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### Chapter 1 - Introduction

#### A Package Contents

Your Colorcube order package includes (1) the User's Manual and (2) a floppy disk. The disk contains the following files:

CQ2.EXE

FINANCE

CQ2.HLP

SALES.ELP

SALES

FINANCE.ELP

## B Introduction

Thank you for purchasing Colorcube. Before installing Colorcube, please read the following factual information about the product.

Colorcube is a unique, low cost software accessory for database users. It allows color coding of numerical data so that specified ranges are highlighted in different colors. The highlighting can be seen on the numerical data itself or on an innovative display of color matrix only. The value of numbers highlighted by selected colors is immediately obvious. Instead of tediously reading through thousands of numbers and finding exceptional or unexpected situations, the user can ask for all extreme cases to be in red, for example, borderline in yellow, etc. The user no longer needs to assimilate the value of each number, but scan for certain colors first.

The increase in productivity and decrease in fatigue and oversight is significant. In addition, Colorcube offers an even more innovative approach to scanning of database information. By switching to a color matrix mode, all the numbers are pushed into the background. The user now can trigger on selected colors in much more condensed form, without the space and distraction of showing numbers. Once areas of concern are detected, a single keystroke will bring back the numerical data for scrutinizing.

Users can easily designate different colors for different ranges or values of data, or just highlight with a single color. The Colorcube system allows three variables to be meaningfully viewed at one time.

## Chapter 2 - Getting Started

### A System Requirements

#### Colorcube Runs On:

IBM PC, XT, AT, or Compatibles with two floppy disk drives, or a hard drive

A minimum of 512K memory.

IBM PC DOS.

A color graphics monitor: either CGA, EGA, or VGA. We recommend EGA or VGA because of the enhanced features available.

Colorcube Accepts Data from:

Any database capable of ASCII file output

Directly from dBase, Clipper, dBaseXL, and FoxBase databases

Directly from 1-2-3 or compatible file formats

Colorcube supports the following printers:

Hewlett-Packard Paintjet

Hewlett-Packard Laserjet

IBM/Epson Printers

## B Installing Colorcube

Before running Colorcube, you will need to create a working copy of the diskette. This section guides you through this process (either for a floppy disk or a subdirectory of a hard disk.)

Users with a floppy disk system

You should always make a backup copy of software before you get started. Follow the proper procedures to copy all the files from the original disk to the working diskette and store the original disk in a safe place for backup. Insert the working Colorcube disk into Drive A, your blank, formatted disk in Drive B, and type: COPY A:\*. \* B:

Users with a hard disk system

Copy the program on to the hard disk subdirectory where your database program is located. Go to that subdirectory, insert the Colorcube disk into Drive A and type the following: COPY A:\*. \*

## Chapter 3 - Colorcube Tutorial

Before using Colorcube you must export fields from your database and import them into Colorcube. If you would like to try Colorcube now using the examples included with your system, continue reading. If, however, you would like to begin with your own file, read this chapter and then go to Chapter 5 to begin.

To start Colorcube, go to the Colorcube subdirectory and type: CQ2

Colorcube includes example files for you to use as a tutorial. They are: SALES.ELP and FINANCE.ELP

Try either one by doing the following:

a. After starting Colorcube at the prompt as shown above, you will see the copyright screen. which will clear to the main menu screen. Move the highlighted option to LOAD by pressing the right arrow key. Press enter.

Help is available at any time by pressing F1.

A General note - When Colorcube requests input from the keyboard, several keys perform similar functions for all requests.

Backspace - deletes the last character entered.

Ctrl Backspace - deletes the entire line

Enter - indicates entry complete

Esc - when entered as the first character, will abandon the input.

b. The following screen will appear:

Select Drive and path \_\_\_\_\_

You can either enter a drive and path at this point, or press Enter for the current (default) drive and path.

Press Enter. At the next screen...

Enter File Name \_\_\_\_\_

You can either enter a file name, or press Enter for a list of all the files in the current subdirectory with the proper suffix (.ELP).

Press Enter and the files with the suffix `ELP' will appear. Move the highlighted bar with the up and down arrow keys to SALES and press Enter.

c. The word LOADING will flash and the title ``Sales Report'' will appear at the top left.

When loading is complete the main menu will reappear. Use the arrow keys to move the highlight to Display. The field menu appears with the top field, ``SALESMEN'' highlighted.

Colorcube is like viewing a cube, you can view one face of the cube at a time, and if you `slice' the cube parallel to any face, you will see the elements of that face. So by selecting PRODUCTS, we can selectively view that portion of the cube for a given product. Move the highlighted element to products and Press Enter.

d. Another option menu appears listing the products as well as the top row of Sumary, which is a sum of all the products. Choose one and press Enter. See what happens. For this product, you can then pan through the salesmen by months for that product using the left, right, up and down arrow keys.

e. Use the Page Up or Page Down to scroll through other products. Or press escape to return you to the field menu to choose another

view.

f. Press F1 and view the Help screen. Help screens are context sensitive and will appear anytime F1 is pressed.

g. Pressing F9 shows the same data for the product, but the colors only are displayed, showing much more data per screen. Press F9 again to return to the number mode.

h. The color for each cell displayed is determined by the colorbar in the upper right of the screen. The default colorbar is displayed until changed. To display or change press F5.

As you can see, colorbars have been defined for F5, F6 and F8. Press Esc to return to the display screen. Pressing Shift F5 uses that colorbar and the screen is redisplayed using the new colorbar.

The phrase 'cube range' that appears in the upper right of the screen indicating that all the cells of all salesmen have been searched to determine the highest and lowest values, which constitutes the range, and the color of any cell displayed is determined by the colorbar defined and the value of that cell relative to the range.

Press F7 to display a computation menu, and select 'page range' from the selections, and notice how the colors for each cell may change, although the colorbar has not been changed.

The differing methods of color calculation, and colorbar definition give Colorcube it's powerful advantage over other means of highlighting values hidden in reams of data.

The phrase 'page range' in the top line of the screen means the lowest and highest values of the range were determined from this page (product in this case) only. Using the 'row range', each row is treated as a separate entity with the low and high value for each row being used as the ends of the range for that particular row. Similarly, the 'column range' uses the low and high for each column to compute the colors in each column.

Row and column ranking methods are discussed in chapter 5.

Press F2 and the option menu will disappear, replaced by more rows of data. Press F2 again and the menu re-appears. This is one method of displaying more data on one screen.

Now press Esc to return to a new view of the data.

i. This time select Salesmen. Now you can scroll through products by the months for any salesmen.

j. Press F9 again to view the colors only.

k. Press Escape to return to the field selection menu, and select month, followed by a month selection of your choice.

l. Press F9 to view the colors only. Notice the display is similar to a 'contour map' of the data, with the high numbers appearing in one color, and the lower numbers appearing in other colors,

m. Escape to the main menu and select Quit to exit the program.

The color options, function keys, and other operations are explained in following chapters.

#### Chapter 4 Interpreting a Colorbar

Defining a colorbar can determine the insight gained from viewing a set of data with Colorcube. So we suggest keeping the colors in a colorbar to a minimum, but redisplaying the data with differing colorbars to focus in on a problem.

For example, to display an overall view of a set of data using a range option, use a colorbar with no more than four or five colors and display the data in quartile or quintile fashion. Then for further examination of say the top 20%, use a colorbar with 20 elements, the lower 16 elements being one color (white) with the high 20 per cent represented by four differing colors. Thus the lower 80% tends to be filtered out on the display, letting you concentrate on the 20% of interest.

Similarly with row and column ranking, to show the overall view of the data, select a colorbar with each color repeated in adjacent elements (4 blue, 4 cyan, 4 green, and 4 red). Follow this display with one color per element for the area of interest, with the remaining

#### Chapter 5 Using Colorcube

When you are ready to begin the program type CQ2 at the system prompt. Once the copyright screen disappears, the main option menu will appear at the bottom of the screen (See figure below).

The current option is highlighted and information relevant to this selected option appears above and below the main menu. Above the option

line there is a brief explanation about the highlighted option. Below the option line are selected keystrokes that are useful for the current options.

## A Main Menu Commands and Definitions

The main selections are Clear, Display, Import, Load, Quit, and Save. A description of each selection is provided below:

Clear will remove data from the program to add or load new data using either the Import or Load option. For instance, if you have loaded data into the program, but now wish to load data unrelated to the existing data, select Clear to remove the existing data prior to loading or importing the new data. Clear is similar to exiting Colorcube and restarting it.

Display shows the data. After selecting the Display option, select the face to view. The other two faces will be displayed as a row-column matrix much like a spreadsheet. After selecting the face, select which elements of the face to view using the up and down arrows. The screen will be displayed using the colorbar selected. The resulting screen shows the resulting matrix in the colorbar or numeric mode. The top row and the leftmost column display the summary of their row or column and how each compares to the other rows/columns in that face. The lower right corner displays a color representing this element total relative to the other elements comprising this face.

Import Selects data from an ASCII file, a database or spreadsheet and imports it into Colorcube. Refer to Chapter 6 for specifics.

Load is used for data previously saved after importing, after changing the colorbar. The sample files are an example of data that has been previously saved.

The Load option requests the path and filename. If the data is on the default drive, press the Enter Key. When entering the file name, enter the name up to eight characters only, the file suffix is not necessary. The file is loaded and the main options are redisplayed. Should you need to view the directory use the wildcard characters \* and ?.

Quit exits the program and returns to DOS.

A General note - When Colorcube requests input from the keyboard, several keys perform similar functions for all requests.

Backspace - deletes the last character entered.

Ctrl Backspace - deletes the entire line

Enter - indicates entry complete

Esc - when entered as the first character, will abandon the input.

Save This option saves imported data for future analysis. Save also save any colorbar changes you have made, so if you have added or modified

the default or alternate colorbars, save will also store the new colorbars.

## B Display Screen and Options

The Main display screen is shown on the next page.

The upper two rows on the screen display the file name, title and the options selected.

The top row contains the file name, the format option (Default, Dollar (\$), Exponential, or Integer), the current divisor 1 to 1,000,000, and the method of color calculation (Cube Range, Page Range, Row Range, Column Range, Row Rank, or Column Rank) If the color calculation method is row or column rank, the display shows the mapping of numbers to colors (Up/Down) and the allocation of colorbar elements to equal numeric values (Eq1/Neq).

The second row displays the Title, Column Heading, and colorbar, the width indicating the number of elements in the colorbar.

The main display appears with the column spelled horizontally in the numeric mode, and vertically in the color only mode.

The field being paged and the element displayed is shown to the left of the column headings, with the row heading and row elements at the left side of the display. The option menu makes up the bottom four rows on the display, with error messages appearing on the bottom row.

The screen options are described below:

PgUp - Displays the previous element in the face.

PgDn - Displays the next element in the face.

Up & Down arrows - pans the screen up and down one column at a time

Shift Up and Shift Down arrows - pans up and down one page at a time.  
Note: On some keyboards the Shift function only works with the numeric keypad, not with the separate arrow keys.

Left and Right arrows - pan to the left and right one column respectively.

Shift Left and Shift Right arrows - pan to the left and right one screen at a time. Note: On some keyboards the Shift function only works with the numeric keypad, not with the separate arrow keys.

Esc - ends the display function and returns to the face selection menu.

F1 - Help provides context sensitive help.

F2 - Option. This gives the user the choice of displaying these options at the bottom of the screen or pushing them into the background in order to view more data. This function will only operate when there are more rows in the data than are displayed on the screen.

F3 - Print. This function sends output to the selected or compatible printer.

Selecting the H-P Paintjet, options available are density (10, 12

or 18 CPI) and normal or boldface type at 10 and 12 CPI densities. Using the higher densities allows more data to be displayed per page of printed output. i.e. at 18 CPI in numeric mode it is possible to print 30 columns of data per printed page if the numbers are relatively small ( less than 1000).

Selecting the H-P Laserjet, options available are density (10, 12 or 16 CPI) and normal, boldface or italic type at 10 and 12 CPI densities; and offset distance in columns and rows from the upper left corner of the page. The Laserjet will print up to six shades of gray, representing six different colors in the colorbar. Like the Paintjet printer, using the higher print densities allows more data to be displayed per page of printed output. With the IBM/Epson printer, options available are density (10, 12 or 18 CPI) and normal or boldface type at 10 and 12 CPI densities. The IBM/Epson printer will only print three shades of gray, corresponding to three colors in the colorbar.

The printers can display substantially more than what appears on a 25 line screen, especially at the higher print densities. However, when a page of data contains 40 rows and 30 columns, it requires more than one printed page to print the entire page of data. To control the placement of data on the printed page, Colorcube begins the printed page at the element located in the upper left corner of the screen. So with 40 rows and 30 columns of data, placing row 21 column 16 as the upper left screen element, would print rows 21-40 and columns 16-30.

F5 - Colorbar. Redefines the colorbar.

The default and alternate colorbars are displayed if defined.

A colorbar can consist of up to 40 elements, with each element being any of the 16 colors as shown on the screen. The colorbar is built from the 'low' end to the 'high' end.

As the colorbar is being built, for each element added that element will appear in the area between the rows of numbers on the screen, in the temporary colorbar. The numbers are there to assist you in determining how many elements make up your colorbar.

To define a colorbar, move the cursor to the color to be added using the left and right arrow keys. As you press each key you will see the pointer move to the left or right respectively. When the pointer is located under the color to be selected, press Enter, and the selected color will appear in the temporary colorbar. Note that each color may appear in any number of elements of a colorbar, so that while a colorbar may have 20 elements, it may only consist of three colors, which might represent in the range methods, as the lower 10 per cent, the top 20 per cent, and the remaining 70 per cent.

To make a temporary colorbar into the default or alternate colorbars, hold the shift key down while pressing one of the function keys F5 through F9. F9 represents the default colorbar, while F5 - F8 represent alternate colorbars. If any of the colorbars already exist, saving the existing temporary colorbar will destroy the existing colorbar for that key F5 - F9.

Pressing the Backspace (Bksp) key will delete the last element of the temporary colorbar, and pressing Ctrl Bksp will clear the entire temporary colorbar.

Pressing Esc will return to the Display portion of the program.

F6 - Display. The Display options control various aspects of the Colorcube display.

Divisor is applicable only when displaying numbers. Selecting the appropriate number will divide all numbers by this constant before displaying them, thus controlling the width of each column. When dealing with large numbers, say over a million, you could divide by 1000, and reduce the width of each column by four characters and view more columns on the screen.

Format is another way of reducing the column widths. As an example, if you are dealing with large dollar figures, with two decimal places, selecting integer or exponential, would reduce the column widths of all columns, displaying more columns on the screen at once. Default returns to the original format computed by Colorcube when the data was imported.

Summary is a toggle option to display the summary rows and columns. If the summary rows and columns are displayed, selecting this option will hide the summaries; and if hidden, selecting this option will re-display the summaries.

Video mode is another toggle option, available only if your monitor is EGA or VGA compatible. If you have this capability, the Colorcube color display will appear in 43 or 50 line mode depending on your monitor. Once in this mode, selecting this option will return your monitor to the normal 25 lines per screen. This is another feature designed to display the most information on the screen at one time.

F7 - Color Calculations.

Colorcube uses two methods of calculating the colors, range and ranking.

For the range methods, the colors are computed by dividing the range of data equally by the number of elements in the colorbar. So if a colorbar contained ten elements, the color in each element would represent ten percent of the range, five elements represent 20 per cent of the range. Colors may be repeated in a colorbar, so if a colorbar contained five elements, each element would represent 20% of the range, but if one color were chosen for two successive elements (blue, blue, cyan, green, red), then that color would represent 40% of the range.

Cube Range - treats all the cells in all the pages as one range, that is the lowest value and highest value among all the cells are used as the ends of the range of data, with this range equally divided by the number of colors in the colorbar.

Page Range - uses the lowest and the highest value in the page viewed as the ends of the range. Row Range - treats each row as a separate entity with the low and high value for each row being used as the ends of the range for that particular row.

Row/Column Range - uses the low and high for each row/column as the ends of the range, so each row/column is treated as a separate entity.

Row/Column Ranking - is useful when several of the rows or columns fall into the same range when the range methods are used, or to specifically

highlight an individual cell in the display. Each row or column is sorted individually from high to low. When either of these options are selected, the elements in each row/column can be mapped to the elements in the colorbar from the bottom up (lowest value in the row/column displayed in the leftmost (lowest) color in the colorbar) or top down (highest value in the row/column displayed in the rightmost (highest) color in the colorbar. This only has effect if the number of rows or columns differ from the number of elements in the colorbar. When there are more columns or rows than colorbar elements the remaining columns/rows appear in black, the default color. When there are more elements in the colorbar than cells in the row or column, then either the 'higher' colors in the colorbar (bottom up method) or the 'lower' colors (top down method) are unused.

To show the various situations which may occur see the figure below.

6 element		3 element		6 element		3 element		
Top	Top	Values	Bottom	Bottom	down	down	up	up
Green	Green	333	L Cyan	Black				
L cyan	Cyan	163	Cyan	Black				
Cyan	Blue	64	L Blue	Green				
L blue	Black	31	Blue	Cyan				
Blue	Black	10	Gray	Blue				

Note: the six elements in the colorbar are from left to right (gray, blue, light blue, cyan, l cyan, green). The 3 element colorbar consists of (blue, cyan and green)

If two of the numbers in the row/column are equal, then they may appear in the same color.

This produces the following result:

6 element		3 element		6 element		3 element		
Top	Down	Top	Down	Values	Bottom	Bottom	Up	Up
Green	Green	Green	333	Cyan	Black			
L Cyan	Cyan	Cyan	163	L Blue	Green			
Cyan	Blue	Blue	64	Blue	Cyan			
Cyan	Blue	Blue	64	Blue	Blue			
L Blue	Black	Black	10	Gray	Blue			

The Equal/Not Equal switch only affects rows or columns with two or more numbers equal in value. Selecting Equal will use one colorbar element for all row/column cells of equal value. Not Equal will display each row/column cell using sequential colorbar elements, which may or may not be equal.

Summary Columns - When summary columns are displayed, the color calculations may vary from the method displayed on the screen. The variations are as

follows:

The total summary cell(upper left) is the total for the paged element, the sum of the summary column, and the sum of the summary row. The color displayed is always computed the same as range methods, with the range for this cell being the lowest and highest of summaries for the field being paged. That is if the field being paged is departments, the total for each department is used to compute the high and low numbers for the range.

When column or row rank methods are used, then the summary column or row also use that method, however the alternate axis (row or column) uses the range method, with the range determined by the elements in the displayed page for that row or column.

F9 - Num/Color. Toggle between the numeric screen and the color matrix screen.

## Chapter 6 - Methods of Retrieving Data

In order for Colorcube to produce results, you must have access to data. This next section describes the sequence of events to convert data from a database or spreadsheet in order to display it on the screen.

### A. ASCII File Import

Colorcube accepts two types of ASCII formats (1) fixed field format or (2) comma delimited format. To begin, export the data from your database to a file which has a name of eight or less characters and no suffix in the file name. (For example type SALES not SALES.DOC.) Depending on your database the actual commands will vary, but involve a two step process:

- Step 1: Select the four database to be exported.
- Step 2: Write the export file.

Please refer to the Appendix for the appropriate DBMS selection. RBase and Revelation are the two examples given. For other databases check your database manual.

1. Select four fields that you want to display in Colorcube. There is no need to sort the data, Colorcube will do that for you. One of the fields must be a numeric or value field. Examples include: inventory levels, dollar values, numbers of product defects, accounting ratios, or any other numeric representation.

This may result in several thousand records being selected, but that's OK. The only limitation is that the number of elements per face for the three categorical fields (number of salesmen x number of products x number of months) be less than 32,000.

2. After the records have been selected, the next step is to write the data to an ASCII file. This again will vary with each database, some databases having an EXPORT function to comma delimited ASCII files, while nearly all have the capability to print a report to a file.

Colorcube expects each record to be in the form:  
element1 element2 element3 value.

"Element" 1, 2, 3, are discrete fields(week, department, company, etc.) and "value" is a numeric field. See files FINANCE and SALES on the distribution disk for examples.

If exporting from your database automatically puts your data to a Print file, it will also attach a .PRN file extension. If this occurs, you can use the DOS RENAME command and give the file a different name. At the DOS prompt, type:  
RENAME SALES.PRN SALES.

Colorcube can accept files either way. See the examples on the distribution disk; FINANCE is a fixed field file generated from a PRINT command, and SALES is a comma delimited file.

In order to execute the LOAD option, enter the file name used in step 1. This will generate a filename XXX.ELP where XXX is the file named in step 1.

3. Load the Colorcube program and select the import option from the main menu.

4. Then select the type of input file.

5. Type the drive and path where the file resides followed by the name of the file.

You will then be asked the format in which to import the file. The file should be in comma delimited or fixed field format. Remember that the file should have no suffix in the name.

If you select the delimited option (which is automatically highlighted), the file will be processed.

If you select the fixed field option, you need to inform Colorcube where the fields begin. After selecting the fixed option, the first 10 records are displayed on the screen with an arrow under the first character. Moving left to right using the left and right arrows, select the first character of each field by pressing Enter. The first field usually begins in column one. After the three fields are selected, select the beginning of the value field.

As the file is read, the message 'Scanning' will appear followed by 'Loading' until the file has been read. For the final few steps to importing see section D of this chapter, Final Step to Importing.

## B. Direct Access into dBase files

In order to import data directly for a dBase file, Select IMPORT from the main menu. At this point you will be given four options to choose from. Select dBase from the menu. Your next set of options involve selecting a file from the dBASE menu. This screen also includes selection criteria from the database, as well as display fields and display criteria, as shown below.

The menu selections are positioned left to right in the order which one would use to complete a query of a dBase file.

File: This selection allows you to choose the drive, subdirectory, and a dBase file name (...DBF).

Selection fields: This optional function gives you the opportunity to filter the range of values to be displayed. Hence it is an efficient way to filter out unwanted records. For example, if you only wanted to use the figures from the first six months of 1991, you would select the field followed by the range: 01/01/91 to 06/30/91, as shown below. Note that you can select up to ten numeric or date fields from the database to filter the records. If you choose not to use selection, everything in your database will be imported.

**Display fields:** This required option allows you to select three fields which will be displayed in Colorcube. The order in which you choose them will determine how they will eventually be displayed. The first field will be displayed only in the rows, the second selected field will appear in both row and column, and the last field will appear in both row and column, and the last field will appear only in the columns. Because Colorcube displays column headings vertically, which may be difficult to view, we suggest that you select the field that contains the shortest elements last.

(Remember that the row headings are displayed horizontally making it easy to read the heading.)

If a date or numeric field is selected as a display field, you have the option of aggregating the values. For instance, you may collectively gather 30 days in order to display one month instead of 30 days. For dates, you can select between days, weeks or months. If you have not selected any selection date, you will be asked to enter a beginning date, which will determine what day of the week or what month to use as a start date.

**Numeric:** This required option lets you select the one numeric field in the dBase file to be displayed in the main portion of the Colorcube display. From the list of numeric fields displayed, select this one field.

**Go:** Assuming you have completed the selection and display criteria correctly, Go will actually import the data from the dBase file. As the dBase file is being read, you can see an indication of progression. As the file is read, the message 'Scanning' will appear followed by 'Loading' until the file has been read. For the final few steps to importing see Section D of this chapter, Final Steps to Importing.

### C. Direct Access into 1-2-3 Files

To directly import data from multiple 1-2-3 files, select IMPORT from the main menu and 1-2-3 from the import menu. Then from the 1-2-3 menu, select file(s) and row/column selections from each file as shown below.

**Note:** When importing multiple 1-2-3 files, the row and column selections are made from the first file in the list. Colorcube assumes the rows and columns in the succeeding files will contain the same data as the first file. Colorcube will search for the same rows and columns in the remaining files.

**File:** File lets you select the drive, subdirectory, and multiple files (.WK1 and .WKS).

**Row Selection:** This option allows you to select the vertical columns. After choosing the correct letter, the column is displayed on the screen. At this point you can specify certain rows to be selected. For instance your spreadsheet may contain rows and 50 columns, but you may only be interested in the first 20 rows and 10 columns.

**Column Selection:** This is similar to the row selection in that you can select only the columns of interest. Because column headings may cover more than one row, this option lets you specify a range of rows to read the entire column headings.

**Go:** Go actually extracts the data from the 1-2-3 files, using the names of the files as the third field in the display portion of Colorcube. As the file is read, the message 'Scanning' will appear followed by 'Loading' until the file has been read. For the final few steps to importing see section D of this

chapter, Final Steps to Importing.

If any required selections are missing, a message will appear prompting for the necessary data.

#### Final Steps to Importing

Once the file has been read, the title and field headings need to be entered. The first is the title of the display. i.e. Sales Report

Then for each of the three discrete fields enter the field name, ie. SALESPERSONS or PRODUCTS.

The next screen will ask you if you want each field sorted or user defined or in their present (as is) order. The fields will be displayed in as is order.

Selecting 'sorted' will automatically sort the fields in ascending order. Selecting 'user defined' lets you control the order in which the field elements appear. Once selected, up to ten elements appear on the screen. Scroll through the elements using the up and down arrows. If there are more than ten elements, the PgUp and PgDn keys can be used to page through the elements. Press Enter to make a selection. As elements are selected, a sequential number is assigned to each, appearing to the right of the element. To deselect an element, move the selection bar to a selected element and press Enter. The sequential numbering will automatically adjust.

After all fields are complete, the program then returns to the main menu. From the main menu select save in order to retain the data and title you have just generated.

#### Chapter 7 - Error Messages

CGA Monitor, cannot expand video - You have attempted to enter 43/50 line mode with a CGA monitor which does not have this capability.

Column has not been selected - You have attempted to execute an import 1-2-3 process but have not selected a column for importing.

Display fields have not been selected - When accessing a dBase file, Go has been selected prior to selecting the Display fields.

Error Opening File - Usual causes are an incorrect spelling of a file name, or you are in the wrong subdirectory.

Error Reading File - An error has occurred in reading a file. The most likely problem in an ASCII file is a misplaced column.

Error Writing File - A problem has been encountered when saving a file. Insufficient disk space, or a bad spot on the disk are the usual causes of this error.

File does not Exist - The file name specified is not in the current directory. Check that you have the proper option and that the file name is correctly spelled.

File has not been selected - You have attempted to execute an import process but have not selected a file for importing.

Invalid Drive - The drive letter you have entered does not exist on the machine.

Invalid File - A file name has incorrect spelling or is not in the specified drive and path.

Invalid Path - The subdirectory you have entered is invalid for the specified drive or is spelled incorrectly.

No elements in the Column - During an import 1-2-3 process, a column was specified which contained no labels.

No elements in the Row - During an import 1-2-3 process, a row was specified which contained no labels.

No files present matching filespec - No file exists in the subdirectory specified for the given file suffix. Make sure you are in the proper subdirectory, and that you have specified the desired option.

No numeric fields in database; unable to display - A dBase file contains no numeric data fields, so Colorcube cannot display the file.

No size record, cannot read - During an attempted import 1-2-3, a file was read which does not contain a size record. Check to see if this is really a 1-2-3 compatible file.

Not a 1-2-3 file - During an attempted import of a 1-2-3 file, a file was recognized as a WKS or WK1 file but is not 1-2-3 compatible.

Numeric field has not been selected - When accessing a dBase file, Go was selected prior to selecting the numeric field.

Printer is not ready - Check the online button on your printer

Row has not been selected - You have attempted to execute an import 1-2-3 process but have not selected a row for importing.

Three display fields must be selected - When selecting the display fields during a dBase import, three display fields must be selected

Too many colors in the colorbar, Reduce - you have more colors in the colorbar on the screen than can be displayed on the selected printer. The Laserjet can handle up to six shades of gray representing six colors. The IBM/Epson printer will allow only three shades of gray.

Too many elements in array - An import process has caused the number of elements in the display fields to exceed the maximum(32,000). This figure is calculated from the three display fields. The number of elements in each of the three fields are multiplied by each other to compute the maximum i.e. # of departments x #of defects x # of months is greater than 32,000.

System Error XX, Program Error - This is usually a problem with data files when importing. Check your data files, and if there is no problem then call the vendor.

## Appendix

### A. Revelation Export

From the main menu select TOOLS:EXPORT:ASCII

Enter the name for the process, followed by the DOS file name which will

contain the data, and the Revelation file name containing the data.

The fields delimiter is the default (44 for a comma), record delimiter is carriage return/linefeed(13,10), and the end of file delimiter is Control-Z(26).

No record length need be specified.

Enter the field names to be exported. Press F2 to see a list of the available names. Once selected, press F9 to exit the fields selection process. The start byte and length are not used.

If all rows are to be exported, press F9 to begin the export, or press F10 to bring up the main menu, and select TOOLS:FILTERS to create or access an existing list. Once the list has been selected, FILTER will appear at the bottom of the screen, indicating an active filter. Exit from the menu to return to the EXPORT menu and press F9.

If the output file exists, a message will appear asking if you wish to overwrite the data in it. If not, then enter a new file name.

## B. RBASE Export

From the main menu select IMPORT/EXPORT:EXPORT:ASCII:DELIMITED.

Enter the filename along with the path to contain the exported data.

Select the database from which data will be exported. Press Enter when done.

Select the table or view to export the data.

Select the column to export with the numeric column last, followed by F2.

No sort is necessary, so press F2 to indicate this.

Use the condition builder to select the rows of your database to export. To do this select the columns to limit, followed by the appropriate operator, and a value.

Selecting 'Export all rows' will select all rows which have satisfied the conditions set by the condition builder.

The column delimiter is the default comma, the row delimiter is the CE,LF default. When this is complete the process will run. At completion, press any key to continue.

## Acknowledgements

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