

# **Report Writer Reference Manual**

(For use with DBL Version 6 series)

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# Report Writer

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# 1 Synergy Report Writer Overview

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## **BEFORE YOU BEGIN:**

When Synergy/DE and Synergy Report Writer are installed, a batch, script, command or synergy.ini file is created to establish system logical assignments for the different directories being used. For example, the logical DBLDIR is the logical assigned to your DBL directory and RPSDAT assigned to the Report Writer Repository files. You may have to edit this file to include the location of your data files (for example, DAT or FIL) then execute this batch, script, or command file to set the logical assignments for Report Writer executables, the Repository record definitions, and the data files being accessed.

Once the logicals have been set on your system, you can load the Report Writer:

<b>dbr ICS:ics</b>	(Windows 95/98/NT ®)
<b>run ICS:ics</b>	(VMS or UNIX)

*WIN 95/98/NT* ➡ Synergy/DE and Synergy Report Writer are installed on the Windows 95/98/NT systems automatically. To load the Synergy Report writer, select the desktop icon or the Report Writer program usually found under the Synergy/DE menu listing. To load the Repository, select the Repository icon or program menu selection. No separate batch or command file is usually necessary for Windows 95/98/NT systems.

## **WHAT YOU DO NEXT:**

The first requirement is to define the Repository with all the data fields in your application software. If you are using Datavision or Down To Earth software, you may want to utilize the data record layouts found in your program source directory to speed up the process. (The source directory is where the program files are along with the record layouts.) Files with the extension *.xxD* identify Datavision version 2 records, where *xx* equals the application abbreviation. Down To Earth record layouts all have the file extension of *.rec*. Some versions of Down To Earth also include a basic Repository with the distribution of Down To Earth, located in the *\d2ev3\utf* directory.

Please refer to the section, “Defining your Repository,” for a list of steps required to create the Repository. If you are unsure if your Repository has already been created or included with your software distribution, contact Datavision customer support for assistance.

Once the Repository is created, refer to the section, “Writing an report,” for the basic shortcut features and options to create a report.

## **WHAT ELSE YOU NEED TO KNOW:**

This manual is created as a quick reference manual and does require you have some knowledge of your operating system, basic understanding of the data file structures, and the fields and keys within the data files. If you are not familiar with this information or do not

have a system manager to provide you with this, please contact Datavision customer support. A brief introduction training session can provide you with this basic background information.

### **WHAT'S IN THIS MANUAL:**

This manual will cover the basics to get you started with Report Writer. As noted before, the Repository must be created first to establish all the data fields and file keys to be accessed by any report. The Report Writer section gives you the ability to write a basic report using the most common features and shortcuts. The Repository section includes the basic steps to creating or editing your Repository.



NOTE: Shortcut key definitions can be reassigned for your system. We suggest you verify your shortcut keys are the same as the ones listed and note any differences. The menu bar, indicating all shortcut keys, is accessed by pressing Control key (Ctrl) then 'P' for Unix and VMS, Alt-P for DOS cell based systems, or clicking on the menu bar for WIN 95/98/NT.

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### **DEFINITION OF BASIC TERMS:**

The **Report Writer** creates the actual report generation instructions. You establish which data files to access, create any temporary fields for use with the specific report, which fields to print and where to print them, any calculations required, what fields to sort by or total, and define user input to generate the exact report you need.

The **Repository** defines each data file, the fields therein, where it is located on your system (in what directory or logical), and the "key" fields identified within that file. You also define the relationships between grouped files by equating these different file "keys." For example, the A/P history file and the A/P Vendor file can be related to include data from both files on the same report.

Additional fields, files, keys, or relationships can be defined at any time as you work with various reports and find you require such information.



NOTE: The file "keys" are the fields designated in a data file as the key. Primarily found in isam files, the keys are used by the software to sort and look up the data.

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We suggest you use the record layouts, located in each software application's source directory on your system, to identify each data field. (For Down To Earth software the record layouts are identified with a file extension of *.rec*. Datavision software identifies the record layouts with a file extension of the application, followed by a "D" such as *.APD*, *.ARD*, *.GLD*.) These record layouts are up to date for any customer modifications and identify the name, type, and field lengths of each data file record.

The record layout contains the variable (field) name used by the application programs, the length of the field, its placement in the file and if it is alpha or numeric. You will also be required to define the file keys used in each data file in the Repository. The record layout is needed when creating the Repository as well as temporary fields in any Report Writer report.



NOTE: Any fields you create or redefine in the Repository are only available for use by Synergy Report Writer. They do not effect the actual software applications.

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The **Utilities** selection from the Operations menu column are normally used by Datavision in creating or maintaining the Repository files. For example, you could be asked to print a schema and send to Datavision to assist you in problem solving. The Dictionary schema provides all the information that was used to create the Repository, the Report schema provides a detailed list of the commands you created to generate the report data. This manual does not contain any specific information regarding the Utilities. Please see your Synergy Report Writer Manual for more information.

## 2 Writing a report

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When you select Report Writer from the Main Function menu bar or Windows 95/98/NT program menu, the Operations menu bar is displayed. The two menu columns available are General and Operations. The General menu column displays the shortcuts available to display a help message, Exit or Quit Report Writer, and display the “About” information. The Operations menu column lets you optionally create a new report, load, display, print, generate file or delete an existing report, and execute utilities.

Once a new report is created or an existing report loaded, the Design menu column is also available. From the Design menu columns you can choose any of the selections listed to create the intended report.

### 2.1 Function, Shortcut, and Control keys:

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As part of each section discussed, a list of the most common function and control keys used in that section is included. These are referred to as “Shortcut keys” throughout this manual. Ctl-P (^P), for UNIX systems, places the cursor at the current menu bar that displays all shortcut keys and options available at that point.

*WIN 95/98/NT* → Click on the menu bar to bring down the column selections and display any shortcut keys defined. Move to another menu column by moving the mouse or using the arrow keys.



NOTE: Verify your specific shortcut keys for your keymapping! Different systems and terminal emulation software will map them differently. The shortcuts mentioned in this manual are designated as the standard defaults.

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You can move the cursor left or right to display different menu columns or up and down to choose an option and press <Return>. You can also use the indicated shortcut key to execute the selection.

The standard basic function and shortcut keys for Synergy Report Writer are:

- ^P      Places the cursor on the current menu bar selection. Use the Alt-P for DOS or click on the menu column heading for WIN 95/98/NT systems
- ^A      Aborts the entry or selection just made.
- F1      Displays HELP message for that field
- F2      Displays the currently loaded report result to the screen.
- F3      Displays a general printing layout of the currently loaded report. If no report is loaded, nothing is displayed.

- F4 Exits the current selection. If modifications have been made to a loaded report, you will be prompted to save the current changes.
- F7 Functions as a “List selections” shortcut to list the available choices (fields, files, names, etc.) for a given selection. For example, F7 in the field name when loading an existing report, lists all the existing report names to select from. Pressing F7 in the Fields to print selection, loads all the files and their fields and temporary fields available for this report.
- Tab Toggles from one List window to another. For example, when accessing more than one data file for a single report, use the <Tab> key to display all the available files. This function is used when in any field selection window, such as in “Fields to Print.”

## 2.2 Report Restrictions (Maximums):

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- 990 fields that can be printed on a total of 10 lines, 99 per line
- 99 conditionals, total, per report
- 495 temporary fields, total, 99 fields per type of temporary field
- 25 selection criteria conditions
- Report width of 255 characters
- Sort fields are 10 fields per report (including 5 break fields)
- Files to be accessed per report is 50
- All reports printed are directed to the system default printer

## 2.3 Getting Started:

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Before you begin to create a report, you will need to know the following information:

**1. Which data files you need to access for this report:**

A standard rule is if the field is on the screen for data entry, that field is carried in the file. If information displays data on the screen but you didn't actually enter the displayed data, the system is getting that information from another file. The files included in a defined report are selected via “Files to read” in the Design menu column.

The Down To Earth Software User Manual includes the standard record layouts (usually found in Appendix A) for each data file. Also, the record layouts found in the program source directory help you distinguish what data is in which file.

- Example 1: The customer ID and name are entered on the Customer master screen. Both fields are carried in the Customer master file.
- Example 2: The Customer Master screen is where you also enter the salesman code. The actual code is carried in the Customer Master file. The salesman's name then displays on the Customer Master screen. The name was not actually entered in the Customer master screen. It was entered when defining the salesman codes, a different screen. Therefore, the salesman code is carried in the Customer master but the name is carried in a different file.

In order to access more than one file in a given report, a relationship must be defined linking the files together. This link is defined in the Repository using file key(s). Some keys are defined in the data file and are noted in the record layout. Other keys must be defined within Report Writer to link files together. Keys created within Report Writer and not defined in the data file are called 'Foreign' keys. 'Access' keys have already been established and are noted in the record layout. If the file(s) you need for a given report are not listed in the "Files to read" Design window, a relationship has not been established yet.

The data filenames, characteristics, and keys for your application software are printed by selecting the System Functions from your Datavision Application main menu or selecting the System Manager application, File Characteristics report if using Down To Earth software. If you do not know your System Functions or System Manager password, contact your system manager or Datavision Software support for assistance. This information is needed when defining your Repository.

## **2. *What user input or selection criteria will you need:***

Will you require a option to include a range of customers, vendors, items, order numbers, dates, etc., a single field value as compared to the user's input, or only records with a specific value in a particular field? This type of user input is defined as a Temporary, Question field, via the "Fields to create" selection in the Design menu column.

- Example 1: You want information for a range of vendors, detail history for a range of dates, and only if the vendor is marked as receiving a 1099 at the end of the year. The user will input the range of vendor IDs and dates (via Temporary Question field) since that will change but the value of the 1099 field is consistent and identified in the (via "Selections to make" design menu option) when creating the report.
- Example 2: You want information for a single salesman code in the customer master for all customers with a territory code value of "CA," for history transactions prior to 12/31/95, if the dollar amount of the invoice was greater than \$1,000.00. The user would input the salesman code (a Temporary Question field) but all other criteria is standard and entered as conditions (via "Selections to make," in the Design menu column).

## **3. *What fields do you want to sort the report by:***

Do you want to sort by invoice number within customer or only by one field, customer? Do you want to break when the sorting field changes? Do you want to do a form feed after that break or keep the next sorting field on the same page and just skip 2 lines? Maybe you want to break on just the vendor ID, print the name then all pertaining transaction records under that vendor's name (Pre-break). This information is defined via the Fields to sort selection from the Design menu column.

#### 4. ***Any mathematical calculations or sub-totaling of sections:***

##### Advanced

Calculation of mathematical equations or sub-totaling a group of like field records is defined by creating a Temporary Calculation field. With a mathematical equation, you can multiply, divide, add, or subtract different fields with the temporary field storing your answer. Sub-totaling a group of like records is then stored in a Sub-total Access temporary field.

Example 1: If you want to Sub-total by salesman code, you define the Sub-total Access field and print that field. You could use this to total an order, vendor check with multiple invoices paid, or customer history records.

Example 2: To print an average from a year-to-date figure would require division by the number of months so far this year. If a fiscal year-to-date value is not carried in the file you could multiply the total invoices by the number of periods so far in the fiscal year. Multiplying a decimal field such as inventory item price by a value to arrive at a whole number or multiplying a dollar amount by 0.01.

#### 5. ***Report Name, Column headings, Report totals required.***

The default Report name is the name you assigned to the report but that can be changed to print differently on the actual report.

The column headings default to the description in the Repository but are often too long for the field value and take up extra space. They can be edited by selecting the field to edit in the "Fields to print" selection of the Design menu column.

The fields, Pre- and Post-break fields, and the report have several options regarding totals and totaling amounts or records. These can all be part of the fine-tuning of the report after the basics are complete.

#### 6. ***Formatting or "Masking" of fields:***

Each field will appear on the report in the same format as contained in the file. For most fields, this is no formatting at all. For example, a dollar amount is carried in the file as 0002345611 can be masked to print as 23,456.11. This is referred to as Formatting or Masking.

This example field would be masked as: Z,ZZZ,ZZZ.XX-. The Z's determine that a value prints only if it is not equal to zero (0). The X's print ".00" even if the value is zero (0). The minus sign (-) prints a negative value as a negative number in the report.



NOTE: If planning to export data from a Report Writer report to a spreadsheet, you must mask a negative field with the minus sign first (*-Z,ZZZ,ZZZ.XX*) to have the spreadsheet software recognize the field as numeric. Otherwise, the field value is designated as alpha and will not calculate formulas within the spreadsheet.

- A “Z” represents a single digit that is replaced by a blank unless the number is either greater than 0 or a decimal.
- An “X” represents a single digit that is replaced by a number to be printed or a zero (0). Even if there is no value in the field, a zero (0) is printed instead of a blank.
- A dollar sign (\$) represents a single digit that is replaced by a number to be printed. If more dollar signs than numbers exist, the right-most of the extra dollar signs is printed next to the number and remaining dollar signs are replaced by blanks. (This is commonly used as when printing an amount on a check.)
- An asterisk (\*) represents a single digit that is replaced by a number to be printed. If more asterisks than numbers exist, the extra asterisks are printed next to the number for the length of the field.
- A minus sign (–) to the right of all field positions represents the minus sign that is printed after the last digit, if the number is negative (or credit). A minus sign masked on the left of the number, prints the minus sign just before the first digit. Without including the minus sign masking, negative numbers will simply print with no sign.

Data value	<i>-ZZ,ZZZ.XX</i>	<i>ZZ,ZZZ.XX-</i>
000259r	– 25.92	25.92 –

If planning to export data from a Report Writer report to a spreadsheet, you must mask a negative field with the minus sign first to have the spreadsheet software recognize the field as numeric. Otherwise, the field value is designated as alpha and will not calculate formulas within the spreadsheet.

- A comma (,) indicates a comma to be printed within the number.
- A period (.) indicates a decimal point to be printed within the number.
- A slash (/) indicates a slash to be printed between numbers as in a date.

### **YOU'RE READY!**

When you know the above mentioned information, you are ready to create a new report. Choose either “Create a new report” or “Load an existing report” to display the Report name window. To list the reports previously defined, press the “List selections” shortcut (usually F7), and select an existing report from the displayed window. If you know the name of an existing report, enter that name and press <Return>. The Report Writer Design sub-menu displays.

The minimum requirement for a report to display data is one file designated to read (Files to read from the Design menu column) and a minimum of one field chosen to print from that file (Fields to print from the Design menu column). Once those two things are done, you can

start formatting headers, adding more fields to print, change the sorting order, filter the data (via Selections to make), create user input questions, and much more.

Remember, you can process and display the currently loaded report name to screen at any time by using the “Display report” shortcut.

At any time and/or when exiting the design of the report, save that report. The name defaults to the name assigned when loading the report but can be assigned a new name, if necessary. Select “Save loaded report” from the Report Writer Operations menu column to save current commands for the loaded report.

To copy a report definition, change it, and rename it requires that you Load an existing report, change it, and when prompted for the name of the report, enter a new name. To continue working on the newly saved report, you must load that new report. The report name currently loaded is displayed at the bottom of the screen.

## 3 Operations Menu Column

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Select one of the following choices from the Operations Menu Column. When creating a new report or Loading an existing report, you are also prompted for the report name. The Design Menu column then displays with options to design the report.

1. Create new report then enter the name you want to assign to your report followed by a <Return> to display the Design menu column. The name can be up to 40 characters long and contain spaces or underscores ( \_ ) to separate words of the name. The Design menu column prompts for the files to be read, temporary fields to create, fields to print, selection criteria for report, fields to sort by and any modifications to the headers and footers of the report.
2. Load existing report usually for modifications to an existing report format. Use the “List selections” shortcut to display a list of the report titles already created. After the report is loaded, the same menu column as for a new report is displayed.
3. Display (existing) report to the screen. You can also use the “Display report” shortcut at any time during the design of the report to immediately process the design instructions and display the report to screen. In case there are problems, we suggest you save the report format prior to processing. Also note that if you are testing a lengthy processing report, Generating report file will process quicker.
4. Print (existing) report to the system default printer. There is no specific printer designation as with Down To Earth. All reports print on the printer designated as the system (or Windows) default printer. Please refer to your Synergy Report Writer User’s Manual, advanced features for additional information allowing printing to additional printers.



NOTE: Options for specific printer output include using DBLOPT=22 or generate a report (write the report to your hard drive) and direct the report file to the printer via the operating system.

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5. Generate (existing) report file to disk with the report format intact or just the data. You are prompted for a name for the file and they type of format you want.
  - **Report Form** - Generates a flat (ascii) file with report headings, page numbers, etc, and spacing exactly as a report would look on paper.
  - **Data only** - Generates a flat (ascii) file without report headings, page numbers, etc, and only prints the lines of data as on a printed report.
  - **Worksheet** - Creates the data as it would be in the actual file record and prompts you to include the First page header? and what type of delimiter to use: comma, tab, space, or semi-colon. (If numeric values in the report are larger than 999.99, do not use a comma as a delimiter to keep from confusing the comma of thousands with a comma delimiter.)

6. Clear, Save or Rename loaded report the existing report that is loaded. (If no report has been loaded, these options are not allowed.) This also serves as a way to create a report from the basis of another report. You can load an existing report then save it with a different name.
7. Delete report a report format that was created but is no longer needed.
8. Utilities for generating diagnostic and recovery information on the report writer report files. Please see your Synergy Report Writer Manual for additional information regarding this option.

## 4 Design Menu Column

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### 4.1 Files to read

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From Report Writer Operations menu column selections, choose either “Create a new report” or “Load an existing report” to display the Report name window. Enter the name of the report and press <Return> or use the “List selections” shortcut to display a list of previously defined reports. The Report Writer Design menu column displays. This manual section covers instructions for choosing the file(s) to be read when extracting data for your reports.

The first step to creating a report is to choose the data files that hold the information you want to print. Select “Files to read” and the Available files window displays. The files listed in this window are the files defined and associated with structures in the Repository.



NOTE: If you want to read a file that is not listed it is usually because a structure has not been defined or the file has not been associated with the structure. See *Defining your data files*, in this manual for additional information or consult the Synergy User’s Manual.

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- Select the file(s) needed to print the appropriate data. You can use the <Next Screen> and <Prev Screen> (<Page Up> and <Page Down>) keys or the arrow keys to scan through all files available. Press <Return> to select the highlighted file of your choice.

*WIN 95/98/NT* ➤ You can also use the slide bar to move around through the available files and double click the file(s) to choose to read.

When the main or parent data file is selected, a list of additional file relationships can be displayed by using the “Add file” shortcut. Once subsequent files are chosen for access, the “Examine relationship” shortcut displays details about the defined relation. You can select any file with an established relationship with the parent files and access this data as well. If a file is not listed that you think should be, a ‘relationship’ must be established from the Repository. Please refer to the *Defining your Repository, Step 2. Defining Structure Attributes, relationships* in this manual for additional information.

#### Common Shortcut Keys from the **Files to Read** window:

- ^E                      Examines the details of the relationship between the data file to read and the files available.
- ↑ & ↓                    The up/down arrow keys move to the various files to read listed in the window.
- Next/Pg down        Moves forward one window display at a time within the same window.
- Prev/Pg up            Moves backward one window display at a time within the same window.

- Del            Deletes a file to be read if no longer needed.
- Ins            Adds a file to be read to those already selected.
- ^F            Goes to the first file to be read.
- ^L            Goes to the last file to be read.

## 4.2 Fields To Create

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There are five different type of temporary fields that can be created. Those five choices are automatically displayed in a window when “Fields to create” is selected from the menu for the first time. To display this window on subsequent changes to a report, use the “Insert” shortcut. The choices are

- Calculation field
- Question field
- Text field
- Environment field
- Sub-total Access field

A temporary field is defined as a field not ordinarily carried in a data file and is only used for the current report. A temporary field is cleared of its value as soon as the report is complete.

Temporary fields can be selected for printing, sorting, as selection criteria, and/or as conditional fields. Numeric temporary fields can be used in calculations for other temporary fields. Alphanumeric fields are not allowed in a calculation expression.

The most common temporary fields are Question and Calculation fields. Question fields prompt for user input prior to processing the report data such as a starting and ending range of data. A Calculation field is used when you want to manipulate more than one field to calculate information you need to report but is not carried in the data file. An example would be to divide one field into another for a percentage.

### Advanced

In addition to a single calculation field, you can create a conditional calculation field by using the “Condition” shortcut. For example, if the value of a given field is equal to “Y” then perform the calculation: *field A + field B*. If that condition is false (given field is not equal to “Y”) then perform calculation: *field B - field C*. The **Alternately** field provides the calculation to use if the condition is false.

### Advanced

Subtotal Access fields are also used frequently when you want to subtotal a printed field and/or use that subtotal in a calculation. (See the example noted in the following information regarding Subtotal Access fields.) This feature is considered advanced usage and more detailed information and examples are found in the Synergy User’s Manual.

Use the “Exit” shortcut when all temporary fields have been created. You will automatically be taken to the Design menu column and the cursor is ready to select the next required process, “Fields to print.”


The five types of temporary fields are:

1. **Calculation Field** is a field that’s used in a mathematical expression. For example, if you are to subtract one field from another, the resulting total is a new field not carried in the file. That value created in the total field is defined as a temporary calculation field.

You must give the calculation field a name, identify the field as either an alphanumeric, numeric, date, or time field. You enter the length of the field, the number of decimal places if applicable (precision), the calculation expression, describe the field (for reference only), set up the justification (left, right or center), optionally setup a format of

the field, and if you wish to force the calculation to happen after the sort. (The default is to calculate prior to the sort.)

*Creating Condition calculations:*

Advanced 

The **Alternately** field provides a way to enter a calculation if the condition is false. Use the “Condition” shortcut to establish what the condition is. The condition window entry is the same as detailed in the “Selections to make” section of this manual. Press <Return> to leave this field blank, if no condition applies.

For example, you could calculate the difference between the discount date and the check date. The condition could be that the discount date not be equal to zero (0). Alternately, the formula would calculate the difference between the due date and the check date. When you select this calculation field to print, if the discount date is equal to zero (0), the difference between the due date and check date will print. If there is a discount date, that difference will print.

*Standard calculation characters:*

The standard characters are used for the calculation expression:

\* = multiply  
/ = divide  
- = subtract  
+ = add

There are two specific rules to keep in mind when creating simple calculations:

*Special Notations:*

- When defining several calculation fields within an expression, you must use parenthesis around the groups for the system to consider first. In the following example, the unit cost is subtracted from the unit price, then multiplied by the quantity on hand.

$$\begin{aligned} &(\text{OEHIST:unit\_price} - \text{OEHIST:unit\_cost}) * \text{INITEM:on\_hand} \\ &(\$12.00 - .47) * 13 = \$149.89 \end{aligned}$$


If the parenthesis are not there, the multiplication takes precedence over subtraction and would function as the following example, giving you the incorrect answer.

$$\begin{aligned} &\text{OEHIST:unit\_price} - (\text{OEHIST:unit\_cost} * \text{INITEM:on\_hand}) \\ &\$12.00 - (.47 * 13) = \$ 5.89 \end{aligned}$$

- When defining a decimal field to calculate (or print) as a whole number, you must multiply the value of the field times the number of decimal places to create that whole number. For example, if you are using a field that has two decimal places in the file but you wish it to calculate (or print) as a whole number, you would multiply the value by .01. Three decimal places would be multiplied by .001.

OEHIST:unit\_price \* .01      -OR-      OEHIST:on\_hand \* .001

Please see Creating Temporary Fields section of your Synergy Report Writer Manual for additional information regarding calculations.

Advanced 

*Using a Calculation field as an OR statement filter:*

Another use for calculation fields is to filter any OR statements out and speed up processing of the report. As noted in the “Selection to Make” section of this manual, the conditions you put on your report are met from top to bottom of the “Selection to Make” MAKE statements. Therefore, you will usually make your OR statements (if field1 is equal to 5 OR field1 is equal to 6) after all the other AND statements have been satisfied. This can sometimes slow the processing down. Using a temporary calculation field to establish the OR statements can help speed things up.

For example, you could make the calculation expression equal to a value of **1**. Then set up the conditions for the calculation expression (**1**) to be met. Let’s say the conditions are if **field1** is **EQ** to **5** OR **field1** is **EQ** to **6**. Then in the “Selections to make” statement, you include an AND statement if the temporary calculation field is equal to **1**. If the OR statements have qualified, the temporary calculation field is equal to **1** and they are included on the report.

2. **Question Field** is a field prompt for user input to specify criteria to print prior to the report processing. Most commonly used for ranges or single field input of (customer, vendor, item, etc.) ID’s, dates, code field values, etc. For example, Starting vendor and Ending vendor.

Give each question field a name, specify if the field is alphanumeric, numeric, date, time, user, or inherit, a description to be used as the default heading, what the prompt will be, if response is required, any special format to be used, a default value if applicable, and an optional information line. Use the actual field to be compared to as a guide for the size and type of data field. For example, to ask for a range of vendors, the beginning and ending Question fields should be an alphanumeric field, six characters, the same as the actual Vendor ID field in the data file.

Depending on the alphanumeric or numeric designation, any of the following specifications are also required: the length of the field, if you wish the system to automatically up-case the field, justification of the field, the number of decimal places, if a negative is allowed, if a 0 field should be displayed as blank, default a date field to today’s date.

All questions fields must be compared to the actual field value via “Selections to make” selection to actually be used when processing the report. For example, two temporary questions fields (starting vendor and ending vendor) would have two conditions statements (via “Selections to make”) indicating that you want vendors greater than or equal to the starting vendor and less than or equal to the ending vendor:

APHIST:aph\_vend GE TEMP:strtvend  
AND APHIST:aph\_vend LE TEMP:endvend

3. **Text Field** is a field defining a text string to print, usually with a condition.

Example 1: You could print three asterisks (\*\*\*) on the report if a field was less than 100,000.00, greater than 100, etc.

Example 2: Create a field label such as for a calculated amount (temporary Calculation field) such as “Calculated Average”.

You must enter the name of the field as a unique name not used anywhere else in this report, up to 80 characters of text to print, and a description of the condition if applicable.

4. **Environment Field** is used to get data from the operating system.

Example: The working directory, system date and time, etc.

The field information is similar to question fields by asking for: field name and type, description, format and user text, field length, decimal places (precision), date format and justification.

Advanced ➡

5. **Subtotal Access Field** gives you access to accumulating field totals for printing or use in calculation expression. When defining your sort fields, 5 of the 10 maximum sort fields can be designated as “break” fields. A Subtotal Access field must be one of those “break” fields. The field must also be selected as a “break” field prior to defining it.

You must enter the temporary field name, a description, the field to total (use “List selections” shortcut), the break level field (already defined as a sort field to break on, “List selections” shortcut will display these break fields), and either a Complete or Running total. A Complete total will print at the break level no matter what the running total is at that break. A Running total prints only the accumulative total at the break.

Example: You are printing a A/P history report and breaking on the Vendor ID. You would like to have the average invoice total amount for each vendor. The Vendor ID is defined as a break field and the invoice amount field printing may or may not be marked for a total.

To calculate the average, you must divide the total invoice amount for each vendor by the number of invoices. To do this you define the total invoice amount and the record count each as a Subtotal Access field. For this example, let's use TOTINV and TOTCOUNT for the Subtotal Access field names:

TOTINV: Total the invoice amount field, break on the Vendor ID field, and select Complete for the type of total.

TOTCOUNT: Press <Return> to enter the default value <COUNT> as the field to total, break on the Vendor ID field, and select Complete for the type of total.


Create a calculation field dividing the field TOTINV by TOTCOUNT. Then mark the Vendor ID as a Post-break field and print the new calculated field as the average.

## 4.3 Fields to print

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The fields available within the files (already selected) are shown in the Fields from *filename* window, where the *filename* is a file previously selected to read. Initially, this window automatically appears. Once a report has been saved, you must use the “Insert” shortcut to display this window. As you select fields, they will list in the Print fields window and display the format at the bottom of the screen.

The <Tab> key rotates through the different files available and temporary fields available for this report. Press <Return> to select the fields.

WIN 95/98/NT  You can also use the slide bar to move around through the available files and double click the fields you choose to print.

You can select the fields to print in the order you wish them to print, however, the order of the fields can be changed at any time. The field headings will default to the description defined in the Repository but can be changed by pressing <Return> (or click) on the highlighted field and editing the description. You can also define the formatting or masking needed and if the field should be right or left justified when printed.

As the fields are selected, the field length as defined, format, heading and two spaces between columns will display in the lower section of the screen.

*Options available:*

- Multiple lines (up to 10) may be printed. There are shortcut keys defined to easily move between lines for editing purposes on the report.
- Change the highlighted field by pressing <Return> to edit the default header, field format (masking), or data/format justification.
- Total a numeric field
- Strip the training blanks in a field. For example, name and address fields are normally longer than needed. This allows you to place a blank space, comma, dash, or some other punctuation as a marker between the printing of two fields when the extra blanks are deleted.
- Re-arrange the fields position. This is commonly used to indent a line of data or space out a field to set it apart from the other fields on that line.
- Specify conditions to print (or not print) a value in a chosen field.
- Reorder the fields on a given line. For example, you originally wanted the invoice date before the distribution date and now you want them reversed. Go to the field you want moved, use the Reorder fields shortcut and use the arrow keys to reposition the field.
- Add or delete a field.

Common Shortcut Keys from the **Print Fields** window:

- ↑ & ↓      The up/down arrow keys move to the various files to read and fields to print listed in the respective windows.
- Next/Pg down      Moves forward one window display at a time within the same window.
- Prev/Pg up      Moves backward one window display at a time within the same window.
- Tab      From when selecting fields to be printed, displays the next available file and fields (or temporary fields defined) for this report.
- Tab      From within the “Fields to print” window (once the fields have already been selected), displays the next printed line.
- Del      Deletes a field highlighted by the cursor.
- Ins / ^K      Allows you to add a single field or ^K to add more than one field.
- ^J      Totals a printed field either at a Break or at the end of the report if no Break applies.
- ^B      Allows you to strip the trailing blanks after a field and replace the blanks with a character (comma, dash, slash, etc.)
- ^N      Allows you to reposition a field horizontally within a line by using the arrow keys to the left or right.
- ^G      Create a condition for a field to print on the report.
- <Return>      When the field to be changed is highlighted, allows change of the field header and format (masking, dashes, commas, decimals, etc.).
- Shift-F7      After highlighting a field, the arrow keys reposition the order of the field to a new place in the same line.
- Shift-F3      Creates a new line (if 132 characters are exceeded on the previous line).
- Shift-F4      Deletes the current line displayed in the window.
- F8      Displays the previous line.

## 4.4 Selections to make

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Choose “Selections to make” to create specific conditions or selection criteria for the report. You can specify if a field value is equal to, not equal to, less than, less than or equal to, greater than, or greater than or equal to another value. For example, if *fieldname* is equal to (EQ) or not equal to (NE) a specific value.



NOTE: You must already have created any temporary fields necessary (via the “Fields to create” selection) if they are to be utilized when defining the selections to make.

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The Criterion Definition window is automatically displayed. Use the “List selections” shortcut to display a list of the fields available within the files (already selected). As you select fields you will have to specify the comparison variable in the Criterion Definition window (EQ, NE, LT, etc.). The <Tab> key rotates through the files available for this report including any temporary fields previously created.

- The **Connect** (AND or OR) automatically displays the default value. Press <Return> to enter that value. When you define more than one selection criteria, you have to make a choice. Is the subsequent conditions are in addition to the previous conditions (AND) or if the subsequent conditions can be either one or the other (OR).

### Advanced

You should create all the AND conditions prior to creating an OR condition to create the most common logic. Once Report Writer considers an OR condition, all conditions defined after that OR statement become an OR condition as well.

- Enter the **Field** name or use the “List selections” shortcut to display the fields available.
- You must specify the **Compare** value such as if the field selected should be Equal to (EQ), Not equal to (NE), Less than (LT), Less than or equal to (LE), Greater than (GT), or Greater than or equal to (GE) the next field . . .
- The **Value:** is normally another field but can also be a literal expression. A literal alphanumeric value is with surrounding double quotes (“ ”). A numeric literal has no special characters, only the number.

Example 1: If you only want to include data for customers that have no salesman code defined for them, you make a selection: If the salesman field is EQUAL (EQ) to blanks. Because blanks are alphanumeric characters, the blanks need to be surrounded by double quotations (“ ”). To print for all customers that have a salesman code and exclude the ‘blank’ salesman, the selection would be: If the salesman is NOT EQUAL (NE) to “ ”.

Example 2: If you were setting a criteria where you wanted to include a range of customers entered by the operator, you would create 2 temporary fields: one for the starting customer code and one for the ending customer code via “Fields to create.”

Indicate that the customer code carried in the data file must be GREATER THAN OR EQUAL TO (GE) the user entered value for starting customer

(the temporary field). The customer code would also have to be LESS THAN OR EQUAL TO (LE) the ending customer code entered by the user (the temporary field).

Example 3: To write a report for vendors in the state of California, your selection criteria would be: if the Vendor master state value is equal to (EQ) "CA" (the state is an alpha field and must be in quotations).

Example 4: A report for all inventory quantities on hand that are greater than five, your selection criteria would be: if the Inventory quantity on hand field value is greater than (GT) the number 5. Because the value five is numeric, it is not surrounded by quotations.



NOTE: Use the <Tab> key in the Fields Within *filename* window to display the temporary fields available (already created).

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### Advanced ➡

- Comparisons occur from the top to the bottom of the list of selections and AND criteria are grouped together:

(a AND b) OR c                      (qualifies all of a and b together) or c  
 b OR (c AND a)                      qualifies b first or (c and a together)

For example, let's assume a = account numbers greater than 5000, b = account types XX, and c = account types XY.

The result of the first line is account numbers greater than 5000 with XX Account type (GT 5000 AND type XX) OR all accounts with XY.

The second line would give you all accounts with XX Account types and accounts greater than 5000 with account types equal to XY (type XY AND GT 5000).

For information regarding forcing the comparisons to be other than from top to bottom, see the "How to" section of this manual.

### Shortcut keys from the **Criteria Definition** window:

- ↑ & ↓                      The up/down arrow keys move to the various fields to select in the respective *filename* windows.
- Next/Pg down              Moves forward one window display at a time within the same window.
- Prev/Pg up                 Moves backward one window display at a time within the same window.
- Tab                         Displays the next available file (or temporary fields defined) selected for this report.
- F7                         Lists the fields within the files and temporary fields available for this report.

## 4.5 Fields to sort

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There is a maximum of 10 fields a report can be sorted by. The order of the selected sort fields listed on the screen determines the order of the sort. If the first sort field is the inventory item, the second the location, and the third the quantity on hand, the outcome is sorting by quantity on hand, within location, within item number. In addition, you can reverse the default sorting order, usually lowest to highest, to from highest to lowest by using “Change sorting order” shortcut.

Most files are written (or indexed) from the lowest key field value to the highest, called ascending. Some files may be written (or indexed) in descending order. That means that the records are written (or indexed) in order in the file from highest to lowest. Using the “Change sorting order” shortcut reverses the order to the opposite of how the records are being written (or indexed). Examining the file characteristics will indicate in which order the file is written (or indexed).

Five of the 10 sorted fields can be designated as “break” fields. A Break field groups all records belonging to that sort field together and either breaks with a specified number of blank lines or a new page (form feed). For example, you can sort by customer ID and break so that each customer has some space (or a page break) between the next customer.

Break fields are designated by ^B or ^b:

- The break state ^B breaks on the field and processes a page break or form feed.
- The Break status ^b breaks on the field only. The number of blank lines printed after the break defaults to 2 but can be changed by selecting “Miscellaneous” from the Design menu column, **Blank lines between breaks** field.

### Advanced ➤

Break fields are also used for subtotaling (Subtotal access field created via “Fields to create” selection of the Design menu column). To define a Subtotal access field based on a grouping, that grouping field must first be defined as a Break field.

### Advanced ➤

For advanced reporting, you can choose to set up Pre- and Post-break lines. When a field is designated as either a Pre- or Post-break line, the report will automatically break and total any fields defined to calculate totals (via “Fields to print,” ^J). A Pre-break field breaks on and prints the break fields specified before the data prints. A Post-break field breaks on and prints the break fields after the data.

The Pre- or Post-break field specified is printed on a line of it’s own. This field is usually not selected to print via “Fields to print” selection of the Design column. Instead, a field header can be defined via the “Header/Footer layout” selection.

For example, to print a report with the status of each item from the open orders file (order header and line files), define the inventory item as a Break then a Pre-break field. The Pre-break field controls the printing of the Item ID and description. The single line of headers is edited via the Header/Footer layout selection. When choosing which fields to print, the headings for the quantity ordered, quantity shipped, and date invoiced are then edited for better spacing. The quantity ordered and shipped are marked as fields to be totaled. The report would look something like this:

ITEM ID/DESC	Qty Ord	Qty Ship	Date Invoiced
ABC-ITEM Description for ABC-ITEM			
	10	5	05/15/96
	6	5	05/16/96
	<u>15</u>	<u>0</u>	05/20/96
ABC-ITEM total:	31	10	
XYZ-ITEM Description for XYZ-ITEM			
	<u>20</u>	<u>13</u>	05/12/96
XYZ-ITEM total:	20	13	

In the above example, the item ID and description prints on a line of its own with the data on the lines following. The item ID field is the Pre-break field with the Item ID and description selected to print at that break point. The quantity fields are totaled for the break field (item ID), then continues to the next item in the file.

There are many options and ways of manipulating sorted and Pre- and Post- break fields. For complete details, please refer to your Synergy Report Writer User's Manual.

Shortcut keys from the **Sort Fields** window:

- ↑ & ↓                    The up/down arrow keys move to the various files to read and fields to print listed in the respective windows.
- Next/Pg down            Moves forward one window display at a time within the same window.
- Prev/Pg up               Moves backward one window display at a time within the same window.
- Tab                        From within Fields from filename window, displays the next available file (or temporary fields defined) selected for this report.
- ^B                         Changes the "Break" status, ^b breaks on the field only, ^B breaks on the field and processes a page break or form feed.
- Shift-F2                  Clears the "Break" status.
- Del                        Deletes a sort field.
- Ins / ^K                  Ins inserts a single sort field after the highlighted field while ^K allows more than one sort field to be added at the same time.
- Shift-F3                  Creates a Pre-break line status on the highlighted field. (Must already be assigned as a break field.) A Pre-break line sorts and breaks on this field before the data prints. The value of the field is printed on a line of its own. This field is usually NOT selected to print via "Fields to print" selection.

- Shift-F4      Creates a Post-break line status on the highlighted field. (Must already be assigned as a break field.) A Post-break line sorts and breaks on this field after the data prints. The value of the field is printed on a line of its own. This field is usually NOT selected to print via “Fields to print” selection.
  
- Shift-F7      When the cursor is on a highlighted field, the arrow keys will move that field up or down in the list of sorting order fields.

## 4.6 Header/Footer Layout

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Most of the default settings for the report header and footer layout are standard and will generally not be changed for standard reporting. Some options available are

- Change the layout by page or report or suppress printing of date and the page number line.
- When using Pre- or Post-break lines, Page headings are often used for the field set to break on. The break field is not normally printed on each line so will not need a field heading as the other printed fields.
- You may want to print the report header at the top of the first page instead of the default, printing it on a separate page. This is changed within the Miscellaneous selection of the Layout functions menu column within Header/Footer layout.

For detailed information regarding the headers and footers, please see Creating Report and Page Headers and Footers in your Synergy Synergy Report Writer Manual.

## 4.7 Miscellaneous

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The miscellaneous section contains the standard defaults for printing and formats for a given report:

- The page size of 66 lines per page is standard.
- The number of blank lines between records. Zero (0) is the default value.
- The number of blank lines between breaks in the report. Two (2) is the default value.
- If the report is a detailed report (default value) or if you only want to see the totals.
- If you want a record count of the detail records. Yes, is the default value.
- If you want print form feeds, dashed lines, and total descriptions. Yes, is the default value for all three options.
- Option to select a custom summary report description other than “Report” which is the default value.

For detailed descriptions of each prompt, please refer to your Synergy Report Writer User’s Manual.

## 5 How to” Guide - Help for specific questions

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### 5.1 What to do when you need to . . .

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- include more data than will fit on a single line:

You are allowed up to 10 lines of data with a maximum of 990 fields per report. Select “Fields to print” from the Design menu column and use the “Create new line” shortcut to display an additional line for data. There are also shortcuts to easily move from one line to another for viewing.

*Helpful hints:*

1. If you just need a couple of spaces to fit all the data on one line, use the “Arrange field position” shortcut to squeeze fields together that will not be printing the full field of data. You can also use the “Strip trailing blanks” shortcut and use the strip character of a blank space to let fields use the positions otherwise printing blanks.
  2. Use the “View” shortcut (usually F3 or PF3) to get a layout of the formatting you are creating. This will help you line fields up for visual ease.
  3. Use the “Arrange field position” shortcut to arrange the fields to allow better alignment. This makes the report more easily read than if the data is just printed one field after another.
- calculate an average value:

For this example, you are printing a A/P history report for each vendor. You would like to have the average invoice total amount by vendor. The Vendor ID is defined as a break field and the invoice amount field, selected via “Fields to print” may or may not be marked for a total.

To calculate the average, you must divide the total invoice amount for each vendor by the number of invoices. To do this, define the total invoice amount and the record count each as a Subtotal Access field. For this example, lets use TOTINV and TOTCOUNT for the Subtotal Access field names:

TOTINV: Total the invoice amount field, break on the Vendor ID field, and select Complete for the type of total.

TOTCOUNT: Press <Return> to enter the default value <COUNT> as the field to total, break on the Vendor ID field, and select Complete for the type of total.

Create a calculation field dividing the field TOTINV by TOTCOUNT. Then mark the Vendor ID as a Post-break field and print the new calculated field as the average.

For added formatting, you can create a temporary Text field that identifies the average amount printing. Include both the average Calculation field, the Text field, and use the “Arrange field position” shortcut to position the fields where you want them.

➤ **clean up the report to make it more easily read:**

Multiple data lines can make a report look cluttered. Here are some idea’s to look at:

1. Each field’s heading is stored in the “Header/Footer layout,” Page headings selection. Creating more organized or shortened headings.
2. Choose to not print the record counts, unless required for the report. This can eliminate extra words. Select “Miscellaneous” from the Design menu column, and enter No to the Detail record count? and Break field count? questions.
3. Add another line of data and use the “Arrange field position” shortcut to space fields out more or indent a line. Lining up fields vertically will help visually, also.

➤ **get the totals for various break fields without the detail records printing:**

Select “Miscellaneous” from the Design menu column and enter No for the question, Detailed report? Note that without the detail, you will need to utilize the Subtotal access fields for totaling. You can’t total a field via “Fields to print” since the field isn’t printing. You will also need to define the field headers via “Header/Footer” layout. To guarantee that you are getting the correct data on the report, it is suggested that you verify the correct detail data, then convert the report to print a summary version.

➤ **print labels using Report Writer:**

Labels require specific values changed for fields defaulting for regular 66 lines per page reporting. Select “Miscellaneous” from the Design menu column:

1. The Lines per page value is equal to the number of lines from the top of one label to the top of the next.
2. The Detail record count? field is No.
3. The Form feed? field is entered as No.

In addition, all values for Report header/footer, Page header/footer, and Date and Page number are entered as No, they are not visible. These fields are found by selecting “Header/Footer layout” from the Design menu column, then “Miscellaneous” from the Layout functions menu column.



NOTE: The number of the lines printed must be less than, but greater than half of, the Lines per page value defined in the “Miscellaneous” selection of the Design menu column. For

example, if the label is defined as six lines in height (Lines per page), you must print at least three lines and no more than five.

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➤ **create multiple lines of information for a Pre-break field:**

Each Pre-break field has only one line for data. As an example, let's say you want to print a payment history for all 1099 vendors with their multi-line address as part of the Pre-break line. You'll have to select the vendor field as a sort field more than once.

Define the vendor ID field as a Break/Pre-break field for as many times as address lines to print. The vendor name on one line, the 1st line of address on the next line, then the 2nd line of address, and the City, St and Zip code on the last line requires the vendor ID field as a Break/Pre-break field four times. Each Pre-break header would print the address line needed in the required order.

*Helpful hints:*

1. Print 0 lines between break lines to bring the address lines closer together.
2. Mark the Pre-break field with the option "Suppress Blank line" to eliminate the default line separating the Pre-break line and the data.
3. Do not total any fields selected in "Fields to print" function. Because you have multiple lines breaking, a total will print for each break line. Instead, create Subtotal access fields for each total required and print the Subtotal access field as a Post-break header.
4. Mark the optional second line of address with a condition such as, If Address line 2 is NE to " " (blanks). Then that field will only print if the field value is not equal to blanks.

Advanced ➡

➤ **force the selection criteria order of conditions to be different than the default:**

Let's use the comparison example shown in the Selections to make section previous. Normally, comparisons occur from the top to the bottom of the list of selections:

(a AND b) OR c	(qualifies all of a and b together) or c
b OR (c AND a)	qualifies b first or (c and a together)

For this example, let's assume a = account numbers greater than 5000, b = account types XX, and c = account types XY.

The result of line 1 is account numbers greater than 5000 with XX Account type (GT 5000 AND type XX) OR all accounts with XY. The second line would give you all accounts with XX Account types and accounts greater than 5000 with account types equal to XY.

You can, however, force the order so that our example provides accounts greater than 5000 with the account type or XX and accounts greater than 5000 with the account types of XY. The logic would be

a AND (b OR c)

The solution is a Temporary calculation field and some programmer's logic. You must create a Temporary calculation field, say TYPEXX\_XY. For the formula or "calculation" part, set TYPEXX\_XY equal to the value of 1 and define a condition. The condition is for the Account type equal to XX OR the Account type equal to XY. If this condition is true, the field TYPEXX\_XY is now equal to the value of 1.

When defining the Selections to make, you will stipulate if the account number is greater than 5000 AND the TYPEXX\_XY is equal to 1.

Advanced 

➤ speed up the report processing time:

1. If you have any OR conditions in the "Selections to make" of your report, creating a calculation field to sort out the OR conditions then using the value assigned to the calculation field as an AND statement in "Selections to make" will eliminate extra passes thru the data records looking for the OR condition.

For example, your calculation value can be equal to 1. The condition you put on that value contains the OR statements. The "Selections to make" statement then states if the temporary calculation field is equal to 1. That means that the OR conditions are filtered at the time of the calculation and then qualify to print on the report because the calculation is equal to 1.

2. Create selection criteria and/or the sorting order in the same order as and inclusive of the primary data file access key. For example, defining selection criteria or the sorting order for the Company code and the Vendor ID when using the A/P Vendor Master file (apvend) will speed the processing up. The Company and Vendor ID make up the primary access file for that file.

For additional information to speed up the processing time, refer to your Synergy Report Writer User's manual under Optimization.

Advanced 

➤ compare a data field value from one file to another:

When comparing data from one file to another, the field being compared MUST be a field defined as part of the access keys used in the relation. You cannot compare like fields in a file that are simply contained in both. The comparison statement could be:

(IF) oeh\_cust NE arc\_cust

Since the customer ID is part of each file's access keys used when defining the relation, the value of the customer ID field can provide an accurate comparison. As an example of when to use this, if you want to find out if there are any customer ID's that were used in the order history file that are no longer in the customer master file.

## 6 The Repository - Overview

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The following pages will explain what the Repository is and go through the basic processes of each selection when defining the Repository. The detailed description of Repository and of all options available for writing reports are covered in the Synergy Report Writer User's Manual provided with the software. This overview provides the basic concepts and step by step information in the section, Defining your data files. A check off list is also available on the last page of this reference manual.



NOTE: Down To Earth Software includes a basic Repository with each distribution. Any modifications to the software may require manual changes to the Repository once it is loaded. The Repository file for version 6.x DBL (**rpsdtev6.ddf**) is found in the Down To Earth directory (or folder) assigned to the UTF: logical. This file is the unloaded (flat or ascii) version. Please see the **readmev6.txt** file for instructions on loaded the schemas into the Repository.

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The Repository contains the specific Structures with Fields, Keys and Relations. The Structures are then assigned to an actual data files, including the logical assigned to the directory. Structures contain the framework of the data files the variable field names, what type of fields (alpha or numeric), the size, and file keys. The different structures can also be linked together by common fields in the file keys. These are called relations.

Structures that are setup with relations can access more than one file for printing reports. Vendor master, AP Open, and Vendor history are examples of files that can have a relationship. They all have the Vendor number (and usually the company code for Down To Earth) in common. Vendor master and Customer master are files that have no fields in common and will not have a relationship.

If the file(s) you intend to print data from are not listed in the Report Writer "Files to read" window, they must be defined in the Repository. Please refer to the Defining your Repository, Define Files section of this reference manual or contact Datavision Software Support for assistance.

There are several parts of defining the Repository:

1. Defining a structure assigns a file structure name, establishing what kind of file it is, and a brief description of the structure for you to understand what the file structure name is.
2. Defining the fields within the structure is the next step. Your application programs have a record layout or definition that identifies each field in a file, if the field is alphanumeric of numeric, and how many positions the field is. You can enter the fields one by one or use the "Load fields" shortcut if the fields are the same as the record layout.

In addition, you can add new fields, redefine date fields, or identify parts of an existing field in a new way by adding fields to this definition.

- When custom modifications require additional fields carried in a data file and the structure has already been defined, you must add the new fields to the Repository.

- Date fields are classified as decimal fields in the record layout. The Repository, however, can distinguish dates from decimal fields. Since most dates are stored with the year first in the file (YYYYMMDD format), identifying the field as a date allows the user more familiar entry using the MMDDYYYY format most are accustomed to.
- To reformat an existing field, you can leave the entire field as is and define an overlay as a different value for part or all of the same field.

Example: The Inventory Item Master number may be 24 characters long. If the first three positions are classified as a special code to you (type of part, location in your warehouse, etc.), you can create a new field definition for just that part of the 24 position code. You define a new field for the first 3 positions as a different name. The last 21 positions can be another name or just create an additional field defining only the three characters.

- The standard data definition will remain as 24 positions long. The new field(s) are identified as overlays to the existing field for the Report Writer Repository. That signifies that a given field has one name and that same area of the record can have a different, overlaid, name as well.
3. Defining the keys that are in the file structure is required for access to the file and to link multiple files together to be accessed for the same report. Information on what keys are available and the details required of the keys are found in the “File Characteristics” report in Down to Earth System Manager or the “Device File” listing from the System Functions section of Datavision Software. For more detailed information regarding keys, see Defining you data files, step 2 in this reference manual.
  4. Defining relations between different file structures allows you to access several files, and the data contained within each file, for a single report. (Relations are usually not defined until many of the structures to link are created.) Additional relationships can be defined at any time.

Example: The Customer Master file contains the codes for each default Salesman but does not contain the Salesmen’s names. That information is in a different file. That means a ‘relationship’ must be established between the Customer file and the Salesman file. Then you could print Customer Master information as well as any information found in the salesman file.

5. Equating structures to files is the last required menu selection to setting up the dictionary for creating reports. This step basically declares the structure name to the data file. In addition, the location (in what directory) is established for that data file. If you have separated a given file into more than one location on your disk, you can assign a different filename to each file location but still assign it to the same structure.

For example, Company 01’s A/P History data file is in the directory FIL, Company 02’s data is in FL2. The structure is defined for the APHIST file but there are two Files assigned in the Repository - APHIST\_01 associated to the file *FIL:aphist.ism* and APHIST\_02 associated with the file *FL2:aphist.ism*. Both assigned to the APHIST structure.

## 7 Defining your Repository

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### 7.1 Defining your Structures and Data files

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You will need to know specific information about your data files. You must know what type of data files your application software uses (for example, ASCII, DBL ISAM, Relative), if the record keys accept duplicates, are in ascending or descending order, and the name of the key as defined when assigning field names. In addition you can identify if the key is modifiable and if an access key other than the primary key, if it is a null key. (The modifiable and null key information defaults to the usual values of the key.)


Datavision software data files are either ASCII or DBL ISAM structure. Down To Earth data files are primarily DBL ISAM with some ASCII file types. Data files from other software may also be defined in the Repository and their file types could be different.

The Systems Functions menu selection, Device File Maintenance offers a way to print the data file structure and characteristics from within Datavision version 2 software. Printing a File Characteristics report from the System Manager application of Down To Earth provides the same information, if you're processing with modified Down To Earth software. These reports list each file, the length of each key, if duplicates are accepted, and the order of the file. Modifiable and null key information defaults to the usual values and if that information is unknown, use the default values.

The name of the key assigned when defining the attributes, is listed in the data files record layouts. The record layouts (definitions) are ASCII files found in your software program source directory with either the extension of the application code followed by a "D" (.APD, .ARD, .GLD, etc) for Datavision software or the extension of .rec for Down To Earth software. If you are unable to locate these files, contact Datavision support.

Select "Repository" from the main menu (or Programs menu, Synergy/DE selection for WIN 95/98/NT systems).. The menu columns General, Modify, View, and Utilities display. This manual will take you through the selections found in the Modify column. For details on the other menu selections, please consult your Synergy Report Writer User's manual.

From the Repository menu, select the options in the order described below. At any point during data entry, you may utilize the input menu bar shortcut key, ^P (hold the control key (Ctrl) down and press "P") or Alt-P for DOS systems. The input menu bar will display brief descriptions and shortcut keys for the various functions available.

*WIN 95/98/NT*  Use the mouse to click on the menu column title to display the column contents. Also use the slide bar to display additional selections within a window, double click any displayed structure, field or filename for selection.

#### Step 1: Define the structure

Identify the structure name, file type, and enter a description of the file contents. The structure is most commonly the same name as the file, possibly with additional information.

For example, if the name of the file you are defining is **initem.ism**, the structure name can be **INITEM**. If the file name is **in0001.ddf** the structure can be **ITEM**. If you have other DBL based software using Report Writer, you could also include “D2E” as part of the structure name. The structure name is user defined and you will also enter a description for reference in a following field. It is suggested NOT to include numeric values in the structure and to separate naming sections with an underscore (**\_**), if necessary.

Select the type of file designated for the data file. Your choices are:

**ASCII**  
**DBL ISAM**  
**Relative**  
**User Defined**

Enter a description of what kind of data the file contains. For example, if the **initem.ism** data file contains the inventory master detail, the description could be **Inventory item masters**. Pressing <Return> after entering the description moves the cursor to the Structure name field ready to proceed to the next step.

## Step 2: Define the attributes-Fields, Keys, Relations, Formats, and Tags

After defining the structure, use the “Edit structure” (usually F3 or PF3) shortcut to proceed to the Structure menu column for the next step, defining the structure attributes. The structure attributes consist of the structure (data) fields, the Access and Foreign keys for each structure (file), the relations between multiple files (based on the keys), the formats of specific fields, and any tags.

### Define Fields

Select “Fields” to enter each field in order as they are carried in the file. You will enter the variable name, the starting position of the field, the length, and the type of field, alpha or decimal. To speed this process up, Report Writer is also designed to use the record definition (layout) for most DBL data files and assign the required information. To do this, after selecting “Fields,” use the “Load fields” shortcut to automatically load the record layout.

#### 1. *Load fields” shortcut:*

When using the “Load fields” shortcut you are prompted for the **INCLUDE file:**. Enter the logical assignment or the exact system path followed by the name of the record definition (or layout) file. An example would be, **INS:initem.rec** with the logical assignment as **INS:** and the record definition or layout as **initem.rec**.



NOTE: Logical assignments must have been established when Report Writer was initially executed to use the “Load fields” shortcut. If the correct logical is not assigned, you could also enter the path, **c:\d2ev3\in\initem.rec** (Windows) or **/usr/d2ev3/in/initem.rec** (unix), as examples.

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Press <Return> through the fields **Record number**, and both **Strip text** fields to accept the default. See your Synergy Report Writer User’s Manual for detailed information regarding these fields. When the cursor returns to the **INCLUDE:** field, use the “Exit”

shortcut to initiate the fields to load. The message “Loading fields . . .” displays. When the system has loaded all the fields, they are displayed in the window.

2. *Redefine date fields:*

At this time, you may choose to redefine the date fields as “date” (**DT**), instead of “decimal” (**D**) and select the format that matches your data records. By identifying the field as a date and not a decimal, it allows the system to reverse a value written to the file as YYYYMMDD (or YYMMDD) and allow the user to enter the dates for report selection and logic statements as MMDDYYYY or (MMDDYY). You can redefine the date fields at any time.



NOTE: If the dates are not defined as a date field, they will be identified as decimal fields and treated as any other decimal field. The dates you enter for report criteria or specify in logic statements must be entered EXACTLY as they are written to the data file. For example, if the user input for a report requires a date range, the user would have to enter the year first, then the month (entered as 20001018, not as 10182000) and the day to accurately find the data record.

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3. *Editing a field already defined:*

To edit the field name, move the cursor to the field to be changed and press <Return>. For example, to change the data field from decimal to date type, press <Return> for the Description and Template fields and enter a “D” in the Type field to display a window of available choices. Move the cursor to “Date” and press <Return>. Select the format of date as written to your data files. If the date field is 6 positions, the format is most likely YYMMDD. For an 8 position date, the format is commonly YYYYMMDD. Press <Return> to accept the defaults in the remaining fields, then F4 to exit and display the Structure menu.

4. *Special notes:*

Before exiting the “Fields” selection, we suggest making a note of the field name given to the keys (primary and alternates) that you plan to define and use when writing reports. For example, the primary key for the inventory master file could be identified as **INI\_KEY**. The key name will be used in both defining keys (the next step) and when establishing file relations.

When all input is complete, use the “Exit” shortcut to return to the menu column for your next selection.

### Define keys

Select “Keys” from the Attributes menu column to define the keys for this structure. It is only necessary to define the primary key but you may also want to define additional access and/or foreign keys. You can add key definitions at any time, alternates or foreign keys may be required to set up additional structure relations. (Keys identified as “Foreign” do not exist in the record layout, they are user defined.) For examples of relations, see “Define relations” in the section to follow.

1. *Access vs Foreign keys:*

Access keys are keys that actually exist in the isam data file. The primary (first) key must be the first Access key defined. Other alternate Access keys are defined in any order. Foreign keys are listed after all Access keys. Foreign key segments are fields that exist in a file but do not exist as a key in the actual isam file. The Foreign keys are created strictly for use by Report Writer to link files together when defining relations.

Example: In Down To Earth software, the primary key in the vendor master (apvend) consists of the company code and the vendor ID fields. The distribution file (apdist) does not carry the vendor ID as part of any access key. To create a relation or link between these two files, you must relate common fields. The vendor ID is carried in the file but just not part of any key. You can create a foreign key in the distribution file consisting of the company code and the vendor ID. The relation between the two files now has a common “key,” one access and one foreign.

## 2. *Defining a key:*

Use the “Insert” shortcut to define a new key. Enter an identifying key name for the key. For example, **COVEND**, **PRIMARY**, or **KEY1**. Select Access or Foreign for the type of key. (A Foreign key is one that is not previously defined in the fields. True, existing keys in the file are Access.) You are prompted if this key writes the records in ascending or descending order and if duplicate records are accepted. Press <Return> to accept the default values for **Modifiable** and **Null key** if unknown. Also press <Return> to leave the **Key of reference** field blank. This field is only used if you are using RMS indexed files.

When defining a segment of the key, the **Type** is **Field** (actual field) or **Literal**. A **Literal** is a field equal to a specific value identified in the next field. The **Field name or literal** (value) can be the variable name assigned to the (entire) key or individual fields making up the segments of the key. The value can also be the specific value for the literal **Type**.

For example, **APV\_KEY** is the name assigned as the primary key in APVEND structure of the Down To Earth vendor master (apvend) file. The variable name **INI\_KEY** is assigned to the primary key of the inventory item master. If you are unsure of the key or field names assigned, use the “List selections” shortcut to display a list of valid choices.

Press <Return> enter the default value, blank, for the Structure name, then use the “Exit” shortcut to exit the window.

## 3. *Special notes:*

- The primary key must be the first key for a structure.
- All access keys must be defined prior to defining any foreign keys.
- The attributes defined for an access key must match the actual attributes of the key in the data file. If a file key does not allow duplicates but is defined as if it does, data will not be reported correctly.

Use the “Exit” shortcut again to exit the key definition window and again to exit the Structure menu. When you exit this menu selection you are prompted to save the changes made. Enter Yes (and confirm the file name) or No. Selecting No will NOT write out any changes made since the last time the structure was saved.

You are now ready to define another structure, its fields, and keys or proceed to Step 3: Defining Files. You may choose to define all the structures first then return and define all the files or define each file after its structure. Either way, repeat this process for all data files before Defining the relations. Defining Formats and Tags are optional and may be defined at any time. (Don’t forget to define the file and link that file to the structures you’ve just defined. See Step 3: Define Files, to follow.)

### Define Relations

Relations are not defined until after multiple structures have been established. Defining relations between structures requires that the files have at least one common field contained in both record keys. The more key fields in common, the better and the quicker a report will process. For example, the structures for the Vendor master, A/P Open, and A/P History can have a relationship. They all have the Vendor number in common (as well as the company code in Down To Earth). The Vendor master and Customer master are structures that have no fields in common and cannot have a relation defined. (The exception is for Down To Earth, the Company code is a single common field.)

The relation established between structures allows you to access any field in the related structures (files) for any one report. This is necessary for most reports as not every file contains all information that’s needed on one report.

For example, the Vendor name is included in only the Vendor master file. The name is not found in any other Accounts Payable file. So if you didn’t have a relationship between the history and master files, the vendor name could not be printed except on a report from the Vendor master file.

The relation is usually the last step when defining the Repository. Prior to the relation, the structure must be defined, the structure attributes (fields and keys), and the files equated to the structure for those structures you wish to create a relations for. Once this has been completed, you can define relationships with the following procedure:

#### 1. *Things to know before you define relations:*

You will need to know the fields defined in each file’s record keys. You will also need to know the name of the key assigned when defining the keys (**PRIMARY**, **KEY1**, **KEY2**, **ALT1**, or **COVEND**). (This information is found in either the Appendix section of your software documentation or from the record layout file in your program source directory.) The more fields in the keys that are common for the relation, the faster the reports will process. It is also important that the key fields in common are in the same order in the two files. For more information regarding the key definitions, see the previous section “Define keys.”

Defining a relationship one way, history to master, allows access to both files if the history file is selected as the (first) File to Read when defining a report. However, when selecting the master file as the (first) File to read in Report Writer, you cannot access the History file without a relationship defined from master to history.

Examples of relations for Down To Earth data structures (files):

**APHIST** file (foreign key) *aph\_comp, aph\_vend*

**TO**

**APVEND** file (access key) *apv\_comp, apv\_vend -OR- apv\_key* (primary key)

**GLYEAR** file (foreign key) *gly\_comp, gly\_dateyr, gly\_acct, gly\_div, gly\_dept*

**TO**

**GLCHRT** file (access key) *glc\_key* (primary key containing same fields)

**OEHIST** file (access key) *oeh\_comp, oeh\_cust, oeh\_item -OR- oeh\_key*

**TO**

**ARCUST** file (access key) *arc\_comp, arc\_cust -OR- arc\_key* (primary key)

**OEHIST** file (foreign key) *oeh\_comp, oeh\_item*

**TO**

**INITEM** file (access key) *ini\_comp, ini\_item -OR- ini\_key* (primary key)

## 2. *Defining the relations:*

Select “Structure” from the Repository menu, load the attributes (usually F3) of the structure you want to define a relation **FROM**. Then select “Define relations,” and use the “Insert” shortcut to display the input window. The file name automatically displays and prompts you for the name of the key that you assigned when defining the keys of the file (example: **Primary** or **Key1**). Enter that key name, the file to link the relationship to, and the linked file’s key name. Use the “List selections” shortcut in any field to display a list of valid choices previously defined.

Repeat this process for as many relationships as needed with the file whose attributes are currently loaded. To define relationships between other files whose attributes are not currently loaded, you must save the changes to this structure and load another structure.

## 3. *Special notes:*

- Relations can only be defined **FROM** an Access of Foreign type of key **TO** an Access type of key. You cannot define a relation **TO** a Foreign type of key.
- It is standard procedure that the primary usage file, history for example, is linked to other data files, such as the vendor master. You can also link two files going both directions but that must be two separate relationships. For example, you could link a history file to a master file and that same master file to the history file.
- The attributes (ascending/descending, are duplicates allowed, etc.) defined for an access key must match the actual attributes of the key in the data file. This may be a factor if the relation is not correctly accessing multiple files.
- If a relationship between two files does not seem to be accessing the data correctly, it could be the relation or the way the keys are defined. The primary key must be

defined first, then alternate access keys, then foreign keys. If the primary file is not defined first, the relation will not work.

- The primary file selected for any report to access must be the **FROM** file in the relation. For example, if the relation is from APHIST to the APVEND file, the primary or parent file selected via “Files to use” must be the APHIST file.

### Define Formats

Optional. Defining formats allows you to assign a standard format to a field within the structure that will be used each time the field is printed. Please see the Synergy Report Writer User’s Manual for more information.

### Define Tags

Optional. Defining tags creates a condition when more than one file is assigned to a structure. Please see the Synergy Report Writer User’s Manual for more information.

## Step 3: Define file

Use the “Insert” shortcut to enter a Filename to be assigned to the link between the file and the structure. This is most commonly assigned a name the same as the filename. For example, **INITEM** or **ITEM01** could be used.

Identify the type of data file, for example, **DBL ISAM** or **ASCII**.

Enter a description of the data file, for example, **Inventory Master file** or **A/P History**.

Identify the logical assignment and actual data file or the entire path as the Open file. For example, **FIL:INITEM.ISM**, **FIL:APHIST.ISM**, **DAT:IN0001.DDF**, or **c:\d2eusr\fil\initem.ism** (dos) and **/usr/d2eusr/fil/aphist.ism** (unix). The cursor will return to the **Filename:** field.

When the cursor returns to the **Filename:** field, use the “Exit” shortcut to process the file information. Then use the “Assign structures” shortcut to equate the structure already created with the actual file name that the data is in. For example, **INITEM** or **ITEM01** was the name assigned to the structure as the first step. Once in the **Structure name** field, you can use the “List selections” shortcut to display a list of all the structures previously defined.

When you exit this menu selection you are prompted to save the changes made. Enter Yes (and confirm the file name) or No and no changes will be saved.

## Step 4: Define template

Optional. A template is a set of field characteristics that can be assigned to one or more field definitions (up to 200). This provides you with a constant for the fields throughout all structures in your dictionary. This is a global setting, not structure specific. Please see the Synergy Report Writer User’s Manual for more information.

**Step 5: Define format**

Optional. Defining formats allows you to assign a standard format to a field for all structures, not just within one structure, that will be used each time the field is printed. Please see the Synergy Report Writer User's Manual for more information.

If you have chosen to define many structures in success, don't forget to go back to Step 2: Defining relations, to link the different structures together. If this step is not completed, a given report can only be written from a single data file.

