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# Sales Analysis

The Down To Earth General Ledger enables you to

The Down To Earth Sales Analysis application enables you to

- Summarize sales history
- Forecast sales demand for a single item or a group of items
- Analyze item purchases
- Use sales analysis codes to create a variety of customized reports

In order to use the Sales Analysis application, you must already have installed the Down To Earth Inventory and Order Entry applications. The best time to start using Sales Analysis is at the beginning of a new accounting month or period.

**Important:** Down To Earth requires that you have a sufficient amount of sales history for an accurate analysis of past sales and forecast of future demands. An accurate sales forecast with a seasonality factor needs a minimum of 24 months of sales history; ideally, you should have 48 months or more of sales history.

# 1 Getting Started

Select "Sales Analysis" from the Sales menu column to access the Sales Analysis application and display its main menu. Before you begin using Sales Analysis, you must perform the following functions in the order specified below:

1. Determine how sales data will be collected and analyzed in your company. Follow the instructions in the section, "Setting up your company."

2. Define the sales analysis codes you will use for inquiries and reports. You can define up to 16 codes (1-16). Follow the instructions in the section, "Defining sales analysis records."

3. Extract and summarize the sales data you need. This data will be pulled from the order history file of the Order Entry application and stored in the sales history file of the Sales Analysis application until the Sales Analysis history file is purged. Follow the instructions in the section, "Extracting sales history data."

# 2 The Maintenance Menu Column

From the entries in the Maintenance column you can

- Set up the company for which you are processing sales analysis information.
- Define factors affecting the sales data and reports, such as the date used as a basis for pulling sales data and the symbols used for bar graphs.
- Add, change, or delete information on sales analysis codes used to organize data for inquiries and reports.
- Extract sales history information from the order history file of the Down To Earth Order Entry application. You can decide whether to pull quantities, sales, and/or costs for a specified year.

## 2.1 Defining sales analysis records

Before you begin using the Down To Earth Sales Analysis application, you must create the necessary sales analysis codes. You should begin deciding what kinds of data and sorting combinations you want to use in your analyses, forecasts, and reports. For a list of data fields to choose from, consult the record layout for the field availability file, shown in Figure 2-1.

### Field availability record layout

Figure 2-1 lists the contents of the Sales Analysis (***UTF:safile.ddf***) file, which contains all the Down To Earth fields available for sorting and printing the reports and inquiries in the Sales Analysis application. The file information is displayed in the following six columns. You will need the information in the first four columns to build your sales analysis key records. For a detailed example, see the "Sales Analysis Code Maintenance window" section on the following pages.

**Data file:** Each number in this column refers to one of the following files where a specific field name is found. You will type this number into the **Data file** field in the appropriate key segment in the Sales Analysis Code Maintenance window.

1 - Order Entry history file
2 - Accounts Receivable customer file
3 - Inventory item file
4 - Order Entry ship-to file

**Field name:** This column lists the sort fields available for use by the Sales Analysis application. When you build a sales analysis code you will type the desired field

name for each key segment into the **Description** field in the Sales Analysis Code Maintenance window.

NOTE: Throughout this section, we will refer to this field as the "field name" in discussions of the **UTF:safile.ddf** file, and as the "key segment" in discussions of the Sales Analysis Code Maintenance window.)

| Data File | Field Name | Data Start | Data Length | Report Header | Screen Prompt |
|---|---|---|---|---|---|
| 1 | CUST | 003 | 06 | CUSTMR | Customer ID |
| 1 | ITEM | 009 | 24 | ITEM-ID | Item ID |
| 1 | SHPTO | 060 | 06 | SHIPTO | Ship to ID |
| 1 | LOC | 066 | 03 | LOC | Location Code |
| 1 | CATG | 069 | 03 | CAT | Category Code |
| 1 | UOM | 120 | 03 | UOM | Unit of Measure Code |
| 1 | SLSMN | 147 | 03 | SLM | Salesman Code |
| 1 | COMS | 150 | 03 | CMS | Commission Code |
| 2 | STATE | 104 | 02 | ST | State Code |
| 2 | ZIP | 106 | 09 | ZIP | Zip Code |
| 2 | PHONE | 140 | 14 | PHONE | Telephone Number |
| 2 | SLSMN | 189 | 03 | SLM | Salesman Code |
| 2 | TERR | 192 | 03 | TER | Territory Code |
| 2 | TERM | 202 | 03 | TRM | Terms Code |
| 2 | SIC | 205 | 04 | SIC | SIC Code |
| 2 | FINC | 211 | 03 | FIN | Finance Charge Code |
| 2 | TAXC | 256 | 03 | TAX | Tax Code |
| 2 | CLASS | 259 | 02 | CL | Class Code |
| 3 | DIV | 080 | 04 | DIV | Division |
| 3 | DEPT | 084 | 04 | DEPT | Department |
| 3 | CATG | 088 | 03 | CAT | Category Code |
| 3 | TAX | 103 | 01 | T | Taxable Flag |
| 3 | CTRL | 104 | 01 | C | Controlled Flag |
| 3 | MFGD | 105 | 01 | M | Manufactured Flag |
| 3 | SNLT | 106 | 01 | S | Serial/Lot/Kit/None |
| 3 | WARC | 113 | 03 | WAR | Warranty Code |
| 3 | VEND1 | 389 | 06 | VENDOR | Vendor 1 ID |
| 3 | VEND2 | 424 | 06 | VENDOR | Vendor 2 ID |
| 3 | VEND3 | 459 | 06 | VENDOR | Vendor 3 ID |
| 3 | COMS | 519 | 03 | COM | Commission Code |
| 3 | CATL1 | 522 | 03 | CTG | Catalog Code 1 |
| 3 | CATL2 | 525 | 03 | CTG | Catalog Code 2 |
| 4 | SSTAT | 109 | 02 | ST | Ship To State Code |
| 4 | SZIP | 111 | 09 | ZIP | Ship To Zip Code |
| 4 | SPHON | 145 | 14 | PHONE | Ship To Telephone No |
| 4 | STAXC | 159 | 03 | TAX | Ship To Tax Code |

**Figure 2-1 Sales Analysis field availability file**

**Data Start:** This column lists the exact starting position of each field name within the corresponding data file. You will enter this number into the **Data start** field for each key segment in the Sales Analysis Code Maintenance window.

**Data Length:** This column lists the exact length of each available field. Normally you will enter this number into the **Key length** field for each key segment in the Sales Analysis Code Maintenance window. (For exceptions, see the example for the **Key length** field under the "Sales Analysis Code Maintenance window" heading.)

**Report Header:** This column lists the report header for each field name. If you're not sure what a report header means, just check the description under the corresponding "Screen Prompts" column heading. This field is for your information only and is not entered into any screen fields.

**Screen Prompts:** This column gives a more complete description of each field name in order to help you select the ones you want. This field is for your information only and is not entered into any screen fields.

When you've decided which combination of fields to use for the Sales Analysis application, you're ready to define the sales analysis code records. To create these codes, or to change or delete existing codes, select the "Analysis codes" entry from the Maintenance menu column. Down To Earth will display the Sales Analysis Code Maintenance window.

## Sales Analysis Code Maintenance window

**Analysis code:** Enter the code you want to add or change. You can define up to 16 different codes (1-16). Each code will define a sequence by which sales history will be stored and available for both inquiry and reporting.

If you're changing an existing code's key structure, you must first purge the existing code's sales history before updating the code here. You'll then need to "repull" the sales history for the new code before proceeding. You can use the "Find" shortcut to display a list of codes and select the one you want. (For more information about repulling sales history, see the "Sales Analysis Extract window" in the section, "Extracting sales history data.")

**Description:** Enter the description of the key structure for this analysis code. The description must be composed of field key names separated by slash characters and must be in the exact same sequence as the key is defined. You can find a list of available key names in the field availability record layout at the beginning of this section.

**Last updated:** This is the date order history was last extracted and summarized for this analysis code type. If you're adding a new record, just press <Return> to accept the default date of **0/00/0000**. If you're updating an existing record, this field should display the date Down To Earth entered during the most recent extract procedure.

**Key start:** Enter the starting position of each key segment within the sales analysis key you are creating. The key segments should be defined left to right and should always start with position 1.

**Key length:** Enter the length of this key segment. To find the correct data field length for each key segment name, see the **Data Length** column in the field availability record layout in Figure 2-1.

The contents of the **Key length** field on the screen are usually the same as the **Data Length** column in the field availability record layout. However, there are exceptions.

For example, you might want sales history for regions of the country based on the first three digits of the zip code; you can select the **Zip code** field, which is normally nine digits long, and define only the first three digits as part of the sales analysis key.

Another exception might be the item ID, whose maximum length is 24 characters but which you have defined within the inventory system as using only 12 characters.

**Data file:** When you position the cursor in this field, a list of data files is displayed. Select the file where the field for this key segment is located and press <Return>. Your choies are as follows:

1 - Order Entry history file
2 - Accounts Receivable customer file
3 - Inventory item file
4 - Order Entry ship-to file

To find the correct data file number for the key segment name you have chosen, see the Data File column in the field availability record layout in Figure 2-1.

Most information used for Sales Analysis reports will come from the Order Entry history file, and you will normally just press <Return> to accept the default of **1**. Occasionally you may want to use information in other files. For example, if you want to include sales in the customer's state, you would specify the **State** field in file number 2 (Accounts Receivable customer file). If you want to include sales in the state to which you're shipping, you would specify the **State** field in file number 4 (Order Entry ship-to file).

**Data start:** Enter the starting position within the data file where the data for this key segment is located. To find the correct data start position for each key segment name, see the Data Start column in the field availability record layout in Figure 2-1.

**Store quantities:** When you perform the "Extract sales history" function, if you want to include the number of units sold during the specified year, choose **Yes** from the selection window. To accept the default of **No**, just press <Return>.

**Sales:** When you perform the "Extract sales history" function, if you want to include the dollar amount generated from sales during the specified year, choose **Yes** from the selection window. To accept the default of **No**, just press <Return>.

**Costs:** When you perform the "Extract sales history" function, if you want to include the cumulative cost to your company of all units sold during the specified year, choose **Yes** from the selection window. To accept the default of **No**, just press <Return>.

When you're finished defining the key for this analysis code, press <Return> as many times as needed to enter the default values in the remaining fields, or press the "Fill defaults" shortcut to fill in the remaining defaults. When you're sure the data is correct, press <Return> to complete your input and clear the window so you can enter information on other codes. If you're finished entering code information, press the "Exit window" shortcut to pull down the Maintenance menu column.

## 2.2 Extracting sales history data

The Sales Analysis application obtains its historical information from the Down To Earth Order Entry history file. Line item sales data from the Order Entry history file is transferred and summarized into the Sales Analysis history file and retained until purged.

The Sales Analysis history file is used to produce sales history reports and inquiries and to forecast future demand. You should have six to twelve months of data in the Order Entry history file in order to do any accurate forecasting. If you are forecasting demand for items with a strong seasonality factor, such as automobiles or toys, you should consider 24 months of sales history to be an absolute minimum.

After this function is first run, you should run it periodically on a set schedule (once each day, week, or month) to keep the Sales Analysis history file current with all sales statistics.

To extract and summarize sales data, select "Extract sales history" from the Maintenance menu column. Down To Earth will display the Sales Analysis Extract window. Selecting windows will appear on the screen only when the cursor is in the appropriate fields.

### Sales Analysis Extract window

**Year:** Enter the year of the sales data you want updated with order history. This year must be in the range **1980** to **2010**.

**Analysis code:** Enter the sales analysis code for which you want to extract order history. If you want to update or repull sales history for all analysis codes, just press <Return> to enter **0**, the default. You can use the "Find" shortcut to display a list of codes and select the one you want.

**Option:** The selection window in this field allows you to either update the existing sales analysis record(s) or remove and repull them. To accept the default of **Update**, just press <Return>.

- ✔ **Update** will bring the existing Sales Analysis history file up to date by adding new data from the Order Entry history file to the data that has previously been pulled. It extracts only the sales records that have not already been flagged as summarized.
- ✔ **Repull** will rebuild the sales analysis by

1. "Zeroing" all records currently in the Sales Analysis history file for the analysis code(s) entered.

2. Resetting the flags for all records except those marked as hand-altered.

3. Pulling the Order Entry history records again "from scratch." You may want to use this option if you find that any of your sales data has changed or become corrupted.

(For additional information on hand-altered records, see the "Amounts window" heading in the section, "Maintaining sales analysis data.")

When you're sure your data is correct, press <Return> to clear the window. If you're finished with your sales analysis extract, press the "Exit window" shortcut to return to the Maintenance menu column.

## 2.3 Maintaining sales analysis data

The Sales Analysis application is used to analyze existing sales data and to forecast future demand for one or more items. In planning your sales strategy, you may want to consider how an increase or decrease in the sales of an item may affect your overall financial picture.

Down To Earth allows you to manipulate your sales, cost, or quantity data artificially for a specific analysis code through the "Sales maintenance" function. To try out various sales scenarios, select "Sales maintenance" from the Maintenance menu column. Down To Earth will display the Sales Analysis Maintenance window.

### Sales Analysis Maintenance window

**Analysis code:** Enter the sales analysis code for which you want to adjust sales data. You will be prompted for the key fields that were defined for the code you entered. If you don't remember the ID code for one or more of the prompted fields you can use the "Find" shortcut to display a list of ID codes and descriptions and select the one you want.

**Year:** Enter the year of the sales data you want displayed, in the format **YYYY**.

**Record type:** Select the type of record you want displayed. Your choices are listed below. To accept the default of **Sales**, just press <Return>.

**Sales** (The dollar amount generated from sales during the specified year.)

**Costs** (The cumulative cost of all units sold during the specified year.)

**Quantities** (The number of units sold during the specified year.)

When you're sure your data is correct, press <Return> to display the Amounts window.

### Amounts window

The Amounts window will display twelve fields, one for each month (January through December) of the year you specified. Enter the new amount for each month of sales, quantity, or cost, depending on what you selected in the **Record type** field.

If you enter an amount that is different from the original amount, this sales record will be flagged as hand-altered, and subsequent extracts of history will not replace it.

NOTE: The term "updates" will add new data to the record without changing it, but "repulls" will not.

If you want to remove a hand-altered record from Sales Analysis, you must first purge the sales data for this analysis code by using the "Purge history" function from the Miscellaneous menu column. You must then use the "Extract sales history" function with the **Repull** option to zero the sales history data, reset all flags, and start fresh.

When you're sure your data is correct, press <Return> to process the sales maintenance data. You can now try other Sales Analysis functions with the altered data. To go back to the original data, just perform another extract via the "Extract sales history" using the **Update** option.

## 2.4 Setting up your company

Before you begin using the Down To Earth Sales Analysis application, you must enter the required company information.

To enter or revise company information, select the "Company" entry from the Maintenance menu column. Down To Earth will display the Company Maintenance window.

### Company Maintenance window

**Company code:** The code of the company you're processing is automatically displayed in this field. If this is not the company code you want to define or modify, you must first exit Down To Earth and log into the proper company before restarting the Sales Analysis application.

**Pull date:** Enter the type of date you want to use as a basis for pulling and recording the sales analysis information. Choose **Shipping** from the selection window if you want sales analysis data pulled and recorded based on the shipping date of the order. Choose **Invoice** from the selection window if you want the sales analysis data pulled and recorded based on the invoice date of the order.

**Months for format 6:** Enter the number of months you want included on reports with format number 6 (Qty/price/cost) from the "Standard reports" function of the Reports menu column. Report format 6 displays quantity, sales, and cost data for the

calendar year, always beginning with January. You can choose to include any number of months from **1** through **12** on this report.

**Graph character:** Enter the ASCII value of the character you want used to create the horizontal bar charts displayed by the **Graph** option of the "Standard inquiry" function. Any displayable ASCII character can be used. For example, you would enter the ASCII value **124** to display a series of vertical bars.

**Record type for item:** This field must define the sales analysis code type record that has the **item ID** as the first field. This will be code number **3** when the system is shipped to you; however, if you change the codes, you must also change this number. This number is used to define the data records that will be used in the purchase analysis and forecasting functions.

When you're sure your entries are correct, press <Return> to process your data and return to the Maintenance column.

# 3 The Transaction Menu Column

From the Transaction menu column you can

- Make a sales inquiry
- Forecast future demand for a single item
- Forecast future demand for multiple items
- Analyze item purchase information

## 3.1 Making a standard sales inquiry

The standard sales analysis inquiry allows you to view a summary of sales history which has been transferred from the history file of the Order Entry application. Depending on the sales analysis code records you have defined you might view data such as monthly sales (in dollars) of a specific item to a specific customer.

To make a sales analysis inquiry, select "Standard inquiry" from the Transaction menu column. Down To Earth will display the Sales Analysis Inquiry window.

### Sales Analysis Inquiry window

**Analysis code:** Enter the sales analysis code for which you want to inquire. The program will prompt you for the necessary key fields that were defined for the code you entered.

**Period:** Enter the month and year for which you want to display sales data. Down To Earth will display the month-by-month sales data for January through December of the year entered.

**Display type:** Choose the type of display you want from the displayed selection window. To accept the default of **Amount**, just press <Return>.

- ✔ Choose **Amount** to display the monthly quantity, total price (sales), total cost, and dollar and percentage margins for the year entered.
- ✔ Choose **Trend** to display the monthly quantity, price (sales), cost, and dollar margin with the percentage change from month to month for the year entered.
- ✔ Choose **Graph** to display horizontal bar charts for the record type (sales, cost, or quantity) for each month of the year entered, along with the actual amount in digits. The character that is used to create the bar chart comes from the ASCII value you entered when you defined your company.

**Record type:** Choose the type of record you want from the displayed selection window. Be sure you've pulled the appropriate records during the most recent extract process.

- ✔ Choose **Sales** to display the dollar amount generated from sales during the specified year.
- ✔ Choose **Cost** to display the cumulative cost of all units sold during the specified year.
- ✔ Choose **Quantity** to display the number of units sold during the specified year.

When you're sure your data is correct, press <Return>. Down To Earth will display sales data for the record type and display type you specified. If you've finished your sales analysis inquiries, press the "Exit window" shortcut to return to the Transaction menu column.

## 3.2 Forecasting demand for a single item

The forecasting functions allow you to predict future sales demand for an item for the month you specify, based on past sales history. To evaluate the data and determine the most accurate forecasting method, Down To Earth first determines how many months of sales history are available for the item. Forecasts are not accurate with less than 10 months of data or less than 70 percent of the past month's history.

If enough data is available, Down To Earth determines the seasonality of the data. Seasonality occurs when an item regularly has high and low sales. For example, heating oil shows a 12-month seasonality factor because it has high sales during the cold winder months and low sales during the rest of the year. This seasonality factor is determined by a process called auto-correlation analysis, which must have at least 24 months of past data in order to perform the calculations.

To forecast a single item interactively on the terminal screen, select "Forecast single item" from the Transaction menu column. Down To Earth will display the Forecast Single Items window.

### Forecast Single Items window

**Item ID:** Enter the ID of the item for which you want to forecast sales. Forecasts are not accurate with less than ten months of data or seventy percent of the past month's history available within the sales analysis file. If the item shows a seasonality factor, it must have at least 24 months of history available.

You can use the "Find" shortcut to display a list of items and select the one you want.

**Forecast date:** Enter the month and year you want to forecast for, in **MM/YYYY** format.

**Forecast:** To continue with the forecast, press <Return> to accept the default of **Yes**. To abort the forecast procedure, choose **No**.

**Re-evaluate:** The first time you calculate forecast quantities for an item, the program will perform the calculations using three different forecast methods (two if there is no seasonality factor) to find the one that has the lowest error factor. That method will be stored as the forecast method to use for future forecasting of the item until you choose to perform another forecasting evaluation.

As you accumulate more sales history, the best method to use may change; therefore, you might want to re-evaluate the forecasting method to assure that you are getting the most accurate forecast. To re-evaluate the forecast method for this item, choose **Yes**. To forecast according to the method already assigned to this item, press <Return> to accept the default of **No**.

Forecasting demand without re-evaluating the forecast method usually processes quickly (perhaps in a few seconds). If an evaluation is performed, however, you should expect a longer processing time (perhaps a few minutes). When the forecast is complete, the results will be displayed in the remaining fields on the screen. Those fields are described below.

When you press <Return>, Down To Earth performs the forecast for the item and date you specified. If there is enough data, the results of the forecast are displayed below.

**Seasonality length:** If the item is determined to have a seasonality factor, the length of that factor in months is displayed.

**Forecast method:** If you are forecasting based on the method already assigned to this item, that method and its related information will be displayed. If you are re-evaluating the forecast method, Down To Earth will display the results of three different methods (two if there is no seasonality factor). The forecast methods available are:

Double Exponential Smoothing
Two-Parameter Linear Exponential Smoothing
Three-Parameter Linear Exponential Smoothing **(used only if there is a seasonality factor)**

**Factors:** The **Alpha**, **Beta**, **Gamma**, and **Smoothing** factor associated with each forecast method are displayed here.

**Absolute error:** Down To Earth compares the monthly forecasted quantities with actual quantities and calculates an error factor for each forecast method. The results are displayed here for the appropriate forecast method(s).

**Forecast quantity:** Down To Earth displays the quantities forecast by each method for the month you are forecasting.

When you're finished viewing the forecast information for this item, press <Return> to clear the window. If you've finished forecasting single items, press the "Exit window" shortcut to return to the Transaction menu column. You may want to print a forecast report for this item (see the section, "Printing a Forecast Report" for more information).

## 3.3 Forecasting demand for multiple items

The same forecasting functions used for single items can be used for a group of items. (See the previous section, "Forecasting demand for a single item" for a more detailed description of sales history requirements and forecasting methods.) Down To Earth will read the items from the Inventory item master file, accumulate the sales history, and perform and save the forecast.

If you've never done a forecast for an item that has history available, Down To Earth automatically evaluates the item to determine the best forecasting method, as it does when forecasting demand for a single item. If an item must be evaluated, the forecasting process slows considerably. The item being forecast and the status of the program are constantly displayed on the screen for your information.

To forecast demand for a group of items, select "Forecast items" from the Transaction menu column. Down To Earth will display the Forecast Items window.

### Forecast Items window

**Starting item:** Enter the ID code of the first item in the group you want to forecast. You can enter up to 24 characters in this field.

To begin a selected sequence of items, enter the ID code of the first item you want included in the forecast group. To begin the forecast group with the lowest item ID on file, press <Return> to accept the default value of *****.

If you don't remember the item number you need, you can use the "Find" shortcut to search for the correct item ID.

**Ending item:** Enter the ID number of the last item in the group you want to forecast. You can enter up to 24 characters in this field.

To end a selected sequence of items, enter the ID code of the last item you want included in the forecast group. To end the forecast group with the highest item ID on file, or to include all items, press <Return> to accept the default value of *****.

If you don't remember the item number you need, you can use the "Find" shortcut to search for the correct number.

**Forecast date:** Enter the month during which you want forecasting to begin, using the format **MM/YYYY**.

**Months to forecast:** Enter the number of months for which you want to forecast quantities. You can forecast for up to three months from the specified forecast date.

When you're sure your data is correct, press <Return> to complete the forecast. As Down To Earth reads each item in the Sales Analysis history file, its number and description will be displayed briefly in the **Current item** field below.

**Current item:** As Down To Earth reads each item in the Sales History file, its number and description are displayed briefly in this field.

When the forecast is finished, Down To Earth will store the data. To print the results, use the "Forecast report" function in the Reports menu column.

## 3.4 Analyzing item purchases

The "Purchase analysis" menu entry allows you to interactively evaluate certain inventory item ordering parameters. If you want to, you can then change the reorder point, economic order quantity, and lead time on the Inventory item file to optimize ordering.

When you choose an item for analysis, Down To Earth displays data from both the Inventory item and the Sales Analysis files in units and days' supply, and displays messages to aid you in determining reorder parameters based on the forecasted demand for the item.

To perform a purchase analysis, select "Purchase analysis" from the Transaction menu column. Down To Earth will display the Item Purchase Analysis window.

### Item Purchase Analysis window

**Item ID:** Enter the ID code of the item for which you want to analyze purchase requirements.

**Location:** Enter the code of the location from which to get the quantities on hand, available, and on order for the analysis.

Press <Return>. If enough data exists for an item purchase analysis, the remaining fields on the screen will be filled in.

The values in the fields below will aid you in determining your optimum reorder point, economic order quantity, and lead time. You can change these if you want to. At the end of the session, you can save these new values back to the Inventory item file, or discard them.

**Reorder point:** Down To Earth displays the reorder point for the item record in units, calculates days' supply, and displays a warning message if you are overstocked or understocked for the item. You can change the reorder points if you want to.

- **The** units column **(not labeled) displays the number of selling units remaining at which this item should be reordered.**
- **The** days' supply **is calculated as the number of units divided by the daily demand according to the most recent monthly forecast.**

**Economic order qty:** Down To Earth displays the economic order quantity from the item record in units and calculates days' supply. This is the number of buying units

you must order to get the best price for this item. You can change this field if you want to.

**Lead time (days):** This field displays, from the item record, the number of days it takes to receive this item after it is ordered. You can change this field if you want to.

**Quantity on hand:** This field displays the number of units of this item in your inventory, in units and in days' supply.

**Quantity available:** The quantity available is calculated by subtracting the quantity allocated from the quantity on hand.

**Quantity on order:** This field displays the number of selling units ordered from your supplier, in units and in days' supply.

**Forecast month:** The next three months for this forecast are displayed in these fields.

**Forecast quantity:** The monthly quantities for this forecast are displayed in these fields.

**Daily demand:** The average daily demand for each month listed is divided into the number of units (quantity on hand) in order to calculate the days' supply remaining.

**Sell unit of measure:** This field displays the code assigned to the unit of measure by which this item is sold (e.g., by the foot or by the dozen).

**Buy unit of measure:** This field displays the code assigned to the unit of measure by which this item is purchased from your supplier (e.g., by the foot or by the dozen).

**UOM conversion factor:** The unit of measure conversion factor is used to convert the quantity received from the supplier to the quantity available for sale. For example, if you buy widgets in boxes of 100 but sell them in boxes of 25, this field should contain a **4**.

**Forecast method:** Down To Earth performs forecasting calculations using three different methods and uses the one with the lowest error factor. One of the following forecast methods will be displayed in this field:

> Double Exponential Smoothing
> Two-Parameter Linear Exponential Smoothing
> Three-Parameter Linear Exponential Smoothing **(includes seasonality factor)**

**Seasonality length:** If sales of this item are seasonal, the length of the seasonality factor in months is displayed here.

**Save changed values:** Select **Yes** if you want to save changed values to the Inventory item file. If you don't want to save the changed values select **No** to discard them. This will update the reorder point, economic order quantity, and/or lead time for this item.

When you've finished viewing the purchase analysis for this item, press <Return> to clear the window. If you're finished with all purchase analysis transactions, press the "Exit window" shortcut to return to the Transaction menu column.

# 4 The Reports Menu Column

The entries in the Reports column allow you to print

- Sales Analysis Reports
- Forecast Reports
- Reports created with Report Writer
- Queued reports

## 4.1 Printing a standard Sales Analysis report

Down To Earth's sales analysis codes allow your standard reports to include sales, quantity, or cost data in any of the combinations you defined in your sales analysis codes. These can be displayed and printed in up to seven different report formats.

To print a standard sales analysis report, select "Standard reports" from the Reports menu column. Down To Earth will display the Sales Analysis Reports window.

### Sales Analysis Reports window

**Analysis code:** From the dislayed selection window, choose the sales analysis code to be used on this report. This code will determine the sequence of the items listed and the totals printed.

**Report format:** From the displayed selection list, select the report format you want to print. The report headings may vary slightly, depending on the analysis code.

- ✔ **1:Month/qtr/yr** lists record type totals by specified month, specified quarter, and specified calendar year for each item or other key segment, along with month, quarter, year, and report totals.
- ✔ **2:Past/cur yr** lists year-to-date record type totals for each item or other key segment for the past year, specified year, difference between specified and past year "to date" item totals, and percentage of increase or decrease of specified year over past year "to date" item totals.
- ✔ **3:Quarters** lists quarterly and yearly sales for each item, with quarterly and yearly totals for each item or other key segment and report.
- ✔ **4:Qtr months** lists the specified quarter's sales broken down by month, the sales for the quarter, and the sales for the specified year for each item or other key segment. The specified quarter used is always the calendar quarter (e.g., January, February, March).

- ✔ **5:Month average** lists the current month's sales, the average year-to-date monthly sales, the difference between the specified month's sales and the average monthly sales, and percentage above or below average for the specified month's sales, and the total for the specified calendar year for each item or other key segment.
- ✔ **6:Qty/price/cost** lists the total quantity, total cost, total price (total sales), profit margin, and percentage or profit for the specified number of months in the specified calendar year for each item or other key segment. The number of months included in these totals comes from the **Months for format 6** field in the "Company" function. For example, if you enter **3**, Down To Earth will list totals for January through March of the specified calendar year.
- ✔ **7:Months** will list monthly totals for January through December of the calendar year for the period specified. January through June sales are listed on the first line, and July through December sales are listed on the second line. Item totals for the year are also listed.

**Record type:** From the displayed selection window, choose the type of record you want printed on the report. (Exception: Report format 6 displays all three record types.) To accept the default of **Sales**, just press <Return>.

- ✔ Choose **Sales** to print the dollar amount generated from sales during the year specified.
- ✔ Choose **Costs** to print the cumulative cost of all units sold during the year specified.
- ✔ Choose **Quantities** to print the number of units sold during the year specified.

**Ending period:** Enter the month and year in the format **MM/YYYY** to be the current period for the report. This period will be used to determine the year to print and, in some cases, the current month or quarter.

**Page break level 1:** Select **Yes** if you want to start a new page each time the main sort field for the selected analysis code changes. Select **No** if you do not want page breaks.

When you're sure your data is correct, press <Return>. Down To Earth will prompt you for the **Starting** and **Ending** code for each key segment. The exact prompts will be different for each analysis code. As with most other report windows, just enter the ID code for the first and last members of the group you want to forecast, or press <Return> to accept the default of ***** (indicating lowest starting code and/or highest ending code).

When you've entered data in all the fields, press <Return> to pull down the Print Option menu column. From the Print Option column, select where you want the report to be sent. After you've printed your report, press <Return> to return to the Reports menu column.

### Sales report format

Because you can specify your own sales report format, it may be helpful to keep in mind an overall "master" format, although the specific headings may vary. This format is:

[Record Type] for [Key Segment 1] listed by [Report Format] and by [Key Segment 2,3...] with totals for [Key Segment 1,2,3...]

## 4.2 Printing a Forecast Report

You can use this option to print a Forecast Report for a single item or for multiple items after you have performed the forecast transactions. To print a Forecast Report, select "Forecast Report" from the Reports menu column. Down To Earth will display the Forecast Report window.

### Forecast Report window

**Starting item ID:** Enter the ID code of the first item in the group you want to forecast. You can enter up to 24 characters in this field.

To begin a selected sequence of items, enter the ID code of the first item you want included in the forecast group.

To begin the forecast group with the lowest item ID on file, or to include all items, press <Return> to accept the default value of *****.

To print a forecast report for a single item, enter the same item ID code in both the **Starting item ID** and **Ending item ID** fields.

**Ending item ID:** Enter the ID code of the last item in the group you want to forecast. You can enter up to 24 characters in this field.

To end a selected sequence of items, enter the ID code of the last item you want included in the forecast group.

To end the forecast group with the highest item ID on file, or to include all items, press <Return> to accept the default value of *****.

When you're sure your data is correct, press <Return> to pull down the Print Option menu column. After you've printed the report, press <Return> to return to the Reports menu column. Down To Earth will print a Forecast Report for the item(s) specified, listing the forecast method used and showing sales, cost, or quantity data for the number of months you specified in the **Months to forecast** field in the "Forecast items" function.

## 4.3 Printing reports created through Report Writer

To print custom-made reports that were created using the Down To Earth Report Writer application on VMS or UNIX, select "Other reports" from the Reports menu column. (To print such reports on DOS, you must select "Run" from the Reports menu column in Report Writer.)

### Report Name window

**Application code:** Down To Earth automatically displays the two-character code of the application you're processing. Because you're currently processing transactions from within Sales Analysis, **SA** is displayed.

**Report name:** The names of the reports created through Report Writer are displayed in a selection window. Choose the report you want to print.

After you've made your selection, press <Return> to pull down the Print Option menu column. From the Print Option column, select where you want the report to be sent. After you've ordered your report, press <Return> to clear the window. If you're finished printing reports, press the "Exit window" shortcut to return to the Reports menu column.

## 4.4 Printing queued reports

To display a list of the reports in the print queue, select "Queued reports" from the Reports menu column. You can then print one or more copies of the report, delete a report from the print queue, or rename a report. We suggest that you use this menu entry to view the queued reports before you clear the print queue (via the File menu column in the System Manager application).

### Print Queued Reports window

**File:** From the displayed selection window, choose the report you want to print, delete, or rename.

**Copies:** Enter the number of copies you want to print. To print just one copy, press <Return>.

**Delete:** To delete the report from the print queue, press <Return> to select the default value, **Yes**. To leave the report in the queue, select **No**.

**Rename:** To rename the report, select **Yes**. To leave the report as it is, select **No**. If you rename the report, it is deleted from the print queue, but you can access it using other software products (such as Lotus 1-2-3 or WordPerfect).

**To:** If you selected **Yes** at the **Rename** prompt, enter the new report name. The report name can be up to six characters in length. The system automatically assigns

the extension **.prt** to the name you enter and places the report in the directory referenced by the RPT logical.

Press <Return> to accept your data and pull down the Print Option menu column. From the Print Option column, select where you want to send the specified report.

# 5 The Miscellaneous Menu Column

From the Miscellaneous menu column you can

- Purge sales history records

## 5.1 Purging sales history records

The "Purge history" function allows you to purge sales history records for one or more sales analysis codes. For example, you might want to purge sales history in order to remove a hand-altered record from the sales history file.

You should only purge history details after you've printed all reports required by your company. You will have the option of saving the deleted records in case you need to bring them back for some reason.

**Important:** Analysis of past sales and forecasting of future demand are dependent on an extensive sales history. When you purge, be sure you've left enough data for Down To Earth to perform the Sales Analysis functions. Unless you choose to save the deleted records, purged records cannot be retrieved through Down To Earth.

To purge the history file on a sales analysis code, select "Purge history" from the Miscellaneous menu column. Down To Earth will display the Purge Summary Records window.

### Purge Summary Records window

**Analysis code:** Enter the sales analysis code for the records you want to purge. If you want to purge all analysis code records on file, just press <Return> to enter the default of **0**.

**Year to purge thru:** Enter the year through which you want sales analysis records removed from the file. Once these records are removed, the inquiry and report functions will not be able to display or print these years.

**Saved deleted records:** Choose **Yes** if you want to save the records you are purging. Choose **No** if you do not want to save these records. If you choose **Yes**, the purged records for the detail transaction file will be saved as a sequential file named **WRK:sahist.pur**. If you choose to save the purged records, it is suggested that you copy off the newly created **sahist.pur** file into a separate directory in preparation for a future purge. For most operating systems, the next time you purge and save the deleted records, the new file will override the previous file of the same name.

**Confirm:** Type **YES** to confirm that you want to purge the specified records. Typing any other response (including **Y**) will abort the process. Press <Return> to accept the default of **NO** and abort the purge.

Press <Return> to either purge sales history or abort the process and return to the Miscellaneous menu column.

# Appendix A: Procedures

## Manipulating sales analysis data

Down To Earth allows you to manipulate your sales, cost, or quantity data artificially. To try out various sales scenarios for specific analysis codes, select "Sales maintenance" from the Maintenance menu column.

You must define the **Analysis code**, **Year**, and **Record type** (Sales, Cost, or Quantities) to be altered. The Amounts window then displays twelve fields, one for each month (January through December) of the year you specified. Enter the new amount for each month of sales, quantity, or cost, depending on what you selected in the **Record type** field. If you enter an amount that is different from the original amount, this sales record will be flagged as hand-altered, and subsequent extracts of history will not replace it.

See the section, "Maintaining sales analysis data," for a detailed description of this procedure.

## Working with the Sales Analysis application

Once you have set up your analysis codes and extracted your data, you can work with the data in a variety of ways. Each of the following categories includes a group of related procedures. The lists include each function name, followed in parentheses by the name of the corresponding menu column.

**Code-based procedures:** A sales analysis code groups sales-related fields together in a variety of ways determined by the user. You can perform the following procedures on specific analysis codes:

- ✔ "Standard inquiry" function (Transaction menu column). Displays sales, cost, or quantity data on the terminal screen in amount, trend, or graph format.
- ✔ "Sales maintenance" function (Maintenance menu column). Displays an Amounts window that allows you to manipulate sales data.
- ✔ "Standard reports" function (Reports menu column). Allows you to print sales, cost, or quantity data in one of seven report formats.

**Item-based procedures:** You can perform the following procedures on specific item ID codes:

- ✔ "Purchase analysis" function (Transaction menu column). Allows you to interactively evaluate and change certain item-ordering parameters in the Inventory item file.

- ✔ "Forecast single item" function (Transaction menu column). Displays a single-item forecast interactively on the terminal screen.
- ✔ "Forecast items" function (Transaction menu column). Displays a multiple-item forecast interactively on the terminal screen.
- ✔ "Forecast report" function (Reports menu column). Allows you to print a forecast report for single or multiple items. For a single item, enter the same item ID code in both the **Starting item ID** and the **Ending item ID** fields. For multiple items, enter the starting and ending ID code for a range of items.

**Sales analysis procedures:** The following functions are used to analyze past sales history:

- ✔ "Standard sales inquiry" function (Transaction menu column). Displays sales, cost, or quantity data on the terminal screen in amount, trend, or graph format for a specific analysis code.
- ✔ "Item purchase analysis" function (Transaction menu column). Allows you to interactively evaluate and change certain item-ordering parameters in the Inventory item file for a specific item.
- ✔ "Standard reports" function (Reports menu column). Allows you to print sales, cost, or quantity data in one of seven report formats for a specific analysis code.

**Forecasting procedures:** The following functions are used to forecast future sales demand:

- ✔ "Forecast single item" function (Transaction menu column). Displays a single-item forecast interactively on the terminal screen.
- ✔ "Forecast items" function (Transaction menu column). Displays a single-item forecast interactively on the terminal screen.
- ✔ "Forecast report" function (Reports menu column). Allows you to print a forecast report for single or multiple items. For a single item, enter the same item ID code in both the **Starting item ID** field and the **Ending item ID** field. For multiple items, enter the starting and ending ID code for a range of items.

## Changing a sales analysis code

If you change an analysis code, follow the sequence of steps below.

1. Use the "Purge history" function to remove the sales history for this analysis code.
2. Make the desired changes to the structure of this analysis code.
3. Use the "Extract sales history" function with the **Repull** option to update the sales history data for this analysis code.

## "Hand altering" sales data

If you decide to explore possible sales scenarios, use the following procedure to hand alter the sales history for a specific analysis code.

1. Use the "Sales maintenance" function to manipulate the sales history for this analysis code.

2. When you've finished manipulating the altered data, use the "Purge history" function to remove the sales history for this analysis code.

3. Use the "Extract sales history" function with the **Repull** option to correctly update the sales history file for this code.

# Appendix B: Troubleshooting / Common Down To Earth & DBL errors

## ➲ Corrupted data

There may come a time when your sales history data for a certain analysis code data no longer reflects reality, even when you're tried extracting and updating the data for that code. If you've changed or deleted an analysis code, the data for that code will become corrupted. If you haven't changed any codes, the data for this code has probably been altered by hand through the "Sales maintenance" function. Regardless of the cause, when data has become corrupted, you should follow the same sequence of steps to correct it:

1. Use the "Purge history" function to remove the corrupted data from the sales history file for this analysis code.

2. If you're changing the structure of this analysis code, make those changes now.

3. Use the "Extract sales history" function with the **Repull** option to update the sales history data for this analysis code.

## ➲ Not enough data for analysis

This message will display if you've purged too much data from the sales history file, leaving insufficient data for analysis or forecasting. Remember that your sales data comes from the Order Entry history file. As long as the Order Entry data remains intact, you can just use the "Extract sales history" function with the **Repull** option to get your data back.

However, if the Order Entry history file has been purged, it's too late. You can't get your sales data back unless you chose to same your deleted records and can retrieve and load them back into the Order Entry history file. Remember, use caution when purging!

## ➲ Error 18: File not found

The file specified was being accessed by a program but was not found in the location assigned to the logical specified. Either the file is truly not there and must be created or the Device assignment is incorrect. The file has been created but the program was looking in the wrong place.

# Appendix C: Record Layouts

**Filename:** **sasumh.rec**

**Record description:** Sales Summary History file

**Record length:** 203

**Primary key:** 1.50 sas_comp, sas_type, sas_data, sas_year, sas_rtyp

```
record  sasumh
    sas_key         ,a50                    ; Primary key
      sas_comp      ,a2     @sas_key        ; Company code
      sas_type      ,a3     @sas_key+2      ; Key type
      sas_data      ,a40    @sas_key+5      ; Key data
      sas_year      ,d4     @sas_key+45     ; Year
      sas_rtyp      ,a1     @sas_key+49     ; Record type
                                            ;   S - sales
                                            ;   Q - quantity
                                            ;   C - cost
    sas_amnt        ,12d12                  ; Summarized amounts  (9.3)
    sas_date        ,d8                     ; Last update date  (YYYYMMDD)
    sas_entr        ,a1                     ; Entry type
                                            ;   C - hand changed
                                            ;   H - hand entry
                                            ;   O - order history
```

**Filename:** **sapurr.rec**

**Record description:** Sales Analysis purchase recomendation file record map

**Record length:** 90

**Primary key:** 1.26 sap_comp, sap_item

```
record  sapurr
    sap_key       ,a26                ; Primary key
      sap_comp    ,a2     @sap_key    ; Company code
      sap_item    ,a24    @sap_key+2  ; Item ID
    sap_ftyp      ,a1                 ; Forecast type
                                      ;   S - Smith
                                      ;   H - Holt
                                      ;   W - Winters
    sap_sdat      ,d8                 ; Date factors last set  (YYYYMMDD)
    sap_alph      ,d2                 ; Alpha factor
    sap_beta      ,d2                 ; Beta factor
    sap_gama      ,d2                 ; Gamma factor
    sap_sfac      ,d2                 ; Smoothing factor
    sap_seas      ,d2                 ; Seasonality length
    sap_eror      ,d6                 ; Last absolute error value
    sap_fdat      ,d6                 ; Forecast date  (YYYYMM)
    sap_nqty      ,3d6                ; Next 3 months forecasted quantity  (6.0)
    sap_qday      ,3d5                ; Average daily demand for next 3 mos  (4.1)
```

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