

**Forecast Management
System
Release 7.40**

Fourth Shift Help
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Forecast Management System

Welcome to Fourth Shift, a software solution that enables you to manage and control your business more effectively. The Fourth Shift system integrates manufacturing and financial information, making it the best choice for controlling your company in today's marketplace.

Module Overview

The Forecast Management System is designed to forecast sales by item. The Forecast Management system includes Fourth Shift modules, a Forecast Management interface program developed by Fourth Shift and the Forecast Pro Unlimited Edition, also called Forecast Pro, available from Business Forecast Systems, Inc.

The Forecast Management System:

- Provides forecasting functions with many different statistical models to forecast.
- Provides an interface to extract data from Fourth Shift to prepare Forecast Pro specific data files that can be used to forecast future demand. Data can be extracted by various categories.
- Provides the ability to import forecasts created in Forecast Pro into Fourth Shift.
- Provides a repository to retain forecasts by revision number that can be used for demand management.
- Allows the user to keep a seasonal flag for items. The Interface Program uses this flag to create extract file so Forecast Pro can adjust forecasts for seasonal items.

Prerequisites

The Forecast Management System application has several types of prerequisites. These prerequisites must be installed before you can use the module. The forms and reports are designed in English only.

External Software

Several third-party software packages are required before you can install and use the Forecast Management System. The Forecast Management System is designed to work on a client workstation with one of the following operating systems:

- Windows 2003 Service Pack 1
- Windows 2000 Service Pack 4

Required external software includes:

- Microsoft Access 2003

Forecast Management Application Modules

The following Fourth Shift application modules are *required* for the Forecast Management System.

- System Control (SYSM)
- Sales Analysis (SAAM on SQL)
- Inventory Control (INVM)
- Manufacturing Order Management (MOMM)
- Management Reports (MGRM)

System Administration Functions

The Forecast Management System includes system administration functions. After the initial administration task is completed, users can use Forecast Management System from any workstation for forecasting. Forecast Management System also includes optional administration tasks that you may perform when needed.

Forecast Management Communication

The Forecast Management System allows two-way communication between Forecast Pro and your Fourth Shift production database. Communication and integration includes the following:

- Ability to extract sales data information from the Sales Analysis (SAAM) Module to prepare extract files in a format acceptable to Forecast Pro.
- Ability to import forecasts prepared in Forecast Pro to the Fourth Shift production database.

Setting Up the Forecast Management Module

Setting Up the Forecast Management Module provides an overview of how to implement this module. It covers:

- guidelines to consider before you implement the module
- how to prepare your data for loading
- suggested procedures for loading your data
- suggestions for using the module

Although this section provides key information about the module, it does not explain generally accepted forecasting concepts.

Before You Implement the FCSM Module

Verify the following items are completed before proceeding with the implementation.

- Verify that your system date format in Microsoft Windows is set up the same as the Fourth Shift system date format. Use the International icon, available from the Control Panel group, to review the long and short date formats.

The Forecast Management System application uses the short date format when calculating month, day and year.

- Verify that your network drive mappings are appropriate for your installation.
- Close all Microsoft Windows applications and disable any TSR virus checking programs.

Installing and Updating the FCSM Module

Use the following information during the installation or update process of your module.

New Installation

Use the instructions in the Installing and Implementing Fourth Shift manual to install the Forecast Management System application for a new, or first-time installation. The installation includes the following:

- Install Microsoft Access 2003.
- Install Forecast Pro on each designated workstation according to your license agreement.
- Install the Forecast Management System application on the network file server and each designated workstation.
- Verify your Microsoft Access path location for each designated workstation.

Workstation Summary of Changes

During the installation of the Forecast Management System on the client workstation, the following are added:

- the Forecast Management shortcut in the folder that contains the Fourth Shift Tools group, which can be used to open the Forecast Management System (the shortcut will be similar to: "C:\Program Files\Microsoft Office\Office11\MSACCESS.EXE"
M:\Mfgsys\FCSM\Updfcs03.mdb /cmd -cM:\Mfgsys\fs.cfg).
- the **FCSMDir** variable to the FS.CFG file, which defaults to the MFGSYS\FCSM directory. The Forecast Management interface programs and related files are copied into this location.
- the BEXE task, FP_, which is used to import the forecast created by Forecast Pro into the Fourth Shift production database.

The format of the BEXE task, FP_, is similar to the following:

```
01  IMPT      MMRPM  I$FCSMDir$\FPMSSD.IMP  TFCSM02.TPL
02  IMPT      MMRPM  I$FCSMDir$\FPMSSA.IMP  TFCSM00.TPL
```

Updating Existing Installation

Use the instructions in the Installing and Implementing Fourth Shift manual to install the Forecast Management System. The installation tasks include the following:

Pre-installation

1. Create a backup of the M:\MFGSYS\FCSM directory.
2. Install Microsoft Access 2003.

Installation

1. Install Forecast Management System from the Fourth Shift CD-ROM.
2. Complete the client workstation installation.

Post Installation

Run the Forecast Management System update program—to do this, complete the following:

1. Create a shortcut in the M:\Mfgsys\Fcsm directory as follows (all on one line):

```
"C:\Program Files\Microsoft Office\Office11\MSACCESS.EXE"
M:\Mfgsys\FCSM\Updfcs03.mdb /cmd -cM:\Mfgsys\fs.cfg
```

In this shortcut target, specify the paths to Access and the Fourth Shift server that exist on your system in place of the paths shown above.

2. Double-click on the shortcut and select one of the following options:
 - **Upgrade to Access 2003 for Customers using FCSM with Access 2002**
 - **Upgrade to Access 2003 for Customers using FCSM with Access 2000**
 - **Upgrade to Access 2003 for Customers using FCSM with Access 97**
3. Click **Update**.

When finished, review the LOG report for errors.

- Update any user-defined shortcuts to use the correct path for Access 2003 and the -C command line parameter.

Configuring the FCSM System

Use the following instructions to configure and set up the Forecast Pro and Forecast Management interface applications.

Configure the Forecast Pro Application

Use the following instructions to configure and set up the Forecast Pro application.

Setup Options

Setup options that you may need in the Forecast Pro application.

1. Select **Settings > Options** to set the primary options:
 - **Data directory**—used by the Extract function of the interface to determine where to save extracted files.
 - **Output directory**—used by the **Prepare Export File from Forecast to import into Fourth Shift** option. Identifies the directory where Fourth Shift import accesses the forecast file from Forecast Pro.
 - **Data mode**—must be set to **MLT**. The interface supports only the ASCII text file format.
 - **Forecast horizon**—used by the **Prepare Export File from forecast to import into Fourth Shift** option. Used to determine how many periods of forecast are needed in the forecast repository. Also determines how many data points are expected in the forecast file that you have saved in Forecast Pro. The forecast repository is used by the interface to print various reports.

Note: Set up any additional options that you may need in Forecast Pro.

2. Click the **Formats** tab to display the format options:
 - **Column delimiter**—set this option to Space, so that the Forecast Management interface creates an extract file with a space delimiter.
 - **Forecast File Prefix**—set this option to *Underscore*.

Note: Set up any additional options that you may need in Forecast Pro.

3. Click **OK** to save your selection.

4. Select **Setting > Forecast Output Design** to display the Output Design and Sample Spreadsheet options:
 - **FPW fixed format**—select this option.
 - **Retain description**—select this option.
 - **Historic values**—clear this option.
 - **Lower limits**—clear this option.
 - **Point forecasts**—select this option.
 - **Upper limits**—clear this option.
 - **Orientation**—select **Vertical**.
5. Click **OK** to save your selection.

Configuring the Forecast Management Interface Application

Use the following instructions to configure and set up the Forecast Management interface application.

Review Administration Menu Functions

Review the Administration Menu, which is opened by selecting Forecast Management from the folder that contains the Fourth Shift Tools group. The Administration Menu includes the following options:

Option	Description
View Log	Use to view error messages and other processing messages from various functions. The log file is retained for 7 days. The interface deletes messages older than 7 days when you open the Forecast Management interface.
Extract Items by Category for Forecasting with Forecast Pro	Use to extract data for forecasting by category. Category values are displayed. When forecasting by customer, the customer list is displayed and you select the items to forecast for a selected customer.
Prepare Export File From Forecast to Import into Fourth Shift	Use after you have completed and saved a forecast using Forecast Pro. The forecast is saved in a repository and then as an import file which is used to import into Fourth Shift. Generates the FPMSSA.IMP and FPMSSD.IMP (if needed) files in the location specified by the FCSM-Dir variable in the FS.CFG file. Run the FP_BEEX process in Fourth Shift to import the files.
Edit Market Share Table	Allows you to edit the Market Share table, which includes refreshing items from Fourth Shift. Use only if you are using the Market Share by Region report provided in the interface.

Option	Description
Refresh Component Use Table	Allows you to refresh items from Fourth Shift for Component Use table. Use only if you are forecasting usage of items as components.
Edit Seasonal Table	Allows you to edit the Seasonal table, which includes refreshing items from Fourth Shift. Use only if you have seasonal items.
Reports	Allows you to preview or print reports. A report menu option is displayed.
Customize Forecasting Configuration Parameters	Use to set up configuration parameters for the data transfer between Fourth Shift and Forecast Management. See the Configuring the Module section for more information.
Attach Predefined External Tables	Use to attach predefined tables from Fourth Shift and Sales Analysis database. Use during set up and also any time you move your Fourth Shift and/or Sales Analysis SQL databases .
Enable/Disable Menu Item	Allows you to customize the Administration menu. For example, if you are not using Shell to File Manager, you can disable this option. The next time you start the Forecast Management interface, the Shell To File Manager option is not displayed on the Administration Menu. Do not disable the Enable/Disable Menu Item option.
Shell to File Manager	Allows you to switch to File Manager to do other tasks
Exit Microsoft Access	Closes the interface.

Setting Up Categories for Forecasting

Use the following information to set up categories for forecasting:

- You can forecast group of items by Item Class 1 through 8 and Item Reference fields 1 through 4. You can use one or more of these fields in Fourth Shift to categorize items for forecasting. Once you do this, you can select a category to forecast a group of items at the same time. In addition, you can also forecast by items and customers.

Note: If you are planning to forecast by individual items or by customers, you do not need to set up a forecast category in Fourth Shift to use the Forecast Management System. The ability to extract by items and/or customer is provided in the Extract function.

- Set up a group of items using item class or item reference fields on the Item Master Detail screen from the ITMB screen in Fourth Shift if you plan to forecast items by category.

Examples:

- If you are forecasting by promotion—you may want to set up a category for those items that you always promote as a category.
- If you are forecasting by ABC class—set up an ABC class for items.
- If you are forecasting by wholesale/retail items—set up whole sale items as one category and retail as another category.

Your categorization of items may be different. Set up categories that are best suited for you to forecast using item class and/or item reference fields.

Configuring Forecasting Parameters

- Select **Customize Forecasting Configuration Parameters** from the Administration Menu then click **OK**.

The Module Configuration screen is displayed.

- Enter the **Forecast Pro Directory** name.

For example, C:\Program Files\ForecastPro44. This field is used by the Extract function so you can start Forecast Pro from within the interface program.

- Enter the **Forecast Pro INI File** name.

For example, FPWU.INI. This field is required to get the settings for Forecast Pro.

- If the Forecast Pro application uses FPWU.EXE, then the INI file is FPWU.INI. Verify this file exists in your Windows directory.
- If not, set up the Forecast Pro options from the Settings + Options menu in Forecast Pro, which creates the INI file.

Note: See Setup Options for Forecast Pro option details.

- Enter the **Sales Analysis ODBC** datasource name.

For example: FS74SQL – MSS-Fourth Shift

Typically, Sales Analysis tables reside in Fourth Shift SQL database. Various functions in the interface use the database that you specified in this field to read actual sales for time series data points.

- Enter the Fourth Shift ODBC datasource name.

For example: *FS74SQL – MSS-Fourth Shift*

Items, Customers and Item Class values are extracted from this database.

6. Select **Adjust Hard Allocation**, if the forecast quantity *must* be adjusted for the existing orders whose promised delivery date falls within the forecast horizon.

This adjustment decreases the forecast quantity by the order quantity in the respective forecast period (month/week in which the promised delivery date falls). This allocation is only performed if you choose to forecast salable items using customer orders history.

7. Select **Use Events in the Forecast**, if you have defined events to be taken into consideration for forecasting.

Events can be used to indicate any promotion events for items by giving a value during the promotional period and 0 value for the rest of the time. The code values are defined on a screen that is displayed by clicking the button Events/Helper Variables on the Extract Data for Forecasting form.

8. Select **Salable Items** or **Component Usage to Forecast**.

If you select **Salable Items**, then the following *History Records* options are available. These selections are not available with the Component Usage option.

- **Customer Orders**—or the order quantities
- **Shipments**—for the quantities shipped
- **Sales**—for the invoiced quantities

9. Enter the **Item Class** field position in the **ABC field number** field that you use for ABC classification tracking in Fourth Shift.

For example, enter 3 if you are using position 3.

This field is used by the *Inventory Turn by ABC* report to determine which field is tracking ABC classification information.

10. Enter 1, 2, or 3 in the **Item Fcst Type** field.

This field is used by the **Prepare Export File from Forecast to Import into Fourth Shift** option. The interface uses this value to prepare the **Fcst Code** for use in the Fourth Shift forecast import file.

11. Enter one of the following in the **Forecast Period** field.

- **M**—for monthly forecast
- **W**—for weekly forecast

No other values should be entered in this field. This field is used by various functions in the interface to determine whether you are forecasting by month or week.

12. Click **OK** to save your changes.

13. Click **Exit** to go back to Administration Menu.

Attaching Predefined External Tables

Important: The Forecast Management System never updates data in the Sales Analysis database.

- Most other functions in the interface *do not* work unless this function is done at least once.
- Any time you move the production system or Sales Analysis database on the network, you should run this function again to refresh the links.

1. Select **Attach Predefined External Tables** from the Administration Menu.
2. Click **OK** to link Fourth Shift and Sales Analysis tables.

The interface program uses these linked tables to read various data in support of forecasting and report functions.

Initializing the Category List Table

1. Select **Customize Forecasting Configuration Parameters** from the Administration Menu then click **OK**.

The Module Configuration screen is displayed. **Even if you plan to extract data by individual items or customers, you must complete this function.** In addition to item class and item reference fields categories, this function updates items and customers as a category so extract function can display lists of items and customers.

2. Click **Update Value List**. The **Update Value List** option updates the local table Category List from Fourth Shift.

This local table is necessary for the Extract Items by Category for Forecasting with Forecast Pro function to work properly.

3. Click **Exit** to go back to Administration Menu.

Initializing the Market Share Table

This function is optional. If you don't plan to use the Market Share by Region report, you do not need to initialize the Market Share table.

1. Verify you have initialized the Category List Table before you initialize the Market Share Table.
2. Select **Edit Market Share** from the Administration Menu and then click **OK**.

The Market Share form is displayed.

3. Click **Refresh Market Share** to update the local Market Share table with items from Fourth Shift.

Once the refresh is completed, items are displayed.

4. Enter the **Total Market** for each item.

For example, if Total Market in the USA for 16 oz pop cans is 19 billion dollars, enter 19,000,000,000 in the Total Market field.

5. Click **Exit** to go back to the Administration Menu.

Initializing the Seasonal Table

This function is optional. If you have seasonal items, you should initialize the seasonal table. The seasonal table is used by the Extract function to prepare the appropriate records for seasonal items so Forecast Pro can adjust the forecast for the seasonal items.

1. Select **Edit Seasonal Table** from the Administration Menu and then click **OK**.
2. Click **Refresh Seasonal** to update the local Seasonal table with items from Fourth Shift.

Once the refresh is completed, items are displayed. Click **Seasonal** if the item is seasonal. For example, snow blowers are seasonal items.

3. Click **Exit** to go back to the Administration Menu.

Initializing Component Use Table

This function is optional. If you are forecasting component usage, you should initialize the component use table. You do not need to initialize if you are forecasting salable items.

1. Select **Customize Forecasting Configuration Parameters** from the Administration Menu and then click **OK**.

The Module Configuration screen is displayed.

2. Select **Component Usage** in the Forecast option.

The History Records option is not available.

3. Click **OK** to save the changes.
4. Click **Exit** to go back to the Administration Menu.
5. Select **Refresh Component Use Table** from the Administration Menu and then click **OK**.

The component use table is updated with the items from Fourth Shift. The component use table is an attached table from the COMPUS03.MDB database located in the same directory as the FPMSS03.MDB database.

Daily Processing

Once you have completed the set up and configuration for the Forecast Management System, use the following instructions on a day-to-day basis or as needed to successfully use the application.

For daily processing information on the Forecast Pro Unlimited Edition application, use the documentation provided by Business Forecast Systems.

Defining Items for Forecasting

1. Sign onto Fourth Shift.
2. Use the **Saleable Indicator** field on the Item Master Detail screen from the ITMB screen to define which items should be forecasted.
 - **New System**—If you are a new Fourth Shift customer, define items with this indicator set as needed.
 - **Existing System**—Run the DOS utility, UPDTSAL.EXE in the FCSM directory.

This sets **Saleable Indicator** = Y for all items in customer orders.

- If there are salable items that are not in current orders and you need to run forecast for them, then you should set **Saleable Indicator** = Y manually in Fourth Shift for those items.

Extracting the Forecast

In the Forecast Management interface application, select the **Extract Items by Category for forecasting with Forecast Pro** function from the Administration menu to extract the forecast file. Extract options include:

Option	Description
Option	Customize category names and to disable the categories that you are not using.
Update Value List	Refresh the Category Value list. Use when you add new items or customers (if you are forecasting by customer) or if you change the forecast category values in Fourth Shift.
Init/Edit Seasonal	Edit the seasonal flag for an item. Verify this flag when you add new items in Fourth Shift.
Refresh	Refresh the screen.
Exit	Return to the Administration menu.
Select All	Select all the category values displayed in the Category Value List field.
Deselect All	Deselect all the category values displayed in the Category Value List field.
Preview	List the items that you have selected for forecasting. For example, if forecasting by ABC class and "A" is selected as a category value, Preview displays all items belonging to ABC classification = A. When you extract the file, the forecast file contains records for the items displayed in the Preview window.

Option	Description
Event/Helper Variables	Set up events. For example, set up a promotion event and select the event on the Events and Helper Variables screen. Select Code Event Values to specify 1 if the promotion was on and zero if the promotion was off for a period. The Code Event Values automatically sets up periods for the last 5 years.
Extract for Forecast	Use this function after you have selected category values for the forecast to create an extract file. Select an event that you want to link to the extract and click OK . Uses the last 5 years of actual sales to generate time series data that Forecast Pro uses. Missing data is replaced with zeroes.
Customer Selection List	Only available when you select "Customer" as a category. If you want to forecast by the customer, select the customer and then select items that you want to forecast in the Category Value List field.
Items Sold	Only available when you select "Customer" as a category. Used to list items sold to the specified customer from the Customer Selection List.
Items Not Sold	Only available when you select "Customer" as a category. Used to list items not sold to the specified customer from the Customer Selection List.

Modifying Forecasts using Forecast Pro

In the Forecast Pro application, complete the following steps:

1. Select **Operations + Script**.
2. On the export query window, select the extract file that has been extracted using the Forecast Management interface.
3. Select **Operations + Adjust Forecast** to adjust the forecast, if desired.
4. Select **Operations + Save Forecast** to save the forecast.
5. When prompted, enter the name you want for the forecast.

Importing Forecasts into Fourth Shift

In the Forecast Management interface application, complete the following steps:

1. Select **Prepare Export File from forecast to Import into Fourth Shift** from the Administration Menu.
2. Select the file that you have saved in Forecast Pro.

The function prepares an ASCII import file that you can use to import the forecast into Fourth Shift.
3. Specify the **Day of Month**, if you are creating a monthly forecast.

This defines the dates for the forecast values. For example, if the Day of Month is 5, then the monthly forecast dates will be 01/05/06, 02/05/06, 03/05/06 and so on.
4. Sign onto Fourth Shift. Go to the BEXE screen and run the **Process Id = FP_**.

This process imports the forecast into Fourth Shift.

Generating Reports

The following reports are available with the Forecast Management System.

Reports Based on Forecast

- Sales Revenue Forecast by user selected category
- Sales Quantity Forecast by user selected category
- Actual vs. Forecast Sales by user selected category
- Actual vs. Forecast Quantity by user selected category

When you select reports based on the forecast, the Report Criteria screen is displayed. You can print reports based on forecast for a specific revision, specific category, specific customer or all customers.

Reports with Fourth Shift Data

- Market Share by Region
- Safety Stock
- Inventory Turn by ABC Classification

FCSM – System Administration

The System Administration manual outlines the tasks involved in maintaining Fourth Shift. The Forecast Management System application includes special considerations in the areas of security and daily backups.

FCSM Security

Security rights need to be established for users accessing the Forecast Management System application. Use the security available within Microsoft Access to establish user security for the interface and install the Forecast Management icon only where appropriate. Forecast Pro does not include any security provisions.

Backup

You should add the directory specified by the **FCSMDir** variable, in the FS.CFG file, to your regular backup. The standard location for the **FCSMDir** variable is MFGSYS\FCSM. You may also want to consider backing up Forecast Pro data directory on a regular basis.