1/01	1/31/01	2/28/01	3/31/01	4/30/01	5/31/01	6/30/01	7/31/01	8/31/01
R	1/1/02	1/31/02	2/28/02	3/31/02	4/30/02	5/31/02	6/30/02	7/31/02	8/31/02
R	1/1/03	1/31/03	2/28/03	3/31/03	4/30/03	5/31/03	6/30/03	7/31/03	8/31/03
R	1/1/04	1/31/04	2/29/04	3/31/04	4/30/04	5/31/04	6/30/04	7/31/04	8/31/04
R	1/1/05	1/31/05	2/28/05	3/31/05	4/30/05	5/31/05	6/30/05	7/31/05	8/31/05
R	1/1/06	1/31/06	2/28/06	3/31/06	4/30/06	5/31/06	6/30/06	7/31/06	8/31/06

3. On Work With Fiscal Date Patterns, click Add.



4. On Set Up Fiscal Date Pattern, complete the following fields:
   - Fiscal Date Pattern
   - Date Fiscal Year Begins
5. Complete the following field for each period and click OK:
   - End Date

Field	Explanation
Fiscal Date Pattern	A code that identifies date patterns. You can use one of 15 codes. You must set up special codes (letters A through N) for 4-4-5, 13 period accounting, or any other date pattern unique to your environment. An R, the default, identifies a regular calendar pattern.
Date Fiscal Year Begins	The first day of the fiscal year.
End Date 1	The month end date in 12-period (monthly) accounting. The period end date in 13-period, or 4-4-5 period, or 52 period accounting. . . . . . *Form-specific information* . . . . . . You can use period 13 for audit adjustments in 12-period accounting by setting up period 12 to end on December 30 and period 13 to end on December 31. You can set up period 14 in the same way for 13 period or 4-4-5 accounting. The system validates the dates you enter.

See Also

- *Setting Up Fiscal Date Patterns* in the *General Accounting Guide*

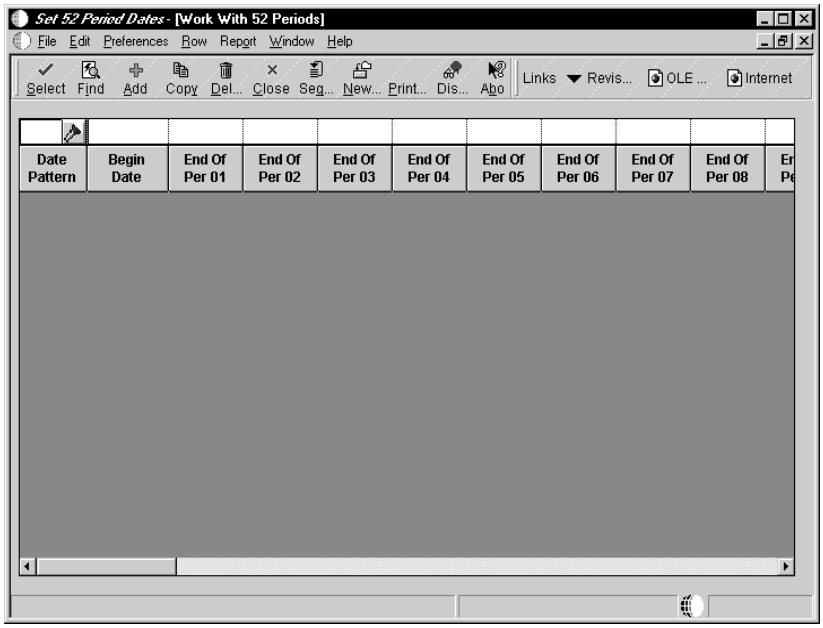
Setting Up the 52-Period Date Pattern

After you set up forecasting fiscal date patterns, you must set up a 52-period pattern for each code to forecast by weeks. When you set up a 52-period date pattern for a forecast, the period-ending dates are weekly instead of monthly.

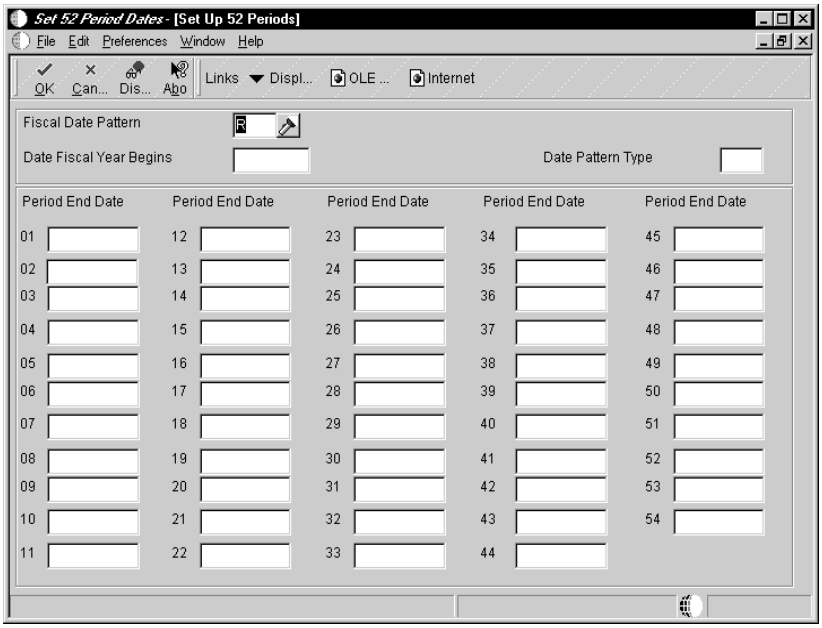
▶ To set up the 52-period date pattern

On the 52-Period Accounting menu (G09313), choose Set 52 Period Dates.

On Work With 52 Periods



1. Click Add.



2. On Set Up 52 Periods, complete the following fields:
   - Fiscal Date Pattern
   - Date Fiscal Year Begins
   - Date Pattern Type
3. Complete the following field for each period and click OK:
   - Period End Date

Field	Explanation
Date Pattern Type	This field is used by a report tool to determine the column headings that print on reports. It differentiates normal calendar patterns from 4-4-5 and 13 period accounting patterns. You can maintain headings for non-standard patterns in vocabulary override records R83360Mx, where x represents the value for this field. • For World, the report tool is Financial Analysis Spreadsheet Tool and Report Writer (FASTR). • For OneWorld, the report tool is Financial Report Writer.

Setting Up Forecast Types

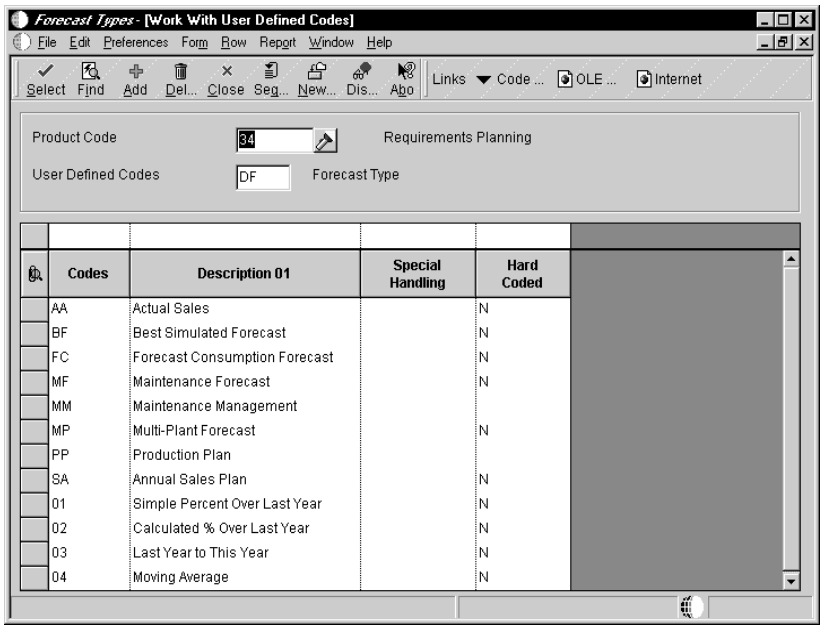
You can add codes to the user defined code table (34/DF) to identify forecast types, such as BF for Best Fit and AA for sales order history. The Forecasting system uses these codes to determine which forecasting types to use when calculating a forecast. For example, using different forecast types, you can set up multiple forecasts for the same item, branch/plant, and date.

Processing options in DRP, MPS, and MRP allow you to enter forecast type codes to define which forecasting types to use in calculations. You can also use forecast type codes when you generate forecasts manually.

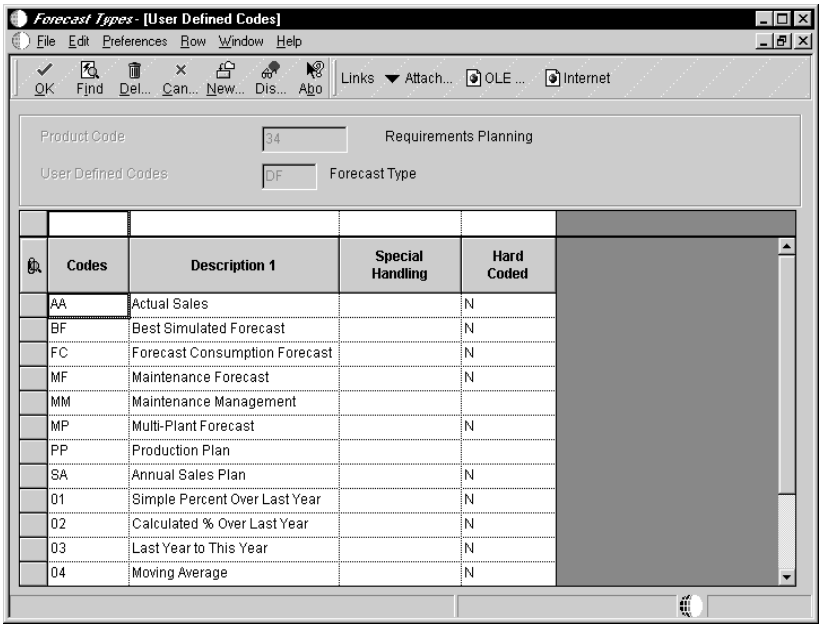
▶ To set up forecast types

From the Forecasting Setup menu (G3441), choose Forecast Types.

On Work With User Defined Codes



1. Click Add.



2. On User Defined Codes, complete the following fields:
   - Codes
   - Description 1
3. Complete the following fields and click OK:
   - Special Handling
   - Hard Coded

Field	Explanation
Codes	A list of valid codes for a specific user defined code list.
Description 1	A user defined name or remark.
Hard Coded	A code that indicates whether a user defined code is hard coded. Valid values are: Y The user defined code is hard-coded N The user defined code is not hard-coded For OneWorld, a check indicates that the user defined code is hard-coded.

Field	Explanation
Special Handling	A code that indicates special processing requirements for certain user defined code values. The particular value you enter in this field is unique for each user defined code record type. The system uses the special handling code in many ways. For example, special handling codes defined for Language Preference specify if the language is double-byte or if the language does not have uppercase characters. Programming is required to activate this field.

Defining Large Customers

For your customers with significant sales demand or your more active customers, you can create separate forecasts and actual history records. Use this task to specify a customer as being large so that you can generate forecasts and actual history records for only those customers.

After you have set up the customer, set the appropriate processing option so that the system searches the sales history table for sales to that customer and creates separate Detail Forecast records for them.

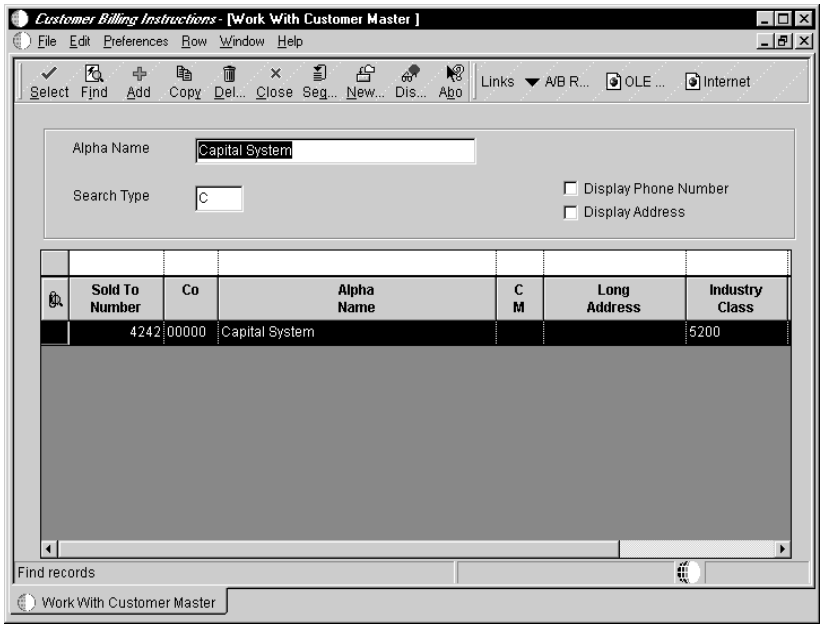
Use a processing option to enable the system to process larger customers by Ship To instead of Sold To.

If you have included customer level in the hierarchy, the system summarizes the sales actuals with customers into separate branches of the hierarchy.

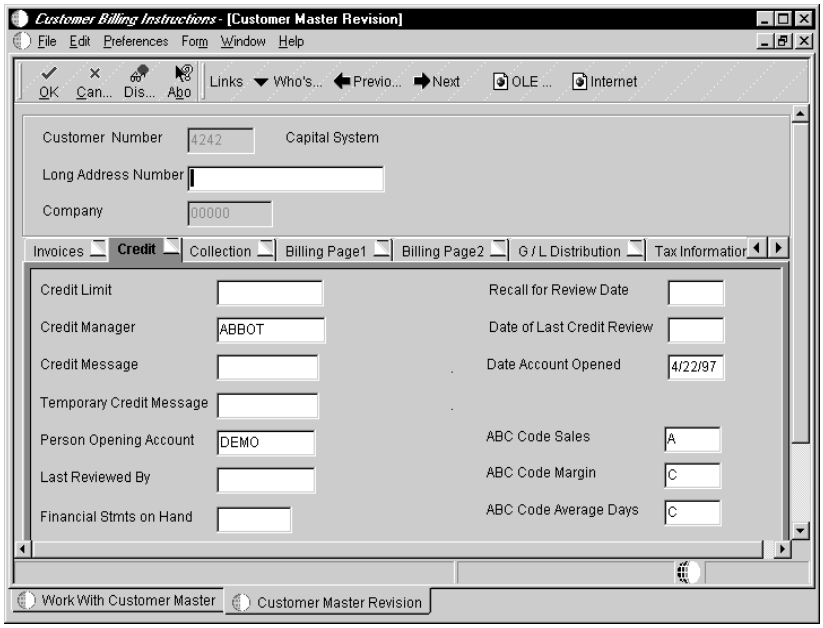
To define large customers

From the Sales Order Management Setup menu (G4241), choose Customer Billing Instructions.

On Work With Customer Master



1. Complete the following fields and click Find:
   - Alpha Name
   - Search Type
2. Choose the row you want to define as a large customer and click Select.



3. On Customer Master Revision, click the Credit tab, type A in the following field, and then click OK:

   - ABC Code Sales

Working with Sales Order History

The system generates detail forecasts based on sales history data, current sales data, or both, that you copy from the Sales Order History table (F42119) and the Sales Order Detail table (F4211) into the Forecast table (F3460). If you want the forecast to include current sales data, you must specify so in a processing option for the extraction program. When you copy the sales history, you specify a date range based on the request date of the sales order. The demand history data can be distorted, however, by unusually large or small values (spikes or outliers), data entry errors, or lost sales (sales orders that were cancelled due to lack of inventory).

You should review the data in the date range you specified to identify missing or inaccurate information. Then, you can revise the sales order history to account for inconsistencies and distortions before you generate the forecast.

Working with sales order history consists of the following tasks:

- Copying sales order history
- Revising sales order history

Copying Sales Order History

From the Periodic Forecasting Operations menu (G3421), choose Extract Sales Actuals.

The system generates detail and summary forecasts based on data in the Forecast table, Forecast Summary table, or both. Use Extract Sales Order History to copy the sales order history (type AA) from the Sales Order History table to the Forecast table, Forecast Summary table, or both, based upon criteria that you specify.

This program lets you:

- Select a date range for the sales order history, current sales order information, or both
- Select a version of the inclusion rules to determine which sales history to include
- Generate monthly or weekly sales order histories
- Generate a separate sales order history for a large customer
- Generate summaries
- Generate records with amounts, quantities, or both

You do not need to clear the Forecast table before you run this program. The system automatically deletes any records that are for the same:

- Period as the actual sales order histories to be generated
- Items
- Sales order history type
- Branch/plant

Before You Begin

❑ Set up the detail forecast generation program. See *Setting Up Detail Forecasts.*

❑ Update sales order history. See *Updating Customer Sales* in the *Sales Order Management Guide*.

Processing Options: Extract Sales Order History

Process Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify how the system performs the following edits when generating sales history:

- Use the default forecast type
- Use the version of the Supply and Demand Inclusion Rules program (P34004)
- Use weekly or monthly planning
- Create summary records
- Use Ship To address
- Use quantities and amounts
- Include sales order detail

1. Forecast Type

Use this processing option to specify the forecast type that the system uses when creating the forecast actuals. Forecast type is a user defined code (34/DF) that identifies the type of forecast to process. Enter the forecast type to use as the default value or choose it from the Select User Define Code form. If you leave this field blank, the system creates actuals from AA forecast types.

2. Supply/Demand Inclusion Rules

Use this processing option to specify the version of the Supply/Demand Inclusion Rules program (P34004) that the system uses when extracting sales actuals. You must enter a version in this field before you can run the Extract Sales Order History program (R3465).

Versions control how the Supply/Demand Inclusion Rules program displays information. Therefore, you might need to set the processing options to specific versions to meet your needs.

3. Actuals Consolidation

Use this processing option to specify whether the system uses weekly or monthly planning when creating actuals. Valid values are:

1 The system uses weekly planning.
Blank The system uses monthly planning.

4. Large Customers

Use this processing option to specify whether the system creates summary records for large customers when creating actuals. Valid values are:

1 The system creates summary records for large customers.
Blank The system does not create summary records.

5. Ship To or Sold To Address Book

Use this processing option to specify whether the system uses the Ship To address on which to base large customer summaries on, or the Sold To address, when creating actuals. Valid values are:

1 The system uses the Ship To address.
Blank The system uses the Sold To address.

6. Amount or Quantity

Use this processing option to specify whether the system creates detail forecasts with quantities, amounts, or both. Valid values are:

1 The system creates forecasts with only quantities.
2 The system creates forecasts with only amounts.
Blank The system creates forecasts with both quantities and amounts.

7. Active Sales Orders

Use this processing option to specify whether the system uses both the Sales Order Detail table (F4211) and the Sales Order History table (F42119) when creating actuals, or only the history table. Valid values are:

1 The system uses both tables.
Blank The system uses only the history table.

Dates Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify the fiscal date pattern that the system uses, and the beginning and ending dates of the records that the system includes in the processing.

1. Fiscal Date Pattern

Use this processing option to specify the fiscal date pattern that the system uses when creating actuals. Fiscal date pattern is a user defined code (H00/DP) that identifies the fiscal date pattern. Enter a pattern to use as the default value or choose it from the Select User Defined Code form.

2. Begin Extract Date

Use this processing option to specify the beginning date from which the system processes records. Enter the beginning date to use as the default value or choose it from the Calendar. If you leave this field blank, the system uses the system date.

3. End Extract Date

Use this processing option to specify the ending date that the system uses when creating actuals. Enter the ending date to use as the default value or choose it from the Calendar. Enter an ending date only if you want to include a specific time period.

Summary Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify how the system processes the following edits:

- Create summarized forecast records
- Use summary codes
- Retrieve address book category codes

1. Summary or Detail Records

Use this processing option to specify whether the system creates summarized forecast records, detail forecast records, or both. Valid values are:

1 The system creates both summarized and detail forecast records.
2 The system creates only summarized forecast records.
Blank The system creates only detail forecast records.

2. Forecast Summary Code

Use this processing option to specify the summary code that the system uses to create summarized forecast records. Summary code is a user defined code (40/KV) that identifies the code to create summarized forecast records. Enter the code to use as the default value or choose it from the Select User Define Code form.

3. Address Book for Category Codes

Use this processing option to specify from where the system retrieves the address book category codes. Valid values are:

1 The system retrieves the address book number from the Forecast table (F3460).
Blank The system uses the cost center to determine which address book number to use to retrieve the category codes.

Interoperability Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify the default document type for the system to use for the purchase order and whether to use before or after image processing.

1. Transaction Type

Use this processing option to specify the transaction type to which the system processes outbound interoperability transactions. Transaction type is a user defined code (00/TT) that identifies the type of transaction. Enter a type to use as the default value or choose it from the Select User Define Code form.

2. Image Processing

Use this processing option to specify whether the system writes before or after image processing. Valid values are:

1 The system writes before the images for the outbound change transaction are processed.
Blank The system writes after the images are processed.

Revising Sales Order History

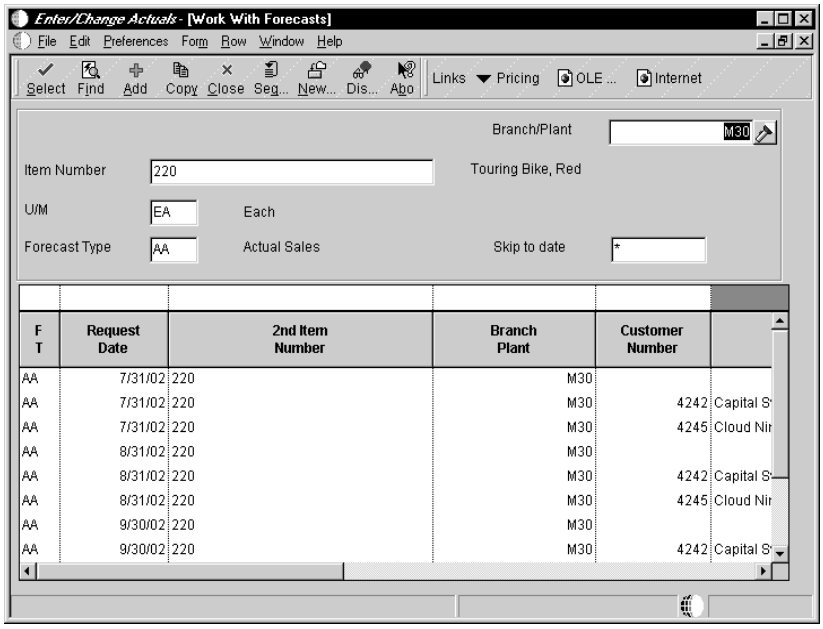
After you copy the sales order history into the Forecast table, you should review the data for spikes, outliers, entry errors, or missing demand that might distort the forecast. You can then revise the sales order history manually to account for these inconsistencies before you generate the forecast.

Enter/Change Actuals allows you to create, change, or delete a sales order history manually. You can:

- Review all entries in the Forecast table
- Revise the sales order history
- Remove invalid sales history data, such as outliers or missing demand
- Enter descriptive text for the sales order history, such as special sale or promotion information

Example: Revising Sales Order History

In this example, you run Extract Sales Order History. The program identifies the actual quantities as shown in the following form.



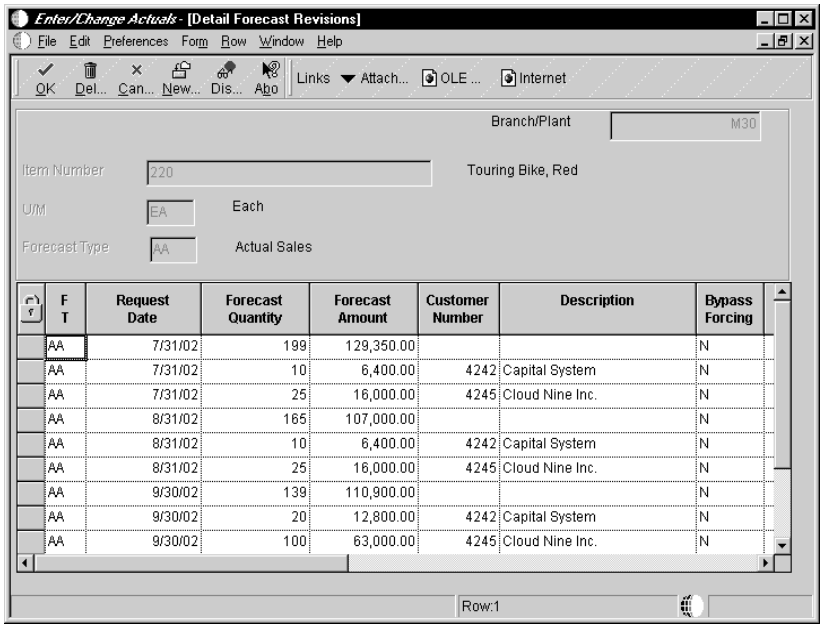
You use Enter/Change Actuals to associate the forecasted quantities with the forecasted amounts. The system reflects the changes made to a quantity in its corresponding amount and to an amount in its corresponding quantity. The system does so by retaining the same ratio that existed before the change. For example, when a change increases the quantity to 24, a quantity of 15 and an amount of 100 become a quantity of 24 and an amount of 160.

▶ To revise sales order history

From the Periodic Forecasting Operations menu (G3421), choose Enter/Change Actuals.

On Work With Forecasts

1. Complete the following fields and click Find:
   - Item Number
   - Branch/Plant
2. Choose an item and click Select.



3. On Detail Forecast Revisions, review the following fields:
   - Item Number
   - Forecast Type
   - Request Date
   - Original Quantity
   - Original Amount
4. To attach information to a forecast type, choose the type, then choose Attachments from the Form menu.

   See *Attaching Media Objects* in the *OneWorld Foundation Guide* for information on attaching objects to records.

Field	Explanation
Item Number	A number that the system assigns to an item. It can be in short, long, or third item number format.

Field	Explanation
Branch/Plant	An alphanumeric field that identifies a separate entity within a business for which you want to track costs. For example, a business unit might be a warehouse location, job, project, work center, branch, or plant. You can assign a business unit to a voucher, invoice, fixed asset, employee, and so on, for purposes of responsibility reporting. For example, the system provides reports of open accounts payable and accounts receivable by business units to track equipment by responsible department. Security for this field can prevent you from locating business units for which you have no authority. NOTE: The system uses the job number for journal entries if you do not enter a value in the AAI table.
Forecast Type	A code from the user defined code table 34/DF that indicates either: • The forecasting method used to calculate the numbers displayed about the item • The actual historical information about the item
Request Date	The date that an item is to arrive or that an action is to be complete.
Original Quantity	The quantity of units affected by this transaction.
Original Amount	The number of units multiplied by the unit price.

Processing Options for Enter/Change Actuals

```
Defaults

1. Enter default Forecast Type.

      Forecast Type                                    _____________

2. Enter a '1' to default header
    Forecast Type to grid records on
    Copy.

      Default Forecast Type                            _____________

Interop

1. Enter the Transaction Type for
    processing outbound interoperability
    transactions

      Type – Transaction                               _____________

2. Enter a '1' to write before images
    for outbound change transactions. If
    left blank, only after images will
    be written.

      Before Image Processing                          _____________
```

Versions

Enter the version for each program. If left blank, version ZJDE0001 will be used.

1. Forecast Online Simulation (P3461) _____

2. Forecast Price (P34007) _____

Working with Detail Forecasts

After you set up the actual sales history on which you plan to base your forecast, you can generate the detail forecast. You can then revise the forecast to account for any market trends or strategies that might make future demand deviate significantly from the actual sales history.

Working with detail forecasts consists of the following tasks:

- ❑ Creating detail forecasts
- ❑ Reviewing detail forecasts
- ❑ Revising detail forecasts
- ❑ Revising forecast prices
- ❑ Generating a forecast price rollup

Creating Detail Forecasts

The system creates detail forecasts by applying multiple forecasting methods to past sales histories and generating a forecast based on the method that provides the most accurate prediction of future demand. The system can also calculate a forecast based on a method that you select.

When you generate a forecast for any method, including best fit, the system rounds off the forecast amounts and quantities to the nearest whole number.

When you create detail forecasts, the system:

- Extracts sales order history information from the Forecast table (F3460)
- Calculates the forecasts using methods that you select
- Calculates the percent of accuracy or the mean absolute deviation for each selected forecast method
- Creates a simulated forecast for the months you indicate in the processing option
- Recommends the best fit forecast method
- Creates the detail forecast in either dollars or units from the best fit forecast

The system designates the extracted actual records as type AA and the best fit model as BF. These forecast type codes are not hard-coded, so you can specify your own codes. The system stores both types of records in the Forecast table.

Creating detail forecasts allows you to:

- Specify the number of months of actual data to use to create the best fit
- Forecast for individual large customers for all methods
- Run the forecast in proof or final mode
- Forecast up to five years into the future
- Create zero forecasts, negative forecasts, or both
- Run the forecast simulation interactively

Creating detail forecasts consists of the following tasks:

- Create forecasts for multiple items
- Create forecasts for a single item

Creating Forecasts for Multiple Items

From the Periodic Forecasting Operations menu (G3421), choose Create Detail Forecast.

Use the Create Detail Forecast program to create detail forecasts for multiple items. Review the processing options to select the applicable values you want the program to use.

See Also

- *R34650, Create Detail Forecast* in the *Reports Guide* for a report sample

Processing Options: Create Detail Forecast

Method 1 – 3 Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify which forecast types the system uses when calculating the best fit forecast. You can also specify whether the system creates detail forecasts for the selected forecast method.

Enter a 1 to use the forecast method when calculating the best fit. The system does not create detail forecasts for the method. If you enter a zero before the forecast method, for example 01 for Method 1 - Percent Over Last Year, the system uses the forecast method when calculating the best fit and creates the forecast method in the Forecast table (F3460). If you leave the field blank, the system does not use the forecast method when calculating the best fit and does not create detail forecasts for the method.

For more information about the forecast types and how the system calculates forecasts and the best fit, see *Appendix A: Forecast Calculation Methods*.

A period is defined as a week or month, depending on the pattern selected from the Date Fiscal Patterns table (F0008). For weekly forecasts, verify that you have established 52 period dates.

1. Percent Over Last Year

This forecast method uses the Percent Over Last Year formula to multiply each forecast period by a percentage increase or decrease that you specify in a processing option. This method requires the periods for the best fit plus one year of sales history. This method is useful for seasonal items with growth or decline.

Use this processing option to specify which type of forecast to run. Valid values are:

Blank The system does not use this method.
1 The system calculates the best fit forecast.
01 The system uses the Percent Over Last Year formula to create detail forecasts.

2. Percent

Use this processing option to specify the percent of increase or decrease used to multiply by the sales history from last year. For example, type 110 for a 10% increase or type 97 for a 3% decrease. Valid values are any percent amount, however, the amount cannot be a negative amount. Enter an amount to use or choose it from the Calculator.

3. Calculated Percent Over Last Year

This forecast method uses the Calculated Percent Over Last Year formula to compare the periods specified of past sales to the same periods of past sales of the previous year. The system determines a percentage increase or decrease, then multiplies each period by the percentage to determine the forecast. This method requires the periods of sales order history indicated in the processing option plus one year of sales history. This method is useful for short-term demand forecasts of seasonal items with growth or decline.

Use this processing option to specify which type to run. Valid values are:

Blank The system does not use this method.
1 The system calculates the best fit forecast.
02 The system uses the Calculated Percent Over Last Year formula to create detail forecasts.

4. Number of Periods

Use this processing option to specify the number of periods to include when calculating the percentage increase or decrease. Enter a number to use or choose a number from the Calculator.

5. Last Year to This Year

This forecast method uses Last Year to This Year formula which uses last year's sales for the following year's forecast. This method uses the periods best fit plus one year of sales order history. This method is useful for mature products with level demand or seasonal demand without a trend.

Use this processing option to specify which type of forecast to run. Valid values are:

Blank The system does not use this method.
1 The system calculates the best fit forecast.
03 The system uses the Last Year to This Year formula to create detail forecasts.

Methods 4 – 6 Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify which forecast types the system uses when calculating the best fit. You can also specify whether the system creates detail forecasts for the selected forecast method.

Enter a 1 to use the forecast method when calculating the best fit. The system does not create detail forecasts for the method. If you enter a zero before the forecast method, for example 01 for Method 1 - Percent Over Last Year, the system uses the forecast method when calculating the best fit and creates the forecast method in the Forecast table (F3460). If you leave the field blank, the system does not use the forecast method when calculating the best fit and does not create detail forecasts for the method.

For more information about the forecast types and how the system calculates forecasts and the best fit, see *Appendix A: Forecast Calculation Methods*.

A period is defined as a week or month, depending on the pattern selected from the Date Fiscal Patterns table (F0008). For weekly forecasts, verify that you have established 52 period dates.

1. Moving Average

This forecast method uses the Moving Average formula to average the months that you indicate in the processing option to project the next period. This method uses the periods best fit from the processing option plus the number of periods of sales order history from the processing option. You should have the system recalculate this forecast monthly or at least quarterly to reflect changing demand level. This method is useful for mature products without a trend.

Use this processing option to specify which type of forecast to run. Valid values are:

Blank The system does not use this method.
1 The system calculates the best fit forecast.
04 The system uses the Moving Average formula to create detail forecasts.

2. Number of Periods

Use this processing option to specify the number of periods to include in the average. Enter a number to use or choose a number from the Calculator.

3. Linear Approximation

This forecast method uses the Linear Approximation formula to compute a trend from the periods of sales order history indicated in the processing options and projects this trend to the forecast. You should have the system recalculate the trend monthly to detect changes in trends. This method requires periods best fit plus the number of

periods that you indicate in the processing option of sales order history. This method is useful for new products or products with consistent positive or negative trends that are not due to seasonal fluctuations.

Use this processing option to specify which type of forecast to run. Valid values are:

Blank The system does not use this method.
1 The system calculates the best fit forecast.
05 The system uses the Linear Approximation formula to create detail forecasts.

4. Number of Periods

Use this processing option to specify the number of periods to include in the linear approximation ratio. Enter the number to use or choose a number from the Calculator.

5. Least Squares Regression

This forecast method derives an equation describing a straight-line relationship between the historical sales data and the passage of time. Least Squares Regression (LSR) fits a line to the selected range of data such that the sum of the squares of the differences between the actual sales data points and the regression line are minimized. The forecast is a projection of this straight line into the future. This method is useful when there is a linear trend in the data. This method requires sales data history for the period represented by the number of periods best fit plus the number of historical data periods specified in the processing options. The minimum requirement is two historical data points.

Use this processing option to specify which type of furecast to run. Valid values are:

Blank The system does not use this method.
1 The system calculates the best fit forecast.
06 The system uses the Least Squares Regression formula to create detail forecasts.

6. Number of Periods

Use this processing option to specify the number of periods to include in the regression. Enter the number to use or choose a number from the Calculator.

Methods 7 – 8

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify which forecast types the system uses when calculating the best fit. You can also specify whether the system creates detail forecasts for the selected forecast method.

Enter a 1 to use the forecast method when calculating the best fit. The system does not create detail forecasts for the method. If you enter a zero before the forecast method, for example 01 for Method 1 - Percent Over Last Year, the system uses the forecast method when calculating the best fit and creates the forecast method in the Forecast table (F3460). If you leave the field blank, the system does not use the forecast method when calculating the best fit and does not create detail forecasts for the method.

For more information about the forecast types and how the system calculates forecasts and the best fit, see *Appendix A: Forecast Calculation Methods*.

A period is defined as a week or month, depending on the pattern selected from the Date Fiscal Patterns table (F0008). For weekly forecasts, verify that you have established 52 period dates.

1. Second Degree Approximation

This method uses the Second Degree Approximation formula to plot a curve based on the number of periods of sales history indicated in the processing options to project the forecast. This method adds the periods best fit and the number of periods, and then multiplies by three. You indicate the number of periods in the processing option of sales order history. This method is not useful for long-term forecasts.

Use this processing option to specify which type of forecast to run. Valid values are:

Blank The system does not use this method.
1 The system calculates the best fit forecast.
07 The system uses the Second Degree Approximation formula to create detail forecasts.

2. Number of Periods

Use this processing option to specify the number of periods to include in the approximation. Enter the number to use or choose a number from the Calculator.

3. Flexible Method

This forecast method specifies the periods best fit block of sales order history starting “n” months prior and a percentage increase or decrease with which to modify it. This method is similar to Method 1, Percent Over Last Year, except that you can specify the number of periods that you use as the base. Depending on what you select as “n”, this method requires periods best fit plus the number of periods indicated in the processing options of sales data. This method is useful for a planned trend.

Use this processing option to specify which type of forecast to run. Valid values are:

Blank The system does not use this method.
1 The system calculates the best fit forecast.
08 The system uses the Flexible method to create detail forecasts.

4. Number of Periods

Use this processing option to specify the number of periods prior to the best fit that you want to include in the calculation. Enter the number to use or choose a number from the Calculator.

5. Percent Over Prior Period

Use this processing option to specify the number of periods prior to the best fit that you want to include in the calculation. Enter the number to use or choose a number from the Calculator.

Methods 9 Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify which forecast types the system uses when calculating the best fit. You can also specify whether the system creates detail forecasts for the selected forecast method.

Enter a 1 to have the system use the forecast method when calculating the best fit. The system does not create detail forecasts for the method. If you enter a zero before the forecast method, for example 01 for Method 1 - Percent Over Last Year, the system uses the forecast method when calculating the best fit and creates the forecast method in the Forecast table (F3460). If you leave the field blank, the system does not use the forecast method when calculating the best fit and does not create detail forecasts for the method.

The total of all the weights used in the Weighted Moving Average calculation must equal 100. If you do not enter a weight for a period within the specified number of periods, the system uses a weight of zero for that period. The system does not use weights entered for periods greater than the number of specified periods.

For more information about the forecast types and how the system calculates forecasts and the best fit, see *Appendix A: Forecast Calculation Methods.*

A period is defined as a week or month, depending on the pattern selected from the Date Fiscal Patterns table (F0008). For weekly forecasts, verify that you have established 52 period dates.

1. Weighted Moving Average

The Weighted Moving Average forecast formula is similar to Method 4, Moving Average formula, because it averages the previous number of months of sales history indicated in the processing options to project the next month's sales history. However, with this formula you can assign weights for each of the prior periods in a processing option. This method requires the number of weighted periods selected plus periods best fit data. Similar to Moving Average, this method lags demand trends, so it is not

recommended for products with strong trends or seasonality. This method is useful for mature products with demand that is relatively level.

Use this processing option to specify which type of forecast to use. Valid values are:

Blank The system does not use this forecast.
1 The system calculates the best fit forecast.
09 The system uses the Weighted Moving Average formula to create detail forecasts.

2. One Period Prior

Use this processing option to specify the weight to assign to one period prior. Enter the number to use or choose it from the Calculator.

3. Two Periods Prior

Use this processing option to specify the weight to assign to two periods prior. Enter a number to use or choose it from the Calculator.

4. Three Periods Prior

Use this processing option to specify the weight to assign to three periods prior. Enter the number to use or choose it from the Calculator.

5. Four Periods Prior

Use this processing option to specify the weight to assign to four periods prior. Enter the number to use or choose it from the Calculator.

Method 9 Cont. Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify which forecast types the system uses when calculating the best fit. You can also specify whether the system creates detail forecasts for the selected forecast method.

Enter a 1 to use the forecast method when calculating the best fit. The system does not create detail forecasts for the method. If you enter a zero before the forecast method, for example 01 for Method 1 - Percent Over Last Year, the system uses the forecast method when calculating the best fit and creates the forecast method in the Forecast table (F3460). If you leave the field blank, the system does not use the forecast method when calculating the best fit and does not create detail forecasts for the method.

The total of all the weights used in the Weighted Moving Average calculation must equal 100. If you do not enter a weight for a period within the specified number of

periods, the system uses a weight of zero for that period. The system does not use weights entered for periods greater than the number of specified periods.

For more information about the forecast types and how the system calculates forecasts and the best fit, see *Appendix A: Forecast Calculation Methods*.

A period is defined as a week or month, depending on the pattern selected from the Date Fiscal Patterns table (F0008). For weekly forecasts, verify that you have established 52 period dates.

1. Five Periods Prior

Use this processing option to specify the weight to assign to five periods prior. Enter the number to use or choose a number from the Calculator.

2. Six Periods Prior

Use this processing option to specify the weight to assign to six periods prior. Enter the number to use or choose a number from the Calculator.

3. Seven Periods Prior

Use this processing option to specify the weight to assign to seven periods prior. Enter a number to use or choose a number from the Calculator.

4. Eight Periods Prior

Use this processing option to specify the weight to assign to eight periods prior. Enter the number to use or choose a number from the Calculator.

5. Nine Periods Prior

Use this processing option to specify the weight to assign to nine periods prior. Enter the number to use or choose a number from the Calculator.

6. Ten Periods Prior

Use this processing option to specify the weight to assign to ten periods prior. Enter the number to use or choose a number from the Calculator.

Method 9 Cont. Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify which forecast types to use when calculating the best fit. You can also specify whether to create detail forecasts for the selected forecast method.

Enter a 1 to use the forecast method when calculating the best fit. No detail forecasts are created for the method. If you enter a zero before the forecast method, for example 01 for Method 1 - Percent Over Last Year, the system uses the forecast method when calculating the best fit and creates the forecast method in the Forecast table (F3460). If the field is blank, the system does not use the forecast method when calculating the best fit and no detail forecasts are created for the method

The total of all the weights used in the Weighted Moving Average calculation must equal 100. If no weight is entered for a period within the specified number of periods, a weight of zero is used for that period. Weights entered for periods greater than the number of specified periods will not be used.

For more information about the forecast types and how the system calculates forecasts and the best fit, see *Appendix A: Forecast Calculation Methods.*

A period is defined as a week or month, depending on the pattern selected from the Date Fiscal Patterns table (F0008). For weekly forecasts, verify that you have established 52 period dates.

1. Eleven Periods Prior

Use this processing option to specify the weight to assign to eleven periods prior. Enter the number to use or choose a number from the Calculator.

2. Twelve Periods Prior

Use this processing option to specify the weight to assign to twelve periods prior. Enter the number to use or choose a number from the Calculator.

3. Periods to Include

Use this processing option to specify the number of periods to include. Enter the number to use or choose a number from the Calculator.

Method 10 – 11 Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify which forecast types the system uses when calculating the best fit. You can also specify whether the system creates detail forecasts for the selected forecast method.

Enter a 1 to use the forecast method when calculating the best fit. No detail forecasts are created for the method. If you enter the method number, for example 11 for Method 11 - Exponential Smoothing, the system uses the forecast method when calculating the best fit and creates the forecast method in the Forecast table (F3460). If the field is blank, the system does not use the forecast method when calculating the best fit and no detail forecasts are created for the method

For more information about the forecast types and how the system calculates forecasts and the best fit, see *Appendix A: Forecast Calculation Methods*.

A period is defined as a week or month, depending on the pattern selected from the Date Fiscal Patterns table (F0008). For weekly forecasts, verify that you have established 52 period dates.

1. Linear Smoothing

This forecast method calculates a weighted average of past sales data. You can specify the number of periods of sales order history to use in the calculation (from 1 to 12) in a processing option. The system uses a mathematical progression to weigh data in the range from the first (least weight) to the final (most weight). Then, the system projects this information for each period in the forecast. This method requires the periods best fit plus the number of periods of sales order history from the processing option.

Use this processing option to specify which type of forecast to run. Valid values are:

Blank The system does not use this method.
1 The system calculates the best fit forecast.
10 The system uses the Linear Smoothing method to create detail forecasts.

2. Number of Periods

Use this processing option to specify the number of periods to include in the smoothing average. Enter the number to use or choose a number from the Calculator.

3. Exponential Smoothing

This forecast method uses one equation to calculate a smoothed average. This becomes an estimate representing the general level of sales over the selected historical range. This method is useful when there is no linear trend in the data. This method requires sales data history for the time period represented by the number of periods best fit plus the number of historical data periods specified in the processing options. The minimum requirement is two historical data periods.

Use this processing option to specify which type of forecast to run. Valid values are:

Blank The system does not use this method.
1 The system calculates the best fit forecast.
11 The system uses the Exponential Smoothing method to create detail forecasts.

4. Number of Periods

Use this processing option to specify the number of periods to include in the smoothing average. Enter the number to use or choose a number from the Calculator.

5. Alpha Factor

Use this processing option to specify the alpha factor, a smoothing constant, the system uses to calculate the smoothed average for the general level or magnitude of sales. Valid values are any amount from zero to one. Enter a number to use or choose a number from the Calculator.

Method 12 Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify which forecast types the system uses when calculating the best fit. You can also specify whether the system creates detail forecasts for the selected forecast method.

Enter a 1 to use the forecast method when calculating the best fit. No detail forecasts are created for the method. If you enter the method number before the forecast method, for example 12 for Method 12 - Exponential Smoothing With Trend and Seasonality, the system uses the forecast method when calculating the best fit and creates the forecast method in the Forecast table (F3460). If the field is blank, the system does not use the forecast method when calculating the best fit and no detail forecasts are created for the method.

For more information about the forecast types and how the system calculates forecasts and the best fit, see *Appendix A: Forecast Calculation Methods*.

A period is defined as a week or month, depending on the pattern selected from the Date Fiscal Patterns table (F0008). For weekly forecasts, verify that you have established 52 period dates.

1. Exponential Smoothing with Trend and Seasonality

This forecast method calculates a trend, a seasonal index, and an exponentially smoothed average from the sales order history. The system then applies a projection of the trend to the forecast and adjusts for the seasonal index. This method requires months best fit plus two years of sales data and is useful for items that have both trend and seasonality in the forecast. Use the processing options to enter the alpha and beta factor rather than have the system calculate them.

Use this processing option to specify which type of forecast to run. Valid values are:

Blank The system does not use this method.
1 The system calculates the best fit forecast.

12 The system uses the Exponential Smoothing with T&S method to create detail forecasts.

2. Alpha Factor

Use this processing option to specify the alpha factor, a smoothing constant, the system uses to calculate the smoothed average for the general level or magnitude of sales. Valid values are any amount from zero to one. Enter a number to use or choose a number from the Calculator.

3. Beta Factor

Use this processing option to specify the beta factor, a smoothing constant, the system uses to calculate the smoothed average for the trend component of the forecast. Valid values are any amount from zero to one. Enter the number to use or choose a number from the Calculator.

4. Seasonality

Use this processing option to specify whether the system includes seasonality in the calculation. Valid values are:

0 The system does not include seasonality.
1 The system includes seasonality.
Blank The system does not include seasonality.

Defaults Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify the defaults the system uses to calculate forecasts. The system extracts actual values from Sales History and stores the forecasts that are generated in the Forecast table (F3460). You can define your own forecast types for Actuals (AA) and best fit (BF).

1. Actuals Forecast Type

Use this processing option to specify the forecast type that identifies the sales order history used as the basis for the forecast calculations, or Actuals. Forecast type is a user defined code (34/DF) that identifies the type of forecast to run. Enter the forecast type to use as the default value or choose it from the Select User Define Code form.

2. Best Fit Forecast Type

Use this processing option to specify the forecast type that is generated as a result of the best fit calculation. Forecast type is a user defined code (34/DF) that identifies the

type of forecast to run. Enter the forecast type to use as the default value or choose it from the Select User Define Code form.

Process 1 Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify whether the system runs the Forecast Generation program in proof or final mode, creates forecasts for large customers, creates weekly or monthly forecasts, and to specify the start date, length and data used when the system creates forecasts.

1. Mode

Use this processing option to specify whether the system runs in proof or final mode. Valid values are:

Blank The system runs in proof mode, creating a simulation report.
1 The system runs in final mode, creating forecast records.

2. Large Customers

Use this processing option to specify whether to create forecasts for large customers. Based on the Customer Master table (F0301), if the ABC code is set to A and this option is set to 1 the system creates separate forecasts for large customers. Valid values are:

Blank The system does not create large customer forecasts.
1 The system creates large customer forecasts.

3. Weekly Forecasts

Use this processing option to specify weekly or monthly forecasts. For weekly forecasts, use fiscal date patterns with 52 periods. For monthly forecasts, use fiscal date patterns with 14 periods. Valid values are:

Blank The system creates monthly forecasts.
1 The system creates weekly forecasts.
1 The system creates weekly forecasts.

4. Start Date

Use this processing option to specify the date on which the system starts the forecasts. Enter a date to use or choose a date from the Calendar. If you leave this field blank, the system uses the system date.

5. Forecast Length

Use this processing option to specify the number of periods to forecast. You must have previously established fiscal date patterns for the forecasted periods. If you leave this field blank, the system uses 3.

6. Actual Data

Use this processing option to specify the number of periods of actual data that the system uses to calculate the best fit forecast. If you leave this field blank, the system uses 3.

The system recommends the best fit forecast by applying the selected forecasting methods to past sales order history and comparing the forecast simulation to the actual history. When you generate a forecast, the system compares actual sales order histories to forecasts for the months or weeks you indicate in the processing option and computes how accurately each of the selected forecasting methods would have predicted sales. Then, the system recommends the most accurate forecast as the best fit.

Process 2 Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify how the system calculates the best fit forecast. The system recommends the best fit forecast by applying the selected forecasting methods to past sales order history and comparing the forecast simulation to the actual history. When you generate a forecast, the system compares actual sales order histories to forecasts for the months or weeks you indicate in the processing option and computes how accurately each of the selected forecasting methods would have predicted sales. Then, the system recommends the most accurate forecast as the best fit.

Mean Absolute Deviation (MAD) is the mean of the absolute values of the deviations between actual and forecast data. MAD is a measure of the average magnitude of errors to expect, given a forecasting method and data history. Because absolute values are used in the calculation, positive errors do not cancel out negative errors. When comparing several forecasting methods, the one with the smallest MAD has shown to be the most reliable for that product for that holdout period.

Percent of Accuracy (POA) is a measure of forecast bias. When forecasts are consistently too high, inventories accumulate and inventory costs rise. When forecasts are consistently too low, inventories are consumed and customer service declines. A forecast that is 10 units too low, then 8 units too high, then 2 units too high, would be an unbiased forecast. The positive error of 10 is canceled by negative errors of 8 and 2.

1. Mean Absolute Deviation

Use this processing option to specify whether the system uses the Mean Absolute Deviation formula or the Percent of Accuracy formula to calculate the best fit forecast. Valid values are:

Blank The system uses the Percent of Accuracy formula.
1 The system uses the Mean Absolute Deviation formula.

2. Amounts or Quantity

Use this processing option to specify whether the system calculates the best fit forecast using amounts or quantities. If you specify to use amounts, you must also extract sales history using amounts. This also affects forecast pricing. Valid values are:

Blank The system uses quantities.
1 The system uses amounts.

3. Fiscal Date Pattern Type

Use this processing option to specify the fiscal date pattern type to use for the forecast calculations. When generating weekly forecasts, the fiscal date pattern defined here must be set up for 52 periods.

4. Negative Values

Use this processing option to specify whether the system displays negative values. Valid values are:

Blank The system substitute a zero value for all negative values.
1 The system displays negative values.

Interoperability Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use this processing option to specify the transaction type the system uses for interoperability.

1. Transaction Type

Use this processing option to specify the transaction type used for interoperability. Valid values are:

Blank The system does not create outbound forecasts.
JDEFC The system creates outbound forecasts.

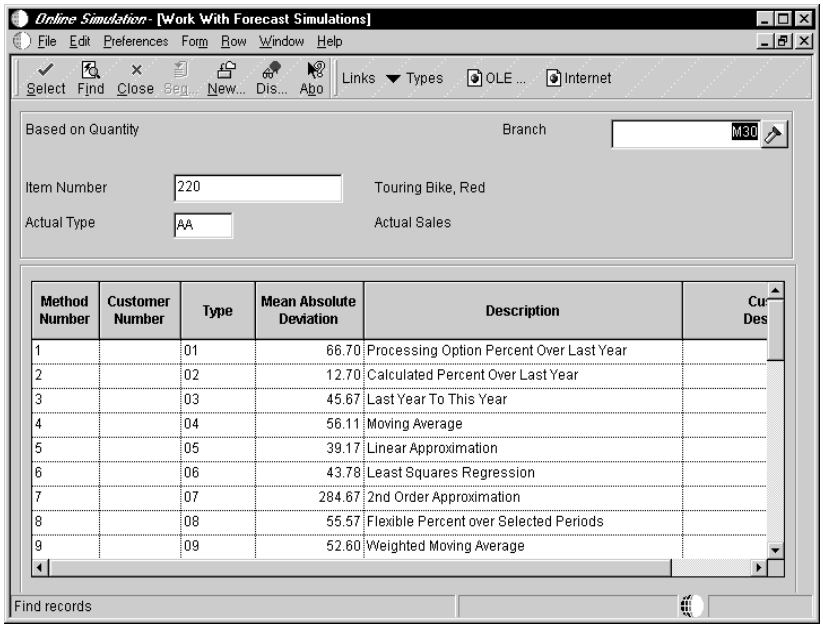
Creating Forecasts for a Single Item

Use Online Simulation to create a detail forecast for a single item. After you run the simulation interactively, you can modify the simulated forecast and commit it to the Forecast table (F3460).

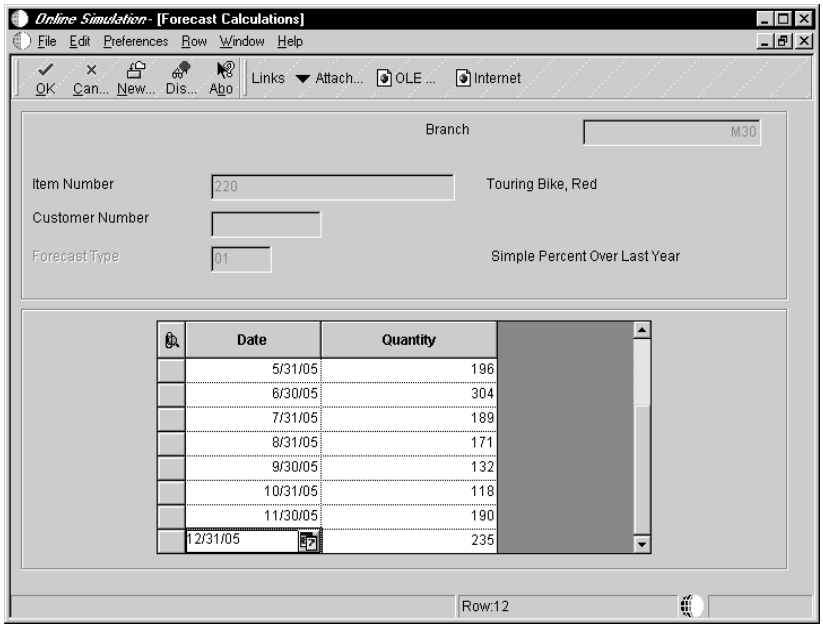
▶ To create forecasts for a single item

From the Periodic Forecasting Operations menu (G3421), choose Online Simulation.

On Work With Forecast Simulations



1. Complete the following fields and click Find:
   - Item Number
   - Branch
   - Actual Type
2. Choose a method and click Select.



3. On Forecast Calculations, modify the simulated forecasts as necessary and click OK to commit the changes to the Forecast table (F3460).

Field	Explanation
Actual Type	A code from the user defined code table 34/DF that indicates either: • The forecasting method used to calculate the numbers displayed about the item • The actual historical information about the item

Processing Options for Forecast Online Simulation

```
Method 1- 3

Enter a '1' or a Forecast Type next to
    the Method desired.

      1.) Percent Over Last Year                _____________
      Percent                                   _____________

Note: Enter the percent increase over
    last year (eg. 110 for a 10%
    increase, 97 for a 3% decrease).

      2.) Calculated Percent Over Last          _____________
      Year
      Enter the number of periods to            _____________
      include in the percentage.
      3.) Last Year to This Year                _____________

Method 4 – 6

      4.) Moving Average                        _____________
```

Enter the number of periods to include in the average. _____
5.) Linear Approximation _____
Enter the number of periods to include in the ratio. _____
6.) Least Squares Regression _____
Enter the number of periods to include in the regression. _____

Method 7- 8

7.) Second Degree Approximation _____
Enter the number of periods. _____
8.) Flexible Method (Percent over N periods prior) _____
Enter the number of periods prior. _____
Enter the percent over the prior period (eg. 110 for a 10% increase, 97 for a 3% decrease). _____

Method 9

9.) Weighted Moving Average _____

Note: The weights must add up to 100 (i.e. 60, 30, and 10)

Weight for one period prior _____
Weight for two periods prior _____
Weight for three periods prior _____
Weight for four periods prior _____

Method 9 Cont.

Weight for five periods prior _____
Weight for six periods prior _____
Weight for seven periods prior _____
Weight for nine periods prior _____
Weight for nine periods prior _____
Weight for ten periods prior _____

Method 9 Cont.

Weight for eleven periods prior _____
Weight for twelve periods prior _____

Note: If no weight is entered for a period within the number of periods specified, a weight of zero will be used for that period. Weights entered for periods greater than the number of periods specified will not be used.

Enter the number of periods to include. _____

Method 10-11

10.) Linear Smoothing _____
Enter the number of periods to include in smoothing average. _____
11.) Exponential Smoothing _____
Enter the number of periods to _____

include in the smoothing average.
Enter the Alpha factor. If zero it will be calculated. _____

Method 12

12.) Exponentail Smoothing with Trend and Seasonality factors _____
Enter the Alpha factor. If zero it will be calculated. _____
Enter the Beta factor. If zero it will be calculated. _____
Enter a '1' to include seasonality in the calculation. If blank seasonality will not be used. _____

Process 1

1.) Enter the Forecast Type to use when creating the Best Fit Forecast. _____
2.) Enter a '1' to create summary records for large customers (ABC = type). _____
3.) Enter a '1' to specify weekly forecasts. Blank defaults to monthly. _____
4.) Enter the date to start forecasts. Default of today's date if left blank. _____
5.) Enter Number of periods to forecast. Default to 3 periods if blank. _____
6.) Enter the number of periods of actual data to be used to calculate best fit forecast. If left blank 3 periods of data will be used. _____

Process 2

7.) Enter a '1' to calculate Best Fit forecast using Mean Absolute Deviation. Blank will calculate the Best Fit using Percent of Accuracy. _____
8.) Enter a '1' to forecast using amounts. Default of blank will forecast quantities. _____
9.) Enter the Fiscal Date Pattern Type to use for forecast dating. _____
10.) Enter a '1' to allow negative values to be written. If left blank, negative values will be written as zeroes. _____

Versions

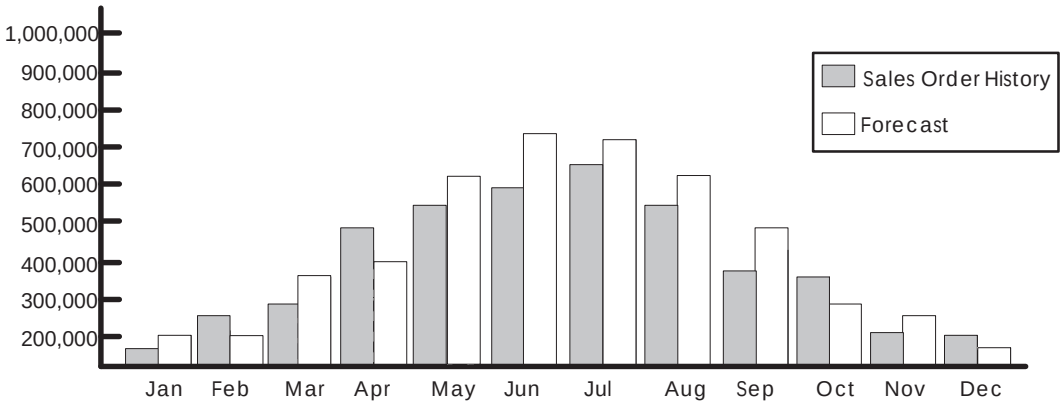
Enter the version for each program. If left blank, version ZJDE0001 will be used.

1. Forecast Review by Type (P34300) _____

Reviewing Detail Forecasts

Review forecasts to compare the actual sales to the detail forecast. The system displays the forecast values and actual quantities or sales order extended price for an item for the specified year.

Example: Comparing Forecast to Sales Order History

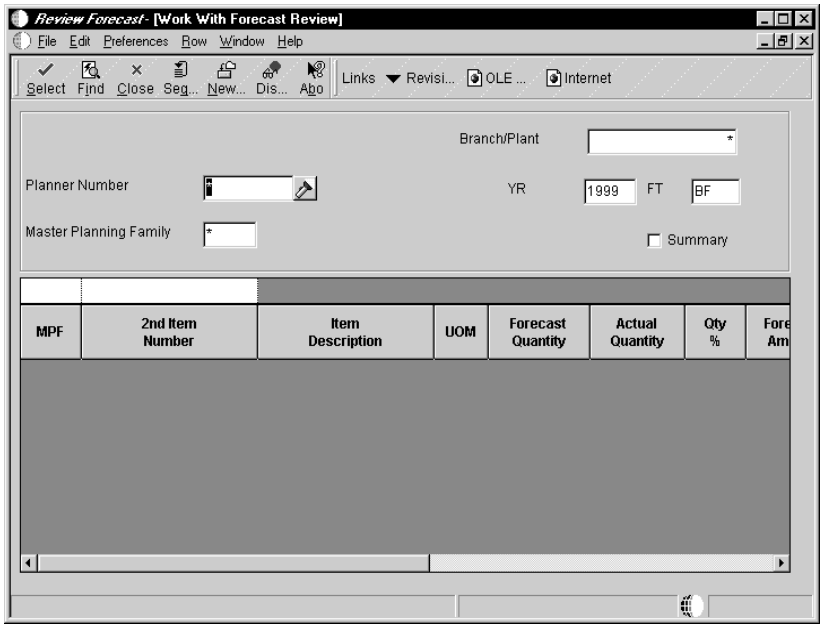


You can review information by planner, master planning family, or both. You can then change the forecast type to compare different forecasts to the actual demand. You can also display all information stored in the Forecast table, choose whether to review quantities or amounts, and display the data in summary or detail mode.

To review detail forecasts

From the Periodic Forecasting Operations menu (G3421), choose Review Forecast.

On Work With Forecast Review



1. Complete the following fields:
   - Branch/Plant
   - YR
   - FT
2. Complete one of the following fields and click Find:
   - Planner Number
   - Master Planning Family
3. Review the following fields:
   - Forecast Quantity
   - Actual Quantity
   - Qty %
   - Forecast Amount
   - Actual Amount

Detail mode lists all item numbers. Summary mode consolidates data by master planning family. Click the Summary option in the header area to review information in summary mode.

Field	Explanation
YR	A number that identifies the year that the system uses for the transaction.
Planner Number	The address number of the material planner for this item.
Master Planning Family	A code (table 41/P4) that represents an item property type or classification, such as commodity type, planning family, or so forth. The system uses this code to sort and process like items. This field is one of six classification categories available primarily for purchasing purposes.
Forecast Quantity	The quantity of units forecasted for production during a planning period.
Actual Quantity	The quantity of units affected by this transaction.
Qty %	Threshold 2 Percent
Forecast Amount	The current amount of the forecasted units for a planning period.
Actual Amount	The number of units multiplied by the unit price.

Processing Options for Forecast Review

```
Defaults

      1. Enter the default Forecast Type                _____________
      2. Enter the default type for Actual              _____________

Versions

Enter the version for each program.  If
    left blank, version ZJDE0001 will be
    used.

      1.  Forecast Revisions  (P3460)                   _____________
```

Revising Detail Forecasts

After you generate and review a forecast, you can revise the forecast to account for changes in consumer trends, market conditions, competitors' activities, your own marketing strategies, and so on. When you revise a forecast, you can change information in an existing forecast manually, add or delete a forecast, and enter descriptive text for the forecast.

You can access the forecasts that you want to revise by item number, branch/plant, forecast type, or any combination of these elements. You can specify a beginning request date to limit the number of periods.

As you revise the forecast, be aware that the following combination must be unique for each item number and branch record:

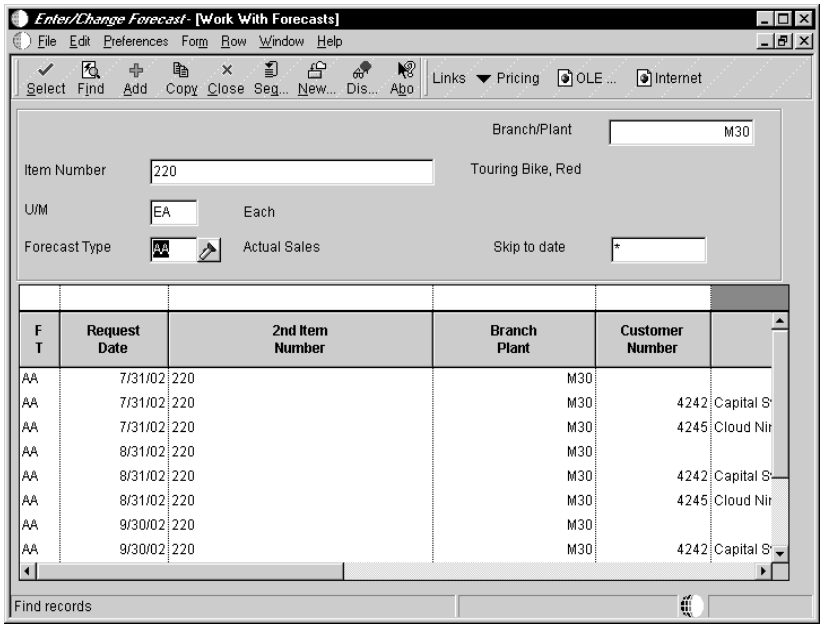
- Forecast type
- Request date
- Customer number

For example, if two records have the same request date and customer number, they must have different forecast types.

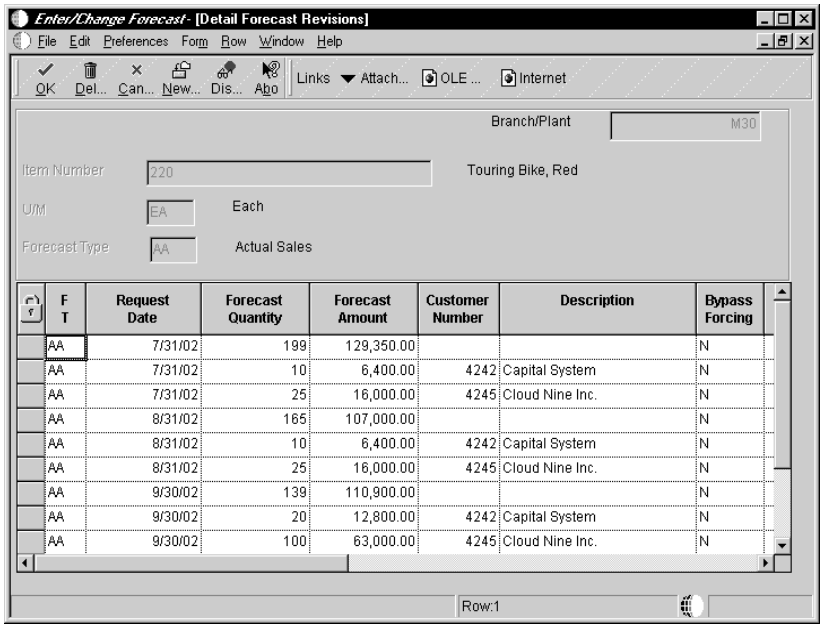
To revise detail forecasts

From the Periodic Forecasting Operations menu (G3421), choose Enter/Change Forecast.

On Work With Forecasts



1. Complete the following fields and click Find:
   - Branch/Plant
   - Item Number
   - U/M
   - Forecast Type
2. Choose a forecast and click Select.



3. On Detail Forecast Revisions, change the information in one of the following fields and click OK:

   - Forecast Quantity
   - Forecast Amount

4. To associate information, such as text or drawings, with a forecast type, choose the row, then choose Attachments from the Form menu.

   See *Attaching Media Objects* in the *OneWorld Foundation Guide* for information on attaching objects to records.

Field	Explanation
U/M	A user defined code (00/UM) that indicates the quantity in which to express an inventory item, for example, CS (case) or BX (box).

See Also

- *Revising Sales Order History* to review the processing options for the Enter/Change Forecast program

Revising Forecast Prices

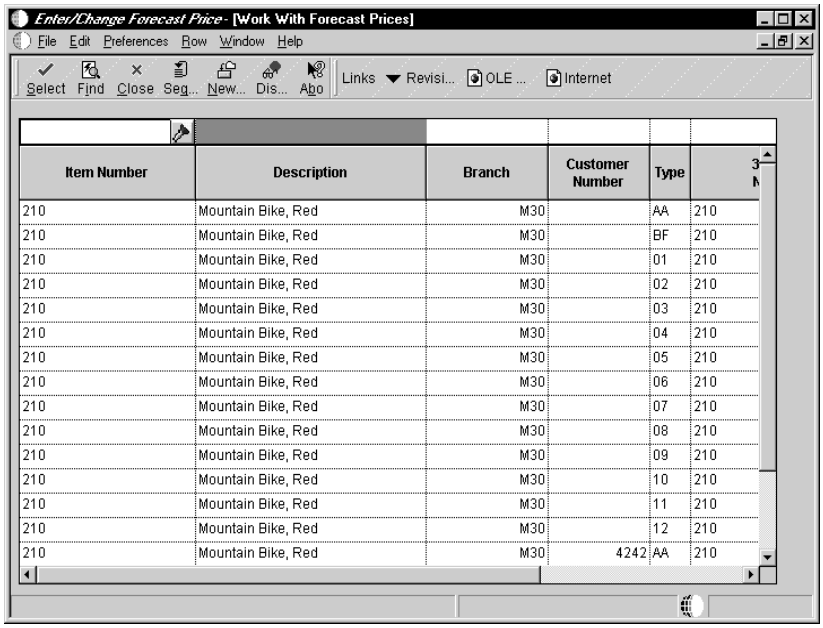
You can enter prices for unique combinations of item number, branch/plant, forecast type, and customer number. All these values are stored in the Forecast Prices table (34007) and are used to extend the amount or quantity on a detail forecast record in the Forecast table (F3460) and the Forecast Summary table (F3400). You can roll up these prices to the higher level items in the forecast hierarchy using the Price Rollup program.

If the forecast is stated in terms of quantity, you can use the Forecast Prices table to extend the forecast in amounts, for example, as a projection of revenue. In the case of a sales forecast, the forecast may already be stated in terms of revenue. In this case, you might want to convert the forecast into quantities to support production planning.

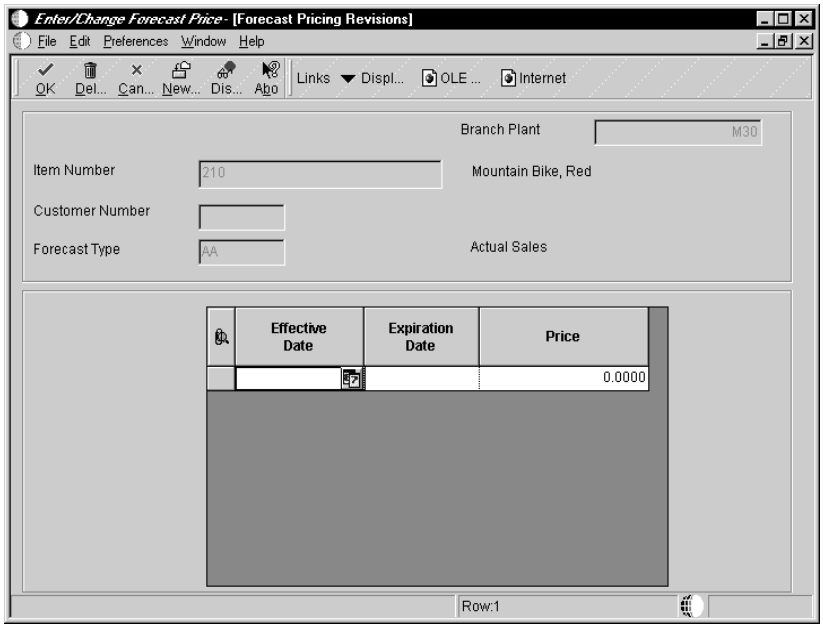
▶ To revise forecast prices

From the Periodic Forecasting Operations menu (G3421), choose Enter/Change Forecast Price.

On Work With Forecast Prices



1. Click Find to view all unique combinations of item number, branch/plant, forecast type, and customer number.
2. Choose a forecast to which you want to change the price and click Select.



3. On Forecast Pricing Revisions, complete the following fields and click OK:
   - Effective Date
   - Expiration Date
   - Price

Field	Explanation
Effective Date	A date that indicates one of the following: • When a component part goes into effect on a bill of material • When a routing step goes into effect as a sequence on the routing for an item • When a rate schedule is in effect The default is the current system date. You can enter future effective dates so that the system plans for upcoming changes. Items that are no longer effective in the future can still be recorded and recognized in Product Costing, Shop Floor Management, and Capacity Requirements Planning. The Material Requirements Planning system determines valid components by effectivity dates, not by the bill of material revision level. Some forms display data based on the effectivity dates you enter.

Field	Explanation
Expiration Date	A date that indicates one of the following: • When a component part is no longer in effect on a bill of material • When a routing step is no longer in effect as a sequence on the routing for an item • When a rate schedule is no longer active The default is December 31 of the default year defined in the Data Dictionary for Century Change Year. You can enter future effective dates so that the system plans for upcoming changes. Items that are no longer effective in the future can still be recorded and recognized in Product Costing, Shop Floor Management, and Capacity Requirements Planning. The Material Requirements Planning system determines valid components by effectivity dates, not by the bill of material revision level. Some forms display data based on the effectivity dates you enter.
Price	The list or base price to be charged for one unit of this item. In sales order entry, all prices must be set up in the Base Price table (F4106).

Generating a Forecast Price Rollup

From the Periodic Forecasting Operations menu (G3421), choose Price Rollup.

Use the Price Rollup program to roll up the prices you entered on the Enter/Change Forecast Price form to the higher level items in the forecast hierarchy. This program uses the manually entered prices to extend the amount or quantity on a detail record and rolls up the prices through the forecasting hierarchy.

Processing Options for Forecast Price Rollup

```
Control

      1.)  Enter the Summary Code to use                _____________
      for pricing the summary forecast
      records.  If left blank only the
      detail forecasts will be priced.
      2.)  Enter a '1' to Rollup based                  _____________
      on Amount.  Blank will default to
      Rollup based on Quantity.
```

Summary Forecasts

Summary Forecasts

You use summary forecasts to project demand at a product group level. Summary forecasts are also called aggregate forecasts. You can generate a summary of a detail forecast based on detail sales histories or a summary forecast based on summary actual data.

This topic includes the following tasks:

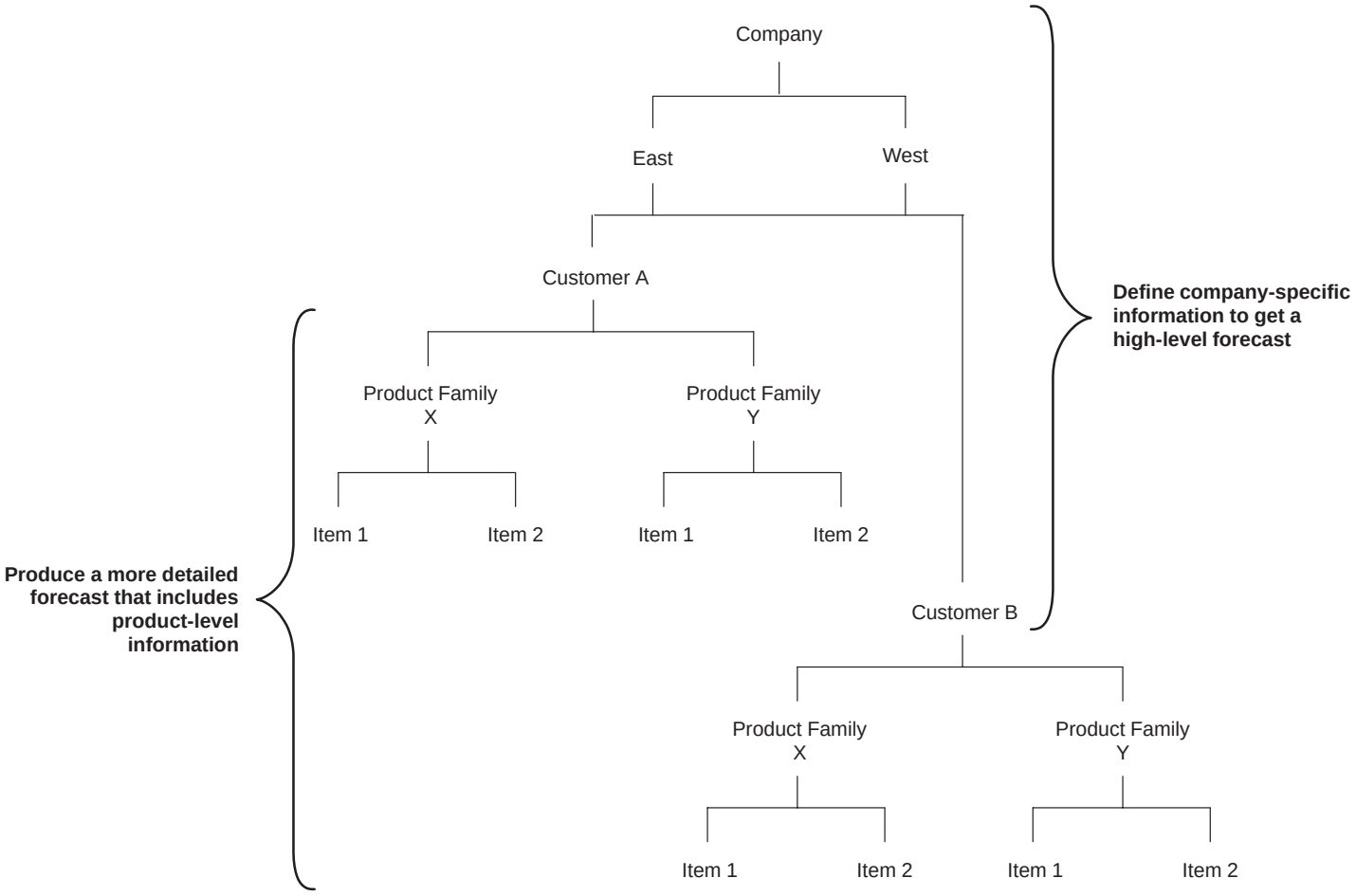
- ❑ Understanding summary forecasts
- ❑ Setting up summary forecasts
- ❑ Summarizing detail forecasts
- ❑ Working with summarized detail forecasts
- ❑ Generating summary forecasts

Company Hierarchies

You must define your company's hierarchy before you generate a summary forecast. J.D. Edwards recommends that you organize the hierarchy by creating a diagram or storyboard.

The following graphic illustrates this process.

Diagram 1



Establish a forecasting structure that realistically depicts the working operation of your company, from item level to headquarters level, to increase the accuracy of your forecasts. By defining your company's processes and relationships at multiple levels, you maintain more detailed information, and can better plan for your future needs.

Understanding Summary Forecasts

Summary forecasts include the following topics:

- ❑ Defining distribution hierarchies
- ❑ Summary of detail forecasts
- ❑ Summary forecasts

Defining Distribution Hierarchies

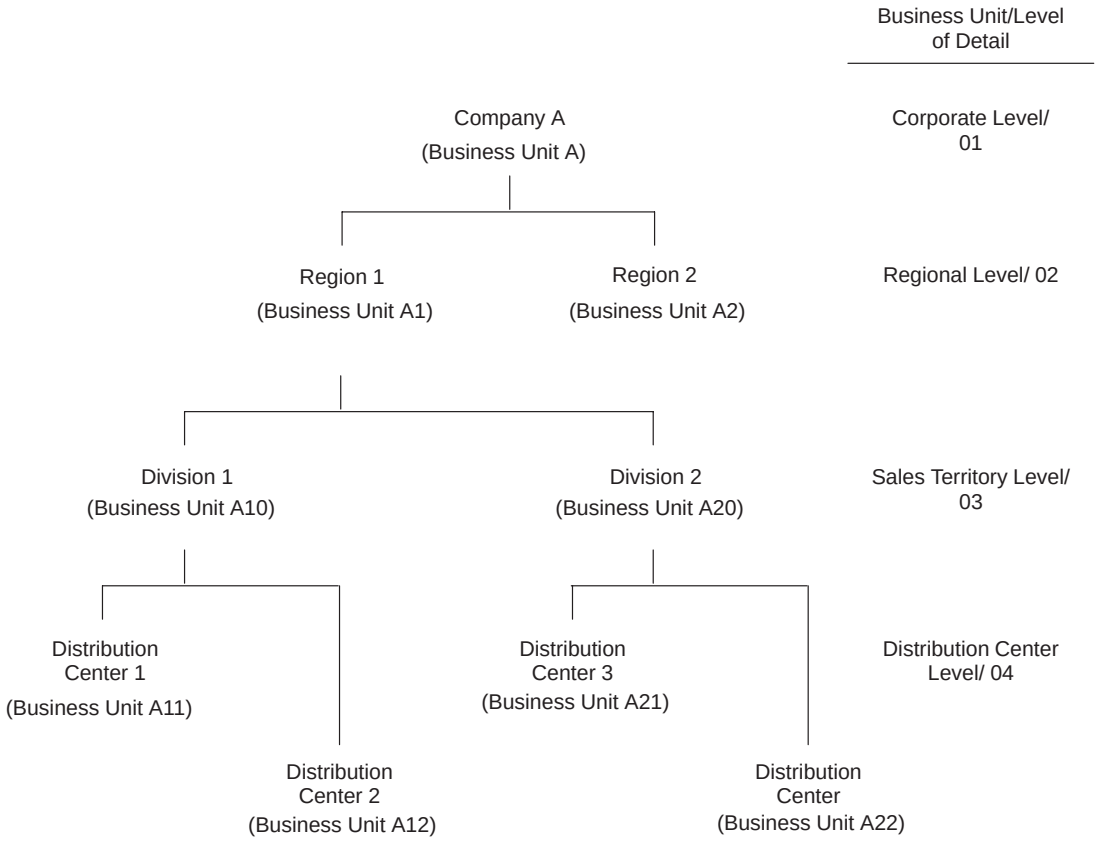
When planning and budgeting for divisions of your organization, you can summarize detailed forecasts based on your distribution hierarchy. For example, you can create forecasts by large customer or region for your sales staff, or create forecasts by product family for your production staff.

To define the distribution hierarchy, you must set up summary codes and assign summary constants. You also must enter address book, business unit, and item branch data.

Example: Distribution Hierarchy

The following chart shows an example of a distribution hierarchy.

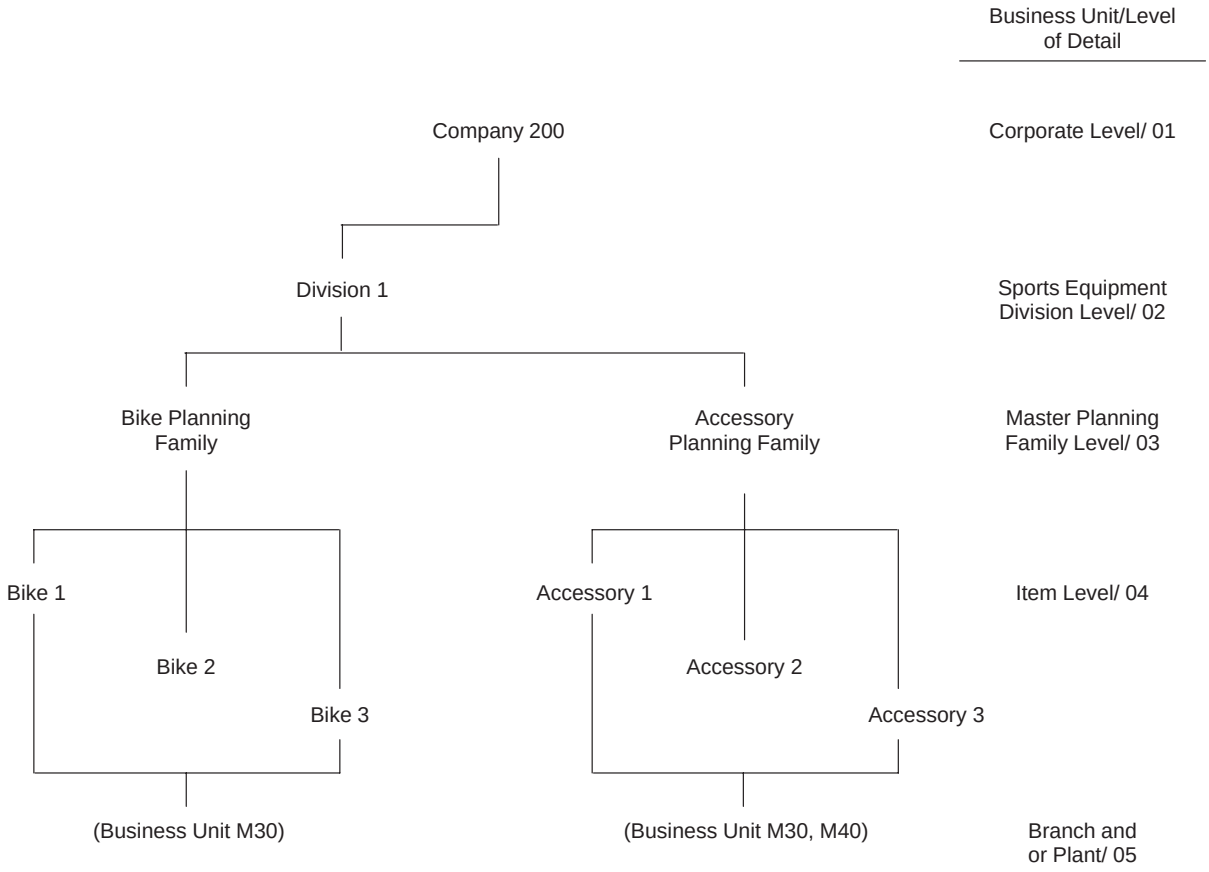
Distribution Hierarchy



Example: Manufacturing Hierarchy for Company 200

You might want to see a forecast of the total demand for a product summarized by product families. The following chart shows an example of how to set up a hierarchy to get the forecast summary by product.

Manufacturing Hierarchy

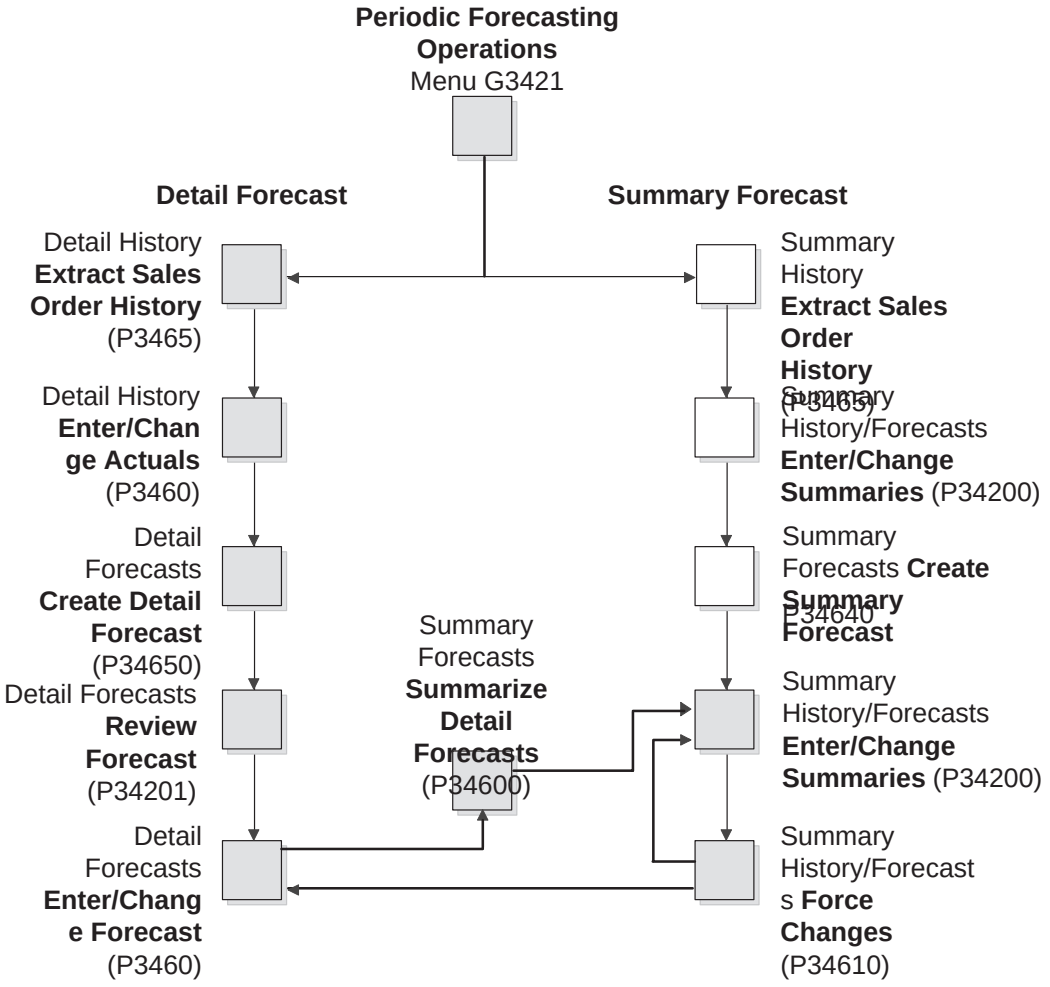


Summary of Detail Forecasts

A summary of a detail forecast uses item-level data and predicts future sales in terms of both item quantities and sales amounts.

The system updates the Sales Order History table (F42119) with sales data from the Sales Order Detail table (F4211). You copy the sales history into the Forecast table (F3460) to generate summaries of detail forecasts. The system generates summary forecasts that provide information for each level of the hierarchy that you set up with summary constants. These constants are stored in the Category Code Key Position table (F4091). Both summaries of detail forecasts and summary forecasts are stored in the Forecast Summary table (F3400).

The shaded blocks of the following graphic show this process.



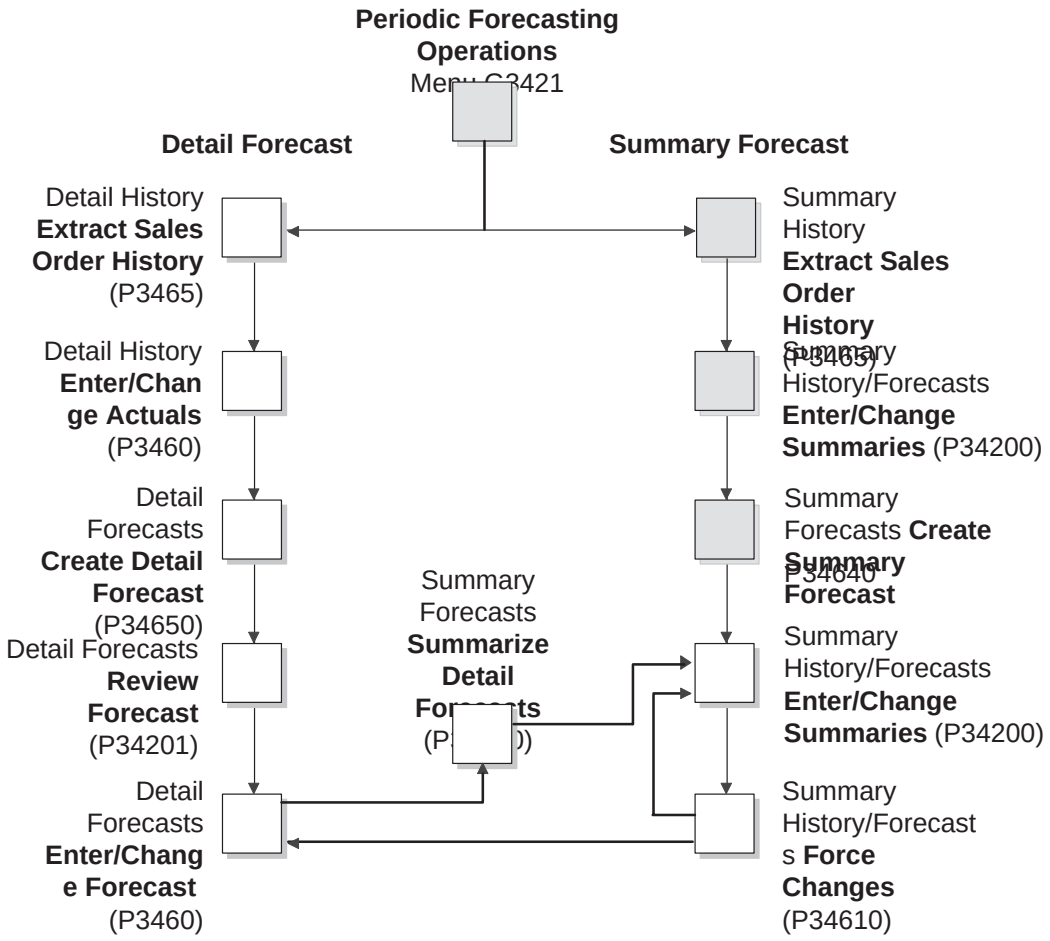
Summary Forecasts

Use summary forecasts to project demand at a product group level. Summary forecasts are also called aggregate forecasts. You generate a summary forecast based on summary actual data.

Summary forecasts combine sales history into a monetary value of sales by product family, by region, or in other groupings used as input to the aggregate production planning activity. You can use summary forecasts to run simulations (what if scenarios).

The system updates the Sales Order History table (F42119) with sales data from the Sales Order Detail table (F4211) to generate summary forecasts. You copy the sales history into the Forecast Summary table (F3400) to generate summary forecasts. The system generates summary forecasts that provide information for each level of the hierarchy that you set up with summary constants. Summary constants are stored in the Category Code Key Position table (F4091). Both summary forecasts and summaries of detail forecasts are stored in the Forecast Summary table.

The shaded blocks in the following graphic illustrate the process flow of generating a summary forecast.



Setting Up Summary Forecasts

For summary forecasts, the Forecasting system requires you to setup the information for detail forecasts and set up and define a summary hierarchy.

You set up your summary codes (40/KV) and then identify the constants for each summary code. These summary codes and constants define your distribution hierarchy.

To set up summary forecasts, you must:

- Define the hierarchy with summary codes and constants
- Enter address book data, business unit data, and item branch data

Complete the following tasks:

- ❑ Setting up summary codes
- ❑ Assigning constants to summary codes
- ❑ Revising address book category codes
- ❑ Reviewing business unit data
- ❑ Reviewing item branch category codes

Before You Begin

- ❑ Set up detail forecasts. See *Setting Up Detail Forecasts.*

Setting Up Summary Codes

To set up the hierarchy, you must set up summary codes and summary constants. For each hierarchy you define, you must specify a unique identifier called a summary code. For example, you can use summary code 999 to represent a hierarchy called Summarization by Region. When creating summary forecasts, you choose a summary code to indicate which hierarchy you want to work with.

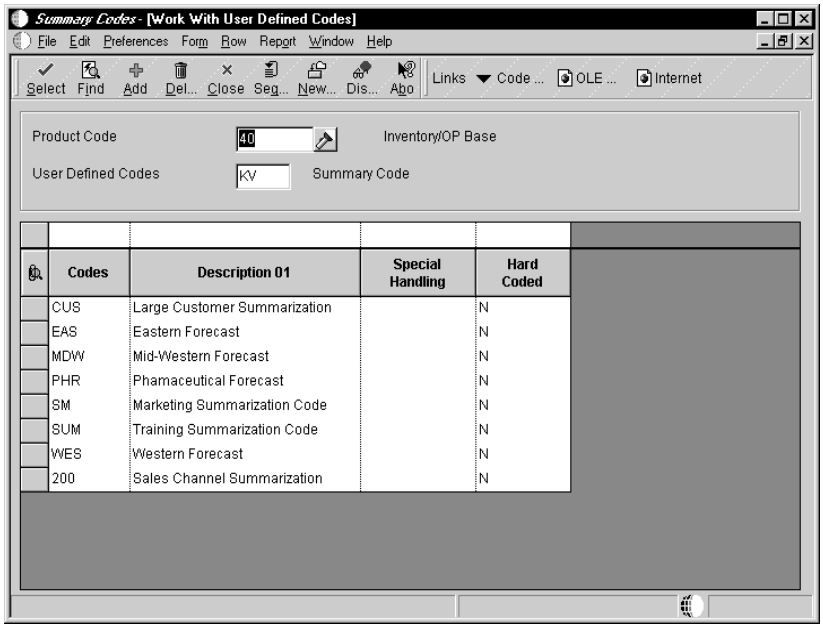
Before You Begin

❏ Update the sales history. See *Updating Customer Sales* in the *Sales Order Management Guide*.

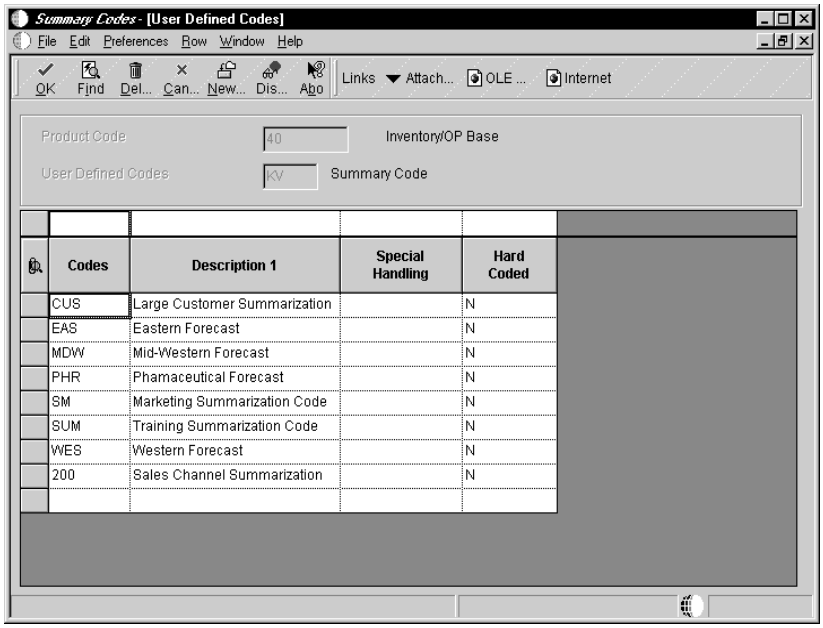
▶ To set up summary codes

From the Forecasting Setup menu (G3441), choose Summary Codes.

On Work With User Defined Codes



1. Click Add.



2. On User Defined Codes, complete the following fields:
    - Codes
    - Description 1
3. Complete the following optional fields and click OK:
    - Special Handling
    - Hard Coded

Assigning Constants to Summary Codes

For each summary code, use summary constants to define each level of the hierarchy. You can use category codes from the Address Book Revision program (P01012) and Item Master table (F4101) to define up to 14 levels in the hierarchy. You can define these levels as follows:

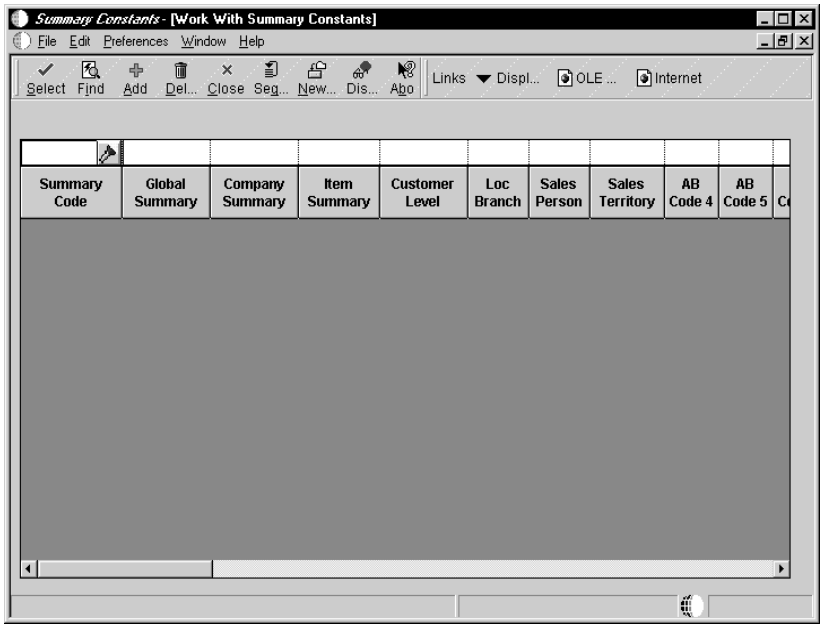
- Define the top level as the Global Summary to summarize forecasts for several companies into a single corporate view.
- Define the 2nd level as the Company Summary to summarize forecasts for all facilities in a single company.
- Define up to 11 middle levels, which include the category codes and the customer level.
- Use as many as 20 address book category codes and 20 item branch category codes to assign other levels in the hierarchy.
- Use the Customer Level field as another category code. You can specify each of your large customers as levels of the hierarchy. This allows you to create specific forecasts for each large customer.
- The lowest level you can define is the item level.
- Define an Item Summary level that provides forecasts for the individual item level. All detail forecast records for an item can be summarized at this level.

Detail records for a branch/plant item are automatically placed after all levels of the hierarchy. The system does not include these detail records as one of the 14 levels of the hierarchy.

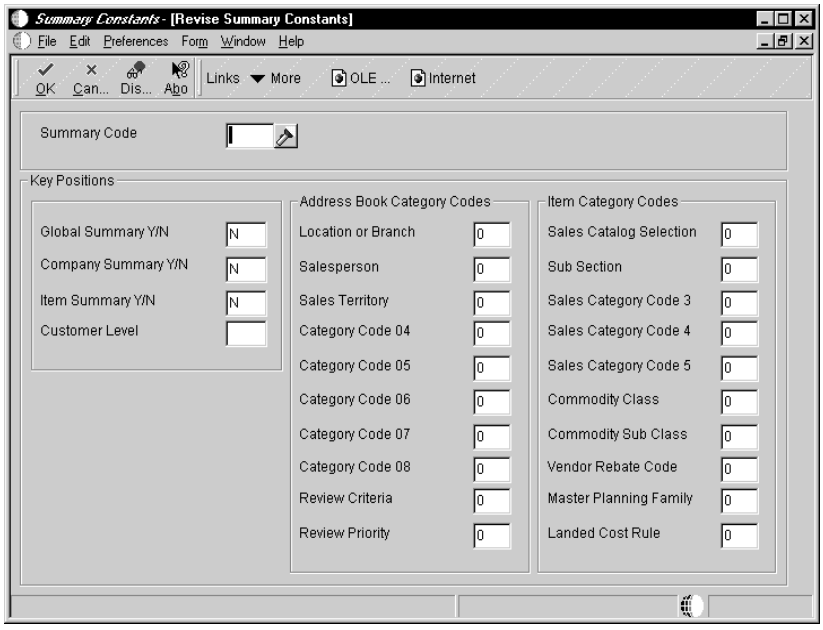
To assign constants to summary codes

From the Forecasting Setup menu (G3441), choose Summary Constants.

On Work With Summary Constants



1. Click Add.



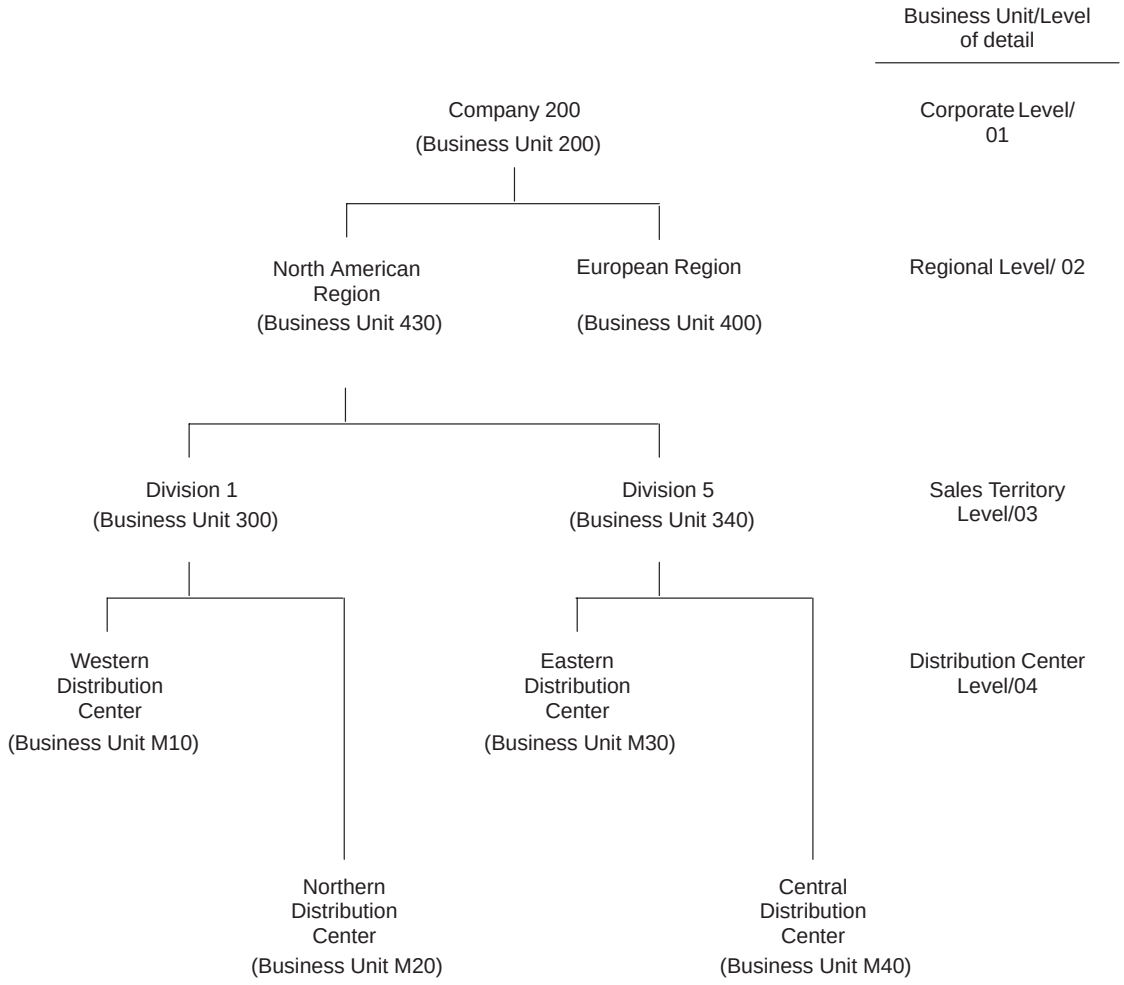
2. On Revise Summary Constants, complete the following fields:
    - Summary Code
    - Global Summary Y/N
    - Company Summary Y/N
    - Item Summary Y/N
    - Customer Level
3. To define the hierarchy levels, complete any of the following fields:
    - Location or Branch
    - Salesperson
    - Sales Territory
    - Category Code 04
    - Category Code 05
    - Category Code 06
    - Category Code 07
    - Category Code 08
    - Review Criteria
    - Review Priority
    - Category Code 20
    - Sales Catalog Selection
    - Sub Section
    - Sales Category Code 3
    - Sales Category Code 4
    - Sales Category Code 5
    - Commodity Class
    - Commodity Sub Class
    - Vendor Rebate Code
    - Master Planning Family
    - Landed Cost Rule
4. To display and enter additional summary constants, click the More button.
5. Click OK.

Field	Explanation
Summary Code	The key to distinguish between different forecasting hierarchies.
Global Summary Y/N	This flag indicates whether the forecast should be summarized to the global level. This level is the top level of the forecasting hierarchy and represents a summarization of all levels.
Company Summary Y/N	This flag indicates whether the forecast should be summarized to the Company level. This level is the next level above the level indicated as number one in the hierarchy. All forecasts within the company will be summarized into this level.
Item Summary Y/N	This flag indicates whether the forecast should be summarized down to the item number level. This level is the last level in the hierarchy. All forecast detail records for an item will be summarized into this level.
Customer Level	To use Customer Number as one of the levels in the forecasting hierarchy, enter that level number here.

Revising Address Book Category Codes

After you define the summary hierarchy for your company, verify that address book records exist for each business unit in the hierarchy. Then, assign the appropriate business unit code to the corresponding user defined category code in each address book record. These fields correspond to the levels in the hierarchy. The address book category codes associate the levels in the hierarchy when you generate summary forecasts.

Example: Assigning Category Codes



For example, Division 1 (in the North American Region) uses business unit code 430 as its address book Sales Territory (03) category code. The Western Distribution Center resides in Division 1. To establish the link to the North American Region, the address book category codes for the Western Distribution Center must include the business unit codes defined at each level of the hierarchy. In the address book for Western Distribution Center (M10), the Division 1 business unit code (300) resides in the Sales Territory (03) category code. The North American Region's business unit code (430) is assigned to the Region category code (04). The following table illustrates the category codes for the entire North American Region hierarchy.

Business Unit Description	Business Unit Number	Level of Detail	Address Book	Address Book Category Code
Corporate Business Unit	200	1	200	
North America Region	430	2	1234	
European Region	400	2	4567	
Division 1	300	3	5678	*Territory (03):* 430
Division 5	340	3	8765	*Territory (03):* 430
Northern Distribution Center	M20	4	6066	*Territory (03):* 300 *Region (04):* 430
Western Distribution Center	M10	4	6058	*Territory (03):* 300 *Region (04):* 430
Central Distribution Center	M40	4	6082	*Territory (03):* 340 *Region (04):* 430
Eastern Distribution Center	M30	4	6074	*Territory (03):* 340 *Region (04):* 430

At each level in the hierarchy, the first category code defines the next higher level in the hierarchy. The second category code defines the second higher level, and so on.

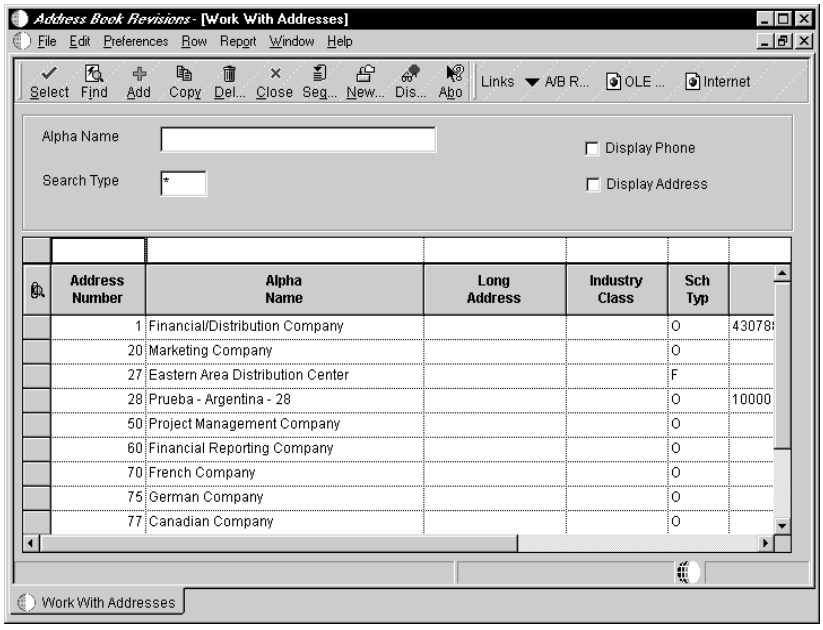
Before You Begin

❑ Enter new records for all locations and customers defined in your distribution hierarchy that are not included in your address book.

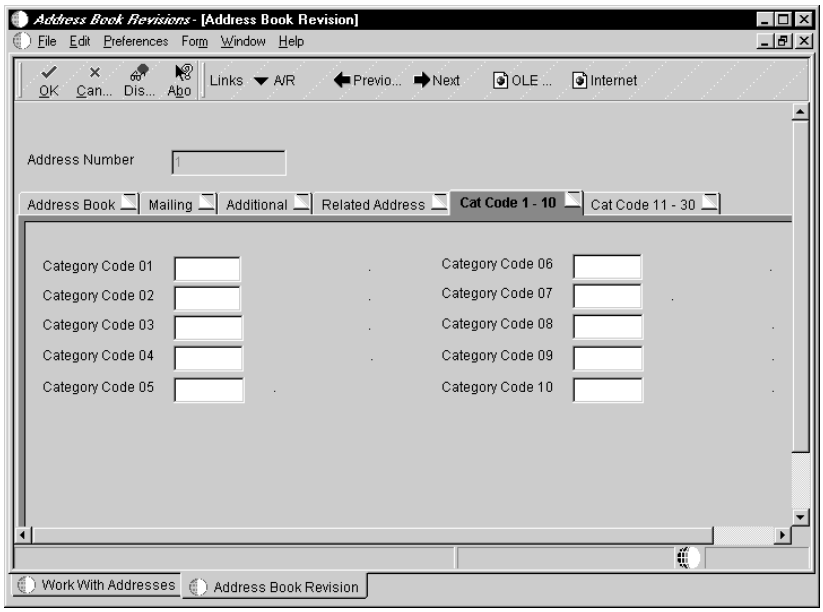
To revise address book category codes

From the Daily Processing menu (G01), choose Address Book Revisions.

On Work With Addresses



1. Complete the following fields and click Find:
   - Alpha Name
   - Search Type
2. Choose an address number and click Select.



3. On Address Book Revision, click the Cat Code 1-10 tab and complete any of the fields.
4. To access additional category code fields, click the Cat Code 11-30 tab.

See Also

- *Entering Basic Address Book Information* in the *Address Book Guide*

Field	Explanation
Alpha Name	The text that names or describes an address. This 40-character alphabetic field appears on a number of forms and reports. You can enter dashes, commas, and other special characters, but the system cannot search on them when you use this field to search for a name.

Reviewing Business Unit Data

Review the company business units and business unit address book numbers to verify that the business units and corresponding address book numbers have been set up correctly. To review company business units, review the level of detail for each business unit in the company hierarchy, and verify that the appropriate address book number is assigned to the business unit.

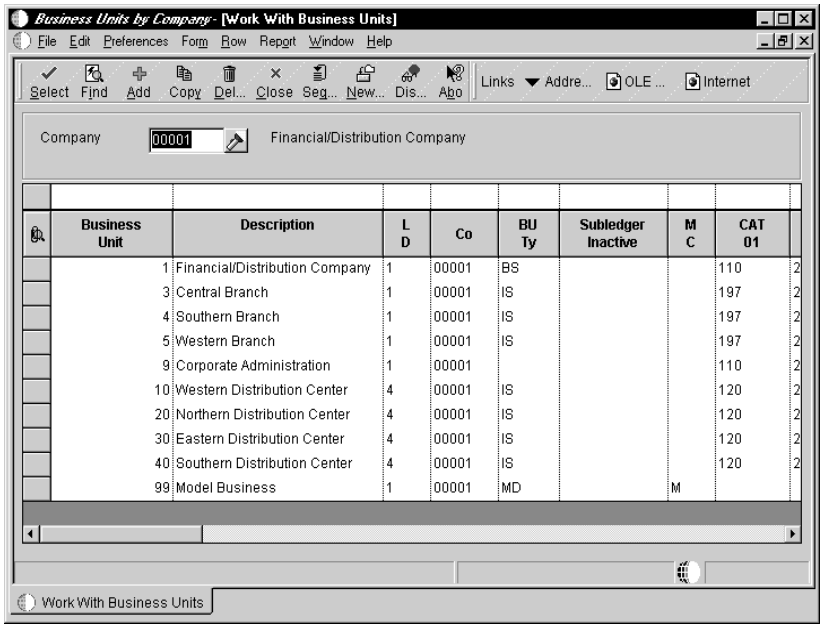
Before You Begin

❑ Set up the address book numbers for each business unit.

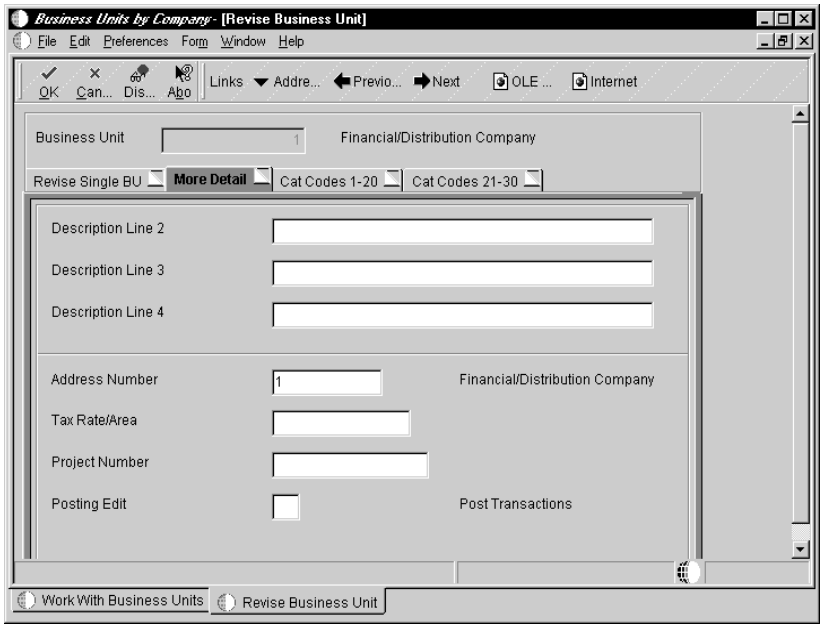
▶ To review business unit data

From the Organization & Account Setup menu (G09411), choose Business Units by Company.

On Work With Business Units



1. Complete the following field and click Find:
   - Company
2. Choose a business unit and click Select.



3. On Revise Business Unit, click the More Detail tab and complete the following field:

    - Address Number

Field	Explanation
Company	A code that identifies a specific organization, fund, entity, and so on. The company code must already exist in the Company Constants table (F0010) and must identify a reporting entity that has a complete balance sheet. At this level, you can have intercompany transactions. NOTE: You can use Company 00000 for default values, such as dates and automatic accounting instructions (AAIs). You cannot use Company 00000 for transaction entries.
Address Number	A number that identifies an entry in the Address Book system. Use this number to identify employees, applicants, participants, customers, suppliers, tenants, and any other address book members.

See Also

- *Creating Business Unit Structures* in the *General Accounting Guide*

Reviewing Item Branch Category Codes

Information for an item at a specific branch is maintained in item branch records. The system stores this information in the Item Branch table (F4102). You should review the

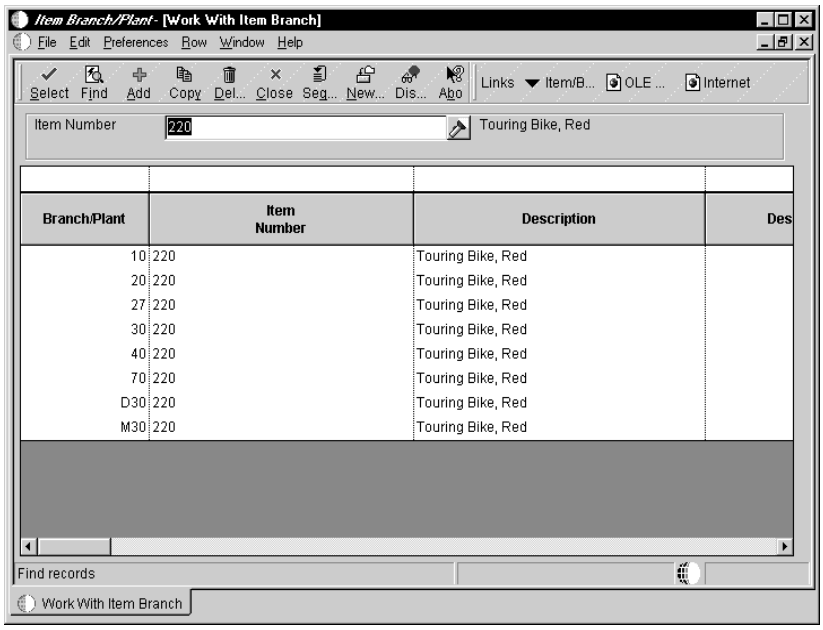
item branch records to verify that the items in each of your branch/plants contain data for the category codes you selected as levels on the Summary Constants form.

For example, if you select a Master Planning Family as part of a company hierarchy, you must verify that a corresponding user defined code exists in the item branch category code field for that Master Planning Family.

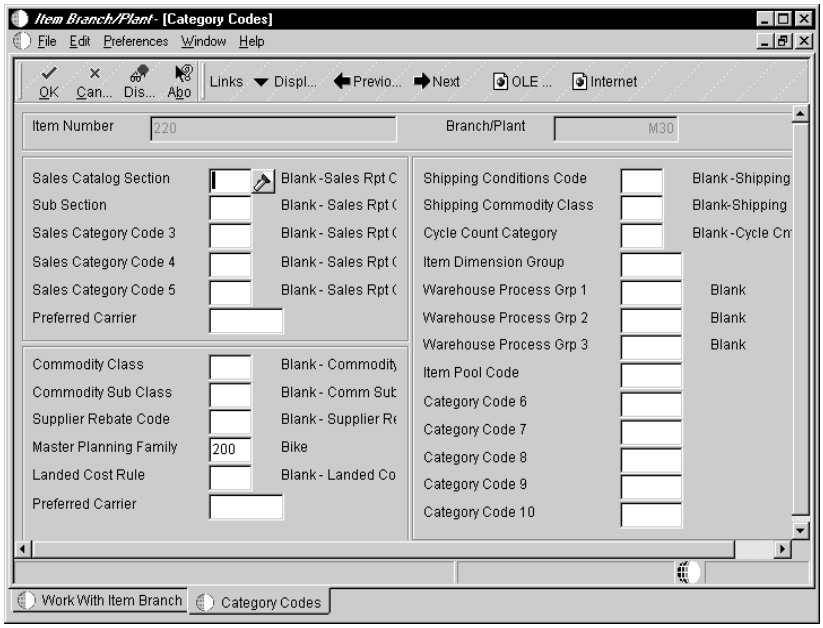
▶ To review item branch category codes

From the Inventory Master/Transactions menu (G4111), choose Item Branch/Plant.

On Work With Item Branch



1. Complete the following field and click Find:
   - Item Number
2. Choose a branch/plant and then choose Category Codes from the Row menu.



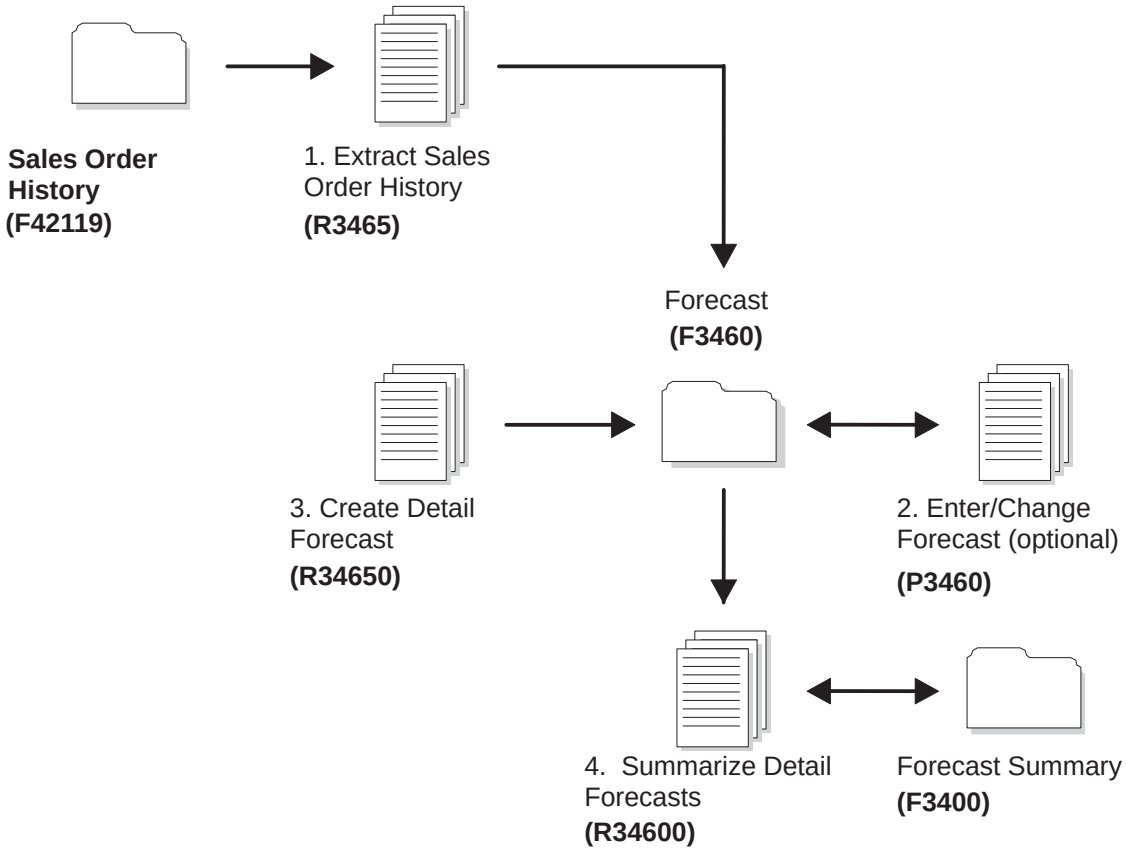
3. On Category Codes, verify the following field:
    - Commodity Class

Summarizing Detail Forecasts

From the Periodic Forecasting Operations menu (G3421), choose Summarize Detail Forecasts.

The Summarize Detail Forecasts program generates summary forecasts, which are stored in the Forecast Summary table (F3400), and are based on data from the Forecast table (F3460). The Summarize Detail Forecasts program (R34600) allows you to use detail data to generate summary forecasts that provide both sales amount and item quantity data. You can summarize detail actual sales data or forecasted data. Proper data selection is critical to accurate processing. You should include only items in the summary constants hierarchy.

Data in the Forecast table is based on both input that is copied from the Sales Order History table (F42119) using the Extract Sales Order History program and input that is generated by the Generate Detail Forecast program.



You do not need to clear the Forecast Summary table before you run this program. The system deletes any forecasts in the table for the summary code that you specify. If you enter the from and through dates, the system only deletes those forecasts within the date range. The system adds the forecast amounts to the selected record and then to every record in the hierarchy above it.

Before You Begin

❑ Run the Generate Detail Forecast program.

Processing Options: Summarize Detail Forecasts

Process Tab

For information about a processing option, right-click the processing option field and choose What's This from the menu. Or, click the processing option field and press F1.

Use these processing options to specify the defaults the system uses for the Summarize Detail Forecast program (P34600). These defaults include summary code, forecast type, beginning and ending dates, address, and fiscal date pattern.

The Summarize Detail Forecasts program generates summary forecasts, based on data from the Forecast table (F3460), and stores the forecasts in the Forecast Summary table (F3400). The summary forecasts provide both sales amount and item quantity data. You can summarize Detail Actual Sales data or forecasted data. Proper data selection is critical to accurate processing. You should include only items in the summary constants hierarchy.

1. Summary Code

Use this processing option to specify which summary code the system uses when running the summary. Summary code is a user defined code (40/KV) that identifies the summary code for running the summary. You define summary codes using the Summary Constants program (P4091) from the Forecasting Setup menu (G3441). Enter the summary code to use as the default value or choose it from the Select User Define Code form.

2. Forecast Type

Use this processing option to specify the detail forecast type that you want the system to use to summarize the forecast. Forecast type is a user defined code (34/DF) that identifies the detail forecast type. Enter the forecast type to use as the default value or choose it from the Select User Define Code form.

3. Beginning Date

Use this processing option to specify the date from which the system begins the summary forecast. Enter a date to use as the beginning forecast date or choose a date from the calendar. If you leave this field blank, the system uses all data to generate the summary forecast.

4. Ending Date

Use this processing option to specify the date from which the system ends the summary forecast. Enter a date to use as the ending forecast date or choose a date from the calendar. If you leave this field blank, the system uses all data to generate the summary forecast.

5. Address

Use this processing option to specify whether the system considers the address book numbers are part of the hierarchy or if the system retrieves the address book numbers from the business unit associated with the forecast.

If you leave this field blank, the system retrieves the address book numbers from the business units associated with the forecast detail. In the Business Units program (P0006) on the Organization Account Setup menu (G09411) you can determine which address number is assigned to a business unit. In this case, the system uses the category codes for that address number if you are using address book category codes in the summarization hierarchy.

If you enter 1, the system considers the address book numbers of the customers are part of the hierarchy. This customer number comes from the Forecast table (F3460). The customer number would be part of the forecast as a result of generating forecasts for large customers. If you did not generate forecasts for large customers or if you do not have any customers defined as large (ABC code on the Customer Master table (F0301) set to A) the system does not associate address book numbers with the forecasts.

Valid values are:

Blank The system retrieves the address book number from the business units associated with the forecast detail.

1 The system considers the address book numbers of the customers are part of the hierarchy.

6. Fiscal Date Pattern

Use this processing option to specify the monthly fiscal date pattern the system uses to create summary forecasts. Fiscal date pattern is a user defined code (H00/DP) that identifies the date pattern for the forecast. The system retrieves the pattern from the Date Fiscal Patterns table (F0008). Enter the fiscal date pattern to use as the default value or choose it from the Select User Define Code form. If you leave this field blank, the system creates records using dates from the detail forecast records.

Working with Summarized Detail Forecasts

After generating the forecasts, you can compare them to actual sales order histories. You can then revise both history and forecast data according to your own criteria.

When you review summaries of forecasts, you can also access a previously generated forecast. You can access a date range to display the sales order history and the forecast of item quantities or sales amounts. Then, you can compare actual sales to the forecast.

When you revise summaries of forecasts, you revise information in a specific level of the forecast. You can also use the Force Changes program to apply changes you made to the summary. You can apply these changes up the hierarchy, down the hierarchy, or in both directions.

Complete the following tasks:

- ❑ Reviewing a summary forecast
- ❑ Revising a summary forecast
- ❑ Revising summary forecasts using Forecast Forcing (optional)

Before You Begin

- ❑ Generate a summary forecast or a summary of detail forecast. See *Generating Summary Forecasts* or *Summarizing Detail Forecasts*.

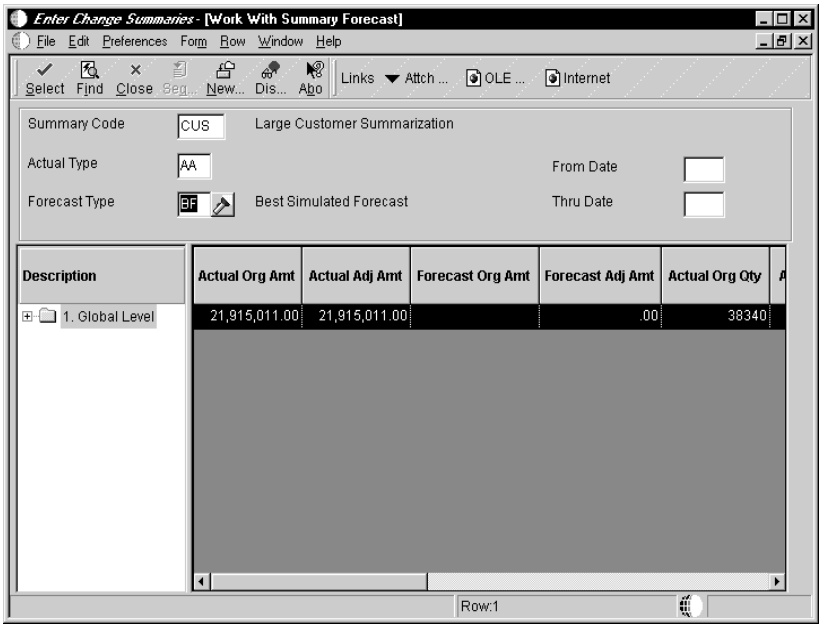
Reviewing a Summary Forecast

Use the Enter Change Summaries program to review summaries of your forecasts. You can also review previously generated forecasts.

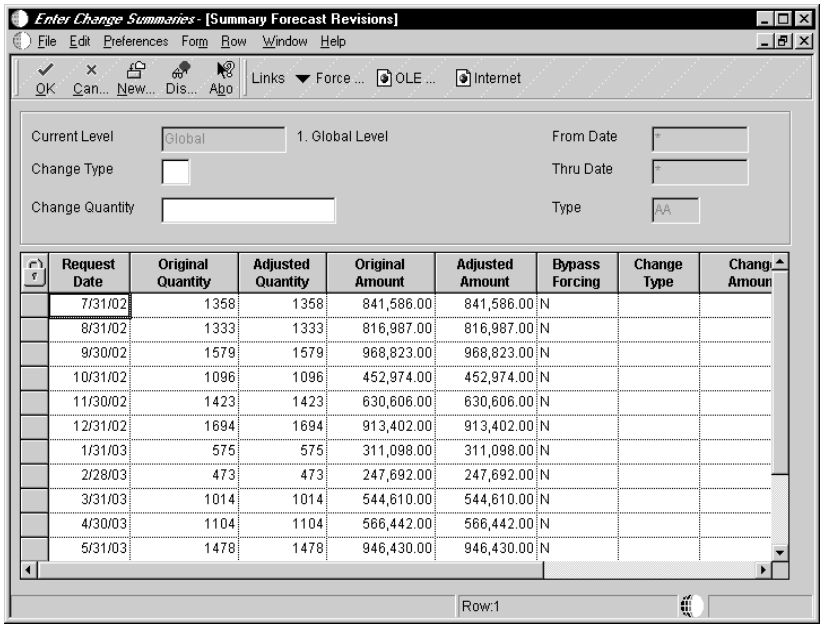
▶ To review a summary forecast

From the Periodic Forecasting Operations (G3421) menu, choose Enter Change Summaries.

On Work With Summary Forecasts



1. Complete the following fields and click Find:
   - Summary Code
   - From Date
   - Thru Date
   - Actual Type
   - Forecast Type
2. Choose the record that you want to review and click Select.



3. On Detail Forecast Revisions, review the following fields:
   - Original Quantity
   - Adjusted Quantity
   - Original Amount
   - Adjusted Amount

Field	Explanation
From Date	The date that an item is to arrive or that an action is to be complete.
Thru Date	The date of the last update to the file record.
Adjusted Quantity	The quantity of units forecasted for production during a planning period.
Adjusted Amount	The current amount of the forecasted units for a planning period.

Processing Options for Enter/Change Summaries

```
Defaults

      Forecast Type                                    _____
      Actual Type                                      _____
```

```
Versions

Enter the version for each program.  If
    left blank, either ZJDE0001 or the
    version listed will be used.

      1.  Forecast Forcing  (XJDE0001)              _____________
      (R34610)
      called.
      2.  Forecast Review By Type                   _____________
      (P34300)
      3.  Forecast Revisions (P3460)                _____________
```

Revising a Summary Forecast

After reviewing the forecasts, you can compare them to actual sales order histories. You can then revise both forecast data according to your own criteria.

If you run the Generate Summary Forecast program to update the Summary Forecast table, the revision forms do not display lower-level forecasts of item quantities. However, if you run the Summarize Detail Forecasts program to update the Summary Forecast table, these forms display the lower-level forecasts of item quantities.

▶ To revise a summary forecast

From the Periodic Forecasting Operations (G3421) menu, choose Enter Change Summaries.

On Work With Summary Forecasts

1. Complete the following fields and click Find:
   - Summary Code
   - From Date
   - Thru Date
   - Actual Type
   - Forecast Type
2. Choose the record that you want to review and click Select.
3. On Summary Forecast Revisions, complete the following fields to change information for the entire forecast summary:
   - Change Type
   - Change Amount
4. To change information for individual lines, complete the following fields:
   - Adjusted Quantity
   - Adjusted Amount

5. Complete the fields that appear based on summary constants and click OK.
6. To apply the changes to higher or lower levels in the hierarchy, choose Force Revisions from the Form menu.

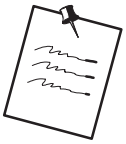
Field	Explanation
Change Type	A field that tells the system whether the number in the New Price field is an amount or a percentage. Codes are: A Amount % Percentage
Change Amount	The amount of the future change in unit price. This number can be either a dollar amount or a percentage value. If the next field (Column Title = PT) is a $ sign, the change is in dollars; if the value is a % sign, the change is to be a percentage of the current price. NOTE: When entering a percentage, enter it as a whole number. For example:

Revising Summary Forecasts Using Forecast Forcing

From the Periodic Forecasting Operations (G3421) menu, choose Force Changes.

Force Changes enables you to apply the manual changes that you made to the summary of a forecast either up the hierarchy (aggregation), down the hierarchy (disaggregation), or in both directions. The system stores these changes in the Summary Forecast table.

You can force changes to quantities, amounts, or both. When you make changes both up and down the hierarchy, the program resets the flag on the record to indicate the change. The program makes changes down the hierarchy to the lowest detail level. These changes are also updated in the Detail Forecast table.



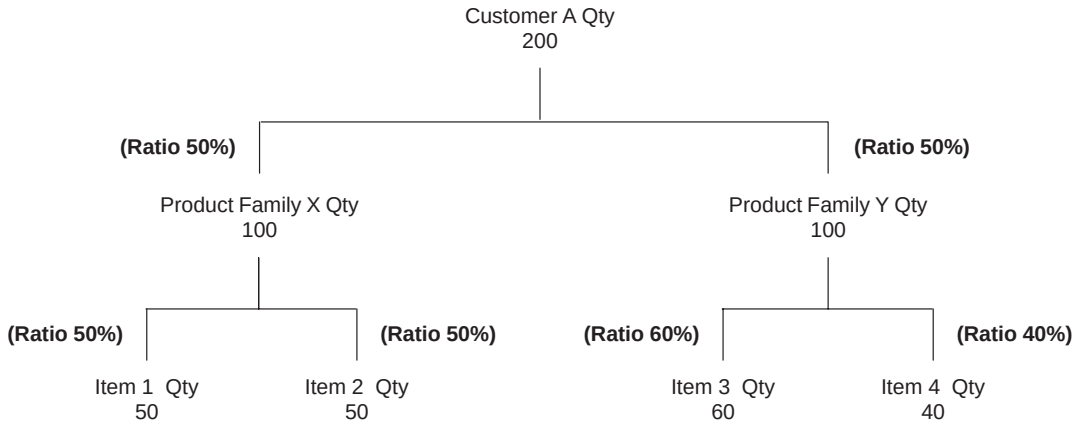
If you force changes in only one direction, the program resets the flag based on a processing option. You can lose the ability to make changes in the other direction if you force a change in only one direction.

On Enter/Change Summaries, you can set the Bypass Force flag for records in the hierarchy below an adjusted record. The system subtracts the bypassed record's amounts and quantities from the parent's amounts and quantities before calculating the percentages. The system distributes the total amounts to the other children in the hierarchy that were not bypassed. You can only bypass records when you make changes down the hierarchy.

Example: Using Force Changes

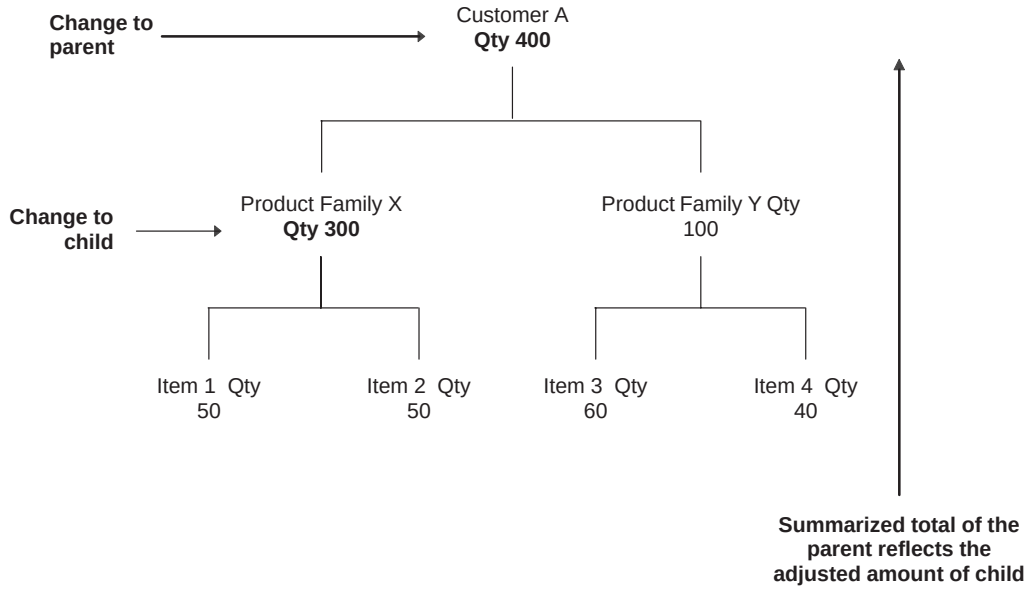
The Force Changes program uses the parent/child relationship at each level within the hierarchy to calculate a parent/child ratio. The parent/child ratio is the percentage of the amount or quantity for each child level, based on the total amount or quantity of the parent.

In the following example, the parent's original amount is 200 and its two children in the next level each have an original amount of 100. The program calculates the ratio as 50% of the parent. The parent/child ratio is calculated at each level of the hierarchy.

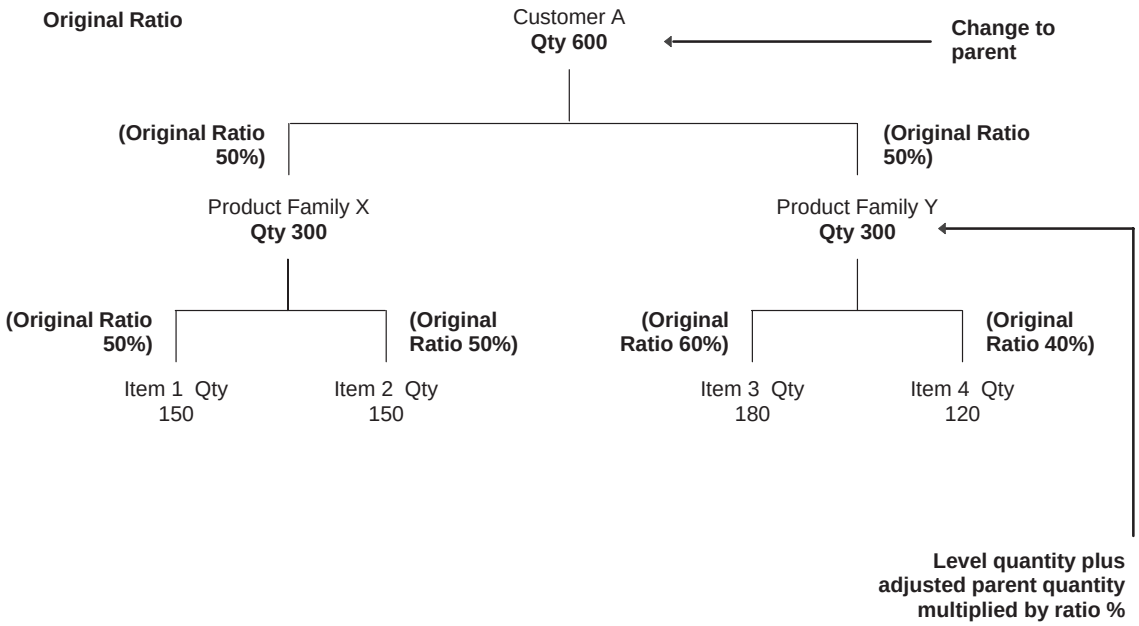


When forcing the changes up the hierarchy, the program summarizes each record again so that the summarized total of the records above it reflects the adjusted amount.

The system summarizes the changes to the lower levels up to the parent level. If you change Product Family X from a quantity of 100 to a quantity of 300, the parent quantity changes to 400.

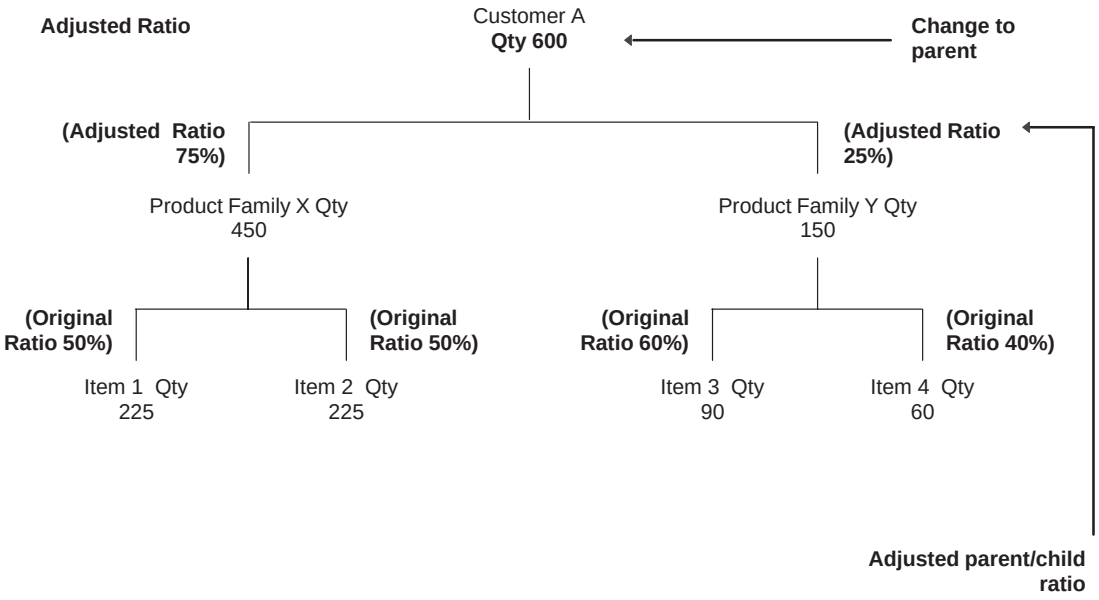


The Force Changes program also makes adjustments down the hierarchy. The parent/child ratio can be based on an original parent/child ratio or an adjusted parent/child ratio.



Using the original parent/child ratio, the system maintains the parent/child ratio when the parent quantity changes. The system uses the adjusted quantity of the parent to calculate the changes at the next lower level. An increase of 600 units to Customer A using the original ratio of 50% for each child results in the children calculation of 600 x .5 = 300 each.

The following graphic illustrates an adjusted parent/child ratio of 75% for child 1 and 25% for child 2.



Before You Begin

- ❑ Review and revise the summary forecast.
- ❑ Choose the processing option that indicates a specific forecast type with which to make changes.
- ❑ Choose the processing option that indicates the direction in which you want to make changes.

Processing Options for Force Changes

Process

1.) Enter a '1' to force changes up the hierarchy, a '2' to force changes down the hierarchy or blank to do both. _____

2.) Enter a '1' to reset the Revised flag on the records. _____

3.) Enter a '1' to force changes made to Quantities only. Enter a '2' to force changes made to Amounts only. Blank will force changes made to both. _____

4.) Enter a '1' to calculate the parent/child ratios using adjusted forecast values. Blank will calculate the ratios using original forecast values. _____

5.) Enter the Summary Code to force changes for. It is a required field and it will override any Summary Code selected in Data Selection. _____

Note: The Fiscal Date Pattern is required if forcing down and the Summary and Detail Forecasts were created with different Fiscal Date Patterns.

6.) Enter the Fiscal Date Pattern that was used to create this Summary Forecast. _____

Generating Summary Forecasts

The system generates summary forecasts based on sales history data that you copy from the Sales Order History table (F42119) into the Forecast Summary table (F3400). When you copy the sales history, you specify a date range based on the request date of the sales order. The sales history data can be distorted by unusually large or small values (spikes or outliers), data entry errors, or missing demand (sales orders that were cancelled due to lack of inventory).

You should review the data in the date range you specified to identify missing or inaccurate information. You then revise the sales order history to account for inconsistencies and distortions when you generate the forecast. If you want to account for changes in sales order activity for an especially large customer, the J.D. Edwards Forecasting system allows you to work with that customer's changes separately.

To generate summary forecasts for item quantities on all levels of the hierarchy, first generate a detail forecast, then run the Summarize Detail Forecasts program.

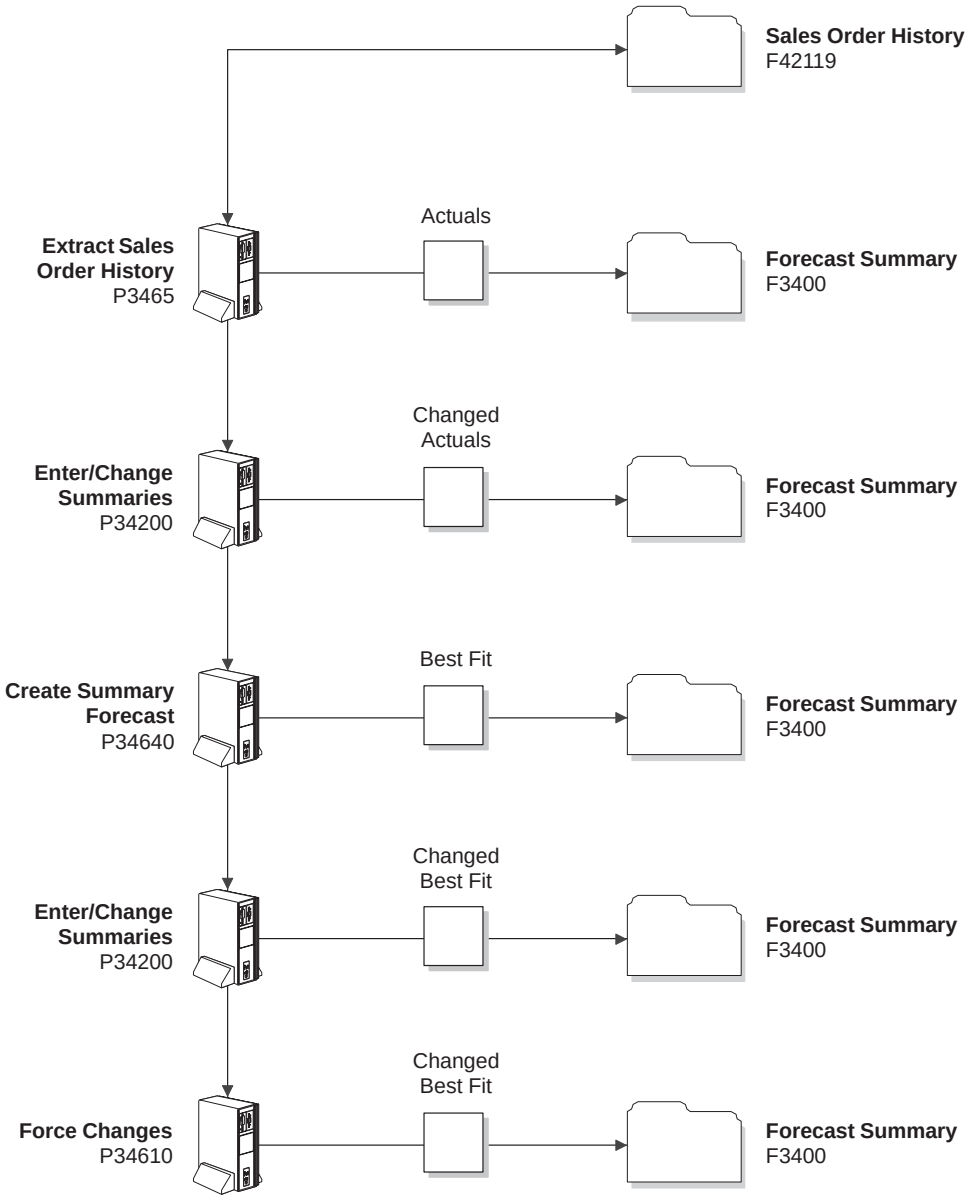
Complete the following tasks:

- ❑ Copying summary sales order history
- ❑ Creating a summary forecast
- ❑ Revising sales order history

Copying Summary Sales Order History

From the Periodic Forecasting Operations menu (G3421), choose Extract Sales Actuals.

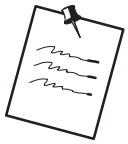
The system generates summary forecasts based on data in the Forecast Summary table. Use Extract Sales Order History to copy the sales order history (type AA) from the Sales History table to the Forecast Summary table based upon criteria that you specify.



The system stores sales order histories in the Forecast Summary table with forecast type AA or a type code you designate.

You do not need to clear the Forecast Summary table before you run this program. The system automatically deletes any records that are for the same:

- Period as the actual sales order histories to be generated
- Items
- Sales order history type (AA)
- Branch or plant



The Extract Sales Order History program converts sales orders into the primary unit of measure and adjusts the resulting quantities.

Before You Begin

- ❑ Set up detail forecasts. See *Setting Up Detail Forecasts.*
- ❑ Set up the summary forecast. See *Setting Up Summary Forecasts.*

See Also

- *Creating Customer Records* in the *Accounts Receivable Guide*
- *Copying Sales Order History* to review the processing options for Extract Sales Actuals

Creating a Summary Forecast

From the Periodic Forecasting Operations menu (G3421), choose Create Summary Forecast.

The Generate Summary Forecast program allows you to test simulated versions of future sales scenarios without having to run full detail forecasts. You can use this program to simulate and plan long-range trends because this program does not update information in the Forecast table, which is used as input to DRP, MPS, and MRP generation.

You can simulate multiple forecasting methods, including the system's 12 hard-coded methods, with past sales order histories and then select the best fit as determined by the system or another appropriate model to generate a forecast of future sales amounts. You can also select a specific forecasting method and use that model to generate the current forecast. The system generates forecasts of sales amounts for each level in the hierarchy and stores them in the Forecast Summary table.

The Generate Summary Forecast program uses the same 12 forecasting methods used to create detail forecasts. However, the system creates forecast information for each level in the hierarchy.

You can also use the Generate Summary Forecast program to:

- Specify the summary code for the hierarchy for which you want to forecast
- Generate summary forecasts based on sales history
- Select a best fit forecast
- Store any or all of the forecast methods in the Forecast Summary table
- Generate the forecast in a fiscal date pattern you select
- Specify the number of months of actual data to use to create the best fit
- Forecast for individual large customers
- Forecast an unlimited number of periods into the future

If you use the default type codes in the processing options, the actual sales history records are identified by type AA, and the best fit model is identified by type BF. The system saves the BF type and AA type records (or corresponding type codes that you designate) in the Forecast Summary table. However, forecast types 01 through 12 are not automatically saved. You must set a processing option to save them.

When you run the Generate Summary Forecast program, the system:

- Extracts sales order history information from the Forecast Summary table
- Calculates the forecasts using methods that you select
- Determines the percent of accuracy or mean absolute deviation (MAD) for each selected forecast method
- Recommends the best fit forecast method
- Generates the summary forecast in both monetary amounts and units from the best fit forecast

Before You Begin

❑ Run the Extract Sales Order History program.

❑ Make changes to the sales order history with the Enter/Change Actuals program.

❑ On Generate Summary Forecast, set the Dollar/Unit Forecast processing option to the value that means forecast summary amounts.

See Also

- *R34640, Create Summary Forecasts* in the *Reports Guide* for a report sample

Processing Options for Create Summary Forecast

```
Method 1-3

Enter a '1' or a Forecast Type next to
    the Method desired

      1.)  Percent Over Last Year                _____________
      Percent                                    _____________

Note: Enter the percent increase over
    last year (i.e. 110 for 10%
    increase, 97 for a 3% decrease)

      2.) Calculated Percent Over Last           _____________
      Year
      Enter the Number of periods to             _____________
      include in the percentage.
      3.) Last Year to This Year                 _____________

Method 4-6

      4.) Moving Average                         _____________
      Enter the number of periods to             _____________
      include in the average.
      5.) Linear Approximation                   _____________
      Enter the number of periods to             _____________
      include in the ratio.
```

6.) Least Squares Regression _____
Enter the number of periods to _____
include in the regression.

Method 7-8

7.) Second Degree Approximation _____
Enter the number of periods. _____
8.) Flexible Method (Percent over _____
N periods prior)
Enter the number of periods _____
prior.
Percent over the prior period _____
(i.e. 110 equals 10% increase, 97
equals 3% decrease)

Method 9

9.) Weighted Moving Average _____

Note: The weights must add up to 100
(i.e. 60, 30, 10).

Weight for one period prior _____
Weight for two periods prior _____
Weight for three periods prior _____
Weight for four periods prior _____

Method 9 Cont.

Weight for five periods prior _____
Weight for six periods prior _____
Weight for seven periods prior _____
Weight for eight periods prior _____
Weight for nine periods prior _____
Weight for ten periods prior _____

Method 9 Cont.

Weight for eleven periods prior _____
Weight for twelve periods prior _____

Note: If no weight is entered for a
period within the number of periods
a weight of zero will be used for
that period. Weights entered for
periods greater than the number of
periods will not be used.

Enter the number of periods to _____
include.

Method 10-11

10.) Linear Smoothing _____
Enter the number of periods to _____
include in the smoothing average.
11.) Exponential Smoothing _____
Enter the number of periods to _____
include in the smoothing average.
Enter the Alpha factor. If left _____
blank it will be calculated.

Method 12

12.) Exponential Smoothing with Trend and Seasonality factors _____

Enter the Alpha factor. If blank it will be calculated. _____

Enter the Beta factor. If blank it will be calculated. _____

Enter a '1' to include seasonality in the calculation. _____

Defaults

1.) Enter the Forecast Type to use when creating forecasts. _____

Process 1

1.) Enter a '1' to run in Final mode which will create forecast records. Blank defaults to Proof mode which will only create the simulation report. _____

2.) Enter a '1' to specify weekly forecasts. Blank defaults monthly. _____

3.) Enter the date to start forecasts. Default of today's date if left blank. _____

4.) Enter Number of periods to forecast. Default of 3 periods if blank. _____

5.) Enter the number of periods of actual data to be used to calculate best fit forecast. If left blank 3 periods of data will be used. _____

Process 2

6.) Enter a '1' to calculate Best Fit forecast using Mean Absolute Deviation. Blank will calculate the Best Fit using Percent of Accuracy. _____

7.) Enter a '1' to forecast using amounts. Default of blanks will forecast quantities. _____

8.) Enter the Fiscal Date Pattern type to use for forecast dating. _____

9.) Enter a '1' to allow negative values to be written. If left blank, negative values will be written as zeroes. _____

Revising Sales Order History

After you copy the sales order history into the Forecast Summary table (F3400), you should review the data for spikes, outliers, entry errors, or missing demand that might distort the forecast. Revise the sales order history manually to account for these inconsistencies before you generate the forecast.

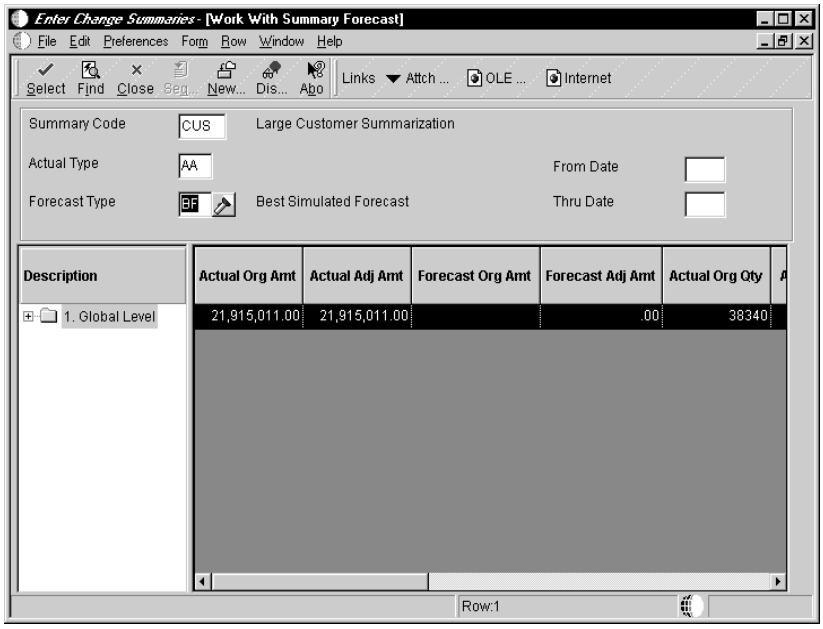
Before You Begin

❑ Run the Extract Sales Order History program.

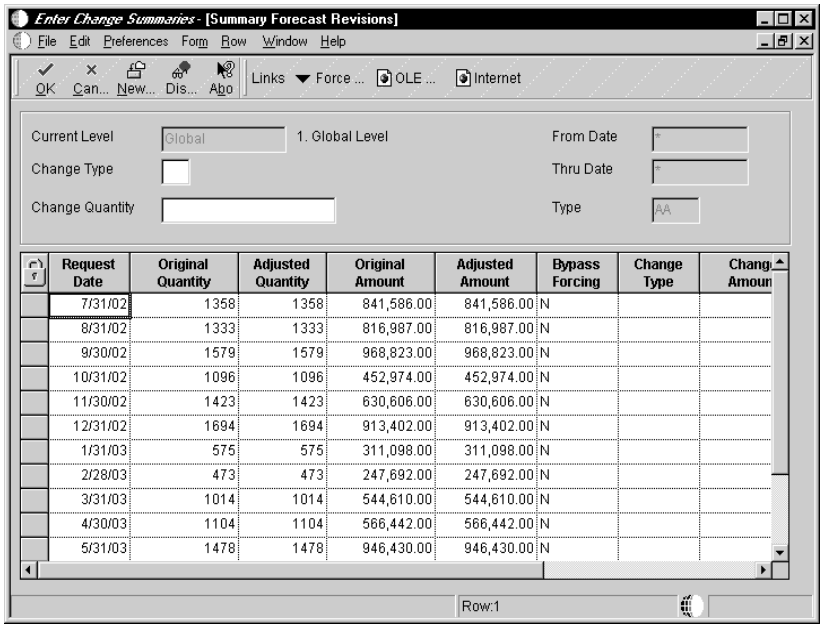
▶ To revise summary sales order history

From the Periodic Forecasting Operations menu (G3421), choose Enter Change Summaries.

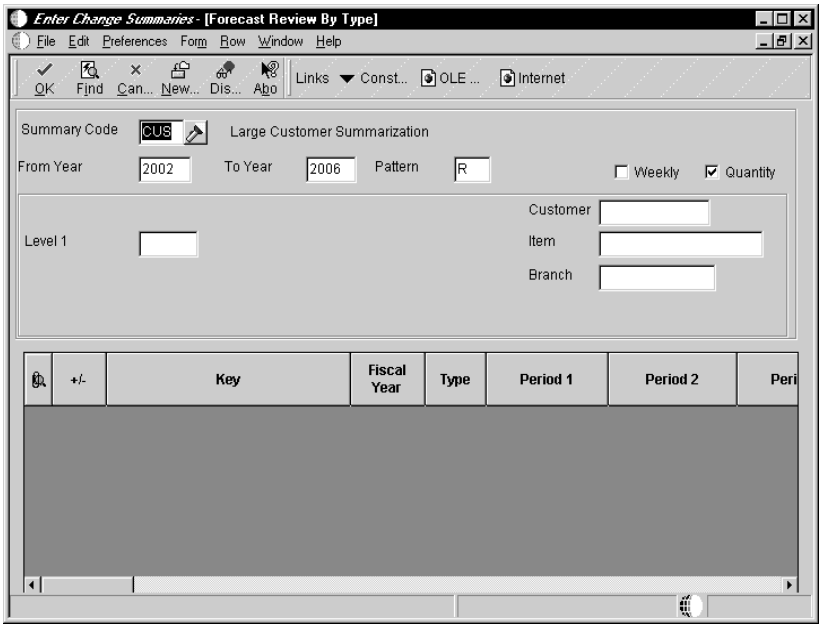
On Work With Summary Forecasts



1. Complete the following fields and click Find:
   - Summary Code
   - Actual Type
   - Forecast Type
   - From Date
   - Thru Date
2. Choose the record that you want to review and click Select.



3. On Summary Forecast Revisions, review the following fields:
    - Original Quantity
    - Adjusted Quantity
    - Original Amount
    - Adjusted Amount
4. Complete the following fields to change information for the entire forecast summary:
    - Change Type
    - Change Amount
5. To change information for individual lines, complete the following fields and click OK:
    - Adjusted Quantity
    - Adjusted Amount
    - Bypass Forcing
6. On Work with Summary Forecasts, choose Review from the Form menu.



7. On Forecast Review by Type, review the following fields:
    - Fiscal Year
    - Weekly
    - Quantity
    - Level 1-10
    - Type
    - Periods 1-52

Field	Explanation
Bypass Forcing	This indicates whether to bypass the force changes program. A Y indicates that the quantity and amount of a forecast should not be changed by an adjustment made to a forecast higher or lower in the hierarchy.
Fiscal Year	Values are: • 00 through 99 to designate a specific fiscal year • blanks to designate the current fiscal year (financial reporting date) • * to designate all fiscal years • –9 through –1 to designate a previous fiscal year (relative to the financial reporting date) • +1 through +9 to designate a future fiscal year (relative to the financial reporting date)
Weekly	A flag to display weekly or monthly records.
Quantity	A flag to display the Quantity or the Amount data in records.

Field	Explanation
Level 1	The first key postion of the forecasting hierarchy. The value in this field relates to the first level chosen in the forecasting constants.
Level 10	The tenth key postion of the forecasting hierarchy. The value in this field relates to the tenth level chosen in the forecasting constants.
Period 1	Time Series Column 01. This column will hold Time Series Dates or Quantities.
Period 52	Time Series Column 52. This column will hold Time Series Dates or Quantities.

See Also

- *Reviewing a Summary Forecast* to review the processing options for Enter/Change Summaries

Planning Bill Forecasts

Working with Planning Bill Forecasts

Planning bills are groups of items in a bill of material format that reflect how an item is sold, rather than how it is built. Planning bills allow you to account for the variety of possible options and features that might be included as components in a saleable end item.

This topic includes the following tasks:

- ❑ Understanding Planning Bill Forecasts
- ❑ Setting Up a Planning Bill
- ❑ Generating Planning Bill Forecasts

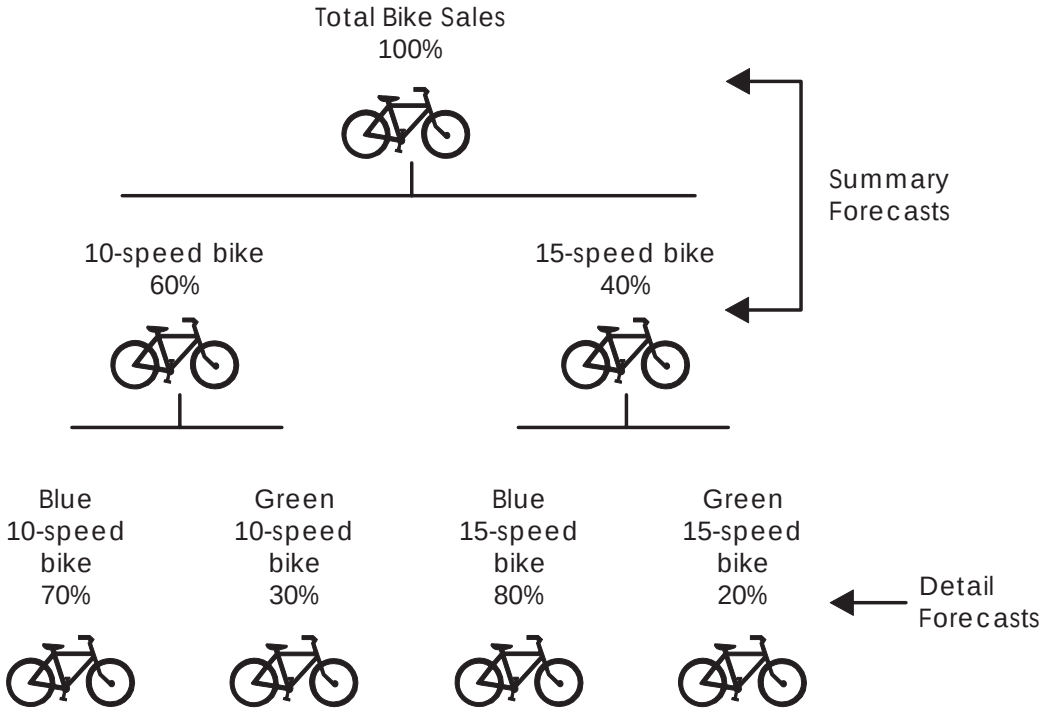
Understanding Planning Bill Forecasts

You can use a planning bill to configure a hypothetical average parent item that is not actually manufactured, but represents the components needed to satisfy demand for all the combinations of options and features that you expect to sell. For example, if your sales history shows that, of all the bikes you sell, 60% are 10-speed bikes and 40% are 15-speed bikes, your planning bill includes an average parent bike that is neither a 10-speed bike nor a 15-speed bike, but a hybrid pseudo bike that is 60% 10-speed bike and 40% 15-speed bike.

Use planning bills during master scheduling and/or material planning. You can forecast with a planning bill to determine component demand within the MPS, MRP, and DRP systems.

Example: Pseudo Parent Item

Your sales history shows that 60% of the bikes that you sell are 10-speed bikes and 40% are 15-speed bikes. Of the 10-speed bikes, 70% are blue and 30% are green. Of the 15-speed bikes, 80% are blue and 20% are green. You use these percentages to configure a pseudo parent item.



The average parent bike will be:

- 60% 10-speed
- 40% 15-speed
    - 42% blue 10-speed (70% of 60%)
    - 18% green 10-speed (30% of 60%)
    - 32% blue 15-speed (80% of 40%)
    - 8% green 15-speed (20% of 40%)

You decide to manufacture or purchase at these percentages.

Summary forecasts are more accurate than detail forecasts. A forecast for the total number of bikes that will sell in 1998 is more accurate than a forecast for blue 10-speed bikes that will sell in 1998.

The forecast is based upon total bike sales history. This is the summary forecast. The option percentages produce a production (or purchase) forecast for each of the options. This is the detail forecast.

Exploding the Forecast to the Item Level

You use the planning bill to explode a forecast for the total number of products down to the level of the specific combination of options and features included in each saleable end item.

As you set up a planning bill, you designate each level of the item hierarchy above the end item level as a phantom parent with a planning code of 4. You designate the saleable end items as components of the phantom parents with a planning code of 5.

As you generate the planning bill forecast, you use processing options to designate a forecast type to be read as input and a forecast type to be calculated for the components. You also designate the calculated forecast type as the second type to be read so that it can be exploded down through each level of the hierarchy until the forecast is applied to the saleable end items.

Example: Exploding the Forecast

You use a planning bill to configure an average parent item that represents total bike sales. This pseudo parent bike represents the top level of the item hierarchy and is configured as follows:

- 60% 10-speed bike
- 40% 15-speed bike

Because bikes with both the 10-speed and 15-speed options can be further divided into blue and green bikes, both the total of all 10-speed bikes and the total of all 15-speed

bikes are represented by phantom parent bikes on the second level of the item hierarchy. These phantom parents are configured as follows:

- 10-speed bikes:
    - 70% blue
    - 30% green
- 15-speed bikes:
    - 80% blue
    - 20% green

The system enables you to process multiple parent items as in this example. You use planning code 4 to designate each of the phantom products on the two higher levels of the hierarchy (total bikes on the top level and total 10-speed bikes and total 15-speed bikes on the second level) as parent items. You use planning code 5 to designate the end item bikes (for example, blue 15-speed bikes) on the bottom level as components of the phantom parent items.

You assign user defined codes to additional forecast types you want to include in the processing options that were not supplied with the system. For this forecast, you plan to use forecast types you have defined and assigned to codes 13 and 16. You designate 16 in processing options as the forecast type to be read as input for the top-level parent item and 13 as the forecast type to be created for calculating the forecast for the components.

The system reads the forecast for total bike sales determined by forecast type 16 and assigns a percentage of the total forecast to each of the portions of the total on the next level of the hierarchy (total 10-speed and total 15-speed sales).

These percentages are based on feature planned percents. Feature planned percents are the percentage of total products that include particular features that differentiate some products in the total from others. You define the feature planned percent on the Enter/Change Bill form. In this example, the feature planned percents are 60% for the 10-speed feature and 40% for the 15-speed feature.

The system then calculates a forecast based on forecast type 13 that it applies to the next level. You also designate 13 as the second forecast type to be read as input so the system reads the forecast for the second level, which it then applies to the saleable end items (blue and green 10-speed bikes and blue and green 15-speed bikes).

The system reads forecast type 16 and calculates a type 13 forecast of 20,000 total bikes. The system then reads the forecast and explodes it down the hierarchy to the end item level as follows:

- 60% of the 20,000 total bikes = 12,000 10-speed bikes
- 40% of the 20,000 total bikes = 8,000 15-speed bikes
    - 70% of the 12,000 10-speed bikes (42% of total bike sales) = 8,400 blue 10-speed bikes

- 30% of the 12,000 10-speed bikes (18% of total bike sales) = 3,600 green 10-speed bikes
- 80% of the 8,000 15-speed bikes (32% of total bike sales) = 6,400 blue 15-speed bikes
- 20% of the 8,000 15-speed bikes (8% of total bike sales) = 1,600 green 15-speed bikes

See Also

- *Working with Multi-Level Master Schedules* in the *Manufacturing and Distribution Planning Guide*

Setting Up a Planning Bill

You must set up a planning bill before you generate a planning bill forecast. You use the Product Data Management system to set up a planning bill. Then the system uses the planning bill to generate a forecast for the hypothetical average parent item. The forecast shows the component level exploded.

Setting up a planning bill includes the following tasks:

- ❑ Setting up item master information
- ❑ Entering planning bills

Setting Up Item Master Information

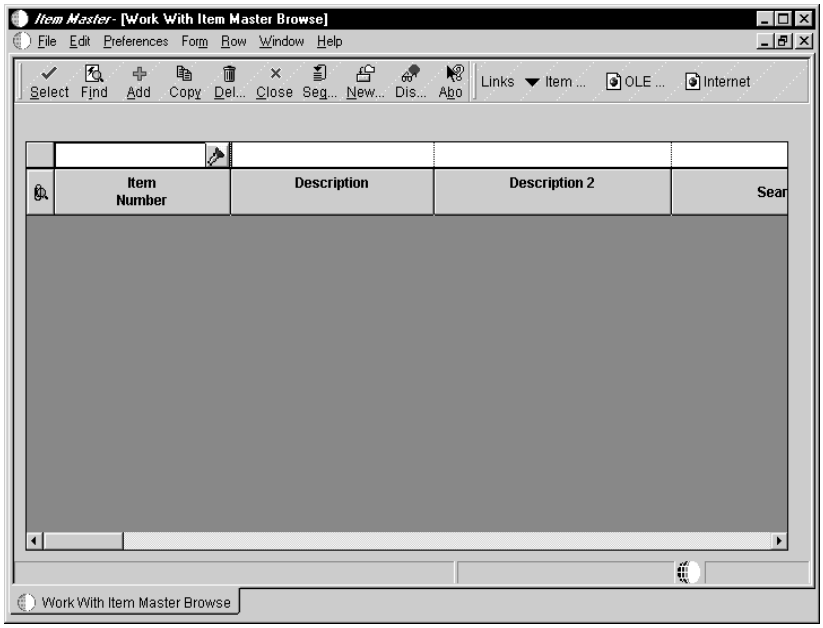
Before you enter the criteria that you want to use on the planning bill, you must set up item master information on which the planning is based. The system stores this information in the Item Master table (F4101).

The Item Branch table (F4102) also stores the item information. After you add item master records for appropriate part numbers, the system retrieves item information from the Item Branch table.

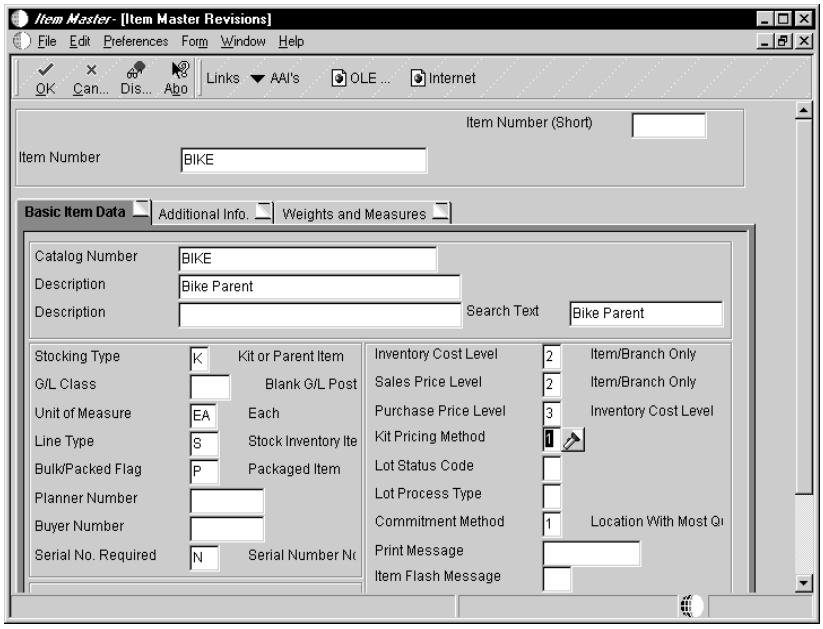
▶ To set up item master information

From the Inventory Master/Transactions (G4111) menu, choose Item Master.

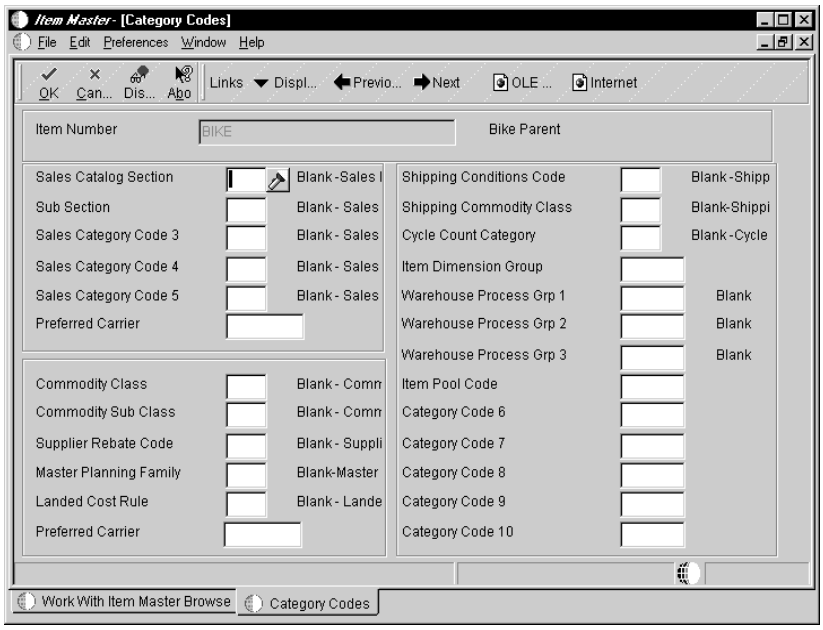
On Work With Item Master Browse



1. To set up an item, click Add.

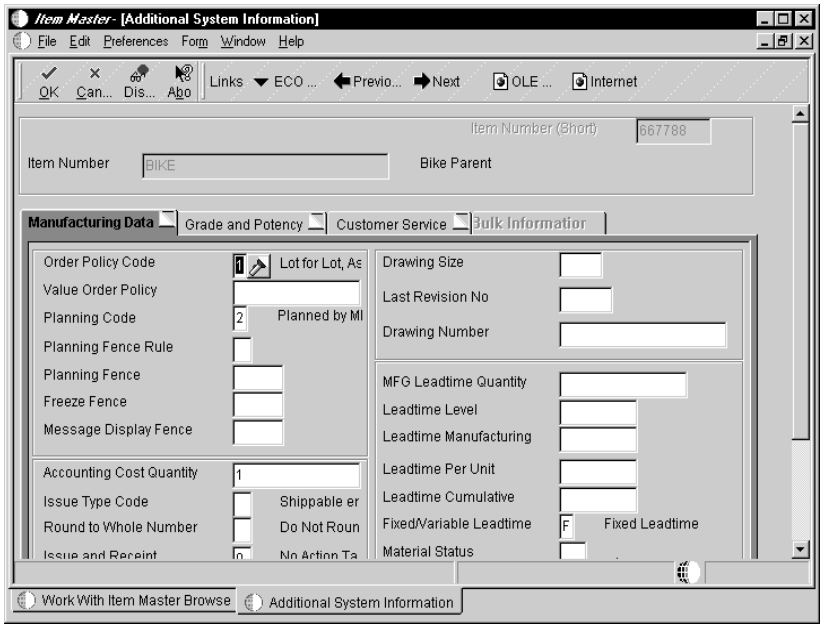


2. On Item Master Revisions, complete the following fields and click OK:
   - Item Number
   - Description
   - Stocking Type
   - G/L Class
   - Kit Pricing Method
3. Choose the item and then choose Category Codes from the Row menu.



4. On Item Category Codes, complete the following field and click OK:
   - Master Planning Family

   Depending on how the processing options are set, other forms may display.



5. On Additional System Information, click the Manufacturing Data tab, complete the following field, and then click OK:
   - Planning Code
6. On Item Branch Revisions, click Cancel to return to Item Master Browse.
7. On Work With Item Master Browse, click Find and locate your item.

Field	Explanation
Item Number	A number that identifies the item. The system provides three separate item numbers plus an extensive cross-reference capability to alternate item numbers. These item numbers are: 1. Item Number (short) – An 8-digit, computer-assigned item number. 2. 2nd Item Number – The 25-digit, free–form, user defined, alphanumeric item number. 3. 3rd Item Number – Another 25-digit, free–form, user defined, alphanumeric item number. In addition to these three basic item numbers, the system provides an extensive cross-reference search capability. Numerous cross-references to alternate part numbers can be user defined (for example, substitute item numbers, replacements, bar codes, customer numbers, or supplier numbers).

Field	Explanation
Description	A brief description of an item, a brief description of a remark, or a brief description of an explanation.
Stocking Type	A user defined code (41/I) that indicates how you stock an item, for example, as finished goods or as raw materials. The following stocking types are hard-coded and you should not change them: 0 Phantom item B Bulk floor stock C Configured item E Emergency/corrective maintenance F Feature K Kit parent item N Nonstock The first character of Description 2 in the user defined code table indicates if the item is purchased (P) or manufactured (M).
G/L Class	A user defined code (41/9) that identifies the G/L offset that system uses when it searches for the account to which it posts the transaction. If you do not want to specify a class code, you can enter **** (four asterisks) in this field. You can use automatic accounting instructions (AAIs) to predefine classes of automatic offset accounts for the Inventory, Procurement, and Sales Order Management systems. You might assign G/L class codes as follows: IN20 Direct Ship Orders IN60 Transfer Orders IN80 Stock Sales The system can generate accounting entries based upon a single transaction. For example, a single sale of a stock item can trigger the generation of accounting entries similar to the following: Sales–Stock (Debit) xxxxx.xx A/R Stock Sales (Credit) xxxxx.xx Posting Category: IN80 Stock Inventory (Debit) xxxxx.xx Stock COGS (Credit) xxxxx.xx The system uses the class code and the document type to find the AAI.
Master Planning Family	A user defined code (41/P4) that represents an item property type or classification, such as commodity type or planning family. The system uses this code to sort and process like items. This field is one of six classification categories available primarily for purchasing purposes.

See Also

- *Entering Item Master Information* in the *Inventory Management Guide*

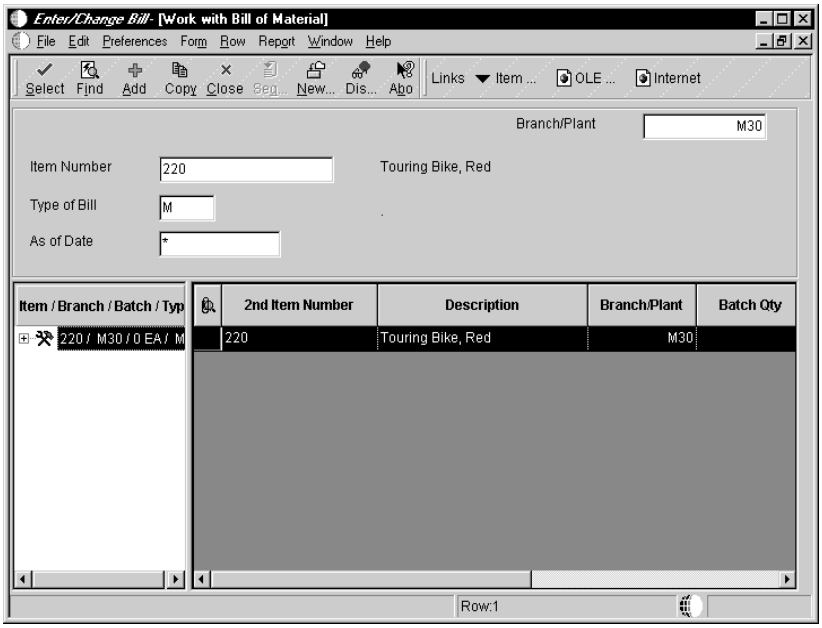
Entering Planning Bills

You enter a planning bill in the Product Data Management system to change the percentages on which the hypothetical average parent item is based. This allows you to account for any planning variations on which you might want to base forecasts.

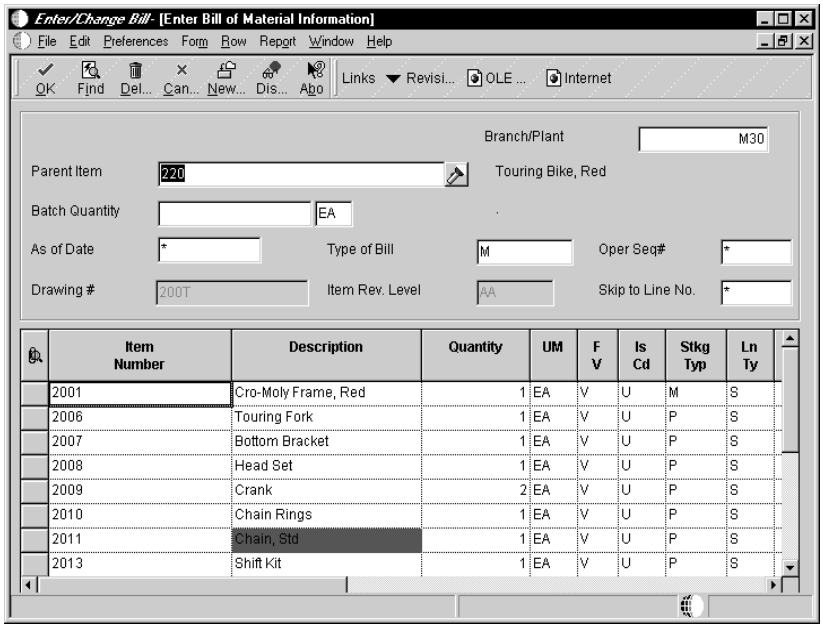
▶ To enter planning bills

From the Daily PDM Discrete (G3011) menu, choose Enter/Change Bill.

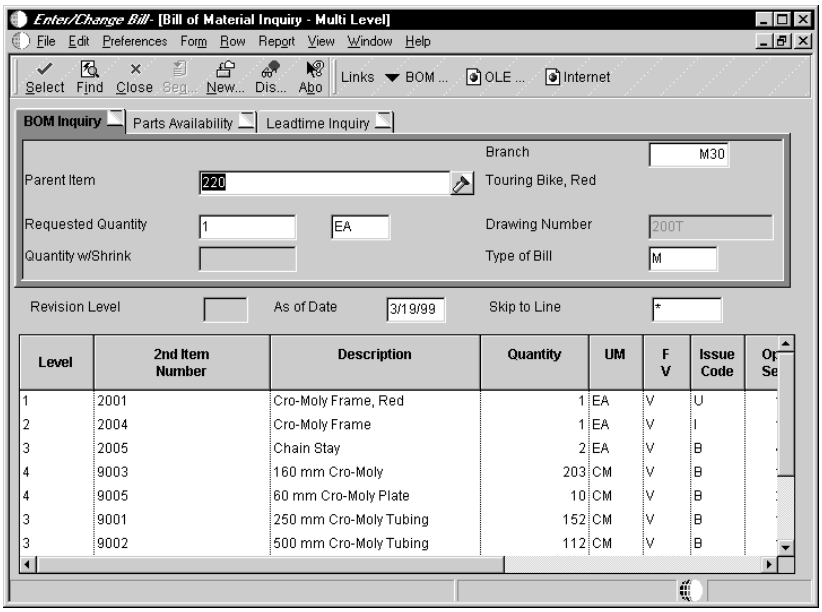
On Work with Bill of Material



1. Complete the following fields and click Find:
   - Item Number
   - Branch/Plant
2. Choose the item number and click Select.



3. On Enter Bill of Material Information, complete the following fields and click OK:
   - Item Number
   - Quantity
   - Feat Plan %
4. Review the default value in the following field:
   - Is Cd
5. To return to Work With Bill of Material, click Cancel.
6. Choose the record.
7. Choose BOM Inquiry from the Row menu.
8. On Bill of Material Inquiry – Multi Level, to view the multilevel bill of material, choose Multi Level from the View menu.



9. Complete the following fields and click OK:
   - Parent Item
   - Branch/Plant

Field	Explanation
Feat Plan %	The percentage of demand for a specified feature based on projected production. For example, a company might produce 65% of their lubricant with high viscosity, and 35% with low viscosity, based on customer demand. The Material Planning system uses this percentage to accurately plan for a process's co-/by-products. Enter percentages as whole numbers: 5% as 5.0. The default value is 0%.

Field	Explanation
Is Cd	A code that indicates how the system issues each component in the bill of material from stock. In Shop Floor Management, it indicates how the system issues a part to a work order. Valid codes are: I Manual issue (default) F Floor stock (no issue) B Backflush (when part is reported as complete) P Preflush (when parts list is generated) U Super backflush (at pay-point operation) S Sub-contract item (send to supplier) Blank Shippable end item You can issue a component in more than one way within a specific branch/plant by using a different code on the bill of material and work order parts list. The bill of material code overrides the branch/plant value.

Processing Options for Enter/Change Bill

Defaults

1. Enter a '1' to default the Component Branch to the Parent Branch displayed at the top of the form.

   Default Component Branch _____

2. Enter the following default values:

   Type Bill of Material _____

3. Enter a '1' to default the as of date to the current date. If left blank, all dates will be shown.

   Default to Current Date _____

Display

1. Enter a '1' by the following fields to activate them:

   Bill Type _____
   Batch Quantity _____

Versions

Enter the version for each program. If left blank, version ZJDE0001 will be used.

   1. Single Level BOM Print (P30410) _____
   2. Multi Level BOM Print (P30415) _____
   3. ECO Workbench (P30225) _____
   4. Component Maintenance (P3015) _____
   5. ECO Header [P30BREV] _____
   6. Bill of Material Where Used _____

(P30201)
7. Item Master (P4101B) _____
8. Co/By Produced Inquiry (P30211) _____
9. Bill of Material Inquiry (P30200) _____

Edits

1. Enter a '1' to validate for an existing Branch/Item record.

   Item Branch validation _____

Sort

1. Enter a '1' to sequence by Line Number or enter a '2' to sequence by Operation. (FUTURE)

   Sequence By _____

Interop

1. Enter the Transaction type for the interoperability transaction. If left blank, outbound interoperability processing will not be performed.

   Transaction Type _____

2. Enter the version of "Process Outbound Bill of Material" (R3002Z1O). If left blank ZJDE0001 will be used.

   Outbound Processing Version _____

3. Enter a '1' to write the before image for a change transaction. If left blank, only the after image will be written.

   Before Image Processing _____

Generating Planning Bill Forecasts

From the Single Site Periodic Planning Operations (G3422) menu, choose DRP Regeneration.

After setting up a planning bill, you can generate a planning bill forecast to help you plan configurations for end products. The material planning generation program reads the detail forecast for the selected parent planning bill items and explodes it to create a forecast for the planning bill components for the same time periods.

Before You Begin

- ❑ Enter a planning bill. See *Entering Planning Bills.*
- ❑ Run Enter/Change Forecast manually to add the forecast for the parent item.

Processing Options for DRP Regeneration

```
Horizon

      1. Generation Start Date                          _____________
      2. Past Due Periods       0                       _____________
      (default)      1      2

3. Planning Horizon Periods

      Number of planning days                           _____________
      Number of planning weeks                          _____________
      Number of planning months                         _____________

Parameters

      1. Generation Mode        1 =  net                _____________
      Change        2 =  gross
      gegeneration
      2. Generation Type        1 =                     _____________
      single level MPS/DRP        2 =
      planning bill         3 =
      multi-level MPS         4 =  MRP
      with or without MPS         5 =
      MRP with frozen MPS
      3. UDC Type                                       _____________
      4. Version of Supply/Demand                       _____________
      Inclusion Rules

On Hand Data

      1. Include  Lot Expiration Dates                  _____________
```

blank = do not include 1 = include

2. Safety Stock Decrease _____
blank = do not decrease 1 = decrease

3. Receipt Routing Quantities

Quantity in Transit _____
blank = do not include in on-hand inventory 1 = include in on-hand inventory

Quantity in Inspection _____
blank = do not include in on-hand inventory 1 = include in on-hand inventory

User Defined Quantity 1 _____
blank = do not include in on-hand inventory 1 = include in on-hand inventory

User Defined Quantity 2 _____
blank = do not include in on-hand inventory 1 = include in on-hand inventory

4. Lot Hold Codes (up to 5) _____
blank = inlclude no held lots in calculation of on-hand inventory * = include all held lots in calculation of on-hand inventory

Forecasting

1. Forecast Types Used (up to 5) _____
2. MPS Forecast Type for Planning Bills _____
3. Forecast Consumption logic _____
blank = do not use forecast consumption 1 = use forecast consumption

Document Types

1. Purchase Orders _____
2. Work Orders _____
3. Rate Schedules _____

Lead Times

1. Purchased Item Safety Leadtime _____
2. Manufactured Item Safety Leadtime _____
3. Expedite Damper Days _____
4. Defer Damper Days _____

Performance

1. Clear F3411/F3412/F3413 Tables

blank = do not clear tables _____
1 = clear tables

2. Initialize MPS/MRP Print Code.

```
        blank = do not flag these items                    _____________
      1 = flag these items
      3. Messages and Time Series  for                     _____________
      Phantom Items       blank = do not
      generate     1 = generate
      4. Ending  Work Order Status                         _____________
      blank = all messages exploded
      5. Extend Rate Based Adjustments                     _____________
      blank = do not extend       1 =
      extend
      6. Closed Rate Status                                _____________

Process Mfg

      1. Process Planning         blank                    _____________
      = discrete       1 = process
```

What You Should Know About Processing Options

Document Types Used in Planning (1)

When you choose a Forecast Type to use with a planning bill, you must also enter the type code for this forecast as a Forecast Type to be read. This allows the system to read the forecast and explode it down to the component level. You can designate up to five Forecast Types to be read in a sequence you specify.

Interoperability

Working With Interoperability

To fully cover the information requirements of an enterprise, companies sometimes use products from different software and hardware providers. Interoperability between different products is key to successfully implementing the enterprise solution. Full interoperability between different systems results in a flow of data between the different products that is seamless to the user. The OneWorld Interoperability function provides an interface that facilitates exchanging transactions with external systems. These transactions include both inbound and outbound.

External systems send information to the interface tables, either using an external program or using flat files and the Inbound Flat File Conversion program. The sending party is responsible for conforming to format and other requirements for the interface tables.

You run a transaction process (a batch program) that validates the data, updates valid data to the J.D. Edwards application tables, and sends action messages to the Employee Work Center about any invalid data.

You use an inquiry function to interactively review the data for correctness, and then run the transaction process again. You can repeat this process if necessary.

You set a processing option to specify the transaction type for the outbound transaction. The system uses the master business function for the type of transaction, creates a copy of the transaction, and places the copy in the interface table where external systems can access it.

You use the purge function to remove obsolete and unnecessary data from interface tables. Your system is more efficient when you keep these tables as small as possible.

Forecasting interoperability consists of the following tasks:

- Converting flat files to the interface tables
- Receiving transactions from external systems
- Reviewing and revising inbound transactions
- Sending transactions to external systems

Interoperability Programs

The interoperability programs for the Forecasting system are as follows:

- Inbound Flat File Conversions (R47002C)
- Forecast Transaction Revisions (P3460Z1)
- Process Inbound Forecast Transactions (R3460Z1I)
- Purge Forecast Transactions (R3460Z1P)

Converting Flat Files to the Interface Tables

External systems can use a variety of methods to send data to the interoperability interface tables. One method is to enter the data in a flat file. If you use this method, the system converts the flat file to the interface table.

You can set a processing option to start the transaction process when the conversion completes successfully.

Converting flat files to the interface tables consists of the following tasks:

- ❑ Setting up the flat file cross-reference
- ❑ Running the conversion program

Before You Begin

- ❑ Ensure that the flat file is a comma-delimited ASCII text file stored on the hard drive of your personal computer.
- ❑ Ensure that the data conforms to the specified format. See *Converting Data from Flat Files into EDI Interface Tables* in the *Data Interface for Electronic Data Interchange Guide* for requirements.

Setting Up the Flat File Cross-Reference

From the Forecast Interoperability menu (G36301), choose Flat File Cross-Reference.

Before you can convert a flat file, you must provide a cross-reference from the flat file fields to the interface table fields.

See Also

- *Converting Data from Flat Files into EDI Interface Tables* in the *Data Interface for Electronic Data Interchange Guide* for information about this process, which works the same in interoperability

Running the Conversion Program

From the Forecast Interoperability menu (G36301), choose Inbound Flat File Conversions.

The Inbound Flat File Conversion program converts the flat file to the interface table. If you set the related processing option, the system starts the transaction process following a successful conversion.

See Also

- *Receiving Transactions from External Systems* for information about the transaction process programs

Receiving Transactions from External Systems

From the Forecast Interoperability menu (G36301), choose Process Inbound Forecast Transactions.

When an external system sends inbound transactions, the system stores the data in interface tables. These tables contain unedited transactions. The next step is to run the appropriate transaction process to edit the transactions and update the application tables. For example if you receive transaction in the F3460Z1 interface table, you run the Process Inbound Forecast Transactions (P3460Z1I) to update the Forecast table (F3460).

When you run the Inbound Flat File Conversions program and it completes successfully, the system automatically starts the transaction process if specified in the processing option for the conversion.

To be received in the interface tables, data from an external system must conform to the minimum field requirements specified for the interface table.

The transaction process performs the following:

- Validates the data in the interface table (for example, F3460Z1) to ensure that the data is correct and conforms to the format defined for the Forecasting system
- Updates the associated application table (for example, F3460) with validated data
- Produces a report that lists invalid transactions and sends an action message for each invalid transaction to the employee work center
- Marks in the interface tables those transactions that are successfully updated to the application tables

If the report indicates errors, access the Employee Work Center program from the Workflow Management menu (G02) and review the messages in the message center. Then use the associated inquiry function to review and revise the transactions and rerun the transaction process.

Before you run any of the inbound transaction programs, specify the appropriate values for processing in the processing options.

See Also

- *Reviewing and Revising Inbound Transactions* for more information about using the Inquiry function

Reviewing and Revising Inbound Transactions

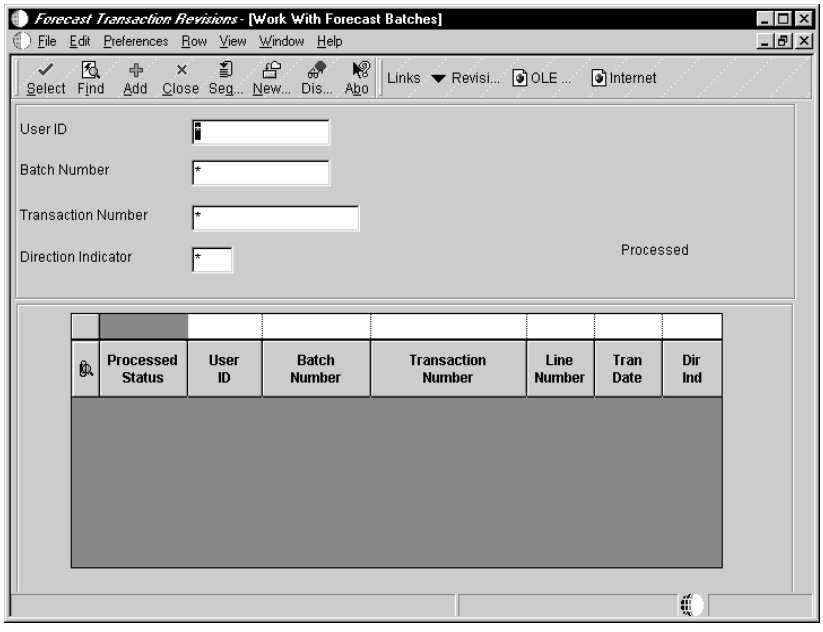
Running the transaction process, Forecast Transaction Revisions, often identifies one or more inbound transactions that contain invalid transactions. For example, a forecast might have an invalid inclusion rule. In that case, the program cannot add that forecast to the Forecast table (F3460). Instead, the program sends an error message to the the Employee Work Center, indicating the transaction number for the transaction in error.

Use the inquiry menu selection to review and revise inbound transactions; and then to add, change, or delete transactions containing errors. Then run the transaction process again. Continue to make corrections and rerun the transaction process until the program runs without errors.

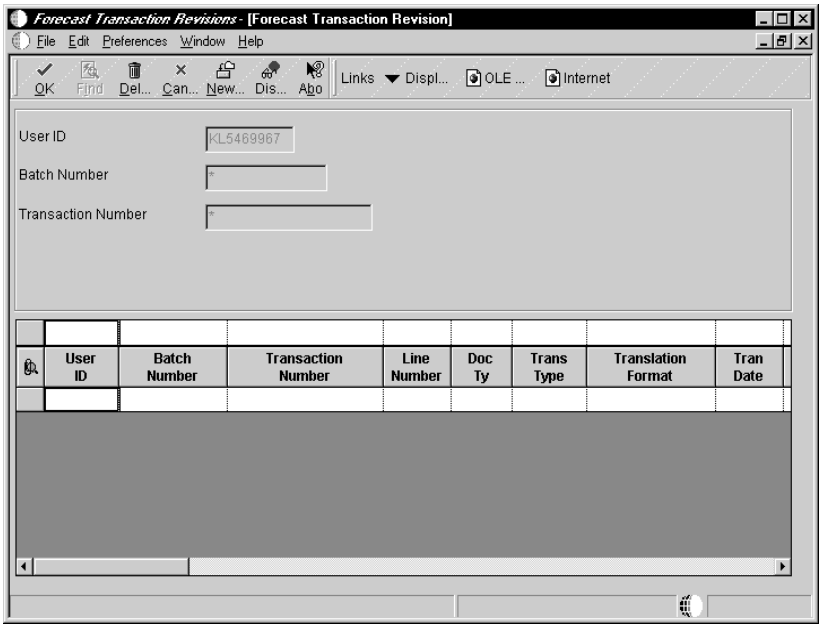
▶ To review and revise inbound transactions

From the Forecast Interoperability menu (G36301), choose Forecast Transaction Revisions.

On Work With Transactions (All)



1. To limit the search to specific transactions, complete the following fields and click Find:
   - User ID
   - Batch Number
   - Transaction Number
2. Choose the transaction to review and revise and click Select.



3. On Forecast Transaction Revision, review and revise as needed, and then click OK.

After you correct the errors identified by the Inbound Work Order Processor, run the transaction process again. If other errors are identified, correct them and run the transaction process again.

Field	Explanation
User ID	For World, the IBM-defined user profile. For OneWorld, the identification code for a user profile.
Batch Number	The number that the transmitter assigns to the batch. During batch processing, the system assigns a new batch number to the J.D. Edwards transactions for each control (user) batch number it finds.
Transaction Number	This is the number that an Electronic Data Interchange (EDI) transmitter assigns to a transaction. In a non-EDI environment, you can assign any number that is meaningful to you to identify a transaction within a batch. It can be the same as a J.D. Edwards document number.

See Also

- *Understanding EDI Document Inquiry and Revision* in the *Data Interface for Electronic Data Interchange Guide* for information about reviewing and revising inbound product activity data transactions
- *Working with Messages* in the *OneWorld Foundation Guide* for more information about the Employee Work Center

Processing Options for Forecast Transactions Revisions

Display

1. Enter ’1’ to inquire at the batch level, leave Blank to inquire at the transaction level. _____
2. Enter ’1’ for Processed Records, ’2’ for Unprocessed or Blank for both. _____
3. Enter ’1’ for Inbound records, ’2’ for Outbound Records or Blank for both. _____

Version

1. Enter the version for “Process Inbound Forecasts” for batch of One. If left blank, ZJDE0001 will be used _____

Sending Transactions to External Systems

You might send transactions you create or change in the Forecasting system to another system. For example, if your organization uses hand-held scanning devices, you can use interoperability transactions to update the database used by the scanning devices.

The default outbound transaction is a copy of a data transaction after you created or changed it (an *after image*). With interoperability, you can also send a copy of each transaction as it was before you changed it (a *before image*). Creating and sending before images requires additional processing time. To control the type of image, you set a processing option in the application programs that create transactions.

You can send transactions to an external system from the Enter/Change Forecast program in the Forecasting system.

To create outbound transactions, specify the appropriate transaction type in the related processing option. The system places a copy of the transaction in the interface table for that type of transaction. For example, when you run Enter/Change Forecast with the interoperability processing option turned on, the system places a copy of updated forecast data in the F3460Z1 interface table. The data is then available for an external system to use.

The system creates the outbound transaction in EDI format. External systems can process the transactions using standard EDI processing, including extraction.

Before You Begin

❑ Define the data export controls for the type of outbound transaction. The system uses data export controls to determine the batch programs or business processes that third parties supply for use in processing transactions.

See Also

- *Revising Detail Forecasts* for information about entering forecasts

Appendices

Appendix A: Forecast Calculation Methods

The Forecasting system uses 12 methods of calculating forecasts. Most of these methods provide for limited user control. For example, the weight placed on recent historical data or the date range of historical data used in the calculations can be specified by the user. The following examples show the calculation procedure for each of the available forecasting methods, given an identical set of historical data.

Forecast calculation methods consist of the following tasks:

- Historical sales data
- Forecast performance evaluation criteria
- Evaluating the forecasts

Historical Sales Data

The method examples under the Forecast Performance Evaluation Criteria topic, use part or all of the following set of data, which has historical data for the years 1996 and 1997.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996	125	123	115	137	122	130	141	128	118	123	139	133
1997	128	117	115	125	122	137	140	129	131	114	119	137

This sales history data is stable, with small seasonal increases in July and December. This pattern is characteristic of a mature product that might be approaching obsolescence.

Forecast Performance Evaluation Criteria

Depending on your selection of processing options and on the trends and patterns existing in the sales data, some forecasting methods perform better than others for a given historical data set. A forecasting method that is appropriate for one product, may not be appropriate for another product. It is also unlikely that a forecasting method that provides good results at one stage of a product's life cycle will remain appropriate throughout the entire life cycle.

You can choose between two methods to evaluate the current performance of the forecasting methods. These are Mean Absolute Deviation (MAD) and Percent of Accuracy (POA). Both of these performance evaluation methods require historical

sales data for a user specified period of time. This period of time is called a holdout period or periods best fit. The data in this period is used as the basis for recommending which of the forecasting methods to use in making the next forecast projection. This recommendation is specific to each product, and may change from one forecast generation to the next.

The two methods (MAD and POA) are demonstrated under the Evaluating the Forecasts topic following the examples of the 12 forecasting methods.

Method 1: Percent Over Last Year

The Percent Over Last Year formula multiplies sales data from the previous year by a user specified factor, then projects that result over the next year. This method may be useful in budgeting to simulate the impact of a specified rate of growth, or when the sales history has a significant seasonal component.

Forecast specifications: multiplication factor. For example, specify 110 in the processing option to increase the previous year's sales history data by 10%.

Required sales history: one year for calculating the forecast plus the user specified number of time periods required for evaluating the forecast performance (periods best fit).

History Used in the Forecast Calculation												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997	128	117	115	125	122	137	140	129	131	114	119	137
Forecast, 110% Over Last Year												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	141	129	127	138	134	151	154	142	144	125	131	151

January 1998 = 128 * 1.1 = 140.8 or 141

February 1998 = 117 * 1.1 = 128.7 or 129

March 1998 = 115 * 1.1 = 126.5 or 127

Method 2: Calculated Percent Over Last Year

The Calculated Percent Over Last Year formula multiplies sales data from the previous year by a factor calculated by the system, then projects that result for the next year. This method may be useful to project the impact of extending the recent growth rate for a product into the next year, while preserving a seasonal pattern present in sales history.

Forecast specifications: range of sales history to use in calculating the rate of growth. For example, specify n = 4 in the processing option to compare sales history for the most recent four periods to those same four periods in the previous year. Use the calculated ratio to make the projection for the next year.

Required sales history: one year for calculating the forecast plus the user specified number of time periods for required for evaluating the forecast performance (periods best fit).

History Used in the Forecast Calculation, given n = 4

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996									118	123	139	133
1997	128	117	115	125	122	137	140	129	131	114	119	137

Calculation of Percent Over Last Year, Given n = 4

1996... 118 + 123 + 139 + 133 = 513

1997... 131 + 114 + 119 + 137 = 501

$$\text{ratio, \%} = \frac{501}{513} * 100\ \% = 97.66\%$$

Forecast, 97.66% Over Last Year

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	125	114	112	122	119	134	137	126	128	111	116	134

January 1998 = 128 * 0.9766 = 125.00 or 125

February 1998 = 117 * 0.9766 = 114.26 or 114

March 1998 = 115 * 0.9766 = 112.31 or 112

Method 3: Last Year to This Year

The Last Year to This Year formula copies sales data from the previous year to the next year. This method may be useful in budgeting to simulate sales at the present level. The product is mature, has no trend over the long run, but there might be a significant seasonal demand pattern.

Forecast specifications: none.

Required sales history: one year for calculating the forecast plus the number of time periods required for evaluating the forecast performance (periods best fit).

History Used in the Forecast Calculation												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997	128	117	115	125	122	137	140	129	131	114	119	137
Forecast, Last Year to This Year												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	128	117	115	125	122	137	140	129	131	114	119	137

January 1998 = January 1997 = 128

February 1998 = February 1997 = 117

March 1998 = March 1997 = 115

Method 4: Moving Average

Moving Average (MA) is a popular method for averaging the results of recent sales history to arrive at a projection for the short term. One characteristic of the moving average forecast method is that it will lag trends. Forecast bias and systematic errors occur when the product sales history exhibits strong trend or seasonal patterns. This method works better for short range forecasts of mature products rather than for products in the growth or obsolescence stages of the life cycle.

Forecast specifications: n = the number of periods of sales history to use in the forecast calculation. For example, specify n = 4 in the processing option to use the most recent four periods as the basis for the projection into the next time period. A large value for n (such as 12) requires more sales history. It results in a stable forecast, but will be slow to recognize shifts in the level of sales. On the other hand, a small value for n (such as 3) will be quicker to respond to shifts in the level of sales, but the forecast may fluctuate so widely that production can not respond to the variations.

Required sales history: n plus the number of time periods required for evaluating the forecast performance (periods best fit).

History Used in the Forecast Calculation												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997									131	114	119	137
Calculation of Moving Average, Given n = 4												
(131 + 114 + 119 + 137) / 4 = 125.25 or 125												
Moving Average Forecast, Given n = 4												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	125	124	126	128	126	126	127	127	126	126	126	126

January 1998 = (131 + 114 + 119 + 137) / 4 = 125.25 or 125

February 1998 = (114 + 119 + 137 + 125) / 4 = 123.75 or 124

March 1998 = (119 + 137 + 125 + 124) / 4 = 126.25 or 126

Method 5: Linear Approximation

Linear Approximation calculates a trend based upon two sales history data points. Those two points define a straight trend line that is projected into the future. Use this method with caution, as long range forecasts are leveraged by small changes in just two data points.

Forecast specifications: n = identifies the data point in sales history that will be compared to the most recent data point for the purposes of identifying a trend. For example, specify n = 4 to use the difference between December 1997 (most recent data) and August, 1997 (four periods prior to December) as the basis for calculating the trend.

Minimum required sales history: n plus 1 plus the number of time periods required for evaluating the forecast performance (periods best fit).

History Used in the Forecast Calculation												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997								129	131	114	119	137
Calculation of Linear Approximation, Given n = 4												
(137 – 129) / 4 = 2.0												
Linear Approximation Forecast, Given n = 4												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	139	141	143	145	147	149	151	153	155	157	159	161

January 1998 = Dec. 1997 + Trend

= 137 + (1) 2 = 139

February 1998 = 137 + (2) 2 = 141

March 1998 = 137 + (3) 2 = 143

Method 6: Least Squares Regression

Linear Regression or Least Squares Regression (LSR) is the most popular method for identifying a linear trend in historical sales data. The method calculates the values for "a" and "b" to be used in the formula: Y = a + bX. The equation describes a straight line where Y represents sales, and X represents time. Linear regression is slow to recognize turning points and step function shifts in demand. Linear regression fits a straight line to the data, even when the data is seasonal or would better be described by a curve. When the sales history data follows a curve or has a strong seasonal pattern, forecast bias and systematic errors occur.

Forecast specifications: n = identifies the periods of sales history that will be used in calculating the values for a and b. For example, specify n = 4 to use the history from September through and December, 1997 as the basis for the calculations. When data is available a larger n (such as n = 24) would ordinarily be used. LSR will define a line for as few as two data points. For this example, a small value for n (n = 4) was chosen to reduce the manual calculations required to verify the results.

Minimum required sales history: n periods plus the number of time periods required for evaluating the forecast performance (periods best fit).

History Used in the Forecast Calculation

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997									131	114	119	137

Calculation of Linear Regression Coefficients, Given n = 4

	X	Y	XY	X^2
Sep. '97	1	131	131	1
Oct. '97	2	114	228	4
Nov. '97	3	119	357	9
Dec. '97	4	137	548	16
S X =	10	S Y = 501	S XY = 1264	S X^2 = 30

$$b = \frac{n\,\Sigma XY - \Sigma X \Sigma Y}{n\,\Sigma X^2 - (\Sigma X)^2} = \frac{4(1264) - (10 * 501)}{4(30) - (10)^2} = \frac{5056 - 5010}{120 - 100} = \frac{46}{20} = 2.3$$

$$a = \frac{\Sigma Y}{n} - b\frac{\Sigma X}{n} = \frac{501}{4} - (2.3)\frac{10}{4} = 119.5$$

Linear Regression Forecast, Given Y = 119.5 – 2.3 X, where X = 1 => Sep. '97

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	131	133	136	138	140	143	145	147	149	152	154	156

January 1998 = 119.5 + (5 * 2.3) = 131

February 1998 = 119.5 + (6 * 2.3) = 133.3 or 133

March 1998 = 119.5 + (7 * 2.3) = 135.6 or 136

Method 7: Second Degree Approximation.

Linear Regression determines values for a and b in the forecast formula Y = a + bX with the objective of fitting a straight line to the sales history data. Second Degree Approximation is similar. However this method determines values for a, b, and c in the forecast formula $Y = a + bX + cX^2$ with the objective of fitting a curve to the sales history data. This method may be useful when a product is in the transition between stages of a life cycle. For example, when a new product moves from introduction to growth stages, the sales trend may accelerate. Because of the second order term, the forecast can quickly approach infinity or drop to zero (depending on whether coefficient c is positive or negative). Therefore, this method is useful only in the short term.

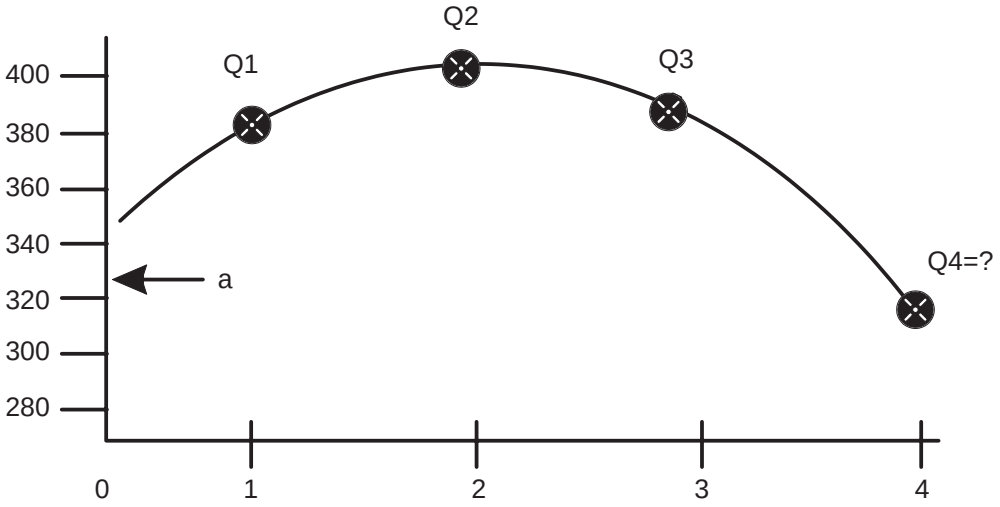
Forecast specifications: the formulae find a, b, and c to fit a curve to exactly three points. You specify n, the number of time periods of data to accumulate into each of the three points. In this example n = 3. Therefore, actual sales data for April through June are combined into the first point, Q1. July through September are added together to create Q2, and October through December sum to Q3. The curve will be fitted to the three values Q1, Q2, and Q3.

Required sales history: 3 * n periods for calculating the forecast plus the number of time periods required for evaluating the forecast performance (periods best fit).

History Used in the Forecast Calculation												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Q0			**Q1**			**Q2**			**Q3**		
				384			400			370		
1997				125	122	137	140	129	131	114	119	137
Q1 = 125 + 122 + 137 = 384 Q2 = 140 + 129 + 131 = 400 Q3 = 114 + 119 + 137 = 370												

The next step involves calculating the three coefficients a, b, and c to be used in the forecasting formula Y = a + bX + cX2.

Graph 1 shows Q1, Q2, and Q3 on a graph, where time is plotted on the horizontal axis. Q1 represents total of historical sales for April, May, and June and is plotted at X =1, Q2 corresponds to July through September, Q3 corresponds to October through December. Finally, the forecast for Q4 represents January through March of 1998.



Three equations describe the three points on the graph:

(1) Q1 = a + bX + cX2 where X = 1 (Q1 = a + b + c)

(2) Q2 = a + bX + cX2 where X = 2 (Q2 = a + 2b + 4c)

(3) Q3 = a + bX + cX2 where X = 3 (Q3 = a + 3b + 9c)

Solve the three equations simultaneously to find b, a, and c:

Subtract equation (1) from equation (2) and solve for b

(2) – (1) = Q2 – Q1 = b + 3c

b = (Q2 – Q1) – 3c

Substitute this equation for b into equation (3)

(3) Q3 = a + 3 [(Q2 – Q1) – 3c] + 9c

a = Q3 – 3 (Q2 – Q1)

Finally, substitute these equations for a and b into equation (1)

(1) [Q3 – 3 (Q2 – Q1)] + [(Q2 – Q1) – 3c] + c = Q1

c = [(Q3 – Q2) + (Q1 – Q2)] / 2

The Second Degree Approximation method calculates a, b, and c as follows:

a = Q3 – 3 (Q2 – Q1) = 370 – 3 (400 – 384) = 370 – 3(16) = 322

c = [(Q3 – Q2) + (Q1 – Q2)] / 2 = [(370 – 400) + (384 – 400)] / 2 = –23

b = (Q2 – Q1) – 3 c = (400 – 384) – (3 * –23) = 16 + 69 = 85

Calculation of Second Degree Approximation Forecast												
$Y = a + b X + c X^2 = 322 + 85 X + (–23)(X^2)$												
When X = 4, Q4 = 322 + 340 – 368 = 294. The forecast = 294 / 3 = 98 per period												
When X = 5, Q5 = 322 + 425 – 575 = 172. The forecast = 172 / 3 = 57.33 or 57 per period												
When X = 6, Q6 = 322 + 510 – 828 = 4. The forecast = 4 / 3 = 1.33 or 1 per period												
Forecast, Last Year to This Year												
	Q4 = 294			Q5 = 172			Q6 = 4			Q7 = negative		
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	98	98	98	57	57	57	1	1	1	––	––	––

Method 8: Flexible Method

The Flexible Method (Percent Over n Months Prior) is similar to Method 1, Percent Over Last Year. Both methods multiply sales data from a previous time period by a user specified factor, then project that result into the future. In the Percent Over Last Year method, the projection is based on data from the same time period in the previous year. The Flexible Method adds the capability to specify a time period other than the same period last year to use as the basis for the calculations.

Forecast specifications:

- Multiplication factor. For example, specify 110 in the processing option to increase the previous sales history data by 10%.
- Base period. For example, n = 4 will cause the first forecast to be based upon sales data in September, 1997.

Minimum required sales history: the user specified number of periods back to the base period, plus the number of time periods required for evaluating the forecast performance (periods best fit).

History Used in the Forecast Calculation												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997									131	114	119	137
Forecast, 110% Over n = 4 months prior												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	144	125	131	151	159	138	144	166	174	152	158	182

Method 9: Weighted Moving Average

The Weighted Moving Average (WMA) method is similar to Method 4, Moving Average (MA). However, with the Weighted Moving Average you can assign unequal weights to the historical data. The method calculates a weighted average of recent sales history to arrive at a projection for the short term. More recent data is usually assigned a greater weight than older data, so this makes WMA more responsive to shifts in the level of sales. However, forecast bias and systematic errors still do occur when the product sales history exhibits strong trend or seasonal patterns. This method works better for short range forecasts of mature products rather than for products in the growth or obsolescence stages of the life cycle.

Forecast specifications:

- n = the number of periods of sales history to use in the forecast calculation. For example, specify n = 4 in the processing option to use the most recent four periods as the basis for the projection into the next time period. A large value for n (such as 12) requires more sales history. It results in a stable forecast, but will be slow to recognize shifts in the level of sales. On the other hand, a small value for n (such as 3) will respond more quickly to shifts in the level of sales, but the forecast may fluctuate so widely that production can not respond to the variations.
- The weight assigned to each of the historical data periods. The assigned weights must total to 1.00. For example, when n = 4, assign weights of 0.50, 0.25, 0.15, and 0.10, with the most recent data receiving the greatest weight.

Minimum required sales history: n plus the number of time periods required for evaluating the forecast performance (periods best fit).

History Used in the Forecast Calculation												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997									131	114	119	137
Calculation of Moving Average, Given n = 4												
[(131 * 0.10) + (114 * 0.15) + (119 * 0.25) + (137 * 0.50)] / (0.10 + 0.15 + 0.25 + 0.50) = 128.45 or 128												
Weighted Moving Average Forecast, Given n = 4												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	128	128	128	129	129	129	129	129	129	129	129	129

Jan ’98 =

[(131 * 0.10)+(114 * 0.15)+(119 * 0.25)+(137 * 0.50)] / (0.10+0.15+0.25+0.50)

= 128.45 or 128

Feb ’98 =

[(114 * 0.10)+(119 * 0.15)+(137 * 0.25)+(128 * 0.50)] / 1 = 127.5 or 128

Mar ’98 =

[(119 * 0.10)+(137 * 0.15)+(128 * 0.25)+(128 * 0.50)] / 1 = 128.45 or 128

Method 10: Linear Smoothing

This method is similar to Method 9, Weighted Moving Average (WMA). However, instead of arbitrarily assigning weights to the historical data, a formula is used to assign weights that decline linearly and sum to 1.00. The method then calculates a weighted average of recent sales history to arrive at a projection for the short term. As is true of all linear moving average forecasting techniques, forecast bias and systematic errors occur when the product sales history exhibits strong trend or seasonal patterns. This method works better for short range forecasts of mature products rather than for products in the growth or obsolescence stages of the life cycle.

Forecast specifications:

- n = the number of periods of sales history to use in the forecast calculation. For example, specify n = 4 in the processing option to use the most recent four periods as the basis for the projection into the next time period. The system will automatically assign the weights to the historical data that decline linearly and sum to 1.00. For example, when n = 4, the system will assign weights of 0.4, 0.3, 0.2, and 0.1, with the most recent data receiving the greatest weight.

Minimum required sales history: n plus the number of time periods required for evaluating the forecast performance (periods best fit).

History Used in the Forecast Calculation												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997									131	114	119	137
Calculation of Weights, Given n = 4												
(n2 + n) / 2 = (16 + 4) / 2 = 10												
September weight = 1/10												
October weight = 2/10												
November weight = 3/10												
December weight = 4/10												
Total weight = 10/10												
Calculation of Moving Average, Given n = 4												
[(131 * 0.1) + (114 * 0.2) + (119 * 0.3) + (137 * 0.4)] / (0.1 + 0.2 + 0.3 + 0.4) = 126.4 or 126												
Linear Smoothing Forecast, Given n = 4												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	126	127	128	128	128	128	128	128	128	128	128	128

Method 11: Exponential Smoothing

This method is similar to Method 10, Linear Smoothing. In Linear Smoothing the system assigns weights to the historical data that decline linearly. In Exponential Smoothing, the system assigns weights that exponentially decay. The Exponential Smoothing forecasting equation is:

Forecast = alpha (Previous Actual Sales) + (1 – alpha) Previous Forecast

The forecast is a weighted average of the actual sales from the previous period and the forecast from the previous period. Alpha is the weight applied to the actual sales for the previous period. (1 – alpha) is the weight applied to the forecast for the previous period. Valid values for alpha range from 0 to 1, and usually fall between 0.1 and 0.4. The sum of the weights is 1.00. alpha + (1 – alpha) = 1

You should assign a value for the smoothing constant, alpha. If you do not assign values for the smoothing constant, the system calculates an assumed value based upon the number of periods of sales history specified in the processing option.

Forecast specifications:

- alpha = the smoothing constant used in calculating the smoothed average for the general level or magnitude of sales. Valid values for alpha range from 0 to 1.
- n = the range of sales history data to include in the calculations. Generally one year of sales history data is sufficient to estimate the general level of sales. For this example, a small value for n (n = 4) was chosen in order to reduce the manual calculations required to verify the results. Exponential Smoothing can generate a forecast based on as little as one historical data point.

Minimum required sales history: n plus the number of time periods required for evaluating the forecast performance (periods best fit).

History Used in the Forecast Calculation												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997									131	114	119	137

Calculation of Exponential Smoothing , Given n = 4, alpha = 0.3

October Sm. Avg.* = September Actual
= alpha (September Actual) + (1 − alpha) September Sm. Avg.
= 1 * (131) + (0) (0) = 131

November Sm. Avg. = 0.3 (October Actual) + (1 − 0.3) October Smoothed Average
= 0.3 (114) + 0.7 (131) = 125.9 or 126

December Sm. Avg. = 0.3 (November Actual) + 0.7 (November Smoothed Average)
= 0.3 (119) + 0.7 (126) = 123.9 or 124

January Forecast = 0.3 (December Actual) + 0.7 (December Smoothed Average)
= 0.3 (137) + 0.7 (124) = 127.9 or 128

February Forecast = January Forecast

March Forecast = January Forecast

* Exponential Smoothing is initialized by setting the first smoothed average equal to the first specified actual sales data point. In effect, alpha = 1.0 for the first iteration. For subsequent calculations, alpha is set to the value specified in the processing option.

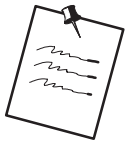
Exponential Smoothing Forecast, Given alpha = 0.3, n = 4												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	128	128	128	128	128	128	128	128	128	128	128	128

Method 12: Exponential Smoothing with Trend and Seasonality

This method is similar to Method 11, Exponential Smoothing, in that a smoothed average is calculated. However, Method 12 also includes a term in the forecasting equation to calculate a smoothed trend. The forecast is composed of a smoothed averaged adjusted for a linear trend. When specified in the processing option, the forecast is also adjusted for seasonality.

Forecast specifications:

- Alpha = the smoothing constant used in calculating the smoothed average for the general level or magnitude of sales. Valid values for alpha range from 0 to 1.
- Beta = the smoothing constant used in calculating the smoothed average for the trend component of the forecast. Valid values for beta range from 0 to 1.
- Whether a seasonal index is applied to the forecast.



Alpha and beta are independent of each other. They do not have to add to 1.0.

Minimum required sales history: one year plus the number of time periods required for evaluating the forecast performance (periods best fit). When two or more years of historical data is available, the system will use two years of data in the calculations.

Method 12 uses two Exponential Smoothing equations and one simple average to calculate a smoothed average, a smoothed trend, and a simple average seasonal factor.

A) An exponentially smoothed average

$$A_t = \alpha \frac{D_t}{S_{t-L}} + (1 - \alpha)(A_{t-1} + T_{t-1})$$

B) An exponentially smoothed trend

$$T_t = \beta(A_t - A_{t-1}) + (1 - \beta)T_{t-1}$$

C) A simple average seasonal index

$$S_t = \left(\frac{D_{t-L} + D_{t-2L}}{\sum_{n=(t-2L)}^{n=(t-1)} D_n} * L \right)$$

D) The forecast is then calculated using the results of the three equations:

$$F_{t+m} = (A_t + T_t m)\, S_{t-L+m}$$

Where:

- L is the length of seasonality (L = 12 months or 52 weeks)
- t is the current time period
- m is the number of time periods into the future of the forecast
- S is the multiplicative seasonal adjustment factor indexed to the appropriate time period

History Used in the Forecast Calculation													
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1996	125	123	115	137	122	130	141	128	118	123	139	133	1534
1997	128	117	115	125	122	137	140	129	131	114	119	137	1514
Calculation of Linear and Seasonal Exponential Smoothing, Given alpha = 0.3, beta = 0.4													

Initializing the Process:

January'97 Seasonal Index, S_1

= (125 + 128/1534 + 1514) * 12 = 0.083005 * 12 = 0.9961

January'97 Smoothed Average*, A_1

= January, 1997 Actual/ January Seasonal Index

= 128/0.9960

= 128.51

January'97 Smoothed Trend*, T_1

= 0 insufficient information to calculate first smoothed trend

February'97 Seasonal Index, S_2

= (123 + 117/1534 + 1514) * 12 = 0.07874 * 12 = 0.9449

February'97 Smoothed Average, A_2 =

$$A_2 = \alpha \frac{D_2}{S_2} + (1 - \alpha)(A_1 + T_1)$$

$$A_2 = 0.3 \frac{117}{0.9449} + (1 - 0.3)(128.51 + 0) = 127.10$$

February'97 Smoothed Trend, T_2 =

$$T_2 = \beta(A_2 - A_1) + (1 - \beta)T_1$$
$$T_2 = 0.4(127.10 - 128.51) + (1 - 0.4)*0 = -0.56$$

March'97 Seasonal Index, S_3 = (115 + 115/1534 + 1514) * 12

= 0.07546 * 12 = 0.9055

March'97 Smoothed Average, A_3 =

$$A_3 = \alpha \frac{D_3}{S_3} + (1 - \alpha)(A_2 + T_2)$$
$$A_3 = 0.3\frac{115}{0.9055} + (1 - 0.3)(127.10 - 0.56) = 126.68$$

March'97 Smoothed Trend, T_3 =

$$T_3 = \beta(A_3 - A_2) + (1 - \beta)T_2$$
$$T_3 = 0.4(126.68 - 127.10) + (1 - 0.4)*- 0.56 = -0.50$$

(Continued through December 1997)

December'97 Seasonal Index, S_{12}

= (133 + 137/1534 + 1514) * 12 = 0.08858 * 12 = 1.0630

December'97 Smoothed Average, A_{12} =

$$A_{12} = \alpha \frac{D_{12}}{S_{12}} + (1 - \alpha)(A_{11} + T_{11})$$
$$A_{12} = 0.3\frac{137}{1.0630} + (1 - 0.3)(124.64 - 1.121) = 125.13$$

December'97 Smoothed Trend, T_{12} =

$$T_{12} = \beta(A_{12} - A_{11}) + (1 - \beta)T_{11}$$
$$T_{12} = 0.4(125.13 - 124.64) + (1 - 0.4)*- 1.121 = -0.477$$

Calculation of Linear and Seasonal Exponentially Smoothed Forecast
$F_{t+m} = (A_t + T_t m)S_{t-L+m}$

* Exponential Smoothing with Trend and Seasonality calculations are initialized by setting the first smoothed average equal to the deseasonalized first actual sales data. The trend is initialized at zero for the first iteration. For subsequent calculations, alpha and beta are set to the values specified in the processing options.												
Exponential Smoothing with Trend and Seasonality Forecast, alpha = 0.3, beta = 0.4												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1998	124.16	117.33	112.01	127.10	117.91	128.52	134.73	122.74	118.45	121.77	121.77	126.92

Evaluating the Forecasts

You can select forecasting methods to generate as many as 12 forecasts for each product. Each forecasting method will probably create a slightly different projection. When thousands of products are forecast, it is impractical to make a subjective decision regarding which of the forecasts to use in your plans for each of the products.

The system automatically evaluates performance for each of the forecasting methods that you select, and for each of the products forecast. You can choose between two performance criteria, Mean Absolute Deviation (MAD) and Percent of Accuracy (POA). MAD is a measure of forecast error. POA is a measure of forecast bias. Both of these performance evaluation techniques require actual sales history data for a user specified period of time. This period of recent history is called a “holdout period” or periods best fit.

To measure the performance of a forecasting method, use the forecast formulae to simulate a forecast for the historical holdout period. There will usually be differences between actual sales data and the simulated forecast for the holdout period.

When multiple forecast methods are selected, this same process occurs for each method. Multiple forecasts are calculated for the holdout period, and compared to the known sales history for that same period of time. The forecasting method producing the best match (best fit) between the forecast and the actual sales during the holdout period is recommended for use in your plans. This recommendation is specific to each product, and might change from one forecast generation to the next.

Mean Absolute Deviation

Mean Absolute Deviation (MAD) is the mean (or average) of the absolute values (or magnitude) of the deviations (or errors) between actual and forecast data. MAD is a measure of the average magnitude of errors to expect, given a forecasting method and data history. Because absolute values are used in the calculation, positive errors do not cancel out negative errors. When comparing several forecasting methods, the one with the smallest MAD has shown to be the most reliable for that product for that holdout period. When the forecast is unbiased and errors are normally distributed, there is a simple mathematical relationship between MAD and two other common measures of distribution, standard deviation and Mean Squared Error:

- MAD = (Σ | Actual – Forecast |) / n
- Standard Deviation, (σ) $\cong$ 1.25 MAD

- Mean Squared Error $\cong -\sigma^2$

The following shows the calculation of MAD for two of the forecasting methods. This example assumes that the user has specified in the processing option that the holdout period length (periods best fit) is equal to 5 periods.

Method 1, Last Year to This Year

History Used in the Calculation of MAD, Given Periods Best Fit = 5												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996								128	118	123	139	133
110 Percent Over Last Year Forecast for the Holdout Period												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997								141	130	135	153	146
Actual Sales History for the Holdout Period												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997								129	131	114	119	137
Absolute Value of Errors, Actual – Forecast												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
								12	1	21	34	9
Mean Absolute Deviation = (12 + 1 + 21 + 34 + 9) / 5 = 15.4												

Method 4, Moving Average, n = 4

History Used in the Calculation of MAD, Given Periods Best Fit = 5, n = 4												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997				125	122	137	140					
Moving Average Forecast for the Holdout Period, Given n = 4												
(125 + 122 + 137 + 140) / 4 = 131 Aug. '97												
(122 + 137 + 140 + 129) / 4 = 132 Sep. '97												
(137 + 140 + 129 + 131) / 4 = 134.25 or 134 Oct. '97												
(140 + 129 + 131 + 114) / 4 = 128.5 or 129 Nov. '97												
(129 + 131 + 114 + 119) / 4 = 123.25 or 123 Dec. '97												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997								131	132	134	129	123
Actual Sales History for the Holdout Period												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997								129	131	114	119	137
Absolute Value of Errors, Actual – Forecast												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
								2	1	20	10	14
Mean Absolute Deviation = (2 + 1 + 20 + 10 + 14) / 5 = 9.4												

Based on these two choices, the Moving Average, n = 4 method would be recommended, since it has the smaller MAD, 9.4, for the given holdout period.

Percent of Accuracy

Percent of Accuracy (POA) is a measure of forecast bias. When forecasts are consistently too high, inventories accumulate and inventory costs rise. When forecasts are consistently too low, inventories are consumed and customer service declines. A forecast that is 10 units too low, then 8 units too high, then 2 units too high, would be an unbiased forecast. The positive error of 10 is canceled by negative errors of 8 and 2.

Error = Actual – Forecast

When a product can be stored in inventory, and when the forecast is unbiased, a small amount of safety stock can be used to buffer the errors. In this situation, it is not so important to eliminate forecast errors as it is to generate unbiased forecasts. However in service industries, the above situation would be viewed as three errors. The service would be understaffed in the first period, then overstaffed for the next two periods. In services, the magnitude of forecast errors is usually more important than is forecast bias.

$$POA = \frac{\Sigma \text{ Actual sales during holdout period}}{\Sigma \text{ Forecast sales during holdout period}} * 100\%$$

Note the summation over the holdout period allows positive errors to cancel negative errors. When the total of actual sales exceeds the total of forecast sales, the ratio is greater than 100%. Of course, it is impossible to be more than 100% accurate. When a forecast is unbiased, the POA ratio will be 100%. Therefore, it is more desirable to be 95% accurate than to be 110% accurate. The POA criteria selects the forecasting method that has a POA ratio closest to 100%.

The following shows the calculation of POA for two of the forecasting methods. This example assumes that the user has specified in the processing option that the holdout period length (periods best fit) is equal to 5 periods.

Method 1, Last Year to This Year

History Used in the Calculation of POA, Given Periods Best Fit = 5												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1996								128	118	123	139	133
110 Percent Over Last Year Forecast for the Holdout Period												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997								141	130	135	153	146
Actual Sales History for the Holdout Period												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997								129	131	114	119	137
Sum of Actuals = (129 + 131 + 114 + 119 + 137) = 630												
Sum of Forecasts = (141 + 130 + 135 + 153 + 146) = 705												
POA ratio = (630 / 705) * 100% = 89.36%												

Method 4, Moving Average, n = 4

History Used in the Calculation of MAD, Given Periods Best Fit = 5, n = 4												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997				125	122	137	140					
Moving Average Forecast for the Holdout Period, Given n = 4 (see table 14)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997								131	132	134	129	123
Actual Sales History for the Holdout Period												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1997								129	131	114	119	137
Sum of Actuals = (129 + 131 + 114 + 119 + 137) = 630												
Sum of Forecasts = (131 + 132 + 134 + 129 + 123) = 649												
POA ratio = (630 / 649) * 100% = 97.07%												

Based on these two choices, the Moving Average, n = 4 method would be recommended, since it has POA closest to 100% for the given holdout period.

Glossary

Glossary

actual demand. Actual customer orders and allocations of items/ingredients/raw materials to production or distribution.

aggregate leadtime. See cumulative leadtime.

aggregate planning. The sum of all forecasted demand (customer, distribution, manufacturing) for all items in a family for purposes of planning gross requirements.

alternate operation. Replacement for a normal operation or routing for an item in the manufacturing process.

alternate routing. A routing, less preferred than the primary routing, that results in an item identical to that produced by the primary routing.

application. A computer program or set of programs used to accomplish a task. In OneWorld, there are interactive applications and batch applications. Interactive applications are made up of a set of forms through which the user interacts with OneWorld. Interactive application identifiers begin with "P." For example, Address Book Revisions (P01012) is an interactive application. Batch applications run without user interaction. Reports and table conversions are examples of batch applications. Batch application identifiers begin with "R." For example, the Print Mailing Labels report (R01401) is a batch application.

assemble-to-order product. A product for which key components (bulk, semi-finished, intermediate, subassembly, fabricated, purchased, packaging, and so on) are planned and stocked in anticipation of a customer order. Contrast with make-to-order product.

assembly. A group of items or subassemblies that, when put together, constitute an end item.

assembly inclusion rule. A logic statement that specifies the conditions for using a part, adjusting the price or cost, performing a calculation, or using a routing operation for configured items.

associated service type. See linked service type.

audit trail. The detailed, verifiable history of a processed transaction. The history consists of the original documents, transaction entries, and posting of records and usually concludes with a report.

automatic accounting instruction (AAI). A code that refers to an account in the chart of accounts. AAIs define rules for programs that automatically generate journal entries, including interfaces between the Accounts Payable, Accounts Receivable, Financial Reporting, and General Accounting systems. Each system that interfaces with the General Accounting system has AAIs. For example, AAIs can direct the General Ledger Post program to post a debit to a specific expense account and a credit to a specific accounts payable account.

availability. For packaged product, the system checks availability. For bulk product, you can assume it is in stock and available for sale.

backflush. To deduct from inventory records the components or ingredients as a result of the production process. See also super backflush.

batch bill of material. A recipe or formula in which the quantity of each component is based on the standard batch quantity of the parent.

batch control. A feature that verifies the number of transactions and the total amount in each batch that you enter into the system.

batch input. A group of transactions loaded from an external source.

batch job. A task or group of tasks you submit for processing that the system treats as a single unit during processing, for example, printing reports and purging files. The system performs a batch job with little or no user interaction.

batch processing. A method by which the system selects jobs from the job queue, processes them, and sends output to the outqueue. Contrast with interactive processing.

batch quantity. See standard batch quantity.

batch type. A code assigned to a batch job that designates to which system the associated transactions pertain, thus controlling which records are selected for processing. For example, the Post

General Journal program selects for posting only unposted transaction batches with a batch type of O.

bill of material (BOM). A listing of all the subassemblies and raw materials that make up a parent assembly. The BOM is used with the master production schedule to determine the items for which purchase requisitions and production orders must be released. Display formats for bills of material include single level, multi-level, indented, planning, and costed.

broadcast message. 1) An e-mail message that you send to multiple recipients. 2) A message that appears on a form instead of in your mailbox.

bucketed system. A material requirements planning, distribution requirements planning, or other time-phased system in which all time-phased data is accumulated into time periods, or buckets. If the period of accumulation is one week, then the system is said to have weekly buckets.

bucketless system. A material requirements planning, distribution requirements planning, or other time-phased system in which all time-phased data is processed, stored, and displayed using dated records rather than defined time periods, or buckets.

bulk issue. Items issued from stores to work-in-process inventory, based on quantities estimated to cover requirements of individual work centers and production lines instead of individual job orders. A bulk issue can be used to cover a period of time or to fill a fixed-size container.

business unit. See facility.

by-product. A material of positive or negative value produced as a residual of or incidental to the production process. The ratio of by-product to primary product is usually predictable. By-products might be discarded, sold as is, or used for other purposes. See also co-product and restricted by-product.

capacity requirements planning (CRP). The function of establishing, measuring, and adjusting limits or levels of capacity by determining in detail how much labor and machine resources are required to accomplish the tasks of production. Open shop orders and planned orders in the Material Requirements Planning system are inputs to CRP, which "translates" these orders into hours of work by work center and by time period.

category code. A type of user defined code for which you can provide the title. For example, if you were adding a code that designated different sales regions, you could change category code 4 to Sales Region, and define E (East), W (West), N (North), and S (South) as the valid codes. Sometimes referred to as reporting codes. See also user defined code.

certificate of analysis (COA). A document that includes all of the tests performed and resulting test data for an item lot.

chart of accounts. The structure for general ledger accounts. The chart of accounts lists types of accounts, describes each account, and includes account numbers and posting edit codes.

committed material. Material on hand or on order that is assigned to specific future production or customer orders. Sometimes referred to as reserved material.

component. A raw material, ingredient, or subassembly that is used as an element of another assembly, process, or item. A component might be packaging material for a finished item.

component changeout. See component swap.

component swap. In Equipment/Plant Management, the substitution of an operable component for one that requires maintenance. Typically, you swap components to minimize equipment downtime while servicing one of the components.

composite leadtime. See cumulative leadtime.

configuration management. A rules-based method of ordering assemble-to-order or make-to-order products, in which characteristics of the product are defined as part of the Sales Order Entry process. Characteristics are edited using Boolean logic and then translated into the components and routing steps required to produce the product. The resulting configuration is also priced and costed, based on the characteristics defined.

configured item segment. A characteristic of a configured item defined during sales order entry. For example, a customer may specify a type of computer hard drive by stating the number of megabytes of the hard drive, rather than a part number.

constants. Parameters or codes that you set and that the system uses to standardize the processing of information by associated programs.

consuming location. The point on the production line where a component or subassembly is used in the production process. Consuming location is used in kanban processing.

corrective maintenance. Any maintenance work that falls outside the scope of preventive or predictive maintenance. Corrective maintenance can be planned, unplanned, or emergency, for example, to respond to equipment failure. Contrast with preventive maintenance and predictive maintenance.

corrective work order. A work order that is used to formally request corrective maintenance, and to communicate all details pertaining to the corrective maintenance task.

cost component. An element of an item's cost, for example, material, labor, or overhead.

cost rollup. A simulated scenario in which work center rates, material costs, and labor costs are used to determine the total cost of an item.

costed bill of material. A bill of material that extends the quantity per of every component by the cost of the components. See also bill of material.

co-product. An end item produced as the result of a process. There are usually two or more co-products. See also end item and by-product.

crew size. The number of people required to perform an operation.

critical path leadtime. See cumulative leadtime.

cross segment edit. A logic statement that establishes the relationship between configured item segments. Cross segment edits are used to prevent ordering of configurations that cannot be produced.

cumulative leadtime. The longest planned length of time needed to accomplish the activity in question. For any item planned through material requirements planning, cumulative leadtime is determined by reviewing the leadtime for each bill of material path below the item. The path with the longest leadtime defines the cumulative leadtime. Sometimes referred to as critical path leadtime, aggregate leadtime, or composite leadtime.

current cost. The cost associated with an item at the time a parts list and routing are attached to a work order or rate schedule. Current cost is based on the latest bill of material and routing for the item.

data dictionary. A database table that OneWorld uses to manage the definitions, structures, and guidelines for the usage of fields, messages, and help text. J.D. Edwards has an active data dictionary, which means that it is accessed at runtime.

database. A continuously updated collection of all information that a system uses and stores. Databases make it possible to create, store, index, and cross-reference information online.

date pattern. A period of time set for each period in standard and 52-period accounting.

default. A code, number, or parameter that the system supplies when the user does not specify one.

detail. The specific information that makes up a record or transaction. Contrast with summary.

detail area. An area of a form that displays detailed information associated with the records or data items displayed on the form. See also grid.

direct labor. Labor that is applied to the product being manufactured.

direct material. Measurable quantities of material that becomes a part of the final product.

dispatch list. A list of sequenced work orders or rate schedules that contain detailed information on location, quantity, and capacity requirements. Dispatch lists are usually generated daily and are oriented by work center or line.

effectivity date. The date on which a component or an operation is to be added or removed from a bill of material or an assembly process. Effectivity dates are used in the planning process to create demands for the correct items. Normally, bills of material and routings provide for an effectivity start date (from) and stop date (through), signifying the beginning and end of a particular relationship. Sometimes referred to as effective date.

electronic commerce. See Electronic Data Interchange.

Electronic Data Interchange (EDI). The paperless, computer-to-computer exchange of business transactions, such as purchase orders and invoices, in a standard format with standard content.

engineering change order (ECO). A work order used to implement and track a change in a manufactured product. This includes changes in design, quantity of items required, and assembly or production process.

enterprise resource planning (ERP). A closed-loop, integrated system that enables manufacturers and distributors to coordinate all of the activities necessary to fulfill customer demand. This includes activities associated with suppliers, customers, inventory, shop floor, product costing and accounting, forecasting, and planning and scheduling.

Enterprise Workflow Management. A OneWorld system that provides a way of automating tasks, such as notifying a manager that a requisition is waiting for approval, using an e-mail-based process flow across a network.

expedite. To process production or purchase orders in less than the normal leadtime.

explosion. The process of calculating the demand for the components of a parent item by multiplying the parent item requirements by the quantity per specified in the bill of material. Sometimes referred to as requirements explosion. Contrast with implosion.

exponential smoothing. A forecasting technique in which past observations are geometrically discounted according to their age. The heaviest weight is assigned to the most recent data. The smoothing is termed exponential because data points are weighted in accordance with an exponential function of their age.

facility. An entity within a business for which you want to track costs. For example, a facility might be a warehouse location, job, project, work center, or branch/plant. Sometimes referred to as a business unit.

family. See master planning family.

feature. A characteristic of a product or service, such as an option, accessory, or attachment.

field. 1) An area on a form that represents a particular type of information, such as name, document type, or amount. 2) A defined area within a record that contains a specific piece of information. For example, a supplier record consists of the fields Supplier Name, Address, and Telephone Number.

file. A set of information stored under one name. See also table.

finished good. See end item.

firm planned order (FPO). A work order that has reached a user defined status. When this status is entered in the processing options for the various manufacturing programs, messages for those orders are not exploded to the components.

first in, first out (FIFO). A method of inventory valuation for accounting purposes, based on the assumption that oldest inventory (first in) is the first to be used (first out). There is no relationship with the actual physical movement of specific items.

fixed cost. An expense that does not vary with the production volume, for example, setup cost.

fixed order quantity. A lot-sizing technique in MRP or inventory management whereby the system generates planned or actual orders for a predetermined quantity. If the net requirements for a period exceed the fixed order quantity, the system generates orders for multiples of the fixed order quantity.

fixed overhead. Manufacturing costs that continue even if products are not produced. Although fixed overhead is necessary to produce the product, it cannot be directly traced to the final product.

fixed quantity. A value that indicates that the amount of a component or ingredient used in the manufacturing process of an end item remains the same, regardless of the quantity of the end item produced. Contrast with variable quantity.

forecast. An estimate of future demand, determined by mathematical means using historical data, subjective estimates from informal sources, or a combination of both.

forecast consumption. The reduction of forecast demand, based on actual sales orders received or shipped, up to the forecast quantity.

form. The element of the OneWorld graphical user interface by which the user exchanges data with interactive applications. Forms are made up of controls, such as fields, options, and the grid. These controls allow the user to retrieve information, add and revise information, and navigate through an application to accomplish a task.

frozen cost. The cost of an item, operation, or process, after the frozen update program is run, that is used by the Manufacturing Accounting system.

frozen update program. A program that freezes the current simulated costs, thereby finalizing them for use by the Manufacturing Accounting system.

Gantt chart. A control chart that shows graphically the relationship between planned performance and actual performance.

grade. A rating assigned to an item, based on how well the item meets required specifications.

grid. A control that displays detail information on a form. The grid is arranged into rows, which generally represent records of data, and columns, which generally represent fields of the record. See also detail area.

header. Information at the beginning of a table or form. Header information is used to identify or provide control information for the group of records that follows.

indented bill of material. A multi-level bill of material that lists the highest level parent items at the left margin and all the components going into the patents indented to the right of the margin. All subsequent levels of components are indented farther to the right. If a component is used in more than one parent within a given product structure, it will appear under every subassembly in which it is used.

indented where-used. A bill of material listing for one component, every parent item and subassembly, and the respective quantities required. Each of these parent items calls for the given component item in a bill of material table. The component item is shown closest to the left margin of the listing in the bill, with each parent indented to the right, and each of their respective parents indented even further to the right.

ingredient. In process manufacturing industries, the raw material or component of a recipe or formula.

integrity test. A process used to supplement a company's internal balancing procedures by locating and reporting balancing problems and data inconsistencies.

interactive processing. Processing actions that occur in response to commands that you enter directly into the system. During interactive processing, you are in direct communication with the system, and it might prompt you for additional information while processing your request. Contrast with batch processing.

intermediate. Material processed beyond raw material and used in higher level items. Intermediates are not stocked in inventory, sold to customers, or planned by material requirements planning.

in-process inventory. See work-in-process (WIP).

item master. A record for an item. The item master contains descriptive data and control values (leadtimes, lot sizes, and so on), and might contain data on inventory status, requirements, planned orders, and costs. Item master records are linked together by product structure records that define the bill of material for an item.

job queue. A group of jobs waiting to be batch processed. See also batch processing.

Just-in-Time (JIT). A method of manufacturing based on planned elimination of all waste and continuous improvement of productivity. The primary elements of Just-in-Time manufacturing are to have only the required inventory when needed; to improve quality to zero defects; to reduce leadtimes by reducing setup times, queue lengths, and lot sizes; to revise incrementally the operations themselves; and to keep costs to a minimum.

kanban. Information cards attached to a group or bin of items that travel in and out of a work center. Kanbans indicate to producing work centers what has been consumed and what needs to produced next. Some companies use various shapes, sizes, and colors of cards for ease of recognition and to indicate an item's priority. OneWorld uses electronic kanbans.

labor cost. The monetary amount of labor performed during manufacturing.

ledger type. A code that designates a ledger used by the system for a particular purpose. For example, all transactions are recorded in the AA (actual amounts) ledger type in their domestic currency. The same transactions may also be stored in the CA (foreign currency) ledger type.

level. The code used for every item or assembly in a product structure to signify the relative level in which that item or assembly is used within the product structure. Normally, the end items are assigned to level 0 with the components and subassemblies of the item assigned to level 1 and so forth. The material requirements planning explosion process starts from level 0 and proceeds downward, one level at a time.

linked service type. A service type that is associated with a primary service type. Linked service types are cancelled and the maintenance tasks are performed when the primary service type to which they are linked comes due. You can specify whether the system generates work orders for linked service types, as well as the status the system assigns to work orders that have already been generated. Sometimes referred to as associated service types. See also primary service type and service type.

lot. A quantity produced together that shares the same production components. Lots are uniquely identified to allow for traceability.

lot number control. Assignment of unique numbers to each instance of receipt. This number carries forth into subsequent manufacturing processes. Thus, in review of an end item lot, each lot consumed can be identified as having been used for the manufacture of the specific end item lot.

maintenance loop. See maintenance route.

maintenance route. A method of performing PMs for multiple pieces of equipment from a single preventive maintenance work order. A maintenance route includes pieces of equipment that share one or more identical maintenance tasks that can be performed at the same time for each piece of equipment. Sometimes referred to as maintenance loop.

maintenance work order. In J.D. Edwards systems, a term used to distinguish work orders created for the performance of equipment and plant maintenance from other work orders, such as manufacturing work orders, utility work orders, and engineering change orders.

make-to-order product. A product that is produced after receipt of a customer's order. The final product is usually a combination of standard purchased items and items specially designed to meet the needs of the customer. Frequently, long leadtime components are planned prior to the order arriving to reduce the delivery time to the customer. Contrast with assemble-to-order product. See also make-to-stock product.

manufacturing and distribution planning. Planning that includes Resource and Capacity Planning and Material Planning Operations. Resource and Capacity Planning allows you to prepare a feasible production schedule that reflects your demand forecasts and production capability. Material Planning Operations provides a short-range plan to cover material requirements that are needed to make a product.

manufacturing calendar. See work day calendar.

master planning family. Products that are grouped together for material planning purposes, based on shared characteristics.

Master Production Scheduling (MPS). The act of creating a master schedule. See also master schedule.

master schedule. A detailed statement of how many items are planned to be produced and when. The master schedule focuses on products to be made and, through the detailed planning system, identifies the resources (materials, work force, plant equipment, and capital) needed and the timing of the need. See also material requirements planning.

master table. A database table used to store data and information that is permanent and necessary to the system's operation. Master tables might contain data, such as paid tax amounts, supplier names, addresses, employee information, and job information.

material requirements planning (MRP). A set of techniques that uses bill of material, inventory data, and the master schedule to calculate the time-phased net material requirements for every component item and subassembly. MRP suggests a replenishment plan to support the production of the quantities that are specified in the master schedule. See also master schedule.

menu masking. A security feature that lets you prevent individual users from accessing specified menus or menu selections.

model work order. In Equipment/Plant Management, a work order that functions as a template for the creation of other work orders. You can assign model work orders to service types. When the service type comes due, the system automatically generates a work order based on information from the model work order.

net added cost. The cost to manufacture an item at the current level in the bill of material. Thus, for manufactured parts, the net added cost includes labor, outside operations, and cost extras applicable to this level in the bill of material, but not materials (lower-level items). For purchased parts, the net added cost also includes the cost of materials.

next numbers. A feature used to control the automatic numbering of items such as new G/L accounts, vouchers, and addresses. Next numbers provides a method of incrementing numbers.

nonconforming product. Items that do not meet the requirements of a relevant specification, contract, regulation, or quality test.

nonsignificant item numbers. Item numbers that are assigned to each item but do not convey any information about the item. They are identifiers, not descriptors. Contrast with significant item numbers.

operation sequence. The sequential steps that an item follows in its flow through the plant. For instance, operation 10: cut bar stock; operation 20:

grind bar stock; operation 30: shape; operation 40: polish; operation 50: inspect and send to stock. This information is maintained in the routing table.

operation yield. The planned percent of output at an operation. For example, if the operation yield is 90% and 100 units are started at that operation, planned output is 90 units that will be available to the next operation.

output queue. See print queue.

overlap. The percentage by which an operation overlaps the previous operation in the sequence. For example, a 20% overlap means that a step can begin when the previous step is 80% complete.

parameter. A number, code, or character string you specify in association with a command or program. The computer uses parameters as additional input or to control the actions of the command or program.

parent item. See end item.

parent/child relationship. See parent/component relationship.

parent/component relationship. 1) In Equipment/Plant Management, the hierarchical relationship of a parent piece of equipment to its components. For example, a manufacturing line could be a parent and the machinery on the line could be components of the line. In addition, each piece of machinery could be a parent of still more components. 2) In Product Data Management, a hierarchical relationship of the components and subassemblies of a parent item to that parent item. For example, an automobile is a parent item and its components and subassemblies include: engine, frame, seats, and windows. Sometimes referred to as parent/child relationship.

pay on consumption. The method of incurring a liability for items received from a supplier only when the material is used in the production process.

phantom bill of material. A bill of material used primarily for non-stocked items that represents an item that is physically built, but rarely stocked. The item is instead used in the next step or level of manufacturing. Material requirements planning uses the phantom bill of material to explode the requirements through the phantom item to its components. See also explosion.

planning bill of material. An artificial grouping of items or events in bill of material format, used to facilitate master scheduling of material planning, and forecasting. Sometimes referred to as pseudo bill of material.

planning calendar. See work day calendar.

planning family. A means of grouping end items whose similarity of design and manufacture facilitates being planned in aggregate.

PM. Maintenance tasks and procedures that are routine and repetitive, such as periodic lubrications and filter replacements. Preventive maintenance procedures are designed to eliminate breakdowns and the need for corrective maintenance. Contrast with corrective maintenance and predictive maintenance.

potency. Identifies the percent of a process item in solution. For example, 80% solution could be used in a process that called for 100%, but would require 25% more in terms of quantity to meet the requirement (100 / 80 = 1.25).

predictive maintenance. A maintenance strategy that uses computerized data collection and analysis of equipment operating parameters to predict the point at which equipment is expected to fail and then schedules the appropriate procedures just before the expected equipment failure. Predictive maintenance can significantly reduce costs and equipment downtime by eliminating unnecessary preventive maintenance procedures. In addition, by predicting and averting catastrophic equipment failure, predictive maintenance reduces overall maintenance costs and allows for equipment to be operated for its full service life. Contrast with corrective maintenance and preventive maintenance.

preference profile. The ability to define default values for specified fields for a user defined hierarchy of items, item groups, customers, and customer groups.

preflush. To deduct materials from inventory when the parts list and routing are attached.

preventive maintenance (PM). One or more service types that are due to be performed for a piece of equipment, based on the service intervals for each service type. When you complete a preventive maintenance, a new preventive maintenance cycle begins for the service types included in the preventive maintenance.

preventive maintenance cycle. The sequence of events that make up a preventive maintenance task, from its definition to its completion. Because most preventive maintenance tasks are commonly

performed at scheduled intervals, parts of the preventive maintenance cycle repeat, based on those intervals.

preventive maintenance schedule. The combination of service types that apply to a specific piece of equipment, as well as the intervals at which each service type is scheduled to be performed.

primary location. The designation of a certain storage location as the standard, preferred location for an item.

primary service type. A service type to which you can link related service types. For example, for a particular piece of equipment, you might set up a primary service type for a 1000-hour inspection and a linked service type for a 500-hour inspection. The 1000-hour inspection includes all tasks performed at 500 hours. When a primary service type is scheduled to be performed, the system schedules the linked service type. See also linked service type.

print queue. A list of tables, such as reports, that you have submitted to be written to an output device, such as a printer. The computer spools the tables until it writes them. After the computer writes the table, the system removes the table identifier from the print queue.

priority. 1) The relative importance of jobs in a queue. 2) The sequence in which jobs should be completed.

processing option. A feature that allows you to direct the functions of a program. For example, processing options allow you to specify defaults for certain forms, control the format in which information prints on reports, and change how information appears on a form or in a report.

Product Data Management (PDM). In J.D. Edwards software, the system that enables a business to organize and maintain information about each item it manufactures. Features of this system, such as bills of material, work centers, and routings, define the relationships among components and how they can be combined to manufacture an item. PDM also provides data for other manufacturing systems including Manufacturing Accounting, Shop Floor Management, and Manufacturing and Distribution Planning.

product family. See master planning family.

product line. A group of products whose similarity in manufacturing procedures, marketing characteristics, or specifications allow them to be aggregated for planning, marketing, and occasionally, costing. See also master planning family.

production line. A series of work centers or machines allocated to the production of a limited number of items with similar routings.

projected cost. The target expenditure in added value for material, labor, and so forth during manufacture. See also standard cost.

pseudo bill of material. See planning bill of material.

purchased part. An item bought from a supplier.

purge. The process of removing records or data from a system table.

queue. The jobs waiting to be processed at a given work center. As queues increase, so do average queue time and work-in-process inventory.

recipe. See bill of material.

record. A collection of related, consecutive fields of data that the system treats as a single unit of information.

repetitive manufacturing. Producing items in high-volume concentration, often with entire production lines dedicated to a family of products.

replacement parts. Parts that can be used as substitutes. They differ from completely interchangeable service parts in that they require some physical modification, such as cutting, drilling, and so forth, before they can replace the original part.

replenishment point. The location on or near the production line where additional components or subassemblies are to be delivered.

requirements explosion. See explosion.

reserved material. See committed material.

resource requirements planning (RRP). The process of converting the production plan into capacity needs for key resources, such as workforce, machinery, warehouse space, suppliers' capabilities, and in some cases, money. Comparison of capacity required of items in the master schedule to available capacity is usually done for each key resource.

restricted by-product. A restricted secondary or incidental product produced while making another product. Such by-products cannot be sold because they are restricted from sale by government policies.

The company might have to forego making a product if a restricted by-product is produced.

revision level. A number or letter representing the number of times a document or item has been changed.

rollup. See cost rollup.

rough cut capacity planning (RCCP). The process of converting the master schedule into capacity needs for key resources, such as workforce, machinery, warehouse space, suppliers' capabilities, and in some cases, money. Comparison of capacity required of items in the master schedule to available capacity is usually done for each key resource.

run size. See standard batch quantity.

safety stock. 1) A quantity of stock planned to be on hand to protect against fluctuations in demand or supply. 2) In Master Production Scheduling, the additional inventory or capacity planned as protection against forecast errors or short-term changes in the backlog. Overplanning can be used to create safety stock.

scheduling workbench. A multiple-function program that allows the sequencing of work orders, rate schedules, or both on a production line. Sequencing can be manual or automatic, based on user defined category code definition. Sequencing includes forward, finite scheduling, including the option to cross shifts or days.

scrap. Unusable material that results from the production process. Scrap is material outside of specifications and of such characteristics that rework is impractical.

scrap rate. See scrap factor.

sequencing. Determining the order in which a facility processes different jobs.

serial number. A unique number assigned to identify a specific item with a lot size of one.

service interval. The frequency at which a service type is to be performed. Service intervals can be based on dates, periods, or statistical units that are user defined. Examples of statistical units are hours, miles, and fuel consumption.

service type. An individual preventive maintenance task or procedure, such as an inspection, lubrication, or overhaul. Service types can apply to a specific piece of equipment or to a class of equipment. You can specify that service types come due based on a predetermined service interval, or whenever the task represented by the service type becomes necessary.

setup cost. The labor costs associated with setting up an operation for the next product.

shop calendar. See work day calendar.

Shop Floor Management. A system that uses data from Product Data Management, Master Production Scheduling, and Material Requirements Planning to create, maintain, and communicate status on shop orders (work orders).

shrink factor. A percentage factor in the item master record that compensates for expected loss during the manufacturing cycle either by increasing the gross requirements or by reducing the expected completion quantity of planned and open orders. The shrink factor differs from the scrap factor in that the former affects all uses of the part and its components and the scrap factor relates to a single component. Sometimes referred to as shrinkage rate.

shrinkage rate. See shrink factor.

significant item numbers. Item numbers that are intended to convey certain information, such as the source of the part, the material in the part, the shape of the part, and so forth. Contrast with nonsignificant item numbers.

simulated cost. After a cost rollup, the cost of an item, operation, or process according to the current cost scenario. This cost can be finalized by running the frozen update program. You can create simulated costs for a number of cost methods, for example, standard, future, and simulated current costs. See also cost rollup.

single level where-used list. A type of bill of material that lists each parent in which a specific component is directly used and in what quantity it is used.

specification. A statement of the technical requirements of an application or item and the process involved to ensure the requirements are met.

spool. The function by which the system stores generated output to await processing.

standard cost. The expected, or target cost of an item, operation, or process. Standard costs represent only one cost method in the Product Costing system. You can also calculate, for example, future costs or current costs. However, the Manufacturing Accounting system uses only standard frozen costs.

standard costing. A costing method that uses cost units determined before production. For management control purposes, the system compares standard costs to actual costs and computes variances.

standard hours. The length of time that should be required to 1) set up a given machine or operation and 2) run one part, assembly, batch, or end product through that operation. This time is used in determining machine and labor requirements. It is also frequently used as a basis for incentive pay systems and as a basis for allocating overhead in cost accounting systems.

subassembly. An assembly that is used at a higher level to make up another assembly.

substitution. To use alternate components in production when primary items are not available.

summary. The presentation of data or information in a cumulative or totaled manner in which most of the details have been removed. Many systems offer forms and reports that summarize information stored in certain tables. Contrast with detail.

super backflush. To create backflush transactions against a work order at pay points defined in the routing. By doing so, you can relieve inventory at strategic points throughout the manufacturing process. See also backflush.

supplier scheduling. A process of providing suppliers with consistent shipping information and advanced demand profiles to support just-in-time production and delivery. The supplier scheduling system includes a business agreement and delivery schedule for each supplier. Supplier scheduling includes a formal priority planning system and EDI functionality to provide the supplier with valid due dates.

supply chain. The link from the initial raw materials to the consumption of the finished product.

supplying location. The location from which inventory is transferred once quantities of the item on the production line have been depleted. Used in kanban processing.

system. A group of related applications identified by a name and a system code. For example, the Address Book system code is 01. All applications, tables, and menus within a system can be identified by the system code.

system code. A code that identifies a system, for example, 01 for the Address Book system and 31 for the Shop Floor Management system.

table. In database environments, a two-dimensional entity made up of rows and columns. All physical data in a database are stored in tables. See also file.

threshold percentage. In Equipment/Plant Management, the percentage of a service interval that you define as the trigger for maintenance to be scheduled. For example, you might set up a service type to be scheduled every 100 hours with a threshold percentage of 90 percent. When the equipment accumulates 90 hours, the system schedules the maintenance.

traceability. The ability to trace the production history of a product for quality or warranty purposes. This is usually done through the use of lot or serial numbers to link raw materials from the supplier to the end product. Lot/serial number traceability can be a government requirement in certain regulated industries, such as the pharmaceutical or automotive industries. See also lot.

unit cost.The total cost of labor, material, and overhead for one unit of production.

unit of measure. The standard quantity by which an item is managed, such as by weight, box, package, case, each, and so forth.

user defined code (UDC). A code that users can define, assign code descriptions, and assign valid values. Examples of such codes are unit-of-measure codes, state names, and employee type codes.

user defined code type. The identifier for a table of codes with a meaning that you define for the system, such as ST for the Search Type codes table in Address Book. OneWorld provides a number of these tables and allows you to create and define tables of your own.

value added. Amount of increased worth of inventory through manufacturing, processing, or packaging.

variable quantity. A value that indicates the amount of a component or ingredient that varies based on the quantity of the end product produced. Contrast with fixed quantity.

variance. 1) In Product Costing and Manufacturing Accounting, the difference between two methods of costing the same item. For example, the difference between the frozen standard cost and the current

cost is an engineering variance. Frozen standard costs come from the Cost Components table, and the current costs are calculated using the current bill of material, routing, and overhead rates. 2) In Equipment/Plant Management, the difference between revenue generated by a piece of equipment and costs incurred by the equipment.

vocabulary overrides. A feature that you can use to override field, row, or column title text on forms and reports.

work day calendar. A calendar, used in planning functions, that consecutively lists only working days so that component and work order scheduling can be done based on the actual number of work days available. Sometimes referred to as planning calendar, manufacturing calendar, or shop floor calendar.

work order life cycle. In Equipment/Plant Management, the sequence of events through which a work order must pass to accurately communicate the progress of the maintenance tasks it represents.

work-in-process (WIP). One or more products in various stages of completion throughout the plant, including all material from raw material that has been released for initial processing up to completely processed material awaiting final inspection and acceptance as finished product. Sometimes referred to as in-process inventory.

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