

Microsoft®
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Microsoft® Business Solutions–Great Plains®
Report Writer User's Guide
Release 7.5

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Introduction

Welcome to the Report Writer, the tool you can use to create and customize reports for applications like Great Plains. With the Report Writer, you can change the appearance of existing reports, make global changes that affect all reports, or create your own new reports. If you have the Modifier with Visual Basic for Applications (VBA), you can use scripting to further customize your reports.

What's in this manual

This manual is designed to give you an in-depth understanding of how to use the Report Writer to customize and create new reports in the accounting system.

- [Part 1, Basics](#), describes how to get started with the Report Writer, and describes the Report Writer interface.
- [Part 2, Creating Reports](#), explains how to create the various elements that make up a report.
- [Part 3, Gathering Data](#), describes how data is stored in the accounting system and how to assemble the data you need to create a report.
- [Part 4, Modifying Reports](#), explains how to modify existing reports in the accounting system.
- [Part 5, Global Modifications](#), explains how to make modifications that affect all reports in the application.
- [Part 6, Printing and Mailing Reports](#), describes how to print reports, export data from them, and mail them to other users.
- [Part 7, Report Design](#), provides guidelines for creating reports and describes common design elements of reports.
- [Part 8, Storing and Accessing Reports](#), describes the Reports dictionary. It also explains how to control access to reports you have modified with the Report Writer. Packaging reports is also described.

You can also refer to the Report Writer online help for more information about using the Report Writer. The sample reports included with Great Plains are another good source of information.



What's new in this release of the Report Writer

The following list describes the new features that were added for this release of the Report Writer and indicates where you can find more information:

1. *Improved layout appearance*
Report sections can be colored in the Report Layout to make them easier to distinguish. Also, fields that are marked invisible now have a distinct appearance in the Report Layout.
2. *Easy navigation to the Report Layout*
You can now navigate to a report directly from the Screen Output window. Refer to [Modifying the current report](#) on page 102 for more information.
3. *Magnify capability in the Screen Output window*
You can now specify the magnification used when a report is printed to the Screen Output window. You can choose a predefined value, or manually set a value from 10% to 500%.

Symbols and conventions

To help you use the Report Writer documentation more effectively, we've used the following symbols and conventions within the text to make specific types of information stand out.

Symbol	Description
	The light bulb symbol indicates helpful tips, shortcuts and suggestions.
	Warnings indicate situations you should be aware of when using the Report Writer.
<i>Margin notes summarize important information.</i>	Margin notes call attention to critical information, and direct you to other areas of the documentation where a topic is explained.

Convention	Description
Part 1, Basics	Bold type indicates a part name.
Chapter 5, “Sorting”	Quotation marks indicate a chapter name.
<i>Applying drawing options</i>	Italicized type indicate a section name.
Software Development Kit (SDK)	Acronyms are spelled out the first time they’re used.
TAB or ALT+M	Small capital letters indicate a key or a key sequence.

Product support

Technical support for the Report Writer can be accessed using the following methods.

- **Telephone support** – Technical Support at (800) 456-0025 between 8:00 a.m. and 5:00 p.m. Central Time, Monday through Friday. International users can contact Technical Support at (701) 281-0555.
- **Internet** – Report Writer Technical Support is also available through CustomerSource or PartnerSource at www.greatplains.com/support.

Part 1: Basics

This portion of the documentation contains basic information you should know before you begin using the Report Writer. The following information is discussed:

- [Chapter 1, “Getting Started with the Report Writer,”](#) describes the basic tasks you can perform with the Report Writer, the terminology used to describe reports, and how reports are stored. It also describes how to start the Report Writer.
- [Chapter 2, “The Report Writer Interface,”](#) describes the interface for the Report Writer.

Chapter 1: Getting Started with the Report Writer

Before you begin working with the Report Writer, you should have a basic understanding of the types of tasks you can perform, terminology used in the Report Writer, and how reports are stored. Information is divided into the following sections:

- [*Report Writer tasks*](#)
- [*Terminology*](#)
- [*Storing reports*](#)
- [*Starting the Report Writer*](#)

Report Writer tasks

You can use the Report Writer to perform three basic tasks: Modifying existing reports, creating new reports, and making global changes for reports.

Modifying existing reports

With the Report Writer, you can change the appearance of individual reports in the accounting system. This allows you to customize your system to meet your specific needs. For instance, a common modification is changing the layout of an invoice to match the invoice format you currently use.

Creating new reports

Though many predefined reports are included with the accounting system, a specific report you need may not be available. You can use the Report Writer to create new reports for the accounting system.

Making global report changes

The Report Writer also allows you to make changes that will be reflected in reports throughout the accounting system. For example, most of the strings that are displayed in reports can be modified. If you were to modify the string "ZIP Code" and change it to be "Postal Code", the change would be seen in every report in which the string "ZIP Code" was used.

Terminology

To get the most benefit from the Report Writer, you need to understand some basic terminology used to describe reports.

Original reports

An *original report* is one that was provided with the accounting system. Original reports are stored in the main application dictionary.

Modified reports

A *modified report* is a copy of an original report that you have made changes to. Modified reports are stored in the Reports dictionary. A modified report can be substituted for an original report in the accounting system. When a user prints the report, they're actually using the modified report, rather than the original.

Custom reports

A *custom report* is a new report that you make. You can start with a blank report, or you can start by making a copy of a report that already exists in the accounting system. Custom reports are stored in the Reports dictionary. You must use a special procedure to print custom reports in the accounting system.

Storing reports

All changes and additions you make using the Report Writer are stored in the *reports* dictionary for the application. By storing the new and modified resources in a separate dictionary, the integrity of the system can be maintained. For example, the following illustration shows the dictionary for Great Plains and its associated reports dictionary.



You will learn more about the reports dictionary in [Chapter 30, "Storing Reports."](#)

Starting the Report Writer

To begin using the Report Writer, log into the accounting system. If you're using Great Plains in a multiuser environment, verify that no other users are in the Report Writer and then perform the following steps:

1. Start the Report Writer.

From the Tools menu, point to Customize and choose Report Writer from the submenu that appears.

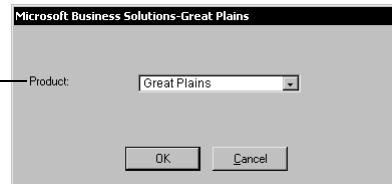


If the Report Writer item is dimmed, you have not been granted access through system security. Refer to [Chapter 31, "Accessing Reports,"](#) for more information about setting access to the Report Writer.

2. Select the product to modify.

If you're using additional products that integrate with Great Plains, the following window will appear when you start the Report Writer.

If you have integrating products, use this window to select the product whose reports you want to access.



Select the product whose reports you want to access, then click OK. If Great Plains is the only product available, this window won't appear.

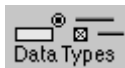
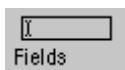


Chapter 2: The Report Writer Interface

This portion of the documentation describes the basic elements of the Report Writer interface. It is divided into the following sections:

- [The main window and toolbar](#)
- [Menus](#)
- [Windows](#)
- [Standard buttons](#)

The main window and toolbar

When you start the Report Writer, the Report Writer's main window and toolbar appear. The toolbar appears across the top of the main window. Each button that appears represents a fundamental resource that you can view or edit. The following table describes each button.

Button	Description
 Data Types	Opens the Data Types window, where you can view or edit existing data types.
 Fields	Opens the Fields window, where you can view a list of fields in the application.
 Tables	Opens the Tables or Virtual Tables window, where you can view information about tables or virtual tables in the application.
 Reports	Opens the Report Writer window, which allows you to create new or modified reports.

Menus

The following items are available in the Report Writer menu bar.

File: Generate Resource Reports

This menu item prints a resource report for the application. The resource report is a text file that lists all resources in the current dictionary, their internal resource IDs and any resources associated with the listed resource. When you choose Generate Resource Reports, a dialog box will appear and allow you to name the report and select its location.

File: Print Setup

This menu item opens the printer setup dialog box. This dialog box allows you to configure the currently selected printer.

File: Process Monitor

This menu option opens the Process Monitor window. This window displays activity for tasks that you choose to process in the “background” within your application.

File: <<Main Application Name>>

The name of this menu item changes based on the application being used. For example, if you are using Great Plains, this menu item appears as “Microsoft Business Solutions–Great Plains”. Choosing the menu item allows you to exit the Report Writer and return to the main application.

File: Table/Field/Window Descriptions

These menu items open forms in the Resource Descriptions tool. This tool displays information about all the tables, fields and windows used in the current dictionary.

File: Exit

This menu item allows you to exit the application.

Edit: Undo

This menu item will undo the last keyboard entry in an editable field. It will also undo field movement and sizing in a layout window, but not the addition or removal of fields, text or graphics from a layout window.

Edit: Cut/Copy/Paste

These menu items allow you to copy text or graphics to the Clipboard, then paste it in a different location. You cannot cut, copy or paste fields.

Edit: Clear

This menu item allows you to remove text from an editable field, or remove selected items from the layout area.

Edit: Select All

This menu item allows you to select the entire entry in a field, or all items in the layout area for a report.

Macro: (all)

The items available from the Macro menu allow you to record and play macros.

Resources: (all)

The items in the Resources menu allow you to access the various resources in the application. Resources available from this menu include all resources accessed from the toolbar, as well as other resources (such as formats and strings).

Windows:

This menu displays a list of the windows currently open. Selecting a window from this menu makes the window active.

Help: Lookup

This menu item opens any lookup window for the current field.

Help: Contents

This menu item displays the contents topic for the Report Writer online help.

Help: Search for Help On

This menu item displays the search window for the help system, allowing you to search the Report Writer online help.

Help: Window Help

This menu item displays help for the current window in the Report Writer.

Help: About

This menu item displays the About window for the main application.

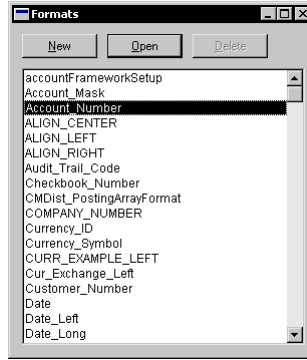
Windows

The Report Writer uses several types of windows. Review the following descriptions to learn how each is used.

Resource list windows

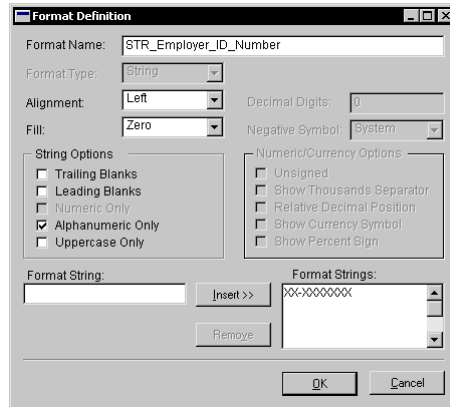
Resource list windows display a list of resource names for a given resource type. To display a list window, click a button in the Report Writer toolbar or choose a resource from the Resources menu. When the window appears, select a resource name and click Open to display its definition window.

The following illustration shows the Formats resource list window.



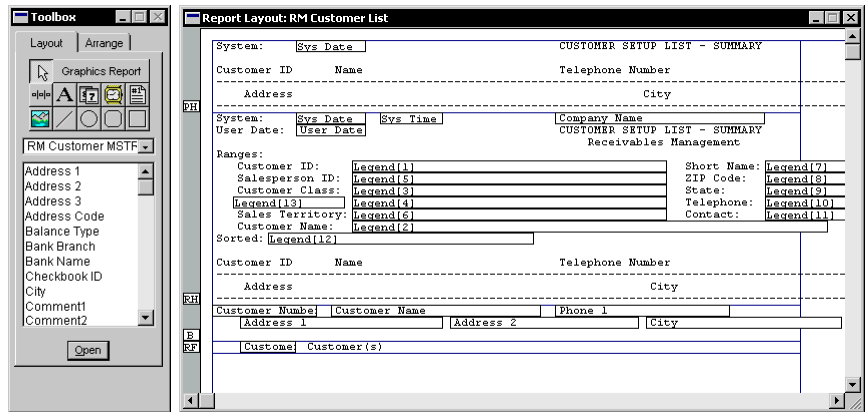
Definition windows

Definition windows allow you to customize individual resources. For example, you will use the Format Definition window to customize how data is displayed on reports.



Layout window

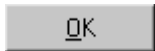
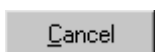
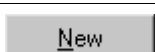
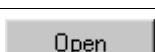
You will use the Layout window to specify the layout of reports in the application. The Layout window uses a graphics metaphor you may already be familiar with: an assortment of tools you can use for drawing and creating objects; a built-in grid that allows easy alignment of objects; moveable objects in a layout like an object-oriented drawing program; and standard cut-copy-and-paste techniques so you can import graphics you create in other applications.







The Toolbox is available whenever the Layout window is open. It contains tools you will use to add objects to the layout.

Standard buttons

The following buttons are used throughout the Report Writer:

Button	Description
	Saves changes and closes the current window.
	Closes the current window without saving the changes to the window.
	Creates a new resource.
	Opens the selected resource and displays its definition.

Button	Description
 A rectangular button with a light gray background and a thin black border. The text "Delete" is centered in a dark gray font, with the letter 'D' underlined.	Deletes the selected resource.
 A rectangular button with a light gray background and a thin black border. The text "Insert >>" is centered in a dark gray font, with the letter 'I' underlined.	Allows you to insert items in a list, such as fields into a sorting definition.
 A rectangular button with a light gray background and a thin black border. The text "Remove" is centered in a dark gray font, with the letter 'R' underlined.	Allows you to remove items from a list, such as the fields in a sorting definition.
 A small square button with a light gray background and a thin black border. It contains three small black dots arranged horizontally.	The lookup button opens another window, allowing you to select a value to return to the current field. Typically, clicking the lookup button displays a list of resources. One of these resources can be selected and have its value returned to the current field.

Part 2: Creating Reports

This portion of the documentation describes the various resources used to create new reports. The following is a list of the topics discussed, along with a brief explanation of each:

- [Chapter 3, “Report Definition,”](#) describes how to use the Report Definition window to define a new report.
- [Chapter 4, “Report Layout,”](#) explains how to use the Report Layout window to design the appearance of a report.
- [Chapter 5, “Sorting,”](#) explains how to sort the data in a report.
- [Chapter 6, “Restrictions,”](#) describes how to restrict what data appears in a report.
- [Chapter 7, “Calculated Fields,”](#) explains how to create and use calculated fields in a report.
- [Chapter 8, “Additional Headers and Footers,”](#) describes how to use additional headers and footers to create groups for the report.
- [Chapter 9, “Legends,”](#) explains how legends are used in reports.
- [Chapter 10, “Modifying Fields,”](#) describes how to modify how fields appear in a report.

Chapter 3: Report Definition

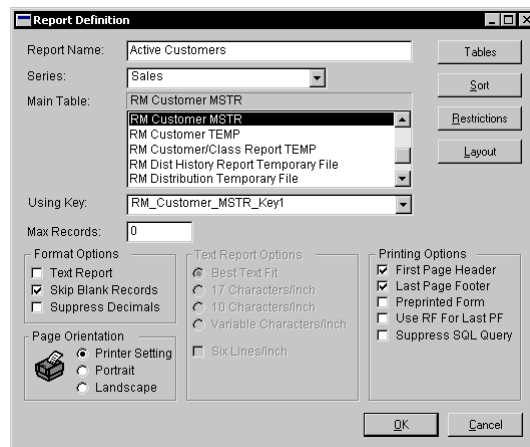
Before you can work with the layout of a report, you must open an existing report definition or create a new one. The report definition specifies important characteristics of the report, such as its name. Many of these characteristics can be adjusted after you begin designing the report layout. Information about the report definition is divided into the following sections:

- [Creating a new report definition](#)
- [Report options](#)
- [Printing a report definition](#)

Creating a new report definition

Some of the items specified in the report definition include the name of the report, whether any restrictions will be used to control the scope of the data included when the report is generated, and which tables data presented in the report will come from.

To create a new report definition, start the Report Writer. In the Report Writer, click the Reports button on the toolbar to open the Report Writer window. Click the New button to open the Report Definition window.



1. Name the report.

Enter a report name. Supply a name that accurately describes the purpose of the report.

2. Select a report series.

Series assignments allow you to group related reports in the accounting system using categories like Sales, Financial and Inventory. To ensure the consistent use of series, it's a good idea to use the series of the primary table as the report series.

3. Select a main table for the report.

The name of each table in the current dictionary is displayed in the list box below the Main Table field. From this list, select the table you want to use as the main table for the report. The main table is typically the table that contains the majority of information used by the report. Refer to [Chapter 11, "Data Storage,"](#) for information about how to determine which tables to use for your reports.

4. Add additional tables to the report (if necessary).

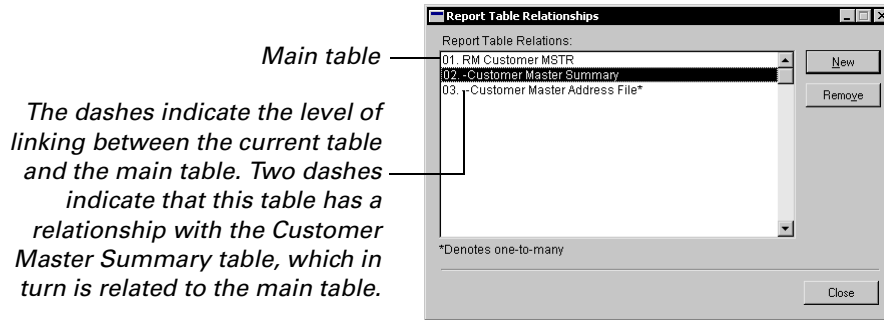
Data for the report may need to come from tables other than the main table. If this is the case, you need to attach additional tables to the report. To do this, click the Tables button to open the Report Table Relationships window. The report's main table will be the only table listed in this window. The number 01 will appear to the left of the table name, denoting its status as the report's main table.

Refer to [Chapter 12, "Table Relationships,"](#) for more information about creating table relationships.

Click New to add another table to the report. The Report Tables window will open. This window contains a list of all tables that have a relationship with the main table already defined using the Table Relationship Definition window. An asterisk appearing next to the table name denotes a one-to-many relationship. Select the desired table and click OK. Each table that is added to the report and is directly linked to the main table will be listed below the main table in the Report Table Relationships window, with a single dash to the left of the table name.

To add a table that is linked to a table other than the main table, select the secondary table's name in the Report Table Relationships window and click New. Select the name of the table to be added and click OK. This table will appear in the Report Table Relationships window below the table that it is linked to, and will have two dashes to the left of its name.

The following illustration of the Report Table Relationships window shows the dashes that denote levels of linking.



You can have only one one-to-many relationship among the tables used for the report. For example, if the Customer Master Address File table has a one-to-many relationship with another table used in the report, all of the other relationships must be one-to-one.

Once you have added all the necessary additional tables, click Close to close the Report Table Relationships window.

5. Set the maximum number of records for the report.

Use the Max Records field to restrict the number of records that will be printed on the report. The default value for this field is 0, which indicates that all records will be printed.

If you enter the number 10 in the Max Records field, for example, only the first 10 records in the report will be printed, unless a restriction has been created to specify another number. Any limit set using a restriction overrides the limit set using the Max Records field.



You may want to enter a relatively small number while you're creating the report, so that test reports will be generated more quickly. Be sure to change the number to 0 or another appropriate number when you are finished testing.

What is an appropriate number depends upon the type of report and how it will be used. For example, you could generate a report that lists all sales statistics by salesperson. If the user will only want to view the top ten salespersons, you could set the Max Records field to 10.

Report options

Several options are available to control characteristics of a report. Use the following procedure to set options for the report.

1. Set the report format options.

These settings specify various characteristics of the report. The Format Options are described in detail below.

Text Report Mark this option if you want to create a text report. Text reports do not allow you to specify fonts or use graphical items in your report, such as lines and pictures. However, text reports are less likely to be adversely affected by different printer configurations.



We suggest you create graphics reports only when creating custom reports for specific clients, where you can be sure of the type of printer the report will be printed to. If you create graphics reports for general distribution, be sure to test the reports with a wide variety of printers.

Skip Blank Records Mark this option to include only records for which there is corresponding data in the main and related tables. If there isn't a corresponding record in each of the related tables, the entire record won't be included in the report.

Suppress Decimals Mark this option to round currency values to nearest whole currency unit. This option is primarily used for international versions of applications where inflation makes the fractional portions of currency amounts insignificant.

2. Set page orientation options.

You can specify the page orientation that will be used for the report.

Printer Setting Choose this option to use the page orientation as specified for the printer currently selected.

Portrait Choose this option to have the report printed in portrait mode, regardless of the current printer setting.

Landscape Choose this option to have the report printed in landscape mode, regardless of the current printer setting.

Refer to [Chapter 4, "Report Layout,"](#) for more information about the Report Layout window.

3. Set text report options.

If you marked the Text Report option, you will activate the Text Report Options portion of the Report Definition window. Marking this option also changes the appearance of the Report Layout window, adding vertical guides at the 80 and 132 character marks. These marks allow you to count characters and more precisely place your field if you are using a fixed text pitch. The text report options are described in detail below.

Best Text Fit Choose this option to have the report printed using the largest printer font that will allow all of the information to be printed on the paper size and paper orientation specified for the printer to which the report will be sent.



If you're creating a report in a dictionary that will be distributed to multiple locations, selecting Best Text Fit will help ensure that the report will print properly on the widest variety of printers.

17 Characters/Inch Choose this option to have the report print in compressed text format.

10 Characters/Inch Choose this option to have the report print in uncompressed text format.

Variable Characters/Inch Choose this option to be able to specify the characters per inch on a line-by-line basis for the report.

Six Lines/Inch Choose this option to ensure that six lines of the report will print in each inch of report height, regardless of which other text option is selected.



This option is most useful when Best Text Fit is selected. It will prevent the font from becoming too small when the text is compressed. The font will shrink in width so that the entire report can be printed on the available paper, but no more than six lines of text will be printed per vertical inch.

4. Set printing options.

Four printing options are available:

To access the Report Section Options window, open the Report Layout window and select Report Section Options from the Tools menu.

First Page Header Choose this option if you want the page header to be printed on the first page of the report. If you don't want to print page headers on any page of the report, use the Report Section Options window to inactivate page headers. If page headers have been inactivated, the Page Header check box will appear dimmed.

Last Page Footer Choose this option if you want the page footer to print on the last page of the report. If you don't want to print page footers on any page of the report, use the Report Section Options window to inactivate page footers. If page footers have been inactivated, the Page Footer check box will appear dimmed.

Preprinted Form Select this option to remove the built-in margin from the layout area when designing a text report. With this option selected, you can place fields anywhere in the layout area. However, if you place fields outside of the printer's predefined margins, data outside of the margin will not print.

If Preprinted Form is not selected, a margin will appear in the report layout area; the margin is drawn to show the default printer margins of the currently-selected printer. The Report Writer will not allow you to place fields outside of this margin.

If Preprinted Form is not selected and you lay out a report while you have one printer selected, then save the report layout, select a different printer and reopen the report layout, the margins may shift, depending on the default margins of the new printer. If the margins shift, fields in the layout area will shift with the left and top margins. This shift may force fields outside of the area bounded by the right margin.

The Preprinted Form selection isn't available if the Best Text Fit option is selected. The use of preprinted forms isn't an option when Best Text Fit is selected because the size and spacing of the font used for Best Text Fit reports varies based on the data in the report. Therefore, you can never be certain that text will appear in the appropriate position on a preprinted form.

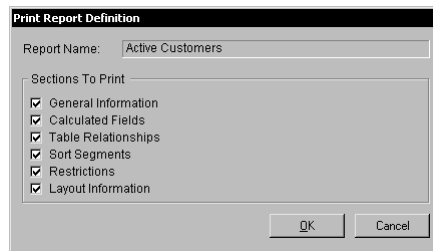
Use RF for Last PF Mark this option to replace the last page footer on the report with the report footer. The report footer will be printed in the area designated for the page footer. If you mark this option, the page footer and report footer must be the same size, and both sections must be active.

To access the Footer Options window, open the Report Layout window, select Report Options from the Tools menu, and click Add or Open in the Additional Footers section.

Mark this option if the report will contain totals in the report footer. For instance, an invoice report containing invoice numbers, invoice items and an additional footer could have a Sum type field in the additional footer (which breaks on the invoice number field) to display the sum of the invoice items. If you wish to display an overall sum at the bottom of the report as well, you must place it in the report footer, then mark Use RF For Last PF, as well as Suppress Last Record's Footer in the Footer Options window for the additional footer.

Printing a report definition

To keep track of the numerous options for a report, you may want to print the report definition. To do this, select the report in the Modified Reports list of the Report Writer window, and then click Print Definition. The Print Report Definition window will appear.



Mark the options indicating what type of information you want included on the report, and then click OK. The report will be generated.



Printing report definitions for existing reports is a good way to learn about the report.

Chapter 4: Report Layout

Once you've planned and defined your report, you're ready to design the report layout. Use the information provided here to create a report layout using the Report Layout window. Information about the report layout is divided into the following sections:

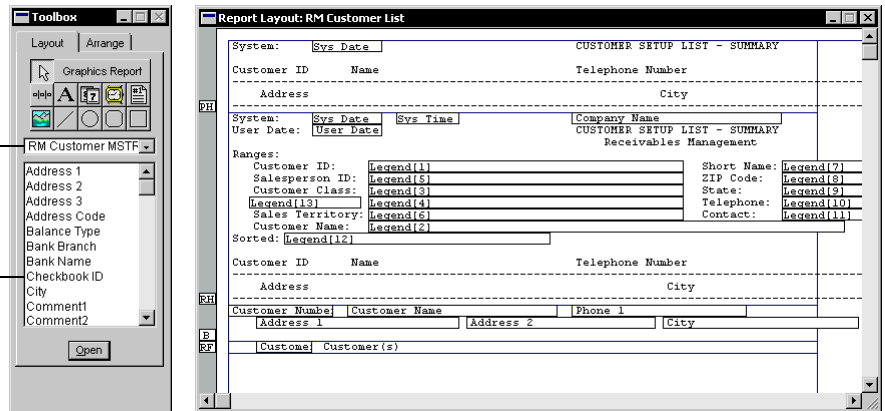
- [Creating a report layout](#)
- [Layout sections](#)
- [The Toolbox](#)
- [Adding fields to a report layout](#)
- [Report field characteristics](#)
- [Applying drawing options](#)

Creating a report layout

Click the Layout button in the Report Definition window to access the Report Layout window and its associated Toolbox. The Report Layout window and Toolbox are shown in the following illustration.

Make a selection from this drop-down list to view calculated fields, global variables, legends, or table fields in this fields list.

Drag fields from this fields list to the layout.



The Report Layout window will be displayed differently depending on whether you are creating a graphics or text report. Changes affect the tools shown in the Toolbox and the width of layout area.

Toolbox

The type of report being created is displayed in the Toolbox, next to the arrow tool. Also, several tools are available only when creating graphics reports, such as the line and picture tools.

Layout area

For a text report, the layout area includes a left border, a right border, and two intermediate vertical guides. These guides mark the positions 80 characters and 132 characters from the left margin. They can help you more precisely place fields in the layout area and are especially useful if you're using a preprinted form and have specified a fixed-pitch text option. Then, regardless of the printer printed to, you are assured of proper placement of fields.

For graphics reports, the layout area simply includes the left and right borders.

To make the various sections of the layout area easier to distinguish, you can mark the Colorize Report Sections item in the Layout menu. This makes the various sections of the report appear lightly shaded.

Layout sections

Before you can add fields and data to the report layout, you must decide where to place that information in the layout area. The Report Layout window for a new report contains four evenly-spaced blank sections, separated by border lines. Each border has a handle in the left margin that is labeled using a one- or two-letter abbreviation. Each section can be resized by dragging the handle up or down. Once fields have been placed in a section, you can't drag the lower border of a section above the lowest field in the section.

Additional headers and additional footers are described in [Chapter 8](#), "[Additional Headers and Footers](#)."

Seven types of sections can appear in the Report Layout window, depending on which options are selected in the Report Section Options window. Once the Report Layout window has been opened, you can access the Report Section Options window by choosing Report Section Options from the Tools menu.

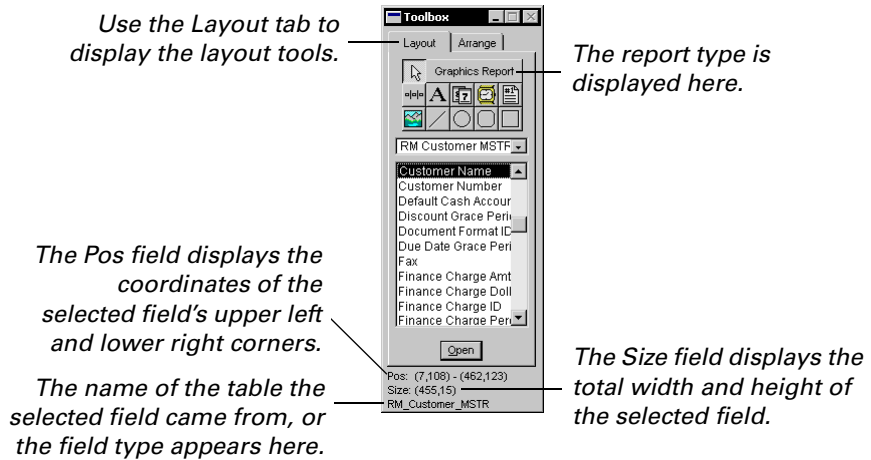
Each section is described in the following table.

Section	Use
Page Header (PH)	<p>Items in this section are placed at the top of every report page. Page number, date, and time fields are commonly placed in this section of a report. You can prevent the Page Header from being included on the first page of a report by unmarking the First Page Header option in the Report Definition window.</p> <p>To exclude page headers from a report, unmark the Page Header option in the Report Section Options window.</p>
Report Header (RH)	<p>Items in this section appear only on the first page of a report. The title of the report and introductory information are often included in this section. If a page header is also included on the first page, the report header will appear after the page header.</p> <p>To exclude a report header from a report, unmark the Report Header option in the Report Section Options window.</p>
Additional Headers (H1, H2, H3...)	<p>Additional headers and footers allow you to create groupings in your report. Each header will print when the data in the field it is based on changes. Therefore, the sorting order used will affect the order in which the headers appear on the report. For example, if the field related to header 2 is sorted before the field for header 1, header 2 will print before header 1.</p> <p>Use the Report Section Options window to add additional headers. You can have up to 15 additional headers in a report.</p>
Body (B)	<p>The report body normally contains the bulk of the report. Depending on the number of additional headers and the sorting order used, there could be a body section for each additional header section.</p>
Additional Footers (F1, F2, F3...)	<p>Additional headers and footers allow you to create groupings in your report. Footers should correspond to headers and break on the same fields. They are often used to display summary data, such as a total of all records in the report's body under the footer's related header.</p> <p>Use the Report Section Options window to add additional footers. You can have up to 15 additional footers in a report.</p>
Report Footer (RF)	<p>Items in this section appear only on the last page of a report. Summary information is often included in this section. If a page footer is also included on the last page, the report footer will appear before the page footer.</p> <p>To exclude a report footer from a report, unmark the Report Footer option in the Report Section Options window.</p>
Page Footer (PF)	<p>Items in this section are placed at the bottom of every report page. This section often includes administrative information, such as the name of the person running the report. You can prevent this section from being included on the last page of a report by unmarking the Last Page Footer option in the Report Definition window.</p> <p>To exclude page footers from a report, unmark the Page Footer option in the Report Section Options window.</p>

The Toolbox


Use the Toolbox to place the fields and other items in the report layout area. The Toolbox window's Layout and Arrange tabs let you toggle between two different sets of tools. Tools in the Layout tab help you place information in the layout area, while tools in the Arrange tab are used to arrange selected items in the layout area.











To activate the Toolbox window, simply move the pointer from the Layout window to the Toolbox window. The following illustration shows the Toolbox for a graphical report when the Layout tab is displayed and a field in the Layout area is selected. Each of the Layout and Arrange tools, as well as the Pos and Size fields, are described in the following sections.



The layout tools












To use a layout tool, click the tool's icon, then click in the layout area.

Tool	Name	Description
	Arrow tool	Use the arrow tool to select objects in the layout area. When you select an object, handles will appear; dragging a handle allows you to resize the object. To select more than one object at once, hold down the SHIFT key as you select the object, or drag the arrow tool to draw a rectangle around the set of objects you want to select. You can also use the arrow tool to drag objects to a new position in the layout area.

Tool	Name	Description
	Divider tool	Use the divider tool to divide the report into columns, such as for printing labels. To mark a division on the report, click the divider tool, then click in the body of the report where you want to place the division. You must add the division to the right of any existing fields; the division won't appear if there are fields or other objects to the right of where you've clicked. Once you've placed a division on the report, you can't add any objects to the right of the division. You can reposition a division by dragging it with the arrow tool.
	Text tool	Use the text tool to place text in the layout area, such as a report title or column headings. You can enter up to 79 characters in a text field. You can't use the ENTER key to make the text wrap; this can only be accomplished by resizing the text field.
	Date tool	Use the date tool to add fields that display the current date. The date is determined by the operating system setting.
	Time tool	Use the time tool to add fields that display the current time. The time is determined by the operating system setting.
	Page number tool	Use the page number tool to add fields that display the current page number.
	Picture tool	<p>The picture tool is available for use only with graphics reports. It allows you to add pictures from your application's picture library to a report. To add a picture to the report, click the position in the layout area where the picture's upper left corner should appear. The Pictures window will appear. Select a picture and click OK; the picture will appear in the layout area, where it can be moved or resized like any other object. Refer to Chapter 20 for more information about the picture library.</p> <p>To add a picture to your application's picture library, select Pictures from the Resources menu. Click New in the Pictures window, and paste the desired picture in the Picture field of the Picture Definition window. Name the picture and click OK to save it.</p>
	Line tool	The line tool is available for use only with graphics reports. Use it to draw lines in the report layout.
	Circle tool	The circle tool is available for use only with graphics reports. Use it to draw circles in the report layout.
	Rounded rectangle tool	The rounded rectangle tool is available for use only with graphics reports. Use it to draw rounded rectangles in the report layout.
	Rectangle tool	The rectangle tool is available for use only with graphics reports. Use it to draw rectangles in the report layout.

The arrange tools

Clicking the Arrange tab in the Toolbox displays an additional set of tools used to align, resize, or tile fields in the window. These tools are described in the following table.

Category	Tool	Name	Description
Align		Align to Top	Aligns the selected objects with the top object in the group.
		Align to Left	Aligns the selected objects with the leftmost object in the group.
		Align to Right	Aligns the selected objects with the rightmost object in the group.
		Align to Bottom	Aligns the selected objects with the bottom object in the group.
Size		Size to Shortest	Shrinks the selected objects to the height of the shortest object in the group.
		Size to Narrowest	Shrinks the selected objects to the width of the narrowest object in the group.
		Size to Widest	Enlarges the selected objects to the width of the widest object in the group.
		Size to Tallest	Enlarges the selected objects to the height of the tallest object in the group.
		Size to Default	Resizes the selected text object or field. If the layout grid is active, resizes the object to the nearest horizontal and vertical grid lines. If the grid isn't active, resizes the object to its default size based on the drawing options for the item.
Tile		Tile Horizontally	Tiles the selected objects horizontally. The value in the Space field specifies the space between objects.
		Tile Vertically	Tiles the selected objects vertically. The value in the Space field specifies the space between objects.



Arranging objects can't be undone. Be sure to save your report layout before arranging objects. If you aren't satisfied with the result of an arrangement, you can close the window without saving the changes.

The Pos and Size fields

These fields appear at the bottom of the Toolbox when a field is selected in the layout area. The Pos field displays, in pixels, the coordinates of the selected field's upper-left and lower-right corners. The Size field displays the total width and height, in pixels, of the selected field. These fields are automatically updated as you resize the selected field in the layout area, allowing you to use the information displayed to exactly size a field.

If a table field is selected, the name of the table from which the field was selected will appear below the Size field. If the selected field is a global variable, calculated field, or legend, the resource type (Global, Calculated Field, or Legend) will appear below the Size field.

Adding fields to a report layout

For more information about legends, refer to [Chapter 9, "Legends."](#)

When you open the Report Layout window, the name of the report's main table will appear under the layout tools in a drop-down list, and the name of each field in that table will appear in the fields list. You can change which fields appear in the fields list by selecting a different entry from the list. The choices in the drop-down list are Globals, Calculated Fields, Legends, and the name of each table associated with the report.

The arrow tool is selected by default when you open the window. Use it to select each desired field from the fields list and drag it to the report layout area. If you inadvertently drag the wrong field to the layout area, select the field using the arrow key, then press DELETE or BACKSPACE. This will remove the field from the layout area without affecting the field in the table.

If you add an array field to the layout, the Report Field Options window will appear, allowing you to specify the element of the field being placed on the report. In the Array Index field, enter the number of the array element, and then click OK. If necessary, you can use the Report Field Options window to change the array index to a different element of the array.

Fields placed in the layout area will automatically appear sized according to the maximum keyable length of the field. You can resize each field as you wish; however, if you shorten a field, the information in that field may not be displayed in its entirety when the report is printed. If you resize a field by vertically enlarging it, the field's text will be centered. If you reduce a field's height, it will not display properly.

You can click and drag with the Arrow tool to select multiple fields in the layout. By default, the selection rectangle will be limited to the current group. Hold down the CTRL key to allow the selection rectangle to expand beyond the current group.

In general, fields placed in the body of the report should be placed at the very top of the body section, since any white space between the top of the body and the field below it will be repeated for every record that's printed. Similarly, once you've finished placing fields in the report body, you should resize the body section so that excess space is removed from the bottom of the section.

Report field characteristics

When printed on a report, most fields you add to a report layout simply display the data values stored by them. However, some fields have special display characteristics you need to be aware of when you use them in a report.

Booleans

When a boolean is added to a report, the string "Yes" is printed on the report if the field contains the value true. The string "No" is printed on the report if the field contains the value false.

Check boxes

When a check box is added to a report, an X is printed on the report if the check box is marked. Nothing is printed on the report if the check box is not marked.

Combo boxes

When a combo box field is added to a report, the text string selected or entered in the field is printed on the report.

Drop-down lists

When a drop-down list field is added to a report, the static text value corresponding to the field's value is printed on the report. If the drop-down list field doesn't have any static text items defined for its data type, no text is displayed on the report. In this case, you must create a calculated field to display a value based on the value of the drop-down list field.

List boxes

When a list box field is added to a report, the static text value corresponding to the field's value is printed on the report. If the list box field doesn't have any static text items defined for its data type, no text is printed on the report. In this case, you must create a calculated field to display a value based on the value of the list box field.

Multi-select list boxes

When a multi-select list field is added to a report, the static text values corresponding to the items selected in the field are printed on the report. If the multi-select list box field doesn't have any static text items defined for its data type, no text is printed on the report.

Pictures

Picture fields should not be added to the report layout.

Radio groups

When a radio group is added to a report, the integer value of the field is printed on the report. If you want to display some other value in the report, you must create a calculated field to display a value based on the value of the radio group field.

Text fields

When you add text fields to a report layout, you should be aware that they can display no more than 10K of data, even though text fields can hold up to 32K of data. Also, text fields should only be placed in the body of a report.

Resizing a text field will have different results, depending on whether the report is a graphics or text report. If you resize a text field in a graphics report, data will be printed to fill the resized area. However, if the text field is larger than the amount of data in that field for a given record, the unused space for that field will still be included in the report. If you resize a text field in a text report, the field width you specify will be used, but the field height will be adjusted automatically to accommodate the text in the text field, up to the 10K limit.

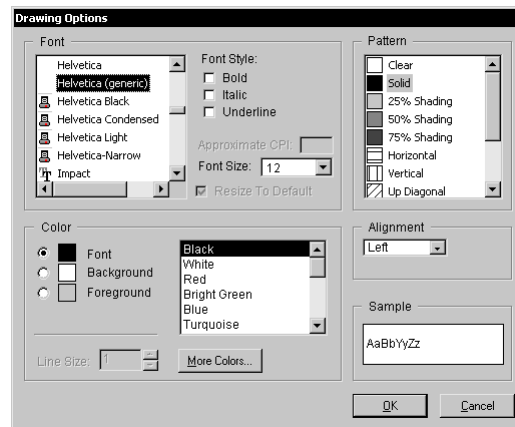
For example, you could resize a text field to be two inches wide and tall enough to include 18 rows of data. If the data in that field for a given record will fill only 12 rows, then only those 12 rows will be included if it's a text report, while those 12 rows plus 6 blank rows will be included if it's a graphics report. Similarly, if the data in that same field for a different record contains 20K of data, up to 10K will be included if it's a text report, while only the first 18 rows will be included if it's a graphics report.

Visual switches

If the visual switch field has static text values defined, the static text value corresponding to the field's value is printed on the report. If the visual switch field has picture or native picture static values defined, the integer value of the field is printed on the report. If the visual switch field has no static values defined, it can't be used on the report. Instead, you must create a calculated field to display a value based on the value of the visual switch field.

Applying drawing options

Use the Drawing Options window to select a variety of fonts, font styles, colors and fill patterns for items in graphics reports. To open the Drawing Options window, select an item in the layout and choosing Report Drawing Options from the Tools menu.



If several items are selected in the layout area when you open the Drawing Options window, the options you specify will apply to all of them. If no items are selected when you open this window, the options defined will be applied to all new objects placed in the layout area.



For many objects, such as text, lines, and rectangles, you can open the Drawing Options window by double-clicking the object.

Fonts

Use items in the Font section to specify font characteristics for items in the report. For graphics reports, you can choose any font installed on the current system.



Keep in mind that if the report is used on another system that doesn't have the appropriate fonts installed, the missing fonts will be substituted.

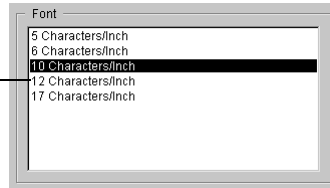
Three “generic” fonts are always available for every report. These are:

- Courier (generic)
- Helvetica (generic)
- Times (generic)

These fonts correspond to the fonts that were available in earlier versions of the Report Writer. If you want your reports to be independent of the fonts installed on a particular system, use these generic fonts.

If you are creating a text report and have marked the Variable Characters/Inch option in the report definition, the Font section in the Drawing Options window allows you to specify the characters per inch to use for each line. Simply select a field in the line and display the Drawing Options window. You can choose 5, 6, 10, 12, or 17 characters per inch.

If you mark the Variable Characters/Inch option for a text report, you can specify the characters per inch for each line of the report.



Once you set the characters per inch for a field on the report, any other field you move to that line will also be printed in that size. To see how your text report will appear when printed, be sure the Show Field Names item in the Layout menu is not marked. The report will be displayed as it will appear when printed.

Patterns

Use the Patterns section to select the fill pattern for fields, text items or shapes in the layout.

Color

Use the Color section to select the font/line, background and foreground colors of items you've added to the layout. The line color is used for lines and field borders. The font color is used for text. The foreground color is used to draw the pattern selected in the Patterns section. The background color is used to fill in the remaining area of the object. The line size specifies the size of the line used to draw lines, rectangles, circles, and other shapes.

When specifying colors, you can select one of the predefined colors in the list. To use a custom color, select User Defined as the color and then click More Colors to display the Color dialog. Select a color and click OK. The color you selected will be applied to the current color selection.

Alignment

Use the Alignment setting to specify the horizontal alignment of text in fields or of text items you've added using the text tool.

Chapter 5: Sorting

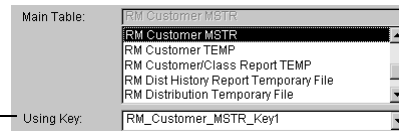
There are two methods for specifying how the data in a report is sorted. In the first method, the report is sorted based on a key you select for the main table used for the report. In the second method, you create a sorting definition based on the fields in the tables used for the report. Information about sorting is divided into the following sections:

- [Using a main table key](#)
- [Creating a sorting definition](#)

Using a main table key

The primary method of sorting a report is to select a key from the main table for the report. You specify the main table and a key from that table when you use the Report Definition window to create the definition for a report. The data in the report is sorted based on the key you select.

The report data is sorted based on this key selected from the main table.



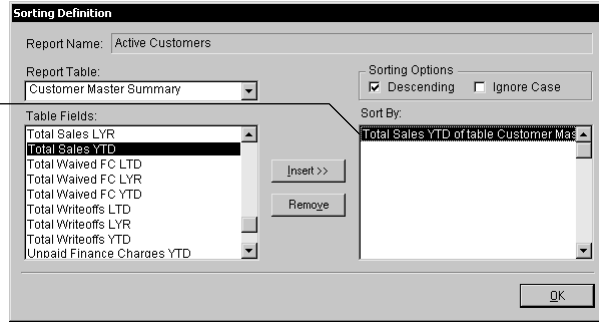
This is the preferred method for sorting the report, because an index already exists for each table key. In effect, the order of the data is already known. The Report Writer simply retrieves data from the primary table using the key you specified.

Creating a sorting definition

In some cases, there isn't an appropriate key available to sort the report data the way you would like. In this situation, you must create a *sorting definition*. A sorting definition defines how you want to sort the report data. It is based on fields in the tables associated with the report. Using a sorting definition is a less-efficient method for sorting the report, because the Report Writer must read through each table used by the report to find the appropriate records to use. For optimal performance, you should use a sorting definition only when necessary.

To create a sorting definition, click the Sort button in the Report Definition window to open the Sorting Definition window, shown in the following illustration. Use this window to define a sorting order that includes fields from any of the tables associated with the report.

The report will be sorted based on the fields in this list.



From the Report Table drop-down list, select the table containing the field you wish to use to specify the sorting order. The name of each field in the selected table will appear in the Table Fields list. Select the desired field, and click Insert. The field name will be added to the Sort By list. Subsequently-added fields will be added to the *top* of the Sort By list, unless an item in the list is selected. If an item is selected, newly-added fields will be added *below* the selected item.

The sorting order will be based on the fields listed in the Sort By list. The data will be sorted based on the first field, then, if a secondary sorting order is needed, the second field, and so on. Be sure to include all fields necessary to fully define the desired order.

For each field selected, you can specify whether you want the data to be sorted in ascending or descending order (ascending is the default order) and whether to ignore the case of any string fields used as sorting criteria. If you ignore case, the strings will be sorted in strict alphabetical order. If you don't ignore case and you are sorting in ascending order, all strings beginning with lowercase letters will appear in alphabetical order, followed by all strings beginning with uppercase letters, also in alphabetical order. In descending order, all of the uppercase strings will appear before the lowercase strings.

To select the Descending and/or Ignore Case options for a given field, select the desired field in the Sort By list and check the appropriate sorting options. Once you have specified all the sorting options, click OK to close the Sorting Definition window.



If none of the fields used to define the sorting order are from a secondary table, the report information drawn from that table will be sorted according to the key used to define that secondary table's relationship with the report's main table.

Once you have created a sorting definition for a report, it will override the sort order specified by the key selected for the report's main table. To use the main table's key as the sorting method, you must remove all of the items from the Sort By list in the Sorting Definition window.

1. Name the restriction.

Enter a name in the Restriction Name field. The name can be up to 79 characters long.

2. Select the appropriate function, if any.

If the restriction you are defining uses a system-defined function, the function must be included in the expression before the field it is applied to. For example, to restrict the Customer Order report so that it lists only customers that ordered more than five items, you could use the following restriction on the Item_Number field:

```
FREQUENCY (Item_Number) > 5
```

For a detailed description of each function available for use when defining a restriction, refer to [Restriction functions](#) on page 45.

3. Specify the field to restrict on.

From the Report Table drop-down list, select the table containing the field on which you want to restrict the report. Once the appropriate table is selected, select the desired field from the Table Fields drop-down list. Click Add Field to add the selected field to the Restriction Expression.

4. Select the appropriate operator.

From the Operators section, select the appropriate operator. It will automatically be added to the Restriction Expression field. These are the same operators described in [Operators](#) on page 55 with the exception that the concatenation operator is not available for use with restrictions.

5. Specify the constant to be used in the restriction.

From the Type drop-down list in the Constants section, select a control type for the constant you are defining. The five supported control types for constants in restriction expressions are integer, currency, string, date, and time. Once you've selected the constant's control type, enter the desired value in the Constant field and click Add Constant.

6. Verify the restriction expression and save it.

Review the contents of the Restriction Expression field. If any part of the expression is incorrect, highlight the incorrect value and click Remove. Replace the removed value, if necessary. Once the restriction expression is correct, click OK to save the restriction and close the Report Restrictions window.

Restriction functions

This section describes the functions available when defining a restriction for a report. It includes a definition of each function, an example of how the function is used in a restriction expression, and an explanation of how you can use such an expression in a report. Also included is information about the storage types that can be used with each function, since some functions can be used only in expressions with fields of a certain storage type.

SUBSTRING and WILDCARD are the only functions that can be used with table fields from all report tables.

Most of these functions can be used only with fields from a report table that has a one-to-many relationship with another report table, such as a secondary table with a one-to-many relationship with the report's main table. Records in secondary tables with a one-to-many relationship with the main table are sometimes referred to as detail records. Using one of these functions with any other fields will cause an error at runtime. Only two functions can be use with fields from any of the report tables: SUBSTRING and WILDCARD.

AVERAGE

The AVERAGE function calculates the average of an expression for all detail records. It can be used with expressions containing fields of all storage types except strings.

Example

You can use the AVERAGE function to create a restriction on an invoice list so that it will print only invoices for which the invoice's items average a markup of at least 20% over cost.

```
AVERAGE ((Item Price) - (Item Cost) / (Item Cost)) > .2
```

EXISTS

The EXISTS function ascertains whether at least one record in a group of detail records makes the expression true. The expression the EXISTS function evaluates should be a comparison as shown in the following example. This function can be used with all boolean expressions.

You can use the NOT operator with this function to increase its scope and create expressions restricting the information on your reports according to expressions that aren't true.

Example

You can use the EXISTS function to create a restriction on an order list to list customers whose orders include at least one item over \$100.

```
EXISTS (Item Price > 100)
```



Unlike other functions, EXISTS and FORALL must be used to evaluate an expression where the comparison operator is inside parentheses, as shown. This causes the function to evaluate the entire expression, rather than only the item following it.

FIRST

The FIRST function finds the first occurrence of an expression in a group of detail records. It can be used with expressions containing fields of any storage type.

Restrictions are evaluated before the report is sorted, so the item designated by the FIRST function may not be the same as the first item in a group on the report once it's been sorted and printed. The first item will be the first value in the table, sorted by the key used to link the secondary table to the report's main table.

For example, you could print a report that lists invoices and corresponding line items, then create a restriction to print only invoices for which the first line item's price was more than \$1,000. If you then sort the report in ascending order by line item price, the line item that the FIRST function finds won't necessarily be the line item listed first on the report. It will be the first line item in the table, which depends on the key used to create the table relationship. If the key is composed of the invoice number and the line item number, the first line item will be the item with the smallest (or largest, depending upon the key's sorting method) line item number.

The following example shows an invoice and its line items as they're sorted within the tables, by invoice number and by item number.

Records in the table are sorted by the Invoice Number and Item.
This is the record the FIRST function will evaluate.

Invoice Number	Item	Price
5005	1201	\$5,300.00
5005	1205	\$3,900.00
5005	1211	\$5,250.00

Since the line items are sorted by item and not by price, the record identified by the FIRST function is item 1201. If you sort the report by the price of each line item, that's how the information will appear on the report, but the FIRST function will still identify item 1201 as the first item.

Records on the report are sorted by the Price.

Invoice 5005	
Item	Price
1205	\$3,900.00
1211	\$5,250.00
1201	\$5,300.00

Example

The following example shows how to use the function to create the expression explained in the previous paragraphs and illustrations.

FIRST (Item) > 1000

FORALL

The FORALL function prints only those records for which all of the detail records meet the expression's requirements. This function can be used with all boolean expressions.

You can use the NOT operator with this function to increase its scope and create expressions restricting the information on your reports according to expressions that aren't true.

Example

You can use the FORALL function to create a restriction on an invoice list to display only invoices containing items that all cost more than \$500.

```
FORALL ((Item Price) > 500)
```



Unlike other functions, EXISTS and FORALL must be used to evaluate an expression where the comparison operator is inside parentheses, as shown. This causes the function to evaluate the entire expression, rather than only the item following it.

FREQUENCY

The FREQUENCY function counts the number of detail records. The FREQUENCY function can be used with expressions containing fields of any storage type.

Example

You can create a restriction on a customer order list to print only orders containing more than five items.

```
FREQUENCY (Item Number) > 5
```

LAST

The LAST function finds the last occurrence of an expression in a group of detail records. The LAST function can be used with expressions containing fields of any storage type except string.

Restrictions are evaluated before the report is sorted, so the item designated by the LAST function may not be the same as the last item in a group on the report once it's been sorted and printed. The last item will be the last value in the table, sorted by the key used to link the secondary table to the report's main table.

The *LAST* function performs much like the *FIRST* function. For more information, refer to the description of the *FIRST* function earlier in this section.

For example, you could print a report that lists Salesperson IDs and corresponding line items containing dates upon which they've made sales and the total amount of each sale. You could then create a restriction to print only the records for salespeople whose most recent sale totaled more than \$1,000. If you then sort the report in ascending order by the amount of the sale, the record that the *LAST* function finds won't necessarily be the one listed last on the report. The last record on the report will be the item with the largest total sale amount.

The following example shows the records for Salesperson ID 001 as they're sorted within the tables, by salesperson ID and sale date.

Records in the table are sorted by the Salesperson ID and Sale Date.

Salesperson ID	Sale Date	Sale Total
001	1/2/97	\$1,200.00
001	2/4/97	\$2,300.00
001	2/6/97	\$1,400.00
001	4/12/97	\$1,000.01

This is the record the *LAST* function will evaluate.

Since the salesperson records are sorted by sale date and not by sale total, the record identified by the *LAST* function is the 4/12/97 sale. If you sort the report by the sale total, that is how the information will appear on the report, but the *LAST* function will still identify the 4/12/97 sale as the last item.

Records on the report are sorted by the Sale Total.

Salesperson ID 001	
<u>Sale Date</u>	<u>Sale Total</u>
4/12/97	\$1,000.01
1/2/97	\$1,200.00
2/6/97	\$1,400.00
2/4/97	\$2,300.00

Example

The following example shows how to use the function to create the expression explained in the previous paragraphs and illustrations.

```
LAST (Sale Total) > 1000
```

MAXIMUM

The MAXIMUM function finds the detail record with the highest value that satisfies the given expression. The MAXIMUM function can be used with fields of any storage type except strings.

Example

You could create a restriction on an invoice list that prints only invoices that include items priced over \$100.

```
MAXIMUM (Item Price) > 100
```

MINIMUM

The MINIMUM function finds the detail record with the lowest value that satisfies the given expression. The MINIMUM function can be used with fields of any storage type except strings.

Example

You could create a restriction on an invoice list that prints only invoices that include items priced under \$100.

```
MINIMUM (Item Price) < 100
```

SUBSTRING

The SUBSTRING function is used to search fields with a string storage type for a match to a specified pattern. The SUBSTRING function will find a match if the specified pattern appears anywhere within the specified field. It is case-sensitive.

Only the equality (=) and inequality (<>) operators can be used with the SUBSTRING function. The data in the specified field either matches or doesn't match the pattern. No other operators can be used.

This function is used to restrict the data on the report to information that matches a set of characters specified as the search pattern. Three special characters can be used in the search pattern to indicate the type of match you're searching for: the asterisk (*), the question mark (?), and the backslash (\).

These characters are described in the following table.

Character	Matching search results
*	Any character A group of characters No characters
?	Any single character
\	Used in front of special characters so they can be treated as part of the search pattern

The SUBSTRING function implicitly adds an asterisk to the beginning and end of the pattern you specify, so that a match will be found even if the pattern occurs within the information in the field. For example, the SUBSTRING function would find a match for the pattern P*L in the word APPLE, while the WILDCARD function wouldn't.

The backslash is used in front of special characters, such as quotation marks, that have specific meaning in Report Writer. A quotation mark indicates the beginning or end of a field. If you wish to search for fields containing, among other characters, a quotation mark, you'll need to place a backslash in front of it to indicate that the quotation mark is simply a character, and not the sign for the end of the field. Most symbols and non-alphanumeric characters are special characters and should be used with backslashes.

Example

You could use this function to print a list of companies in a particular sales region whose names contain the string John's. The following example shows an expression for which "John's Fish Market" and "Mabel and John's Deli" would both be valid matches.

```
SUBSTRING ("John\'s") = Company_Name
```

SUMMATION

The SUMMATION function calculates the sum of a specified expression for each record in a set of detail records. The SUMMATION function can be used with fields of any storage type except strings.

Example

You can use the SUMMATION function on a report listing invoices and the items on each invoice to print only the invoices where the total of all item extended prices is greater than \$1,000. The extended price is the price of each item multiplied by the number of items that were purchased. The SUMMATION function would first calculate the extended price for each item on the invoice, then sum those extended prices and compare the sum to the specified \$1,000 value. The following expression demonstrates how this restriction would be written.

```
SUMMATION (Quantity Ordered * Item Price) > 1,000
```

WILDCARD

The WILDCARD function is used to search fields with a string storage type for a match to a specified pattern. The WILDCARD function will find a match only if the specified pattern appears in the specified field exactly as stated. The asterisk, question mark and backslash special characters, described in the explanation of the SUBSTRING function, can also be used with this function.

By using these special characters, you can expand the scope of the search conducted by the WILDCARD function. Without the special characters, the specified field must contain exactly the specified pattern, and only the specified pattern, for a match to occur. For example, the expression WILDCARD (Apple) = Snack Type would not find a match if the value in the Snack Type field was Apples.

Only the equality (=) and inequality (<>) operators can be used with the WILDCARD function. The data in the specified field either matches or doesn't match the pattern. No other operators can be used.

The WILDCARD function is case-sensitive.

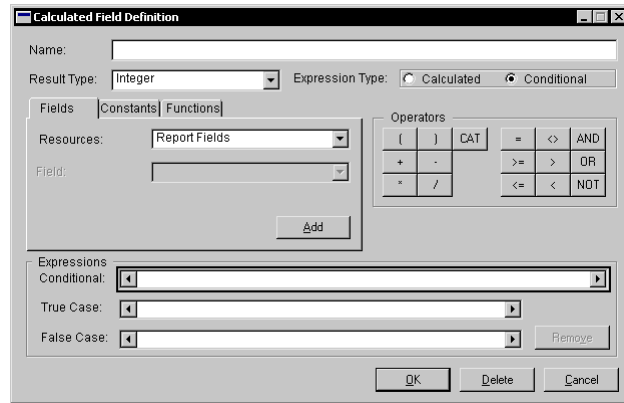
Example

You could use this function to print a list of users whose IDs begin with the letter A.

```
WILDCARD ("A*") = User ID
```

Chapter 7: Calculated Fields

Calculated fields are a powerful tool you can use to manipulate data in your report. Calculated fields are defined using fields, constants and operators, as well as system-defined or user-defined functions. The following illustration shows the Calculated Field Definition window.



A calculated field is based on either a conditional expression or a calculated expression. A *conditional expression* allows you to print one value or another, depending on the result of a boolean expression. A *calculated expression* allows you to print the result of an expression, such as the sum of several currency fields, or the concatenation of several string fields.

The result of a calculated field must be an integer, currency, variable currency, string, or date value. You can use time fields or constants in a conditional expression, but the result printed based on that conditional expression must be an integer, currency, string, or date. For example, you could compare the value of a time field to a time constant to determine whether to print the string "Morning" or the string "Afternoon."

When defining an expression for a calculated field, the expression can't be typed in directly. Instead, the expression must be built by adding the elements to the expression from the Fields, Constants, or Functions tabs and the Operators keypads.

Information about calculated fields is divided into the following sections:

- [Creating a calculated field](#)
- [Operators](#)
- [Fields tab](#)
- [Constants tab](#)
- [Functions tab](#)
- [System-defined functions](#)
- [User-defined functions](#)

Creating a calculated field

Follow these steps to create a new calculated field for your report:

Click the Reports button on the toolbar. In the Report Writer window, select and open a report definition. Click Layout in the Report Definition window. The Report Layout and Toolbox window will open. From the Layout tab in the Toolbox window select Calculated Fields from the drop-down list, then click New.

1. Name the calculated field.

The calculated field name can be up to 79 characters long.

2. Select the result type.

This is the storage type that will be used for the value the calculated field produces. For example, if the calculated field is a calculated expression that concatenates two string fields, the result type must be a string.

If the calculated field is based upon a conditional expression, both the True Case and False Case values must be of the same storage type as the result type.

3. Select the type of expression.

Calculated is selected by default. If you select Conditional, nine additional boolean operators will be enabled in the Operators section; the True Case and False Case fields will also be enabled.

4. Define the expression.

Select each element to be included in the expression from the appropriate tab (Fields, Constants, or Functions). Click Add to place the selected element in the currently-highlighted position within the expression. Add the appropriate operators to the expression as needed.

The options under each tab, and the usage for each operator are described in the following sections.

5. Define conditional values.

If this calculated field is based on a conditional expression, define the True Case and False Case values. One of these values will be printed in the calculated field on the report, depending on whether the expression defined is true or false.

6. Save your entry.

Click OK to save the calculated field and return to the Report Layout window.

Operators

Operators allow you to specify the relationships between the various components of expressions. Some operators are only enabled if you are creating a conditional expression.

Parentheses ()

Indicate the beginning and end of an expression that should be evaluated as a unit, separate from the rest of the expression. In general, you should use parentheses to enclose parts of the whole expression when you're using two or more operators and you wish to control the order of evaluation.

Parentheses are automatically added to an expression when you insert a function. The item following it, usually a field, is automatically placed within the parentheses.

Addition (+)

Adds the value to the left of the addition operator to the value to the right of the operator.

Subtraction (-)

Subtracts the value to the right of the operator from the value to the left of the operator.

Multiplication (*)

Multiplies the value to the left of the operator by the value to the right of the operator.

Division (/)

Divides the value to the left of the operator by the value to the right of the operator.

CAT

Joins the data in two fields with a string storage type into one string of characters. CAT stands for “concatenate,” and is symbolized by the pound (#) sign when displayed in an expression. You may want to use the CAT operator in conjunction with the STRIP function so that only the data in each field is displayed, and not empty blanks following the data.

The following operators are enabled only when you’re creating conditional expressions.

Equality (=)

Indicates that if the two values to either side of the operator are equal, the expression is true.

Inequality (<>)

Indicates that if the values to either side of the operator aren’t equal, the expression is true.

AND

Joins a series of expressions within a conditional expression. All of the expressions joined by an AND operator must be true for the entire expression to be true.

Greater than or equal to (>=)

Indicates that if the value to the left of the operator is greater than or equal to the value to the right of the operator, the expression is true.

Greater than (>)

Indicates that if the value to the left of the operator is greater than the value to the right of the operator, the expression is true.

OR

Joins a series of expressions within a whole condition or restriction. Only one of these expressions must be true for the entire expression to be true.

Less than or equal to (<=)

Indicates that if the value to the left of the operator is less than or equal to the value to the right of the operator, the expression is true.

Less than (<)

Indicates that if the value to the left of the operator is less than the value to the right of the operator, the expression is true.

NOT

Reverses the meaning of the expression following it. For example, the following expressions are written differently but have the same result:

```
NOT(Account Balance < 5000)
Account Balance >= 5000
```

Fields tab

The Fields tab contains two drop-down lists: Resources and Field. Once a resource is selected, the Field drop-down list is enabled, displaying all available choices of the selected resource type. If there are no values for the selected resource type, the Field drop-down list will remain disabled.

The Resources drop-down list always begins with four system entries: Report Fields, Calculated Fields, RW Legends and Globals. These are followed by the name of each table associated with the current report. If a table name is selected, each field in that table will be listed in the Field drop-down list. The following describes each system entry, and what appears in the Field drop-down list if that entry is selected.

Refer to [Chapter 10, “Modifying Fields.”](#) for information about using the Report Field Options window to change a field’s field type.

Report Fields

Report Fields fills the Field drop-down list with all fields on the report that have modified field types (fields for which the Report Field Options window has been used to change the field’s field type from Data to some other type, such as Count). The field type, or an abbreviation of the type, is listed first, followed by the name of the field to which it was applied. Use the Report Field Options window to change a field’s field type.

Calculated Fields

Calculated Fields fills the Field drop-down list with all calculated fields the current calculated field can reference. Under special circumstances, dependencies between calculated fields can that prevent them from being used by the current calculated field. If a calculated field can’t be used, it won’t be displayed in the list.

Refer to [Chapter 9, “Legends.”](#) for more information about using legends in reports.

RW Legends

RW Legends fills the Field drop-down list with one selection: Legend. Selecting this value allows you to use one of the legend values passed into the report by the application. When you click Add, a dialog box will appear, prompting you to enter an index value indicating which legend value to use. The legend will be added to the expression you’re creating.



A legend is passed into the calculated field as a string. If you need the legend value to have some other storage type, you will need to use one of the system-defined functions to convert the legend value. System-defined functions are described in [System-defined functions](#) on page 60.

Often, legends are used in a calculated field to specify the array index of an array field. The following procedure describes how to use a legend to specify the array index in a calculated field.

1. Add an array field to the expression.

Select an array field to add to the expression and click Add. A dialog box will appear, prompting you to enter the array index. Enter any number, then click OK.

2. Remove the array index.

Highlight the newly-entered index number in the expression, and then click Remove.

3. Insert the appropriate conversion function.

Click the Functions tab, and select the STR_LNG system-defined function. Click Add. This function will convert the legend (a string value) value into a long integer so it can be used as the array index.

4. Add the legend.

Click the Fields tab. Select RW Legends from the Resources drop-down list, and Legend from the Field drop-down list. Click Add; you will be prompted to enter the array index. Enter the number corresponding to the position of the desired legend value. For example, if four legend values are passed to the report, enter an index of 1 to specify the first legend, 2 to specify the second, and so on.

The value you passed to the first legend will specify which array element value to display. If the value 1 is passed to the first legend, the first quarter's bonus value is displayed. If the value 2 is passed to the legend, the second quarter's value is displayed, and so on.

Globals

Globals populates the Field drop-down list with all of the fields declared as global variables in the current dictionary.

Constants tab

Constants are values you set. Typically, they are used in the True Case and False Case fields, or as a value against which fields are compared in the expression. This tab contains two fields: the Type drop-down list and the Constant field.

The Type drop-down list contains five choices: Integer, Currency, String, Date, and Time. The value you are allowed to enter in the Constant field depends on the constant type selected. For example, if you select Integer as the constant type, you will be able to enter only numeric values in the Constant field.

The following expression shows the use of two different constant types. The 12:00:00 PM value is a constant of the Time type, while the True Case and False Case fields' values of Morning and Afternoon are String type constants.

The screenshot shows a dialog box titled "Expressions". It contains a "Conditional:" field with the text "Time Of Day < 12:00:00 PM". Below this are two fields: "True Case:" with the text "Morning" and "False Case:" with the text "Afternoon". A "Remove" button is located to the right of the "False Case:" field.

Functions tab

Within the Functions tab, you must select the type of function you want to use, either System-Defined or User-Defined. System-Defined is the default.

Depending on which type of function is selected, one or two drop-down lists will appear below the radio group. If System-Defined is selected, the Function drop-down list will appear, allowing you to choose one of the predefined functions. If User-Defined is selected, two drop-down lists will appear, Core and Function. To select a function you've created, you must first select the core with which the function is associated. You can then select the desired user-defined function from the Function drop-down list.



Many of the system-defined functions convert a field's storage type. For example, the CUR_STR function converts a currency control type field to a string control type field. The conversion doesn't affect the way the field is stored in the table, only how its data is evaluated in the calculated or conditional expression.

System-defined functions

To use system-defined functions in expressions, select a function from the drop-down list and click Add. Then, from the Fields tab, select the field you wish to use with the function and click Add. The field will appear in the expression, enclosed in parentheses.

You can't apply one system-defined function to another, or "nest" one function within another. For example, if you're using the CUR_STR function to convert a currency field to a string, you can't use the STRIP function to remove extra spaces from the same field. For example, the following is not permitted:

```
STRIP (CUR_STR ( Beginning Balance ) )
```

If the field you want to create requires using two system-defined functions, first create a calculated field using the first function, then create another calculated field that applies a second function to the first calculated field, as in the following example:

Calculated field 1 **CUR_STR (Beginning Balance)**

Calculated field 2 **STRIP (Calculated field 1)**

Each system-defined function takes only one parameter. The following briefly explains each of these functions:

CUR_STR

Converts a field with a currency storage type to a string.

DAY

Takes a date value and returns the day portion of the date. The integer value returned will range from 1 to the maximum number of days in the month.

DAY_NAME

Takes a date value and returns a string containing the name the day of the week for the date value.

DOW

Takes a date value and returns an integer representing the day of the week the specified date falls on. The following table lists the integer values and the corresponding day:

Integer value	Day
0	Sunday
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday

INT_STR

Converts a field with an integer storage type to a string type.

LFT_STR

Prints only the data that lies to the left of the caret (^) in a field with a string storage type. If there is more than one caret in the field, the function will print only the characters to the left of the leftmost caret. The caret must be part of the field, not part of a format applied to the field's data type. If there is no caret in the string, the entire string will be printed, provided enough space is allocated in the layout area.

LNG_STR

Converts a field with an integer or long integer storage type to a string type.

MONTH

Takes a date value and returns the month portion of the date. The integer value returned will range from 1 to 12.

MONTH_NAME

Takes a date value and returns a string containing the name of the month for the date value.

POWER_10

Multiplies 10 to the power specified as this function's parameter. For example, the value of POWER_10(2) is 10 to the power 2, or 100. This function is useful for dealing with currency fields and decimal placement.

RGF_STR

Prints only the data that lies to the right of the caret (^) in a field with a string storage type. If there is more than one caret in the field, the function will print all the characters to the right of the *leftmost* caret. The caret must be part of the field, not part of a format applied to the field's data type. If there is no caret in the string, no data will be printed.

STR_DAT

Converts a field with a string storage type to a date. The string of characters you convert to a date must be in MM/DD/YY format. If the year listed is 35 or less, the year will be preceded by "20," so that the year will be 2035, for example, instead of 1935.

STR_CUR

Converts a field with a string storage type to a currency type. The current control panel settings for the currency symbol, thousands separator, decimal symbol, and negative currency format will be used as the basis for analyzing the string. If the string cannot be properly interpreted based on the current control panel settings, it will be interpreted using the following rules:

- No currency symbol
- The current control panel setting for the decimal separator
- No thousands separator
- A minus sign as the negative indicator at the beginning of the value

STR_LEN

Counts the number of characters, excluding blanks at the end of the string of characters, in a field with a string storage type. Blanks within a string are counted.

STR_LNG

Converts a field with a string storage type to a long integer. This function can be used to compare a string field to a long integer field. Since Report Writer can't compare two fields with different storage types, using the STR_LNG function to convert the string field to a long integer field allows you to compare it to other long integer fields.

STR_VCUR

Converts a field with a string storage type to a variable currency type. The string will be interpreted using the following rules:

- No currency symbol
- The current control panel setting for the decimal separator
- No thousands separator
- A minus sign as the negative indicator at the beginning of the value

STRIP

Removes trailing blank spaces from fields with string storage types. The STRIP function can be used with the CAT operator, but can't be applied to an expression containing the CAT operator.

For example, the following expression is valid:

```
STRIP (Cust_Name) # " has this address: " # STRIP (Address)
```

The following expression is invalid:

```
STRIP (Customer Name # Address)
```

SUBSTRING

Searches fields of the string storage type for a match of the specified string pattern, regardless of whether that match occurs at the beginning of or within the string field. Searches are case-sensitive.

Three special characters can be used in the search pattern: the asterisk (*), the question mark (?), and the backslash (\), as indicated in the following table.

Character	Matching search results
*	Any character Any group of characters No characters
?	Any single character
\	That the following special character is to be treated as part of the search pattern

The backslash is used in front of special characters that have specific meaning in Report Writer, such as quotation marks that indicate the beginning or end of a field. If you want to search for fields containing a quotation mark, you'll need to place a backslash in front of it to indicate that the quotation mark is simply a character, and not the sign for the end of the field. Most symbols, such as the pound sign (#) or the at sign (@), are special characters and should be preceded by backslashes if you want them to be evaluated literally in an expression.

The difference between this function and the WILDCARD function is that this function implicitly adds an asterisk to the beginning and end of the pattern you specify. For example, the SUBSTRING function would find a match for the pattern P*L in the word APPLE, while the WILDCARD function wouldn't.

You must use the SUBSTRING and WILDCARD functions with the equality (=) and inequality (<>) operators in conditional expressions, to ascertain whether the data in the field matches or doesn't match the pattern.

In an expression, the SUBSTRING and WILDCARD functions should always precede the name of the field you want to match to the pattern. For example, the following example would check whether the values for the Name field contains the string Ann. Each of the following names would be considered matches: Anne Jones, MaryAnn Magaldi, and Jose Annez.

```
SUBSTRING ("Ann") = Name
```

The following example checks the First_Name field for all names containing the letter "t" separated from the letter "n" by one other character. Names that would match this search include "Astin", "Barton", and "Antonette".

```
SUBSTRING ("t?n") = First_Name
```

UCASE

Prints the alphabetic characters in the specified string field in uppercase. Numeric characters won't be affected.

WILDCARD

Searches fields of the string storage type for an exact match of the specified string pattern. Searches are case-sensitive.

You can use the *, ?, or \ special characters to indicate the type of match you're searching for. These special characters have the same effect as they do with the SUBSTRING function.

Unlike the SUBSTRING function, this function does not implicitly add an asterisk to the beginning and end of the pattern you specify. Therefore, this function is useful when you want to search for strings that begin with a certain character or set of characters.

The following example checks the First_Name field for all names beginning with the letters "To". Names that would match this search include "Tony", "Tonya", and "Tomas".

```
WILDCARD ("To*") = First_Name
```

The following example checks the Local_Businesses field for all stores beginning with the string "Tommy's". Note that this search uses both the \ and * special characters. Business names that would match this search include "Tommy's Pizzeria" and "Tommy's Bait and Tackle Shop".

```
WILDCARD ("Tommy\'s*") = Local_Businesses
```

YEAR

Takes a date value and returns the year portion of the date. The integer value returned will be a four-digit year, such as 2001.

User-defined functions

In addition to the system-defined functions, you can use functions that have specifically been added to the application for use in calculated fields. The names of user-defined functions intended for use in calculated fields begin with the letters "RW" so they are recognized by the Report Writer.

To add a user-defined function to an expression, select the core the function is part of from the Core drop-down list. Once a core is selected, the Function drop-down list will become active. You can then select the desired user-defined function from the Function drop-down list. Click Add to add the function to the expression.

The Report Writer automatically adds the selected function to the expression enclosed in parentheses and preceded by the system-defined function `FUNCTION_SCRIPT`. This system-defined function is used only to process user-defined functions. It is added to the expression by the Report Writer, and can't be added to the expression from the System-Defined Function drop-down list.

Once the user-defined function is added to the expression, add any needed parameters using the fields and constants tabs. Table fields, calculated fields and constants can be used as parameters for a user-defined function included in a calculated field. Be sure the parameters are placed before the closing parenthesis.



Be sure to add the appropriate number and type of parameters for the selected function. The Report Writer will not check the compatibility of the specified parameters until runtime.



To use a report field value as parameter for a user-defined function, create a calculated field with that report field as the only element of the calculated expression. Then, use that calculated field as the parameter for the user-defined function in another calculated field.

When a user-defined function in a calculated field is evaluated depends on the parameters that are passed to the function. If no parameters are passed to the user-defined function, the function will be evaluated one time when the report is run. If a table field or value based on a table field is passed as a parameter to the user-defined function, the function will be evaluated each time a new record is read from that table.

The `RW_AccountNumber` user-defined function is used to retrieve an account number based on an account index stored in a table. The following is the expression for the calculated field that uses this user-defined function is shown in the following illustration. Notice that the Account Index field from the Year-To-Date Transaction Open table is passed to the function.

```
FUNCTION_SCRIPT(RW_AccountNumber GL_YTD_TRX_OPEN.Account Index )
```

Using this user-defined function allows you to easily use an account number on a report without having to attach the Account Master table to the report.

Chapter 8: Additional Headers and Footers

Additional headers and footers are used primarily to create *groups* on your report, grouping all records that contain the same value for a particular field. Information about additional headers and footers is divided into the following sections:

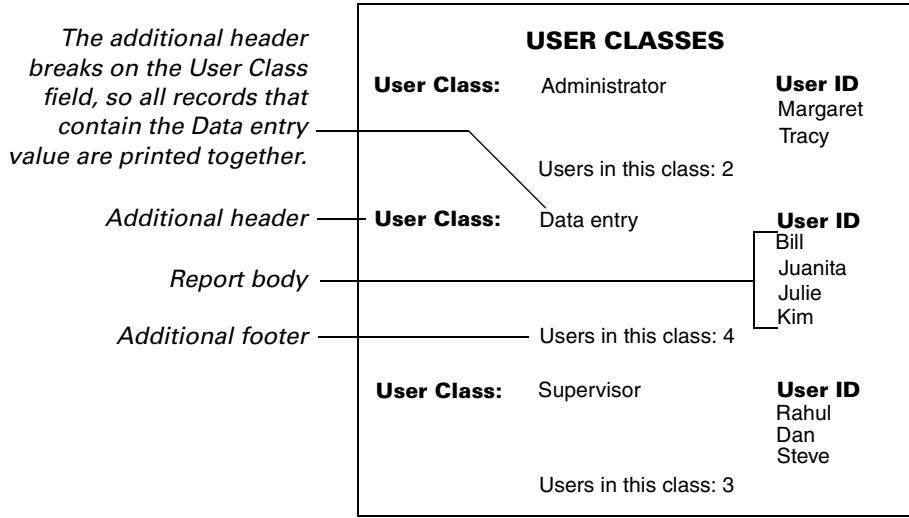
- [Overview of headers and footers](#)
- [The order of headers and footers](#)
- [Creating additional headers or footers](#)

Overview of headers and footers

If your report includes a field that contains the same value for several records, and that field is part of a key or a defined sorting order – for instance, the same invoice number for several line items – you can use an additional header to print that field once, then include its related fields from each record in the body of the report. When all records related to the current value of the common field have been printed, the next value of the common field will be printed, followed by its related fields, and so on. If an additional footer is based on this same common field, the additional footer will print *before* the next iteration of the additional header.

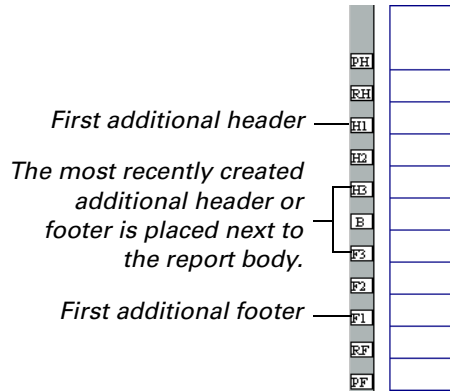
For instance, if you want to create a report listing each of your user classes and the users in each class, you could use an additional header to print the name of each class, followed by a list of the users in that class. Once all the records for the first user class are printed, the additional footer will be printed. Next, the additional header will be printed again, containing the name of the second user class, and so on.

The following illustration displays an example report that uses additional headers and footers.



The order of headers and footers

If you're creating two or more additional headers, or two or more additional footers, be sure to create them in the correct order. They will be evaluated in the order they appear on the report layout. For example, if you create three additional footers, the first will appear in the report layout toward the bottom, next to the report footer. The second will appear above the first, and the third will appear between the second additional footer and the report body, as shown in the following illustration.



You can specify where an additional header or footer should appear. In the Report Section Options window, highlight the additional header or footer that should appear directly *above* the one you're adding, then create the section as usual.



If you aren't satisfied with the order of your additional headers or footers, you must delete the header or footer you want to move, then re-create it in the desired location.

Be sure to consider the report's sorting order when determining the placement of your additional headers and footers. Remember that an additional header or footer prints when the data in the field it's based on changes. For example, if the field that Header 2 is based on changes before the field that Header 1 is based on, Header 2 will print first. Therefore, if you always want Header 1 to appear before Header 2, be sure that the field you base Header 1 upon appears in the sorting order before the field Header 2 is based on.

Creating additional headers or footers

To create an additional header or additional footer for a report, open the Report Layout window for the report. Choose Report Section Options from the Tools menu to open the Report Section Options window.

1. Open the appropriate window.

Click the New button next to the Additional Headers list or the Additional Footers list, depending upon which you are adding. The Header Options or Footer Options window will open. If an existing header or footer is highlighted in the list, the one you add will appear after the selected one.

2. Name the resource.

Enter the header name or footer name. This name will appear in the appropriate section in the Report Section Options window.

3. Limit the number of records in the report body.

If you are defining an additional footer and wish to limit the number of records that appear in the body of the report before the additional footer is printed, enter that number in the Records Per Report Body field. If you have multiple additional footers, this field should be specified only in the first additional footer.

Typically, this feature is used when the report is to be printed on a preprinted form. For example, consider a preprinted form with a stub on top and a check blank on the bottom. If the stub can list up to four separate invoices that are being paid by the check, you should include the invoice number and invoice amount fields in the body of the report, and the date, and payment amount (both in numbers and in words), appropriately spaced in the additional footer.

4. Select the field the resource will be based upon.

From the Report Table drop-down list, select the name of the table that contains the field the additional header or additional footer should be based on. The report's main table will appear in this list by default.

If you haven't created a sorting definition for the report, only fields that are part of the key for the report table you've selected will be displayed in the Table Field list. If you've created a sorting definition for the report, only fields from the selected table that are part of that sorting definition will appear.



If an additional header or footer is based on a field used in a sorting definition, and that sorting definition is later deleted, the additional header or footer must be deleted as well.

Refer to [Chapter 7, "Calculated Fields,"](#) for more information about calculated fields.

5. Specify the resource's suppression option.

Select the Suppress When Field Is Empty option if you don't want this additional header or footer to be printed if a specific calculated field is empty. Once this option is selected, the Calculated Field drop-down list will be enabled. Select the name of the desired calculated field.

6. Set remaining additional footer options.

If you are defining an additional footer, several other options are available. Select each option that is appropriate for the current additional footer:

Page Break Starts a new page after the additional footer is printed. You can use this option even if you don't display any data in this additional footer.

Reset Report Begins a new report each time this additional footer completes printing. The page footer and report footer, if active, will print after this additional footer, before the new report begins printing. Once the new report begins, the page numbers will begin again at 1, and the report header, if active, will be printed.

Suppress Last Record's Footer Suppresses the last occurrence of the additional footer. If you mark this option, you may want to mark Reset Report as well. If you don't, only the last occurrence of the additional footer on the entire report will be suppressed.

For example, you may want to mark this option if you're creating a layout for checks with a stub both on the top and bottom. The stubs would be placed in the body, while the check would be placed in an additional footer. Since only one check should be printed, the second additional footer should be suppressed.

No Break At Record Count Mark this option if you have specified a number in the Records Per Report Body field, but want the additional footer to print only when the value in the field the footer is based on changes. If a value is specified in the Records Per Report Body field and this option isn't marked, the footer will print even if the field the footer is based on hasn't changed.

This option shouldn't be marked if you're printing checks on preprinted forms, but you may want to mark it if you're printing invoices on forms with more than one page.

7. Save the resource.

Click OK to save the additional header or additional footer, and return to the Report Section Options window.

Chapter 9: Legends

Legends are fields you can add to your report to display information that is passed to the report when it is printed. Typically, legends are used to display string values representing the sorting and restriction options selected by the user running the report. Legend values can also be used as elements in calculated fields.

Since legend values must be passed into the report by the application, they are generally available only for modified reports. Any new reports you create won't be able to use legends, unless you have Visual Basic for Applications (VBA) and have set up scripts that set the legend values.

Information about legends is divided into the following sections:

- [Using legends](#)
- [Legends example](#)

Using legends

To add legends to the Report Layout area, follow these steps:

1. Select Legends from the drop-down list in the Layout tab of the Toolbox.

The scrolling window below the list will be filled with the word Legend followed by an array index (such as Legend[1] and Legend[2]).

2. Drag a legend to the layout area.

Add legends to the report layout area sequentially, beginning with Legend[1]. You can add the same legend to report multiple times if you want that legend's value to appear in multiple locations on the report.



If you don't have specific information about the values passed into legends for a report, you can find out how the legends are used. Add the legends to the report layout and print the report. If legend values are passed into the report, they will be printed on the report.

3. Add additional legends to the layout area.

You can add up to 255 legends the layout area. Add the first 30 legends by selecting a legend from the scrolling window in the toolbox and dragging it to the layout area.

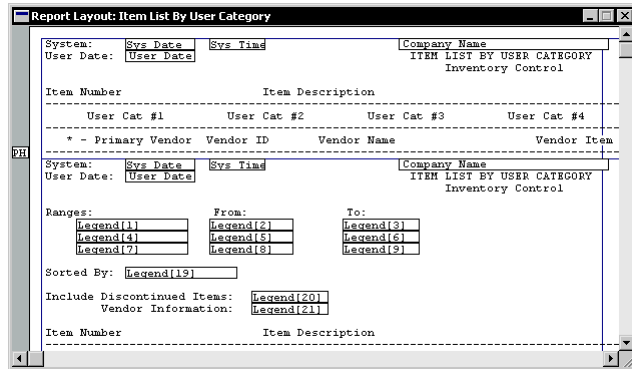
To add additional legends, drag a legend from the toolbox to the layout area, and double-click it to open the Report Field Options window. Use this window to change the array index of the legend. To change the array index, change the value of the Array Index field to appropriate index number, and click OK.



Be sure to resize each of your legends to accommodate the largest amount of information that could be included in it. If legends aren't sized properly, information will be truncated.

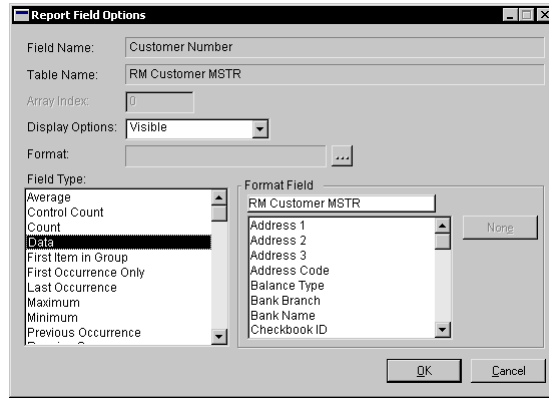
Legends example

The following illustration shows the Item List report. This report uses legends to list the ranges of items that are included in the report. It also uses a legend to indicate how items are sorted. Two other legends are used to indicate whether discontinued items and vendor information are included in the report.



Chapter 10: Modifying Fields

Fields in the report layout can be modified in three ways: a format can be applied to them, their visibility setting can be altered, and their field type can be changed. Use the Report Field Options window, shown in the following illustration, to make these modifications.



Information about modifying fields is divided into the following sections:

- [*Field visibility*](#)
- [*Specifying a format resource*](#)
- [*Specifying a format field*](#)
- [*Changing field types*](#)
- [*Field type summary*](#)

Field visibility

Fields in the report layout area can have their visibility set to one of three options: visible, invisible, and hide when empty. Fields added to the layout area are automatically set to visible.

Visible fields are always displayed on the report, even if the field is blank for a given record. If a visible field is blank but has a format applied to it, the formatting will be displayed on the report without any data. For example, a ZIP code field could be formatted to include a dash between the fifth and sixth characters. If this field is included on a report and is visible, and a given record has no ZIP code data, only a dash will appear in the ZIP code field for that record on the report.

A hide when empty field will not be included on a report for a specific record if the field is blank. For example, if a customer record doesn't include a telephone number, and the phone number field is marked as hide when empty, then for that customer record, the empty phone number field and any related formatting won't be included on the report.



Selecting hide when empty prevents formatting from appearing on a report when the field contains no data.

An invisible field will never be shown on the report output. When a field is invisible, it will appear in the report layout in gray with a dashed border, as shown in the following illustration:



Commonly, fields are marked as invisible when their values are needed for use in calculated fields, but are not needed for display on the report. For example, you may want to display a field on the report showing the difference between the highest and lowest values of specific field. To accomplish this, add the field to a footer in the report layout twice. Change the field type of one instance to Minimum, and the field type of the other to Maximum. Then, create a calculated field that subtracts the minimum value from the maximum value. Since only the calculated field needs to be displayed on the report, set the visibility of the minimum value and maximum value fields to invisible.

Specifying a format resource

Applying a format to a field changes the way in which the data stored in the field is displayed. For example, the phone number field may contain the value 7015551234. By applying a format that adds parentheses around the first three digits and adds a dash between the sixth and seventh digits, the value will be readily recognizable as the telephone number (701) 555-1234.

Refer to [Chapter 18, "Formats,"](#) for more information about creating formats.

You can apply formats created with the Format Definition window to string, currency, composite, and numeric fields that appear in the report layout. To apply a format to a field, click the Format lookup button in the Report Field Options window to display a list of formats that can be applied to the field. Select a format in this list, or click New to create a new format. When you have finished, the name of the format applied will appear in the Format field in the Report Field Options window.

Specifying a format field

This is an advanced formatting feature. You may want to skip this section until you have a better understanding of the Report Writer.

The formatting displayed for certain string and currency fields in Great Plains is based on the value of an integer field called a *format field*. You specify a format field to use by selecting a field in the Format Field list of the Report Field Options window. The integer value contained in the selected format field specifies how to format the report field.



Don't apply a specific format to a report field and use the Report Field Options window to specify a format field for the same report field; the format results will be unpredictable.

Formatting currency fields

When you select a format field for a currency field, the possible formats for currency fields and the integer value associated with them are shown in the following table.

Integer	Format	Integer	Format
0	Control panel defaults	10	\$1,234.567
1	1,234	11	\$1,234.5678
2	1,234.5	12	\$1,234.56789
3	1,234.56	13	1,234%
4	1,234.567	14	1,234.5%
5	1,234.5678	15	1,234.56%
6	1,234.56789	16	1,234.567%
7	\$1,234.	17	1,234.5678%
8	\$1,234.5	18	1,234.56789%
9	\$1,234.56		

The integer value used to indicate the format used can be stored in a table along with the currency field being formatted. When the record is retrieved from the table, the currency field will display as it did when the record was saved. The format field can also be used for a report, allowing the currency field to appear in the report as it did when it was saved in the table.

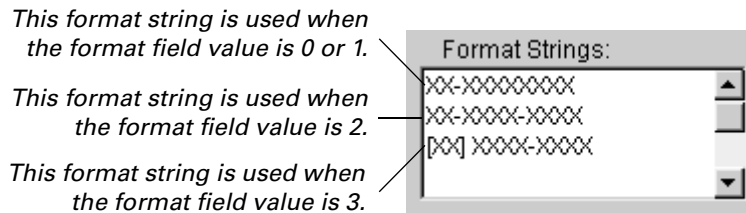


Great Plains can define its own formats, in addition to those shown in the previous table. This capability is used to define currency format information for multicurrency support.

Formatting string fields

For string fields, the integer value indicating the format to use corresponds to the position of the format string in the Format Definition window.

The following example describes a Part Number field that has three different format strings. The user selects the format to apply by selecting the corresponding format in a drop-down list linked to the Part Number field. The three format strings for the Part Number field, entered in the Format Definition window, are shown in the following illustration.



Using format fields

The presence of a format field typically won't affect modifications you make to reports. You need to watch for fields that have a format field specified. If you make modifications to these fields, be sure the format field remains unchanged so the data in the field continues to display properly.

Another situation to be aware of occurs when Great Plains uses a format field to apply multicurrency formatting to currency fields for a report. All of the currency fields in the report will use a format field typically named Currency Index. The value of this field indicates what multicurrency formatting will be applied to all of the currency fields linked to it. If you add currency fields to the report, be sure those fields use the same format field that Great Plains is using.

Changing field types

Fields for which the field type has been changed are referred to as report fields.

A field in the report layout can have its field type changed to alter the way in which data is displayed in the field. For example, you can add the invoice_total field to the body of a report, then add it again to the report's footer. By changing the field type of the invoice_total field located in the report footer to Sum, that field will not display a specific invoice's total. Instead, it will display the sum of all instances of the invoice_total field displayed in the body.

To change a field's field type, select the desired type from the Field Type drop-down list in the Report Field Options window. The following describes each field type, including information about the storage types each type can or can't be used with:

Average

Prints the average value of the data printed in a group or on a report. This field type should not be used with fields having string, date, or time storage types.

Control Count

Prints the number of times the additional footer immediately above the footer containing the Control Count field is printed on a report. The Control Count field type can be used only when you're printing information in groups using additional footers. This field type should not be used with fields having date or time storage types.

Count

Prints the number of times a field is printed in a group or on a report. This field type can be used with fields of all storage types. If you're printing a report with groups and counting categories, use the Control Count field type instead.

Data

Prints data without modifications, as it's stored in the table. All fields in the body of the report whose field types have not been modified have the field type Data. Calculated fields placed in footers should have their field type changed from Last Occurrence to Data, so that the calculations will perform properly. This field type can be used with fields of all storage types.



The Report Writer allows you to assign the Data field type to fields other than calculated fields in a footer; however, calculated fields are the only fields that should have the Data field type in a footer. The Report Writer sets the default field type for fields placed in footers to Last Occurrence. The Sum field type is another field type commonly used in footers.

First Item In Group

Prints the first value that was printed in a group or on a report. This field type should not be used with fields having date or time storage types.

First Occurrence Only

Prints a value only the first time it occurs, instead of each time it occurs. You can use the First Occurrence field type to organize your data in groups without the use of additional headers and footers. This field type can be used with fields of all storage types.

Last Occurrence

Prints the last value of the field that was printed in a group or on a report. It also can be thought of as the current occurrence. All fields placed in footers are automatically assigned a Last Occurrence field type. Calculated fields placed in footers should have their field type changed from Last Occurrence to Data, so that the calculations will perform properly. This field type should not be used with fields having date, time, or text storage types.

Maximum

Prints the greatest value of the field that was printed in a group or on a report. This field type should not be used with fields having string, date, or time storage types.

Minimum

Prints the smallest value of the field that was printed in a group or on a report. This field type should not be used with fields having string, date, or time storage types.

Previous Occurrence

Prints the value of the field printed immediately before the last occurrence in a group or on a report. This field type should not be used with fields having date, or time storage types.

Running Sum

Prints the total of the field's values at the point where the field is placed within the entire report. This field type should not be used with fields having string, date, or time storage types.

Sum

Prints the sum within a group or on a report. This field type should not be used with fields having string, date or time storage types.

Field type summary

The following table indicates which field types can be used in the various sections of a report.

	Report Header	Page Header	Additional Headers	Body	Additional Footers	Page Footer	Report Footer
Average		X			X	X	X
Control Count					X		X
Count		X			X	X	X
Data	X	X	X	X	X	X	X
First Item In Group					X		X
First Occurrence Only				X*			
Last Occurrence					X		X
Maximum					X		X
Minimum					X		X
Previous Occurrence					X		X
Running Sum		X			X	X	X
Sum		X			X	X	X

* Refer to notes in text

You can use a First Occurrence Only field in the body of a report if one of the following conditions is true:

- The field is in the selected key for the main table of the report.
- If you use an alternate sorting definition for the report, the field must be one of the segments in the sorting definition.

The value of any report fields you use in the page header or page footer, such as Average or Sum, will be based on records used for the body of the report. They won't take into account records used for additional headers or additional footers.

Part 3: Gathering Data

This portion of the documentation describes the structure of data for Great Plains, and explains how to gather data from various tables for use in reports. The following is a list of the topics discussed, along with a brief explanation of each:

- [Chapter 11, “Data Storage,”](#) explains how data is stored in Great Plains.
- [Chapter 12, “Table Relationships,”](#) explains how to create and use table relationships to gather data to use in a report.
- [Chapter 13, “Virtual Tables,”](#) describes virtual tables and how to use them for reports.

Chapter 11: Data Storage

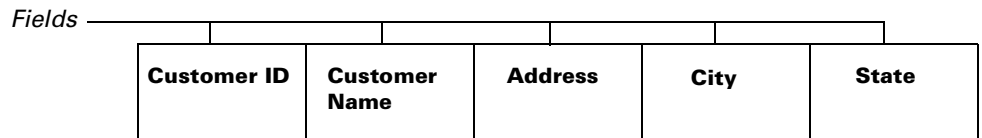
This portion of the documentation describes how data is stored in Great Plains. It also describes how to determine which tables you need to use to gather the data for your report. Information is divided into the following sections:

- [Terminology](#)
- [Table names](#)
- [Table types](#)
- [Table groups](#)

Terminology

The following terms describe the basic parts of a database. You should become familiar with these terms to better understand how the accounting system stores data.

Fields A field represents one category of information that can be stored in a table, such as a customer name or a customer address. For instance, if you were to track customer names and addresses, you could use the following fields:



Records A record is made up of one instance of each field in a table. All of the records in a table contain the same fields (categories of data). For keeping track of customer names and addresses, think of a record as one row in a table containing the information. Each row (record) contains the information for one customer.

Customer ID	Customer Name	Address	City	State
C1002	Jean Thompson	P.O. Box 8392 82 101 Ave.	Kansas City	MO
C1392	Serge Lemieux	11 Ash Lane	Edmonton	AB
C4432	Dan Smith	239 Hampton Village	Fargo	ND
C4499	Cheryl Miner	9800 Woodland Drive	Springfield	IL

Record —

Tables A table is a collection of records, such as your business' customer records. Tables group related records the same way the table in the following illustration groups customer records.

Customer ID	Customer Name	Address	City	State
C1002	Jean Thompson	P.O. Box 8392 82 101 Ave.	Kansas City	MO
C1392	Serge Lemieux	11 Ash Lane	Edmonton	AB
C4432	Dan Smith	239 Hampton Village	Fargo	ND
C4499	Cheryl Miner	9800 Woodland Drive	Springfield	IL

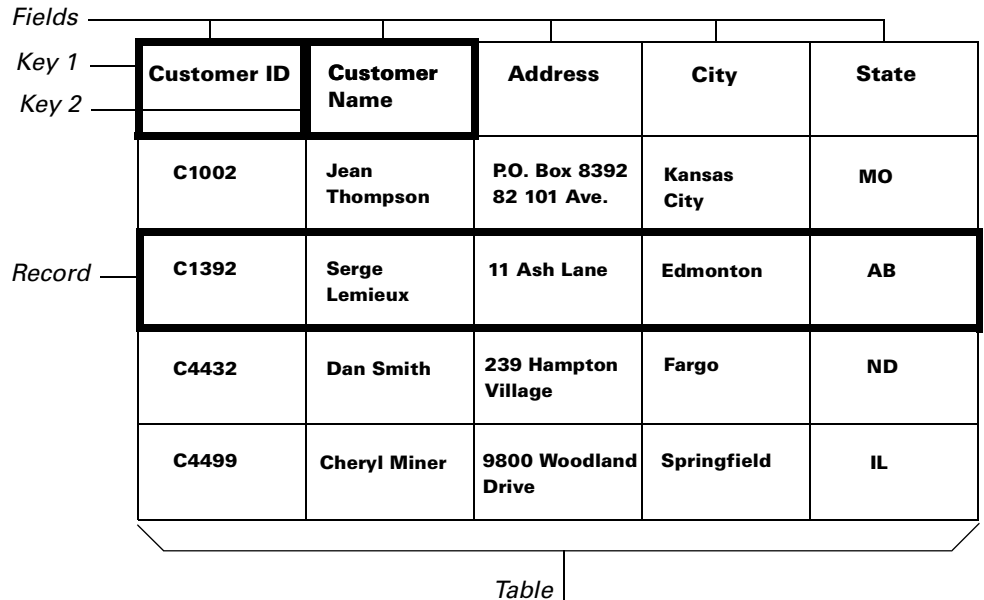
Table

Keys A key is a field or combination of fields within a record that is used as a basis by which to store, retrieve, and sort records. Typically, the value of the key field is unique for each record so a particular record can be located quickly.

For instance, to locate a particular customer in the customer name and address table, you could search the table alphabetically using the customer name column. In this case, the customer name field is used as the key.



The following example shows how a database application could store information for customer records in a table:



This table has five fields: Customer ID, Customer Name, Address, City, and State. It also has four records, each containing one Customer ID, Customer Name, Address, City, and State field. The table has two keys. The first key is composed of the Customer ID field. Because no two customers can have the same Customer ID, this key ensures each customer is uniquely identified. The second key is composed of the Customer Name field. This key allows a customer record to be easily located, based upon the customer's name.

Table Groups A table group is a group of logically-related tables. For example, a customer master table, a customer address table, and a customer history table all compose a table group. Every table in Great Plains is part of a table group.

Table names

You can use the Table Descriptions window to find the names of tables.

Each table has three names: a *display name*, a *technical name*, and a *physical name*.

Display name The display name is the name you see in a window, such as Rebuild or Pathnames.

Technical name The technical name is used internally to refer to the table.

Physical name The physical name is the name under which the table is stored by the operating system or database.

The following table lists three names for one of the tables that stores account category information.

Display name:	Account Category Master
Technical name:	GL_Account_Category_MSTR
Physical name:	GL00102

Table types

To work with the Great Plains database, you need to know some specific information about tables in the database. Most of the information you'll need to access when creating reports will be stored in one of the following types of tables. Knowing which type of table contains the information you want will help you find the data you need.

Setup tables contain all the default settings and module options you've specified in the setup windows for each series.

Master tables contain all the permanent data about your business. These may include information about accounts, vendors, customers, items, and so on.

Work tables contain unposted batches of transactions entered using windows that can be opened using the Transactions button on the toolbar. These transactions are temporary and can be changed or deleted until they are posted to an open table.

Open tables contain posted transactions for the current year, of which some may be unpaid. Information in open tables is moved to history tables when the transactions are paid.

History tables contain paid transactions, or transactions from a previous year.

Table groups

To create a report, you need to decide which tables data will come from. If all the data for your report is stored in a single table, you can select the table as the main table for the report and begin creating your report.

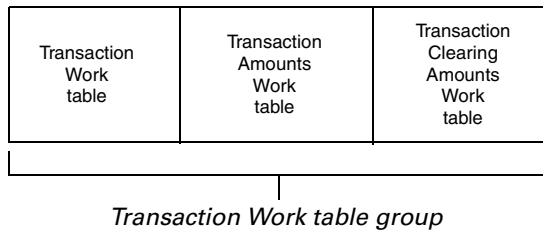
If a single table doesn't contain all the data you need for your report, you must choose one table as the primary table, and then link additional tables to it. You can select either the table that contains the majority of the fields for your report or the table that contains the most general information as your main table. Once you've selected a main table, link other tables to that table as needed.

A table group is a group of logically-related tables. For example, a customer master table, a customer address table, and a customer history table all compose a table group. Every table in Great Plains is part of a table group. Often, the data for a report will come from the tables in a table group.

The table types described in *Table types* on page 89 – setup, master, work, open and history – are actually table groups. These table groups are actually composed of information stored in several separate tables. For example, the General Ledger Transaction Work Table is a table group, made up of the following three tables:

- Transaction Work (GL_TRX_HDR_WORK)
- Transaction Amounts Work (GL_TRX_LINE_WORK)
- Transaction Clearing Amounts Work (GL_TRX_Clearing_WORK)

Technical table names are shown above in parentheses. General information about each transaction, such as the audit trail code and date, are stored in the Transaction Work (GL_TRX_HDR_WORK) table, and transaction amounts are stored in the Transaction Amounts Work (GL_TRX_LINE_WORK) or Transaction Clearing Amounts Work (GL_TRX_Clearing_WORK) table, depending upon whether you've entered a standard transaction or a clearing transaction.



In some cases, a table group will contain only one table. In System Manager, for example, every table group is made up of a single table with the same name as the table group.



You can use the Software Development Kit (SDK) to find additional information about tables in Great Plains.

Chapter 12: Table Relationships

Table relationships allow the Report Writer to gather data from related tables and use the data in a single report. Information about table relationships is divided into the following sections:

- [Table relationship overview](#)
- [Types of table relationships](#)
- [Defining a table relationship](#)

Table relationship overview

You can define a relationship between two tables if any of the fields in one of the secondary table's keys are also present in the primary table. The fields the relationship can be based on don't need to be part of a key in the primary table, nor do they have to use the same global field. However, they must be based on compatible data types.

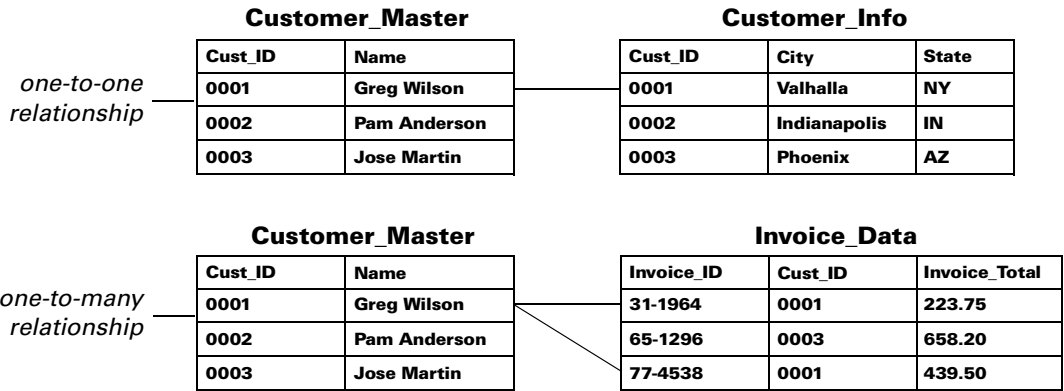
For example, a relationship could be defined between the Sales table and the Customer List table, based upon the Buyer Name field in the Sales table and the Customer Name field in the Customer List table.

If a report you're creating needs information from multiple tables, table relationships must exist that indicate how the data in each table relates to data in the other tables. The most-common table relationships have already been set up in Great Plains. If a table relationship hasn't been defined for the table you need to access, you will need to create one using the information provided here.

Types of table relationships

Table relationships can be categorized as *one-to-one* or *one-to-many* relationships. A one-to-one relationship means that for every record in the primary table, there is at most one and only one corresponding record in the secondary table. A one-to-many relationship means that for every record in the primary table, there can be any number of records in the secondary table.

The following illustration shows the differences between one-to-one and one-to-many relationships.



The **Customer_Master** table is the primary table in both examples. In the one-to-one relationship, there can be only one record in both the **Customer_Master** and **Customer_Info** tables with the **Cust_ID** 0001. In the one-to-many relationship, there can be only one record in the **Customer_Master** table with the **Cust_ID** 0001, but there can be multiple invoices associated with that **Cust_ID** in the **Invoice_Data** table.

You do not need to specify the type of relationship when you use the Table Relationship Definition window to define a relationship between two tables. The Report Writer automatically chooses the appropriate type of relationship based upon the fields you use to link the tables. It is still important to understand relationship types because the type of relationship between tables will affect the type and quantity of data that you can use in your report.

Defining a table relationship

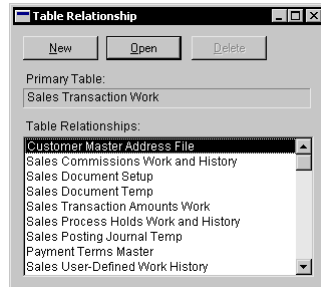
To access the Table Definition window, choose Tables from the Tables button on the toolbar. The Tables window will open. Select the name of the table you wish to use as the primary table, and then click Open. The Table Definition window for the desired table will open.

Use the following procedure to access the Table Relationship Definition window and define a new relationship. As an example, a table relationship will be created between the Sales Transaction Work (**SOP_HDR_WORK**)

table and the Record Notes Master table. This table relationship allows the record-level note for an invoice to be printed on the invoice.

1. Open the Table Relationship window.

From the table definition of the table you wish to use as the primary table, click the Relationships button.

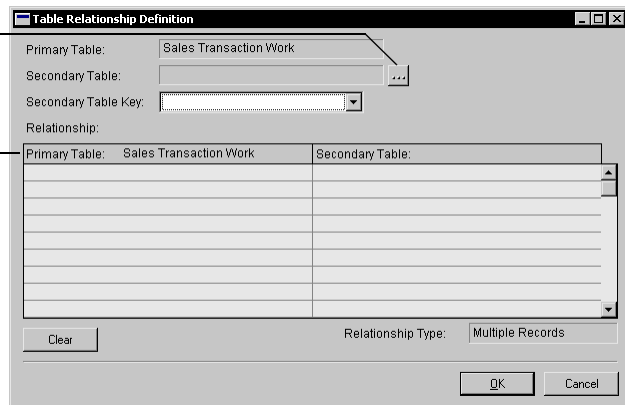


2. Create a new table relationship.

Click New to define a new relationship. The Table Relationship Definition window will open, and the name of the current table will appear in the Primary Table field.

Click this lookup button to select the secondary table.

The primary table name automatically appears.



3. Select a secondary table.

Click the Secondary Table lookup button to open the Relationship Table Lookup window. Select the name of the table you want to use as the secondary table. In this example, this is the Record Notes Master table. Click OK. That table's name will appear at the top of the Secondary Table portion of the Relationship scrolling window.

4. Select a secondary table key.

Choose a key containing the field or fields that you want this table relationship to be based on from the Secondary Table Key drop-down list. Once the key is selected, each of its key segments is listed in the Secondary Table portion of the Relationship scrolling window.



If you are defining a one-to-many relationship, selecting a key that places records from the secondary table in the desired order will optimize performance.

5. Select related fields.

For at least the first of the secondary table’s key segments, select a related field from the corresponding drop-down list in the Primary Table portion of the Relationships scrolling window. The drop-down list contains only fields from the primary table that have a data type compatible with the corresponding key segment in the secondary table. For example, if the key segment is a STR30 data type, only fields in the primary table that are compatible with the STR30 data type will appear in the drop-down list.

All fields that have a data type compatible with the Note Index field are included in this list.

The Clear button removes all selections from the primary table section.

Primary Table: Sales Transaction Work	Secondary Table: Record Notes Master
Note Index	Note Index
Markdown Amount	
Misc Amount	
Misc Tax Amount	
Non-Commissioned Amount	
Note Index	
Originating Account Amount	
Originating Backout Freight Amount	
Originating Backout Misc Amount	
Originating Backout Tax Amount	

If the key contains multiple segments, you don’t need to select a corresponding primary table field for each key segment. However, the key segments for which you do select corresponding fields must be consecutive key segments. For example, if a key has four segments, you could select corresponding fields for the first two segments, but not for the first and third segments only.

If the secondary table's key upon which this relationship is based allows duplicates, the relationship will be one-to-many, and Multiple Records will appear in the Relationship Type field.

If the selected secondary table's key doesn't allow duplicates, and you select a corresponding field for each key segment, the relationship type will be one-to-one, and One Record will appear in the Relationship Type field. If you select a corresponding field for only some of the key segments, the relationship type will be one-to-many, and Multiple Records will appear in the Relationship Type field.

To change the primary table field you've selected, simply choose a different field from the drop-down list. To deselect fields you've selected and *not* replace them with different selections, click Clear.



Clicking Clear removes all primary table field selections.

6. Save the relationship.

When you've finished defining the relationship, click OK; you will be returned to the Table Relationship window. You can define another new relationship or edit an existing relationship. To edit an existing relationship, select the name of the secondary table from the Table Relationships list and click Open.

Chapter 13: Virtual Tables

Virtual tables are special types of tables that allow data stored in separate tables to be read as if it had been stored in a single table. Information about virtual tables is divided into the following sections:

- [Virtual table overview](#)
- [Viewing virtual table information](#)
- [Using virtual tables with reports](#)

Virtual table overview

Most reports require data to be retrieved from multiple tables. Typically, this involves setting up table relationships between the tables and then creating the appropriate table links for the report. For complex reports, this can be a difficult task.

A virtual table is composed of member tables, member fields, and member keys. A virtual table simplifies gathering data from the member tables, because it contains the information about how the tables are linked together. The fields in the virtual table are selected from the member tables, and typically are a subset of all the fields available in those tables. The keys for the virtual table are selected from the primary table's keys.



You can't create virtual tables with the Report Writer. They must be created by the application developer.

Viewing virtual table information

You can use the Report Writer to view information about virtual tables in the current dictionary. Use the following procedure to do so.

1. Open the virtual table definition.

On the Report Writer toolbar, choose Virtual Tables from the Tables menu. The Virtual Tables window will open. Select a virtual table and click open.

2. View the list of member tables.

Select the Tables tab in the Virtual Table Definition window to view the list of standard tables from which the virtual table is accessing data. You may find it useful to examine virtual tables to find out where various types of information are stored in the database.

3. View the virtual table fields.

Select the Tables tab to display a list of the fields that are included in the virtual table. These are typically a subset of the fields in the member tables, and are the only fields you can use from the virtual table.

4. View the virtual table keys.

Select the Keys tab to display the keys available for accessing information from the virtual table. Only keys from the primary table can be used. Often, only a subset of keys is made available for the virtual table.

5. View the member table relationships (optional).

Select the Relationships tab to view information about how the member tables are related to each other. You may find this information useful if you need to create table relationships for other tables in the application.

Using virtual tables with reports

Creating a report can be much simpler when the main table for the report is a virtual table. Because all of the data from the member tables is managed by the virtual table, you don't need to create the relationships in the Report Writer.

When you specify the primary table for a report, any virtual tables that exist for the application will be included in the list of available tables. They are indistinguishable from standard tables, so you can use them the same way you would use standard tables. If necessary, you can create a table relationship that links an existing standard table to a virtual table defined in the dictionary.

Part 4: Modifying Reports

This portion of the documentation contains information about how to make modifications to existing reports in the accounting system. The following topics are discussed:

- [Chapter 14, “Selecting a Report to Modify.”](#) explains how to select and create a modified report.
- [Chapter 15, “Viewing a Modified Report.”](#) describes how to view a report after you have made modifications to it.
- [Chapter 16, “Common Modifications.”](#) describes modifications that are commonly made to reports. It also describes the Reports Library, where you can download reports that have already had common modifications applied.

Chapter 14: Selecting a Report to Modify

Much of the work you do with the Report Writer will be modifying existing reports in the accounting system to better meet the needs of your business. Before you can make modifications, you must first locate the report you want to modify. Information about selecting reports to modify is divided into the following sections:

- [Finding a report name](#)
- [Creating a modified report](#)
- [Modifying the current report](#)

Finding a report name

To modify a report, you need to know its name. When you print a report to the screen, the name of the report appears in the screen output window, as shown in the following illustration.

Note the window title.

Purchase Order No.	Customer ID	Salesperson ID	Shipping Method	Payment Terms	Rec. Ship Date	Max. No.
	CARVELL0001	DARLENE S.	UPS GROUND	Net30	000000	21

Quantity	Item Number	Description	UOM	Discount	Unit Price	Est. Price
1	SOFT-PHI-0001	Phone Mail System	Each	\$0.00	\$69,109.95	\$69,109.95

In this example, the report name is “SOP Blank Back Order Form”.



The sample reports included with Great Plains are another excellent source to learn about the reports included with the accounting system.

Creating a modified report

Once you know the name of the report you want to modify, start the Report Writer. Perform the following steps to create a modified version of the report.

1. Open the Report Writer window.

Click the Reports button on the toolbar to open the Report Writer window.

2. Locate the name of the report to modify.

In the Original Reports list, locate the name of the report you want to modify. Select the name in the list.

3. Create the modified report.

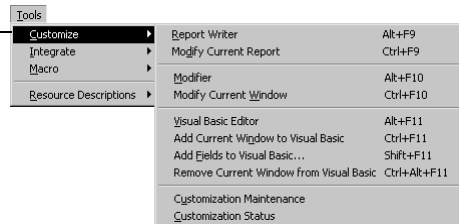
Click Insert. The report will be added to the list of modified reports. You can then begin making modifications.

A copy of the report you selected to modify was added to the Reports dictionary, allowing you to make modifications to it. In [Part 8, Storing and Accessing Reports](#), you will learn more about how modified reports are stored and accessed.

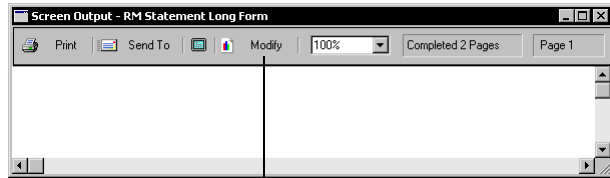
Modifying the current report

If you are viewing the Screen Output window for the report you want to modify, you can point to Customize in the Tools menu and choose Modify Current Report. The Report Writer will start, the report will be added to the list of modified reports, and the layout for the report will be displayed.

Choose Modify Current Report to create a modified version of the report being displayed.



You can also click the Modify button to open the current report in the Report Writer.



*Click the Modify button
to open the report in the
Report Writer.*

Chapter 15: Viewing a Modified Report

Once you have made modifications to a report, you will want to print the report to verify its appearance. How the data for the report is generated determines how you can display the report. Most reports read data directly from tables in the database for the accounting system. However, some reports retrieve their data from special “temporary” tables that are created by the accounting system. Reports that read data directly from tables in the database can be viewed and printed from within the Report Writer. Reports that use temporary tables cannot, because the Report Writer has no way to add data to temporary tables.

Information is divided into the following sections:

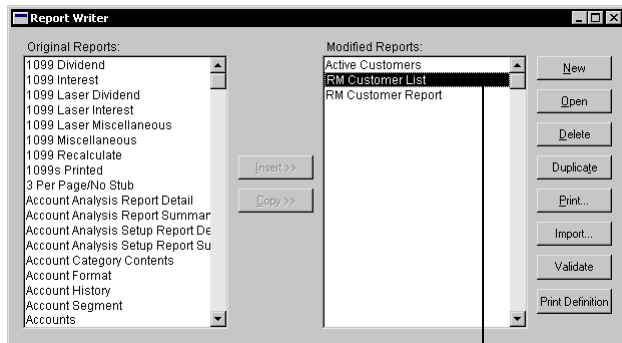
- [Viewing from the Report Writer](#)
- [Viewing from the application](#)

Viewing from the Report Writer

If the report you modified doesn't use any temporary tables, you can view it from within the Report Writer. Use the following procedure to view the report.

1. Select the report.

In the Report Writer window, select the modified report in the Modified Reports list.



Select a modified report, and then click Print. If the Print button is disabled, the report cannot be printed from within the Report Writer.

2. Print the report.

Click Print in the Report Writer window to print the selected report. You will be asked whether to print the report to the screen or to a printer. Make a selection and click OK.

If you have selected the modified report, but the Print button is disabled, the report uses temporary tables. This means you can't print the report from within the Report Writer, and must return to the accounting system to print the report. This is described in [Viewing from the application](#).

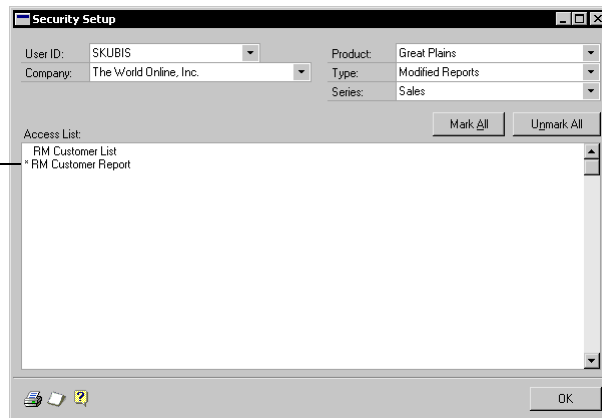
Reports printed from within the Report Writer may not have exactly the same appearance they would printed from the accounting system. Some of the differences when reports are printed from the Report Writer include:

- No legend values will be included on the report, because these must be passed in by the application.
- No additional restrictions will be applied to the report.
- Records included on the report may be sorted in a different order.

Viewing from the application

If you want to view a modified report from within the application, you must use the Security Setup window to grant access. To open this window, choose System from the Setup menu to display the System Setup palette. Click Security to display the Security Setup window.

*Mark the item to use
the modified version
of the report.*



Specify the user, company, and product. Select Modified Reports as the type, and then choose the series the modified report is part of. The Access List will be filled with the names of the modified reports in the specified series. To have the specified user access the modified report, mark the report in the Access List. Remember that to use the modified report, the user must be granted access to the original report as well.

After you have set access to the modified report, print it as you typically would. For more information about printing reports, refer to [Part 6, Printing and Mailing Reports](#).

Chapter 16: Common Modifications

Modifying existing reports is the most common task performed with the Report Writer. This portion of the documentation describes some of the common modifications, provides information about how to perform them, and describes where you can access reports that have already been modified. Information is divided into the following sections:

- [Modifying the layout](#)
- [Changing the page orientation](#)
- [Adding or removing fields](#)
- [Using VBA with reports](#)
- [Reports Library](#)

Modifying the layout

Modifying a report's layout is the most common modification made with the Report Writer. Report layouts are often changed to match a company standard, or to have information print properly on preprinted forms.

You can make most layout modifications using the tools in the Toolbox and the display options in the Drawing Options window. Both are described in [Chapter 4, "Report Layout."](#)

Most reports that are included with Great Plains are text reports, so fewer tools and drawing options will be available. You can change a report to be a graphics report, and all of the tools and drawing options will be available to modify the layout.

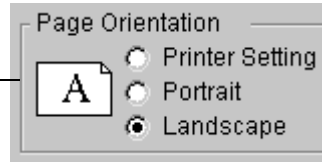


Graphics reports can take longer to print than text reports, so if a report is used to print large quantities of information, you may want to continue using a text report.

Changing the page orientation

Many reports in Great Plains are designed to be printed in the landscape orientation. However, most users choose to have their printer set to print pages in the portrait orientation. You can modify a report definition to always use a specific page orientation, regardless of the setting on the workstation from which the report is being printed.

You can specify the page orientation for a report in the Report Definition window



Adding or removing fields

The reports provided with Great Plains contain the fields that are required for a typical user. However, some reports may contain fields that aren't required by a specific user. Still other reports may not include information that would be beneficial for your organization.

Adding fields

If the tables that contain the necessary fields are already part of the report, adding fields to the report layout is as simple as dragging them from the Toolbox to the Layout window. Just select the appropriate table in the Toolbox and drag the fields to the appropriate section of the report layout.

If the necessary tables aren't linked to the tables already used for report, you will need to link them. Linking tables is described in [Creating a new report definition](#) on page 19. If the appropriate table relationships aren't set up between the tables you need to link to your report, you will need to create the relationships. This is described in [Chapter 12, "Table Relationships."](#)

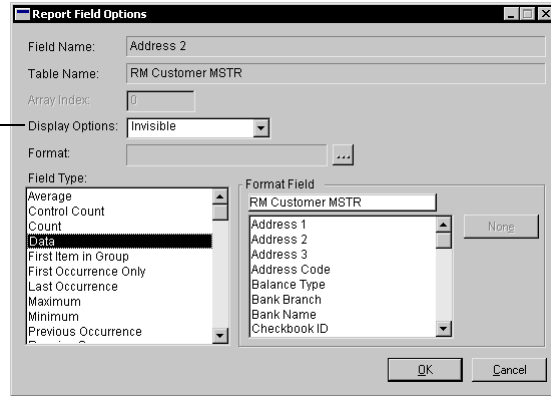


The Report Writer TechKnowledge database at <http://www.greatplains.com/CustomerSource> contains several entries that describe how to add specific fields to common reports.

Removing fields

If a report contains fields you don't need, you may want to remove them from the report layout. To ensure that the report continues to work properly, we recommend that you don't remove fields from the report. Rather, we suggest that you set the Field Options for the report to make the field invisible.

Rather than remove a report field, set the option to make the field invisible.



Using VBA with reports

If you have installed the Modifier with VBA (Visual Basic for Applications), you can add VBA code to reports to further customize them. Common customizations include:


- Performing special calculations on report data
- Applying additional restrictions for the report
- Exporting data from the accounting system to external data sources

Refer to the VBA Developer's Guide for complete information about using VBA with the Report Writer.

Reports Library

The Reports Library is a special area of the Microsoft Business Solutions web site that contains reports have already had common modifications made to them. Most of the reports available are graphic reports. You can access the Reports Library at www.greatplains.com/reports and browse the reports that are available there.

To use reports from the Reports Library, you must first download and install the Package Loader. This “helper” application adds the reports you download from the Reports Library into your Great Plains installation.

*The Package Loader
applications installs
reports you download
from the Reports Library.* —  PackageLoader.exe

Browse the Reports library and download the reports you want. Most of the reports in the Reports Library are modified versions of existing reports. After you have installed them with the Package Loader, use the Security Setup window to provide access to them. Setting security for modified reports is described in [Chapter 31, “Accessing Reports.”](#)

Part 5: Global Modifications

The Report Writer also allows you to make changes that will affect all of the reports in an application. This portion of the documentation provides detailed information about the various global resources you can modify in Great Plains. The following topics are discussed:

- [Chapter 17, "Data Types,"](#) describes data types and how they control characteristics of fields.
- [Chapter 18, "Formats,"](#) describes how formats are used to control how data appears when printed on reports.
- [Chapter 19, "Global Fields,"](#) explains how to examine global fields in the accounting system.
- [Chapter 20, "Pictures,"](#) describes how to use pictures on reports.
- [Chapter 21, "Strings,"](#) explains how to modify string resources in Great Plains.
- [Chapter 22, "Tables,"](#) describes how to view information about tables in the application.

Chapter 17: Data Types

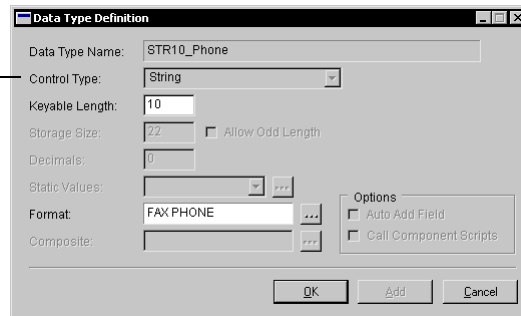
Data type resources specify the characteristics of all fields used in an application. If you want to change the characteristics of a field, you need to change its corresponding data type. Keep in mind that a single data type can be used by multiple fields. When you change the data type, you change the characteristics of all the fields that use it. Information about data types is divided into the following sections:

- [Opening a data type](#)
- [Keyable length](#)
- [Static values](#)
- [Format](#)

Opening a data type

To open a list of data types, click the Data Types button on the toolbar or choose Data Types from the Resources menu. In the Data Types window, select a data type and click Open. The Data Type Definition window will appear, as shown in the following illustration.

The control type is the main characteristic of the data type.



The data type's name appears at the top of the window. The Control Type field specifies the function of the data type, indicating how it will display and store data. The other fields in the window specify the additional characteristics of the data type. The following sections describe the data type characteristics you can change with the Report Writer.

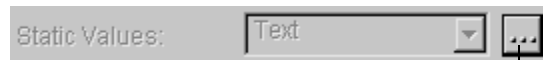
Keyable length

The keyable length is the number of characters that can be displayed in a field that uses this data type. Control types such as currency, integer, and string have a keyable length. You can use the Report Writer to change the keyable length. For example, you may want to increase the keyable length for the STR10_Phone data type to allow the user to enter more digits. The following table lists control types for which you can set the keyable length.

Control type	Maximum keyable length
Combo box	Storage Size - 1
Currency	19
Integer	5
Long integer	10
String	Storage Size - 1
Text	32,000

Static values

Certain control types allow you to specify static values for the data type. Static values are any text or pictures associated with a data type that are displayed by a field using that data type. For example, the text on a push button and the items in a list box are static values. To view the static values for a data type, click the Static Values lookup button.

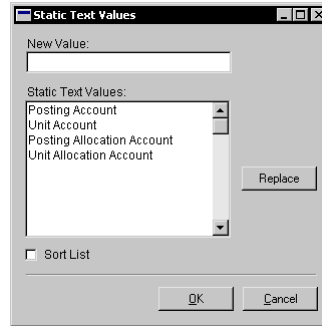


Click this lookup button to view the static items for the data type.

The following table lists the control types that use static text values which can appear on reports.

Control type	Static text used to:
Drop-down list	Indicate the selections in the drop-down list.
List box	Indicate the selections in the list box.
Visual switch	Display two or more text values that will be displayed in sequence as the user clicks the visual switch.

The Static Text Values window is used to specify the static text for drop-down lists, list boxes, and visual switches.



To edit a static text value, select it in the Static Text Values list. Make the appropriate changes in the New Value field, then click Replace.

Format

A format contains extra characters, spacing, and attributes that can be applied to a data type when data is printed on a report. Refer to [Chapter 18, "Formats,"](#) for more information.

Chapter 18: Formats

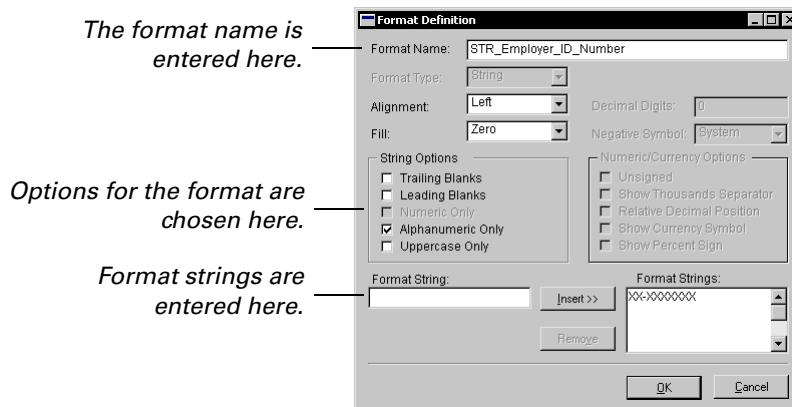
Formats are the extra characters, spacing and attributes that can be applied to a data type to format data when it is displayed or printed on a report. For example, a string data type for a phone number can have a format applied to it so a field using the data type will print a phone number as (555) 123-4567 instead of 5551234567.

Formats are stored as separate resources, but are applied to data types to help define how information is displayed. A single format resource can be used by several data types. Perhaps the easiest way to understand what formats are is to view them as data “masks” that simply change the look of the information in a field without changing the actual information itself. Information about formats is divided into the following sections:

- [Opening a format](#)
- [Formatting options](#)
- [Format string](#)

Opening a format

To open a list of formats, choose Formats from the Resources menu. The Formats window will appear. To create a new format, click New. To open an existing format, select one in the list and click Open. The Format Definition window will appear, as shown in the following illustration.



Each format has a name. Typically, the name indicates the data type the format is applied to. For instance, the name STR_Employer_ID_Number indicates a format that will be applied to a data type used for an Employer ID number.

Formatting options

You can use several formatting options to change how specific types of data will appear. You can use them to specify the following characteristics:

- Align information to the left, right, or center of a field.
- Determine what characters will appear in unused parts of a field.
- Specify how you want currency fields to appear.
- Specify how numeric fields display information.

The following tables describe the various formatting options:

Numeric formats	
Decimal Digits	Number of decimal places (0 to 5).
Negative Symbol	The operating system setting, a minus sign, the letters CR, or parentheses.
Alignment	Number is left-, center-, or right-aligned.
Fill	Unused spaces are filled with asterisks, zeros, or spaces.
Unsigned	If marked, the negative symbol won't be displayed.
Show Thousands Separator	If marked, the field will show thousands separators in the number.
Show Percent Sign	If marked, the field will show the percent sign.

Currency formats	
Decimal Digits	Number of decimal places (0 to 5).
Negative Symbol	The operating system setting, a minus sign, the letters CR, or parentheses.
Alignment	Number is left-, center-, or right-aligned.
Fill	Unused spaces are filled with asterisks, zeros, or spaces.
Unsigned	If marked, the negative symbol won't be displayed.
Show Thousands Separator	If marked, the field will show thousands separators in the number.
Relative Decimal Position	If marked, the number of decimal digits selected is added to the number in the operating system setting. The total can be up to 5 decimal digits.
Show Currency Symbol	If marked, the currency symbol specified in the operating system settings is displayed.

String and composite formats	
Alignment	String is left-, center-, or right-aligned.
Fill	Unused characters are filled with asterisks, zeros or spaces.
Trailing Blanks	If marked, any spaces that follow the contents of the field will be saved in the table. If the option isn't marked, any spaces following the item in the field won't be saved. Leave unmarked to ensure that the same entry made with or without trailing blanks will be stored with the same value.
Leading Blanks	If marked, spaces can be entered as the first characters in the field. These spaces will be saved in a table.
Numeric Only	If marked, only numbers can be entered in the field.
Alphanumeric Only	If marked, only letters and numbers can be entered in the field.
Uppercase Only	If marked, all alphabetic characters will be displayed in uppercase.

Format string

The Format Definition window allows you to specify a *format string* for string and composite data types.

String formats

Format strings are used with string data types to add static elements to a field, such as parentheses or static text. The Report Writer uses the capital X as a placeholder to represent alphanumeric characters that will appear in the field. All other characters will be displayed as you type them.

Example 1

For instance, suppose you're using a specific data type to store information entered in phone number fields. This Phone_Number data type uses a format and a format string to determine how phone numbers will appear on a report:

Format string	Data entered	Data displayed
(XXX) XXX-XXXX	7012810550	(701) 281-0550
ext. XXXX	6590	ext. 6590

The Xs are placeholders indicating where the digits will be displayed, while the parentheses and dash are displayed just as you typed them. Also note that a lowercase x is used in the “ext.” abbreviation in the second format string. Only uppercase Xs are treated as placeholders, so the lowercase x is displayed in the field, instead of being replaced when data is entered.

Phone: (701) 281-0550



Static characters in a format string aren't actually stored with the data in the table. This allows you to change the format string without affecting how data is stored.

Composite formats

A format string is used with a composite data type to indicate the size and order of the components of the composite, and to add static elements, such as parentheses or static text. The numeric characters 1 through 9 are used to represent the characters of each component of the composite. All other characters will be displayed just as you type them.



Not all composites use a format string. Some composite fields, such as the Great Plains Account Number, have their format defined through program code.

Example 2

The following example shows the use of a format for a standard composite. A composite must have a format and a format string. This composite contains three parts, as indicated by the format string.

Format string	Data entered	Data displayed
1111-22-3333	1000ND5050	1000-ND-5050

Note that the 1s, 2s, and 3s are used as placeholders.

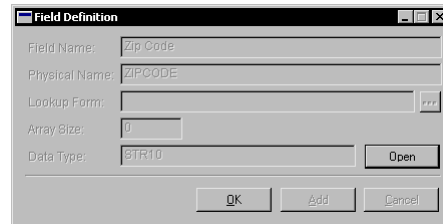
Chapter 19: Global Fields

Fields represent the individual pieces of information in an application. They can appear in windows, be stored in tables, and appear on reports. Each field uses a data type to specify its characteristics. Information about global fields is divided into the following sections:

- [Opening a global field](#)
- [Opening a field's data type](#)

Opening a global field

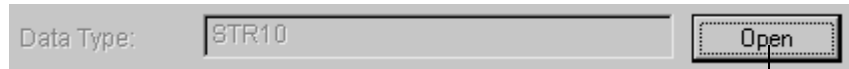
To open a list of global fields, click the Fields button on the toolbar or choose Fields from the Resources menu. In the Fields window, select a global field and click Open. The Field Definition window will appear, as shown in the following illustration.



You can also open the Global Field Definition window from the Layout window. Choose the name of a table in the Toolbox to display the fields from that table. Select a field name in the list and click Open.

Opening a field's data type

When the Field Definition window is open, you can easily drill down to the data type definition used for that field. To open the Data Type Definition window, click Open.



Click Open to open the data type for the global field.

Chapter 20: Pictures

Pictures are typically used to display large graphics and logos in reports. The Report Writer can convert Windows metafiles to a form that can be stored in the *picture library*. Pictures up to 32K in size can be stored. Pictures are stored only once, but can be placed in several reports by using the picture tool from the Toolbox in the Layout window.

Information about pictures is divided into the following sections:

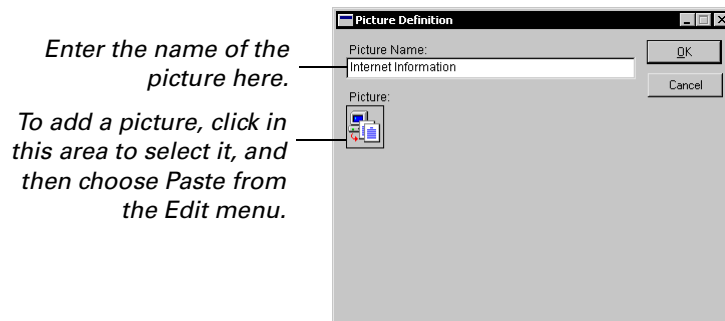
- [Adding a picture to the picture library](#)
- [Using a picture from the picture library](#)
- [Guidelines for using logos](#)

Adding a picture to the picture library

Choose Pictures from the Resources menu; the Pictures window will appear.

1. Create a new picture or edit an existing one.

Click new to create a new picture or select a picture and click Open to edit it. The Picture Definition window will appear, as shown in the following illustration.



2. Name the picture.

In the Picture Definition window, name the picture.

3. Add the picture.

Be sure the picture you want to add is in the Clipboard. Click in the area below the Picture Name field to select it, and then choose Paste from the Edit menu to paste the picture into that area.

4. Click OK to add the picture to the library.

Using a picture from the picture library

Open the layout of the report where you want to paste a picture.

1. Select the picture tool.

2. Click in the layout area where you want the picture to appear.

After you click in the layout area, the Pictures window will appear, allowing you to select a picture to paste into the layout.

3. Select the picture to paste.

From the Pictures window, select the name of the picture to paste into the window and click OK.

4. Position and resize the picture if necessary.

Drag the picture to the appropriate location and use the resize handles to make it the appropriate size.

You can paste a picture directly into the report layout, bypassing the step of adding the picture to the picture library. Simply copy the picture to the Clipboard and choose Paste from the Edit menu to paste it into a report layout. You'll be asked to name the picture. The picture will appear in the layout and will be added to the picture library automatically.

Guidelines for using logos

A company logo is a common picture used on reports. Use the following guidelines to ensure a logo has the best appearance on a report.

- In the Report Writer, the graphic will become a bitmap. To find out how the graphic will appear when printed, try printing it from a “paint” application such as Windows Paint.
- If you will be using a non-PostScript printer, use a black and white image. On these printers, a non-white pixels will be printed as black.
- Make the graphic as large as possible, staying within the 32k limit. This allows the graphic to contain maximum detail. When you add the graphic to a report, it will be very large. Scale the graphic down to the desired size.

For example, the following illustration shows the Microsoft Business Solutions logo that was added to a report in the Report Writer. The logo is black and white, and is 1200 pixels wide and 470 pixels tall. After adding the logo, it appeared at full size.



Once the logo was added to the report, the resize handles on the graphic were used to reduce the size of the illustration to 2 inches wide, or 144 pixels. This is shown in the following illustration.



You can use the horizontal and vertical size indication in the Toolbox to maintain the aspect ratio of the logo when you reduce its size. For example, when the Microsoft Business Solutions logo was reduced from 1200 to 144 pixels wide, the corresponding height was reduced from 470 to 56 pixels.

Chapter 21: Strings

A string is a sequence of up to 79 characters that doesn't contain carriage returns. Strings are used throughout the accounting system for window names, field prompts, static text values, and text that appears in reports. Information about strings is divided into the following sections:

- [Using strings](#)
- [Modifying a string](#)

Using strings

The strings resource allows you to update all occurrences of a string in one step instead of changing the same string in each place it occurs.

For example, to change all occurrences of the words "Customer Name" to "Client Name," you could select the Customer Name string and change it to Client Name instead of changing each individual text value.



Note that changing a string with the Report Writer will change it only for reports. The string won't be changed in any windows in the accounting system. To change strings in windows, you must use the Modifier.

Modifying a string

Choose Strings from the Resources menu. The Strings window will open, allowing you to select the string to edit.



The Great Plains dictionary contains several thousand strings. The Strings window may take a few moments to open.

1. Select the appropriate dictionary core.

String resources are divided into several cores, which are special divisions in the dictionary. Great Plains has a core for each major module category. When locating a string, begin by choosing the core that the string is most likely contained in. For example, the string "Customer" is likely part of the Sales core, so begin looking there. If you don't find a string in a particular core, look in the other available cores.

2. Select the string to edit.

After you have located the string, select it in the list and click Open. The String Definition window will appear, as shown in the following illustration.

Edit the string and then click OK to save the changes.



3. Edit the string.

Edit the string in the String Definition window and click OK to save the modified string.

Chapter 22: Tables

Tables store data generated and used by applications. Tables use several elements to store and access information properly, such as fields, keys and table relationships. Information about tables is divided into the following sections:

- [Table elements](#)
- [Keys](#)
- [Key segments](#)
- [Key options](#)
- [Segment options](#)

Table elements

Each table has several names, a series, database type, table fields, keys, key options, segment options, and table relationships. Use the Table Definition window to view information about tables.



You can also use the Resource Descriptions tool to view information about tables.

Names

Three names are required for each table. The *table name* is the name that is used in scripts to refer to the table.

The *display name* is the name that appears when the name of the table is displayed on the screen in an application.

The *physical name* is the name under which the table is stored by the operating system or database. The appropriate extension, if required, is added automatically.

Table series

The table series groups related tables in the application together using series categories like Sales, Financial, and System.

Database type

Tables can use the following database types: c-tree Plus, Pervasive.SQL, and Microsoft SQL Server. If the setting Default is used, the application will determine which database type to use at runtime, based upon several system settings

Table fields

These are the fields that are stored in the table. The Record Size field in the Table Definition window contains the total size of record in the table.

Table relationships

Table relationships link related tables that share common information. Table relationships are required to allow the Report Writer to access information from multiple tables for a single report. Refer to [Chapter 12, “Table Relationships.”](#) for more information about creating and using table relationships.

Keys

A key is a field or combination of fields in a table used to sort and locate specific records in the table. Typically, the value of the key field or fields is unique for each record in a table so a specific record can be located. You will use the keys for a table when you specify how report information is sorted. You will also use keys when you create table relationships to link related tables together.

Key segments

The Key Definition window shows the fields that make up the keys used to sort, store, and retrieve records in each table. Each field in a key is referred to as a *key segment*. Each table can have multiple keys, and each key can have multiple segments.

For example, a customer table typically would have two keys defined for it. One key could contain the Customer Name field, because this is the field a user would most likely use to search for a record. However, a customer name may not be unique. For instance, there may be more than one “John Smith”. To avoid this problem, each customer could be assigned a unique customer ID. A second key composed of the Customer ID field could be added to the table. This key would uniquely identify customers, even if they have the same name.

The Key Segments list displays the list of fields that will be used as segments in the key. Records will be sorted primarily according to the first key segment. Records that are identical for the first key segment will be sorted again by the second key segment. For example, if the Key Segments list contains two segments: [last_name, first_name], in that order, records will be sorted primarily by the last name, and records with the same last name entry would be sorted again by the first name.

Key options

The database type specified for a table determines which sets of key options are available for each key. The following key options are important to understand in the Report Writer:

Duplicates Specifies whether multiple records in the table can have the same key value. If this option is marked, new records that have the same key values as records already in the table can be saved. If the option isn't marked, new records with the same key values as existing records won't be saved.



When you create a table relationship based a key that allows duplicate records, you are creating a one-to-many relationship.

Create Index If this option for SQL tables is marked, an index in the SQL database will be created for the table based upon this key definition. The index contains a copy of the data in the key's key segments and pointers to the associated records in the table. An index allows data to be retrieved from the table more quickly.

If Create Index is marked, the following options are available:

- **Unique** Marking this option ensures that the records in this table will have unique values for this key.
- **Clustered** Marking this option sorts and physically stores the data in the table according to the order defined by this key. For example, the Customer table has a key based upon the Customer Name field. If this key was based on the Customer Name field, and the Clustered option were marked for the key, the data in the Customer table would be physically stored in the order indicated by the key. Only one key per table can have the Clustered option marked.

Segment options

The segment options specify how the key will handle the contents of the selected key segment.

Descending This option specifies the order in which the records will be sorted. If the option is marked, records will be sorted in order of highest value to lowest (3, 2, 1 or c, b, a). If the option isn't marked, records will be sorted lowest to highest (1, 2, 3 or a, b, c).

Ignore Case This option is available only if the selected segment is a string field. The Ignore Case option specifies whether case determines how the table will be sorted. If the option is marked, the case of the data in the key segment won't affect the sorting process. If the option isn't marked, uppercase characters will have a lower value than lowercase characters for sorting purposes. This option does not apply for tables that use the SQL database type.

The following table shows how a set of last names would be sorted, depending upon how the Ignore Case option is marked.

Ignore Case marked	Ignore Case not marked
adams	Beaulieu
Beaulieu	JOHNSON
douglas	Jones
hagelle	Simpson
JOHNSON	adams
Jones	douglas
Simpson	hagelle

Part 6: Printing and Mailing Reports

Once you have created or modified reports, you can print them or mail them to other users. The following topics are discussed:

- [Chapter 23, “Printing Reports,”](#) describes how to print modified and custom reports.
- [Chapter 24, “Mailing Reports,”](#) describes how to mail reports you have created to other users.
- [Chapter 25, “Exporting Data,”](#) explains how to use reports to export data to external files for use in other applications.

Chapter 23: Printing Reports

After you have created or modified a report, you will want to print and use the report output. Information about printing reports is divided into the following sections:

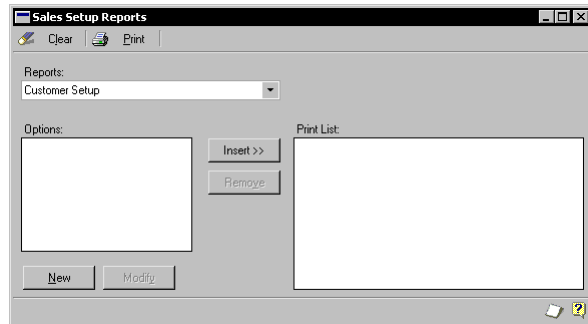
- [Printing modified reports](#)
- [Printing custom reports](#)
- [Printing in the Report Writer](#)

Printing modified reports

To print modified reports from the accounting system, you need to set appropriate access to them with system security. This is described in [Accessing modified reports](#) on page 172. After you have set appropriate access to the report, complete the following procedure to print the report:

1. Open a Reports window.

In Great Plains, most reports are accessed from the Reports menu on the toolbar. Select the appropriate series and type of report you want to print. The Sales Setup Reports window is shown in the following illustration.



Refer to the documentation for each module and to the online sample reports for detailed information about printing specific reports.

2. Select the report to print.

In the Reports window, select report you want to print from the drop-down list.

3. Specify the report option to use.

Choose an existing report option in the Options list, or click New to create a new report option. The report option specifies characteristics of how the report will be printed, such as sorting and restrictions.

4. Set the characteristics of the report option (optional).

If you want to change the characteristics of how the report is printed, such as sorting, restrictions, and output destination, click Modify to modify the report options.



Refer to the online help for each report options window for more information about setting options for a specific report.

5. Add the report to the list of reports to print.

With the report option selected, click Insert to add the report to the Print List.

6. Print the report.

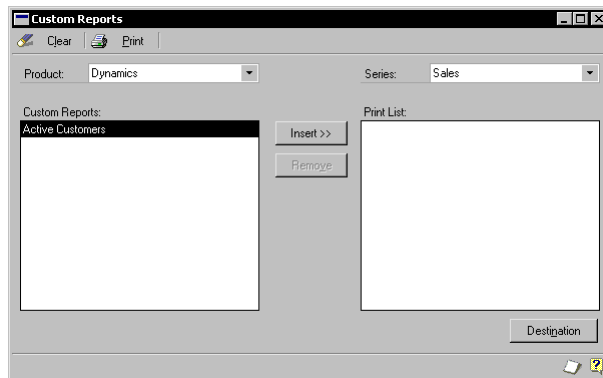
Click Print to print the reports in the Print List.

Printing custom reports

Custom reports are those that you created from scratch in the Report Writer, or those that you created based on a copy of an existing report. Use the following procedure to print custom reports.

1. Open the Custom Reports window.

In Great Plains, choose Customized from the Reports menu on the toolbar. The Custom Reports window will be displayed.



2. Select a product and series.

Select the product and series that contain the reports you want to print. The custom reports in the specified product and series will appear in the Custom Reports list.

3. Select the reports to print.

In the Custom Reports list, select the reports you want to print and click Insert to add the report to the Print List. If you want to print reports from another series, select the series and add additional reports.

4. Specify a destination for each report.

Select each report in the Print List and click Destination. In the Report Destination window, specify whether you want to send the report to the screen, the printer, or a file.

5. Print the reports.

Click Print to print all of the reports in the Print List to their specified destinations.

Printing in the Report Writer

Printing reports from within the Report Writer is useful when you're modifying reports or creating your own new reports. You can verify changes you've made without having to exit the Report Writer.

Most reports read data directly from tables in the database for the accounting system. However, some reports retrieve their data from special "temporary" tables that are created by the accounting system. Reports that read data directly from tables in the database can be viewed and printed from within the Report Writer. Reports that use temporary tables cannot, because the Report Writer has no way to add data to temporary tables.

If you have selected the modified report in the Report Writer window, but the Print button is disabled, the report uses temporary tables. This means you can't print the report from within the Report Writer, and must return to the accounting system to print the report.

Reports printed from within the Report Writer may not have exactly the same appearance they would printed from the accounting system. Some of the differences when reports are printed from the Report Writer include:

- No legend values will be included on the report, because these must be passed in by the application.

- No additional restrictions will be applied to the report.
- Records included on the report may be sorted in a different order.

Chapter 24: Mailing Reports

You can send reports generated in Great Plains to others as e-mail attachments. Information about mailing reports is divided into the following sections:

- [MAPI](#)
- [Attachment types](#)
- [Mailing a report](#)

MAPI

The Report Writer allows you to mail reports using mail connectivity applications. Great Plains supports Microsoft's Mail Application Program Interface (MAPI), which allows you to send mail to other users with a MAPI mailbox. If your workstation has one of these mail systems enabled, you can mail reports from the Screen Output window.

Attachment types

Reports you send as e-mail attachments can be in text format or PDF (Portable Document Format) format.

Text format

All reports can be mailed as a text attachment. The text representation of the report generated by the Report Writer will match the report layout as closely as possible. However, complex report layouts may not have an ideal appearance. If you want to use the text attachment for reports you e-mail, we suggest making a modified or custom report that is simplified and designed to be represented with text.

PDF format

If you have the PDFWriter printer driver installed, which is included with Adobe Acrobat, you can also mail the report as a PDF attachment. Information about Adobe Acrobat is available at www.adobe.com. PDF provides a very accurate representation of the report, and works well for graphics reports.

Mailing a report

To mail a report to another user, complete the following procedure:

1. Print the report to the screen.

Print the report as you normally would, but be sure to select the Screen option in the Report Destination window when you print a report. The Screen Output window will appear. If a user's workstation has MAPI enabled, the Send To button drop list will be enabled.

2. Choose to e-mail the report.

In the Send To button drop list, select the attachment type you want to use. Text format will always be available. If you have the PDFWriter installed, PDF format will also be enabled.

3. Address and send the message.

The report will have been attached to a new mail message. Address the message and send the report.

If you chose a text attachment, the report will be sent with a .TXT extension. The user receiving the report can use the application that's associated with this extension to view the file. If you chose a PDF attachment, the report can be read with Adobe's Acrobat Reader.

Chapter 25: Exporting Data

The Report Writer can be a useful tool for exporting data from the accounting system to external files that can be used in other applications. For example, a list of customer names and addresses could be exported to a file for use with word processing software as a mailing list. Information about exporting data is divided into the following sections:

- [Export formats](#)
- [Creating reports for exporting](#)

Export formats

The following export formats are available from the Report Writer:

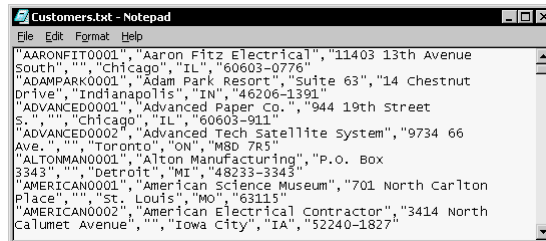
Format	Description
Text file	The report will be saved as text without any formatting. This option should be used when the application to which you're converting the document is unable to read any of the other file formats.
Tab-delimited	This is the tab-separated ASCII character format used by programs such as Microsoft Excel.
Comma-delimited	This is the standard comma-separated ASCII character format often used by database programs.
HTML	The report will be saved in HTML format to be viewed in a web browser.
PDF File	This format is available if you have the Acrobat PDFWriter print driver installed. This driver is part of the Acrobat package available from Adobe. PDF (Portable Document Format) files can be read using the Acrobat Reader software available from Adobe.

Creating reports for exporting

If you will be using reports to export data to a tab-delimited or comma-delimited files, you must place fields in the report layout in a special way so the export file has the proper format. The fields to export must be placed in the body of the report, in the order they are to appear in the export file. The following illustration shows the layout of a report to export customer information. Notice that the report contains only the Body section.



You must also add the `ExportOneLineBody=TRUE` setting to the defaults file. This setting causes the items in the report body to be exported to a single line in the export file. The following illustration shows the output file when the report above is exported to a comma-delimited file.



Part 7: Report Design

Good report design has several benefits such as making reports generate more quickly, and making them more useful for the intended audience. The following topics are discussed:

- [Chapter 26, “Report Design Guidelines,”](#) provides a set of guidelines to keep in mind as you create reports.
- [Chapter 27, “Preprinted Forms,”](#) explains how to design reports to work with preprinted forms.
- [Chapter 28, “Groups,”](#) describes how to use groups on your reports to organize information.
- [Chapter 29, “Checks, Invoices, and Labels,”](#) describes special design considerations when creating or modifying these types of reports.

Chapter 26: Report Design Guidelines

This portion of the documentation contains information about designing reports to improve their utility and optimize their performance. Information is divided into the following sections:

- [*Report design*](#)
- [*Optimizing reports*](#)

Report design

A report is a tool that turns data into useful information. Careful design can greatly improve the utility of the reports you create. Keep the following guidelines in mind when creating reports.

Purpose

Before you begin creating a report, clearly state what the purpose of the report is. State who will use the report and what they will use the report for. This will help you determine what information is needed for the report, and which tables the information will come from. This process can also provide an early indication that a report is becoming too complex, or is trying to meet several needs that would be better met by separate reports.

Name

The report's name is the primary way that users will be able to find the report. Be sure the name is descriptive, and that the report is assigned to an appropriate series in the accounting system.

Layout and organization

Before opening the Report Layout window, it's often useful to sketch the layout of a report on paper. You will be able to see the sections of the report, what information should appear in the headers, what summary information you want to include in the footers, and so on. You can also determine what calculations need to be performed with calculated fields. This can save a lot of time when actually creating the layout. It can also prevent cluttering the report with unnecessary fields.

Remember some basics when creating the layout for a report:

- Include page numbers and the current date on your report.
- Determine whether the report should be printed in portrait or landscape mode, and be consistent with the layout.
- If your report contains columns of information, be sure the data is properly aligned under the column headings.
- Consider leaving enough room in the margin so the report can be bound.

Fonts and graphics

A report is a printed document, so the principles of good page design apply to reports as well:

- Limit the number of fonts used for the report. Though you can use any fonts installed on the current workstation, it's best to limit the number of fonts used to two.
- Use common fonts. If you will be distributing reports to other users, remember that they may not have the same set of fonts installed that you did when you created the report. If a font isn't available, one will be substituted, but the report may not have the appearance you intended.
- Graphic elements, such as lines and boxes, can help group the items in a report and make it easier to read.
- If you will be including company logos or other graphics in your reports, be sure they look good and don't detract from the appearance of the report. Refer to [Guidelines for using logos](#) on page 127 for information about enhancing the appearance of graphics in your reports.

Optimizing reports

How you design and set up a report can directly impact the performance of the report as it's printed. Use the following guidelines to optimize the reports you create.

Use text reports

Use text reports when you want maximum performance printing reports. Text reports are simpler than graphics reports, so they print much faster. The Report Writer has also been optimized for maximum performance when printing text reports.

Page layout

An efficient page layout can improve performance by reducing the total number of pages used to print the report. Don't use a landscape layout unless the information on the report requires the wider format. Using columns can also increase the amount of information on a page.

Keys and sorting order

When sorting the report, always try to use an existing key for the primary table used on the report. It takes longer to generate a report when a separate sorting order is used.

Chapter 27: Preprinted Forms

You may have existing forms that are already printed, but that you would like to have filled out by the Report Writer. These are typically referred to as preprinted forms. The most common preprinted forms are checks and invoices, which are described in [Chapter 29, “Checks, Invoices, and Labels.”](#) Information about setting up your own preprinted forms is divided into the following sections:

- [Report definition settings](#)
- [Report layout](#)
- [Printing preprinted reports](#)

Report definition settings

Several settings are available for a report definition to allow using preprinted forms with the Report Writer. The following settings apply to preprinted forms:

Preprinted Form This setting allows you to remove the built-in margin from the report layout, so you can print fields as close to the edge of the form you’re using as your printer permits. When this setting is marked, items are printed on paper exactly where you placed them in the layout.

Six Lines Per Inch This setting allows you to specify that exactly six lines of text will be printed in each inch of space on a text report. Many preprinted forms are based on six lines per inch, so this makes it simpler to match the report layout to the preprinted form.

This setting also prevents fonts from becoming too small when printed in compressed text. The font will shrink in width so that each line of the report will fit in the space available, but doesn’t shrink in height so that more than six lines of text will be printed in an inch.

First Page Header and **Last Page Footer** These settings typically should be unmarked when you are using preprinted forms.

Report layout

Careful planning is required when creating a report layout for use with a preprinted form. The following hints that can help ensure success.

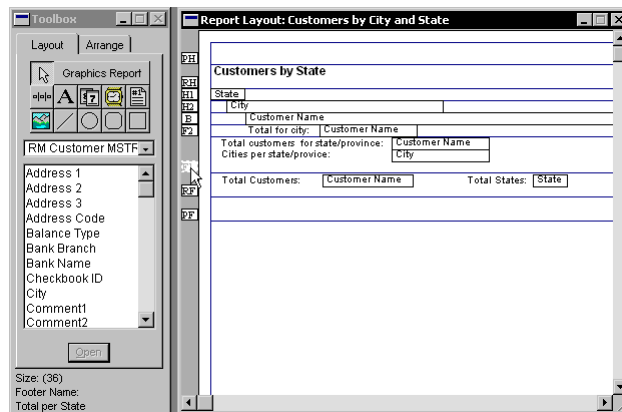
Page size

Keep in mind the total size of the page when you're creating the layout for a preprinted form. A report layout is based on 72 points per inch, and each pixel on the report layout represents one point. If you are developing a preprinted report for standard US Letter size page, the total size for each page of the report must be 612 by 792 points (8.5 inches by 11 inches).



Remember that there are no built-in margins for a preprinted report, so you must account for any margins you need for your report.

To determine the total size for each page of a report, add up the sizes of each section of the report. You can find the height of a report section by clicking the handle for the section in the Report Layout window, and viewing the section size at the bottom of the Toolbox.



If the total size of a page for a report is larger than the maximum page size, extra pages will be generated when the report is printed. If a page only slightly exceeds the maximum size, an extra blank page may appear in the printed output. If the total size of a page for a report is smaller than the maximum page size, the report may “creep” as it is printed. When a report creeps, information on subsequent pages of the report will tend to move up as pages are printed.

Report sections

If the report for a preprinted form contains additional headers and footers, it's important to know exactly when these headers and footers will be printed. If an additional header or additional footer is printed at an unexpected time, your report may print extra pages or exhibit page creep. If this occurs, check each section of the report to verify that they are printed when expected.

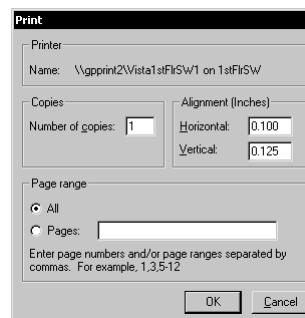
You can use the Records Per Report Body setting in the Header Options or Footer Options for a section to specify the total number of times the additional header or footer will appear for each report body printed. This setting limits the number of times a report section can print on a specific page, and will also fill the page with the appropriate number of empty sections to reach the number specified. This setting is useful for reports that contain a fixed number of line items, such as invoices.

Special characters

For some preprinted reports, you may want to print special characters such as Xs. To do this, you will need to create calculated fields that will print the appropriate characters, based on field values for the report. Refer to [Chapter 7, "Calculated Fields,"](#) for more information about creating calculated fields.

Printing preprinted reports

When creating preprinted reports, you need to account for the unique margin characteristics of individual printers. The Report Writer has a provision for adjusting the horizontal and vertical offset of preprinted reports when they are printed. These offset values appear in the Print dialog displayed when you print a report.



The horizontal and vertical alignment settings apply only to reports that have the Preprinted option marked in the report definition. Other reports aren't affected by these settings.

A separate set of alignment settings for each printer you access is saved in the DEX.INI file on each workstation, so you don't need to type in the alignment settings each time you print a preprinted report. Because all preprinted reports will use the same alignment settings for the selected printer, it's a good idea to use consistent left and top margins for all of the preprinted reports you create. That way, users won't have to change the alignment settings depending on the report being printed.

Chapter 28: Groups

One way a report can transform data into useful information is by grouping it into meaningful categories. For example, customer classes, credit limits, or transaction amounts are just some of the ways you could group information. Information about groups is divided into the following sections:

- [*Group overview*](#)
- [*Sorting for groups*](#)
- [*Group headers*](#)
- [*Group footers*](#)
- [*Counting items in a group*](#)
- [*Counting groups*](#)
- [*Totaling and subtotaling*](#)
- [*Advanced groups*](#)

Group overview

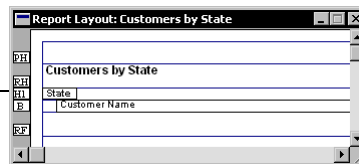
To group information on a report, you will do the following:

- Determine the items to appear in the group. Determine which table or tables contain the information you want to appear in the group. List the fields that you want to appear in the group, and the fields that will be used to determine the members of each group.
- Sort the report data in an order appropriate for creating the group. You need to sort the data for the report so that the report items appear in an order that allows them to be grouped.
- Create additional headers for each group category. Additional headers for the report will contain the information that describes each group.
- Create additional footers to summarize the group information. Additional footers for the report can perform summary actions such as totaling or subtotaling for each group.

Sorting for groups

To create groups for a report, the information in the report must be sorted in a way that allows the groups to be formed. This means the information for the report must be sorted first by the primary field that identifies each group, then by the items in the group. For example, if you are creating a report that groups customers by state or province, the report must first be sorted by the State field, and then by the Customer Name.

To group the report by State or Province, the data for the report must be sorted based on the State field.

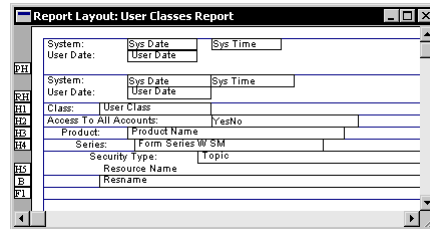


For optimal performance when printing the report, you should use an existing key from the primary table to specify how the data for the report is sorted. However, when you are creating groups for a report, there often isn't a key available for the primary table that sorts the data appropriately. This is especially true when you want to create groups based on data in secondary tables for the report. In this case, you must create a sort order to indicate how to sort the data for the report. This is described in [Chapter 5, "Sorting."](#)

Group headers

To add header information to a group, create an additional header for the report. Refer to [Chapter 8, “Additional Headers and Footers,”](#) for more information about creating additional headers. The additional header contains the field or fields that each group is based on, and will be printed once for each group on the report. It also typically contains descriptive column headers for the information that appears in each group.

For example, the following illustration shows the layout for the User Classes report. Notice that user information is grouped according to the User Class, and then Account Access, and so on. An additional header is used for each group category for the report.



Group footers

Use footers for groups to add summary information for the group, such as totals, subtotals, or average values. To add footer information to a group, create an additional footer for the report. Refer to [Chapter 8, “Additional Headers and Footers,”](#) for more information about creating additional footers.

Any additional footers for a group should typically “break” on the same field as any additional headers for the group. This keeps the headers and footers with the group, and allows the items in the group to be counted.

When you add a field to an additional footer, it is automatically assigned the Last Occurrence field type. If you don’t use the Last Occurrence field type, the field will appear to be looking ahead to the next record for the report. This occurs because the next record for the report has already been read to determine whether a group should be considered complete.

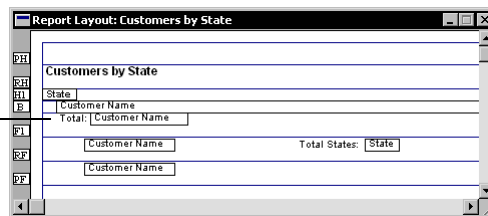
If you place calculated fields in footers, you change their field type from Last Occurrence to Data, so that the calculations are performed properly.

Counting items in a group

It's often useful to count the number of items that appear in each group on a report. Counting the items in a group is done in an additional footer for the group. The additional footer should be set up to print each time the main category for the group changes. Place the field for the item you want to count in the additional footer and set the field's type to Count.

For example, the Customers by State report lists all of the customers by each state. To count the number of customers in each state, an additional footer is added that is printed each time the State changes. A field that occurs for each customer, such as the Customer Name is added to the additional footer, and the field type is set to Count.

This additional footer is printed each time the State field changes. The Customer Name field type is set to Count to count the number of customers per state.



Counting groups

If you have several groups on a report, you may find it useful to count the individual types of groups. To count the number of groups in a report, you need to use a Control Count field.

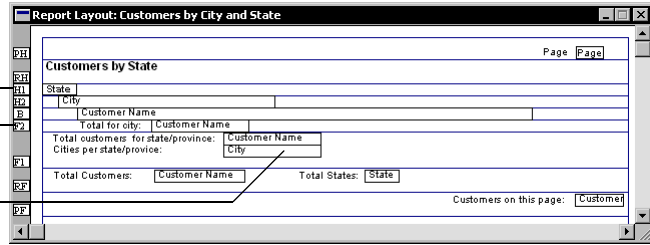
A Control Count field is designed to count the number of times an additional footer appears in a report. This means that the group you are counting must have an additional footer that indicates the end of the group. Next, create an additional footer immediately below the additional footer that indicates the end of the group. This additional footer must contain an instance of the field on which the group you are counting is based, and you must set the field's type to Control Count.

For example, the Customers by City and State report groups all of the customers by State, and then further groups them by City. To count the number of cities in each state, an additional footer is used that appears at the end of each City group. Another additional footer is added that will contain the City field, but with the field type set to Control Count. This field will count the number of times the additional footer at the end of the City group appears, which is the same as the number of cities for each state.

The report is grouped by State, and then by City.

This additional footer is at the end of each City group.

This field type is set to Control Count, to count the number of City groups.



The field to which you apply the Control Count field type must be the same field that the footer immediately above the footer containing the Control Count field breaks on.

Totaling and subtotaling

Another way to extract useful information from a report is by totaling or subtotaling numeric values. You do this by adding fields that have the Sum or Running Sum field type applied.

Sum fields

Fields with the Sum field type print the total of the field's values within a group, or within the entire report. If you add a Sum field to an additional footer for a group, it will total the items for the group. Adding Sum fields to the report footer will total all values for the entire report.

Running sum fields

Fields with the Running Sum field type print the total of the field's values at the point where they are placed in the entire report. They are often placed in additional footers that occur throughout a report, or in the page footer to allow running sum values to appear on each page.

Advanced groups

Some groups for reports may be too complex to be implemented with the basic additional header and additional footer capabilities of the Report Writer. If you have the Modifier with VBA, you can use VBA (Visual Basic for Applications) code to further control when additional headers and footers appear in a report. Refer to the VBA Developer's Guide for more information about using VBA with the Report Writer.

Chapter 29: Checks, Invoices, and Labels

Checks, invoices, and labels are common reports that have layouts that require modifications with the Report Writer. This portion of the documentation describes the design of these reports and provides information about how the design affects the modifications you can make. Information is divided into the following sections:

- [Checks](#)
- [Invoices](#)
- [Labels](#)

Checks

Depending on the design of the checks you are using, the check layout can be simple, or very complex. A basic check layout doesn't have a check stub, or has the check stub either above or below the check. A complex check layout has a check stub both above and below the check.

Check types

Great Plains has separate check layouts for Payables Management and for Payroll. For Payables Management, the following table lists the check formats that are available, along with the corresponding report used for the check.

Check Format	Report
No Stub	Check With No Stub
Stub on Top	Check With Stub on Top
Stub on Bottom	Check With Stub on Bottom
Stub Top/Bottom - Text	Check With Stub on Top and Bottom - Text
Stub Top/Bottom - Graphical	Check With Stub on Top and Bottom - Graphical
3 per Page/No Stub	3 Per Page/No Stub
User-Defined Check 1	User-Defined Check 1
User-Defined Check 2	User-Defined Check 2

For Payroll, the following table lists the check formats that are available, along with the corresponding report used for the check.

Check Format	Report
Stub on Top - Continuous	Employee Checks Stub on Top-D
Stub on Bottom - Continuous	Employee Checks Stub on Bottom-D
Stub on Top and Bottom - Single Feed	Employee Checks Stub on Top and Bottom-L
Other - Continuous	Employee Checks Other-D
Other - Single Feed	Employee Checks Other-L

Modifying check layouts

It's likely that you will need to modify the check layout to work properly with your check stock. Keep the following in mind when modifying check layouts:

- Avoid editing the layout for any "Stub on Top and Bottom" check. The layout for these checks is hard-coded to the software, which prevents most modifications from working properly. You can make some cosmetic modifications to these check layouts, such as adding graphics or text.
- Consider modifying the "User-Defined" or "Other" check layouts. These reports are designed to be customized. For Payables Management checks, the User-Defined Check 1 report is a stub on top layout. The User-Defined Check 2 report is a stub on bottom layout.
- When modifying checks, don't move fields from one section of a report to another. This can cause the checks to not print properly.
- Don't remove fields from the check layout. When you're modifying checks, use the Report Field Options window to set a field to be invisible, rather than removing the field from the report. Removing fields can prevent a check from printing properly.

Invoices

Invoices are some of the most complex reports that are commonly modified. They use several additional headers and additional footers to display line items. Invoices must also print properly when they require only a single page or span multiple pages.

Because of the complexity of modifying invoices, Microsoft has created several modified versions of the invoices available in Great Plains. You can access these modified invoices in the Reports Library, which contains reports that have already had common modifications made to them. You can access the Reports Library at www.greatplains.com/reports and browse the modified invoices that are available there. Refer to [Reports Library](#) on page 112 for more information about using the Reports Library.

Labels

Great Plains can produce several types of labels, such as those for customers, vendors, or employees. You can print labels by choosing Company in the Reports menu, and then choosing Mailing Labels. The Mailing Labels window will appear, allowing you to select the labels you want to print.

When you create the report option for the mailing labels, you must select the format to use for the labels. You can choose Continuous or Laser. If you choose Continuous, you can select the number of labels that will be printed across the page. This value will range from 1 to 5. If you choose Laser, the report will be printed with two labels across each page.

To have labels print properly on your printer and with your label stock, you may need to make modifications to the layouts for the reports used to print labels. The following table lists the reports that correspond to the Format and Number Across options you can specify in the Mailing Label Report Options window.

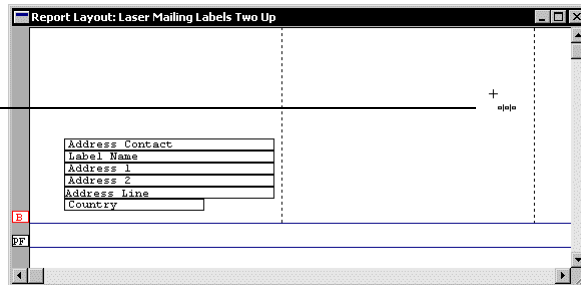
Format	Number Across	Report
Continuous	1	Mailing Labels One Up
Continuous	2	Mailing Labels Two Up
Continuous	3	Mailing Labels Three Up
Continuous	4	Mailing Labels Four Up
Continuous	5	Mailing Labels Five Up
Laser	N/A	Laser Mailing Labels Two Up



To easily select the appropriate mailing label report to modify, print the mailing labels to the screen, and then choose to modify the current report.

If you are using the Laser format, and want to have more than two labels across the page, you will need to use the Divider tool to add additional columns to the report layout.

Use the Divider tool to add additional columns to the report layout.



When information is printed in columns, it will be printed from the left column to the right column, and then down to the next row. This is shown in the following illustration.

Record 1	Record 2	Record 3
Record 4	Record 5	Record 6
Record 7	Record 8	Record 9

Arrows in the original image indicate the printing sequence: from Record 1 to Record 2 to Record 3, then down to Record 4, then across to Record 5 to Record 6, then down to Record 7, then across to Record 8 to Record 9.

When setting up mailing labels the first time, it is useful to test the layout on blank paper before you print the actual labels. It's also a good idea to print several pages of labels to verify that the labels aren't creeping up or down as multiple pages are printed. If this occurs, you will need to modify the report layout to add or remove space from the report section containing the labels.

Part 8: Storing and Accessing Reports

This portion of the documentation contains information about how reports you create or modify are stored and accessed. The following topics are discussed:

- [Chapter 30, “Storing Reports.”](#) explains how new and modified reports are stored and describes two common Report Writer configurations.
- [Chapter 31, “Accessing Reports.”](#) describes how to control access to the Report Writer and to the reports that you have created or modified.
- [Chapter 32, “Packaging Reports.”](#) explains how you can package and distribute modifications to other users.
- [Chapter 33, “Importing Reports.”](#) describes how to import reports from another reports dictionary into the current reports dictionary.

Chapter 30: Storing Reports

All new reports and modifications you make with the Report Writer are stored in the Reports dictionary. Information about storing reports is divided into the following sections:

- [Reports dictionary](#)
- [Launch file](#)
- [Report Writer configurations](#)

Reports dictionary

All changes and additions you make using the Report Writer are stored in the *reports* dictionary for the application. By storing the new and modified resources in a separate dictionary, the integrity of the main dictionary can be maintained. For example, the following illustration shows the dictionary for Great Plains and its associated reports dictionary.



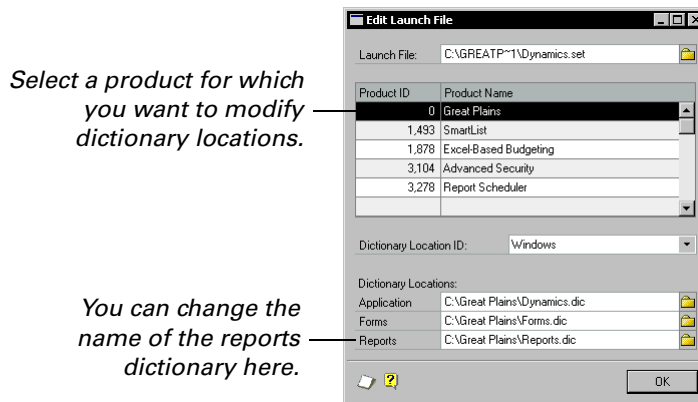
When you access the Report Writer for the first time, all of the *core resources* for the application dictionary are copied to the reports dictionary. Core resources include strings, data types, and global fields that are used by several parts of the system. Once core resources have been copied to the Reports dictionary, the runtime engine will look there first when it retrieves resources from the dictionary. Any additions or modifications you make to core resources will be stored in the reports dictionary. The modifications will be accessed automatically when you use Great Plains.

When you create a new report, or select a report to modify, that report is copied into the reports dictionary. Any modifications or additions you make to that report will be stored only in the reports dictionary. To access the modifications you make to reports, you must set security in the accounting system to access the modified report. This is described in [Chapter 31, "Accessing Reports."](#)

Launch file

When you start Great Plains, you use the *launch file* that tells the runtime engine which dictionaries will be used by the application. The launch file stores the location of the application dictionary as well as the names and locations of any forms or reports dictionaries.

By default, the reports dictionary is named Reports.dic and is located in the same directory as the Great Plains dictionary. You can use the Edit Launch File window to change the name or location of the reports dictionary. To display this window, choose System from the Setup menu to display the System Setup palette. Then click Edit Launch File.



To change the name or location of a reports dictionary, select a product such as Great Plains. Then edit the name or location of the reports dictionary in the field at the bottom of the Edit Launch File window.



Be sure that you have correctly specified the name and location of the reports dictionary. Otherwise, the accounting system may not start properly.

Report Writer configurations

Two common configurations are used with the Report Writer. One configuration has the reports dictionary stored locally on each workstation. In the other configuration, the reports dictionary is stored in a network location accessible by all workstations.

Storing the reports dictionary locally

In this configuration, each workstation has its own reports dictionary. Typically the reports dictionary is stored in the same location as the Great Plains dictionary. This configuration is also used for single-user installations. This configuration has the following advantages:

- Each workstation can have its own unique set of new and modified reports.
- Users can access the Report Writer at any time.

It has the following disadvantages:

- New and modified reports can't easily be shared by multiple users. This issue can be partially resolved by making modifications on one workstation and then distributing the modifications to other workstations.

Storing the reports dictionary on a network

In this configuration, one reports dictionary is stored in a network location that can be accessed by each workstation. This configuration has the following advantages:

- The same new and modified reports are available to all users.
- Any new reports or modifications users make are available to other users.

It has the following disadvantages:

- Only one user can access the Report Writer at one time.
- All workstations are dependent on a single reports dictionary. If this dictionary is not available or becomes damaged, all users are affected.
- Users can't have different sets of new or modified reports.

The configuration you choose depends on how many reports you want to modify, whether individual users will be creating new reports or modifying existing reports, and how you want to share new and modified reports among users.

Chapter 31: Accessing Reports

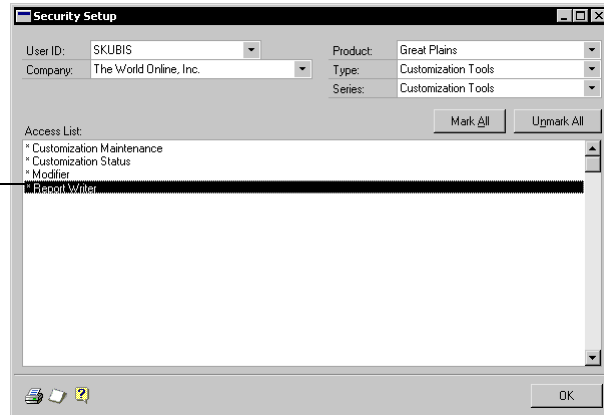
You can control which users have access to the Report Writer and which new and modified reports specific users will be able to use. Information about controlling access is divided into the following sections:

- [Accessing the Report Writer](#)
- [Accessing modified reports](#)
- [Accessing custom reports](#)
- [Accessing third-party reports](#)
- [Removing modified reports](#)

Accessing the Report Writer

To control which users will be able to access the Report Writer, use the Security Setup window. To open this window, choose System from the Setup menu to display the System Setup palette. Click Security to display the Security Setup window.

Be sure this item is marked to allow the specified user to access the Report Writer.

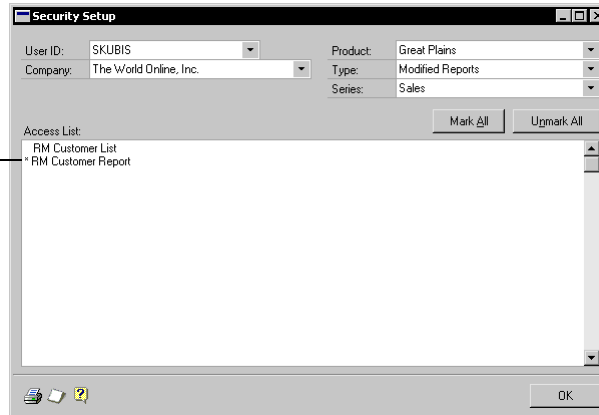


Specify the user, company, and product. Then select Customization Tools as the type and series. To allow the specified user to access the Report Writer, mark the Report Writer item in the Access List. An asterisk will appear next to it. To deny access to the Report Writer, unmark the item.

Accessing modified reports

To access the modified version of a report, you must use the Security Setup window to grant access. To open this window, choose System from the Setup menu to display the System Setup palette. Click Security to display the Security Setup window.

Mark the item to use the modified version of the report.



Specify the user, company and product. Select Modified Reports as the type. Then choose the series the modified report is part of. The Access List will be filled with the names of the modified reports in the specified series. To give the specified user access to the modified report, mark the report in the Access List. Remember that to use the modified reports, the user must be granted access to the original report as well.



Be sure to activate security once you've made your selections by marking the Security option in the Company Setup window in Great Plains.

When the user chooses to display the report, the modified version of the report will be displayed instead.

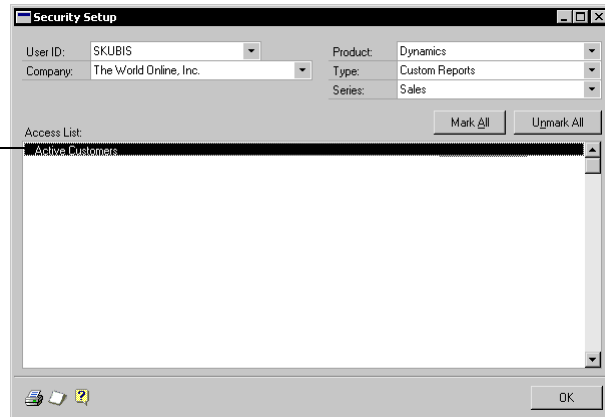


Changes you made to core resources like strings and data types will be seen by all users.

Accessing custom reports

Custom reports are new reports or copies of existing reports that you have created with the Report Writer. You can use the Security Setup window to control access to custom reports. To open this window, choose System from the Setup menu to display the System Setup palette. Click Security to display the Security Setup window.

Unmark an item to prevent a user from accessing the custom report.



Specify the user, company and product. Select Custom Reports as the type. Then choose the series the custom report is part of. The Access List will be filled with the names of the custom reports in the specified series. To prevent the specified user from accessing the custom report, unmark the report in the Access List.

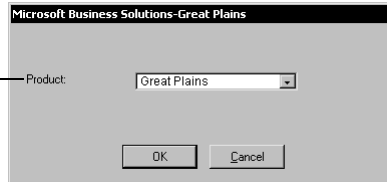


Be sure to activate security once you've made your selections by marking the Security option in the Company Setup window in Great Plains.

Accessing third-party reports

You can use the Report Writer to make changes to forms that are part of third-party products created with Dexterity. Dexterity is the tool used to create Great Plains. If you have third-party products that integrate with Great Plains, you will be asked which product you want to modify when you start the Report Writer.

If you have integrating products, use this window to select the product whose reports you want to access.



Any modifications you make to the reports for a third-party product will be stored in a separate reports dictionary for that product. To access these modified and custom reports, you must select the third-party product in the Security Setup window. Then you can set access to the reports in the third-party dictionary.

Some third-party developers create *alternate reports*. These are Great Plains reports that the third-party developer has enhanced and transferred to their own dictionary. By choosing the third-party dictionary when you start the Report Writer, you can make modifications to these alternate reports. When using the Security Setup window to set access to these reports, choose the third-party product and Modified Alternate Reports as the type of item to display.

Removing modified reports

If you remove a modified report from the Reports dictionary, be sure that you change the security settings to use the original report rather than the modified report. Otherwise, Great Plains will not be able to properly access the report.

Chapter 32: Packaging Reports

When you have finished modifying existing reports or creating new reports, you may want to distribute them to other users. This portion of the documentation describes how you can use package files to distribute new and modified reports. Information is divided into the following sections:

- [Package files](#)
- [Exporting a package file](#)
- [Importing a package file](#)
- [Package file import/export issues](#)

Package files

Package files are special text files that are used to deliver customizations made with the Modifier, VBA, and the Report Writer. A developer can create a package file that contains their customizations, move the package file to the destination workstation, then import the customizations into the installation.

A package file can contain the following items:

Modified forms Forms that have been customized with the Modifier.

New or modified reports Reports that have been created or customized with the Report Writer.

VBA forms Forms that have VBA code attached.

VBA reports Reports that have VBA code attached.

VBA components User forms, code modules, or class modules created with the VBA development environment.

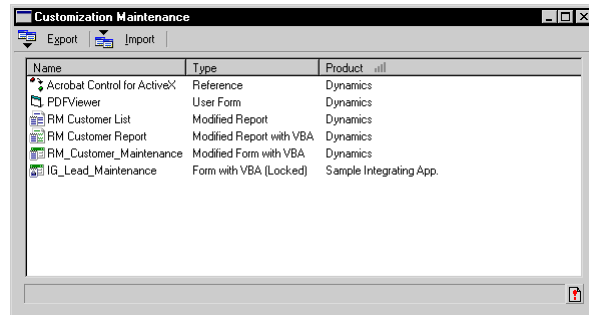
References References to external components used by VBA. A package file *cannot* contain the actual components referenced by the VBA customization. Those components must be delivered separately.

Exporting a package file

Package files are created using the Customization Maintenance window. Complete the following procedure to create a package file.

1. Open the Customization Maintenance window.

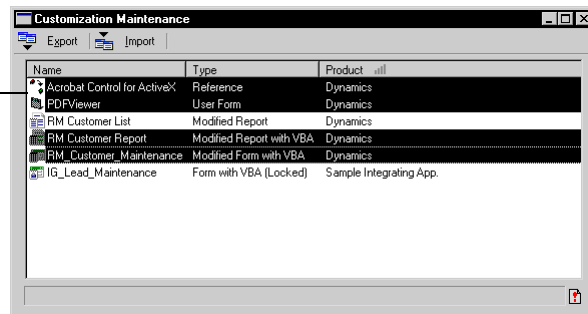
Open this window by pointing to Customize in the Tools menu and choosing Customization Maintenance.



2. Select the components needed for the customization.

The Customization Maintenance window lists all of the components that have been customized with the Modifier, Report Writer, or VBA. Select all of the components that are required for your customization.

Select all of the components that are part of the customization.



To select non-contiguous items in the list, hold down the CTRL key and click the items.

Click Export. A file dialog will appear, allowing you to specify the name of the package file. Be sure the file has the .package extension. The results of the export operation will be displayed in the status area at the bottom of the window.



Note that some *global* changes you make with the Modifier and Report Writer can't be included in a package file. For instance, changes to picture resources or global data types won't be included in package files.

Importing a package file

To import the contents of a package file, complete the following procedure.

1. Open the Customization Maintenance window.

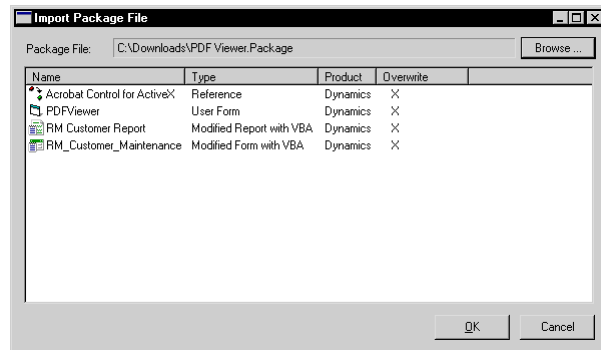
Open this window by pointing to Customize in the Tools menu and choosing Customization Maintenance.

2. Open the Import Package File window.

Click Import in the Customization Maintenance window to display the Import Package File window.

3. Select the package to import.

Click Browse to open a file dialog that allows you to select the package file you want to import. The contents of the package will be displayed in the Import Package File window.



An “X” in the Overwrite column indicates that a customized version of a component already exists for the system, and will be overwritten by the contents of the package file. Refer to [Package file import/export issues](#) on page 178 for details about overwriting existing customizations.

Click OK to start the import process. If any errors occur during the import process, the Errors window will be displayed. The results of the import operation will also be displayed in the status bar of the Customization Maintenance window. To view the list of the last errors that occurred, click the Errors button in the status bar.

4. Set access to any modified forms or reports that are part of the customization.

If necessary, use the security features in Great Plains to grant access to any modified forms or modified reports that are part of your customization.

Package file import/export issues

There are some additional issues you need to be aware of when importing and exporting package files, concerning how customized resources are stored by Great Plains.

Great Plains contains *forms*, which are groups of windows, menus and other resources that work together for a common purpose. A form can have several windows, but you can make customizations to individual windows with the Modifier and VBA. When you export a form to a package file, you are exporting **all** of the windows in that form, not just the windows you modified or applied VBA code to.

This fact is important to keep in mind when you import a package file that contains customized forms. If a customized version of the form already exists in the system and you import another set of customizations for that same form, the original customizations will be overwritten. This occurs even if the customizations are made for different windows in the form.

A similar issue occurs for reports. If you've made customizations to a report, then import a package that contains customizations for that same report, the existing customizations will be overwritten.



A warning message is automatically displayed allowing you to cancel an import operation that will overwrite existing customizations.

Chapter 33: Importing Reports

In versions of the Report Writer prior to Release 6, the only way to move a report from one reports dictionary to another was to use the Import Reports capability. Information about importing reports is divided into the following sections:

- [Importing from a reports dictionary](#)
- [Validating reports](#)

Importing from a reports dictionary

The Import Reports capability allows you to open a reports dictionary from another installation of Great Plains and import reports into the reports dictionary for the current installation.



The Import Reports capability is no longer the preferred method for transferring reports from one reports dictionary to another. Instead, we recommend that you use package files, as described in [Chapter 32, "Packaging Reports."](#)

To import reports, use the following procedure:

1. Start the Report Writer.

If it isn't already running, start the Report Writer.

2. Open the Report Writer window.

Click the Reports button on the toolbar to open the Report Writer window.

3. Open the Import Reports window.

Click Import in the Report Writer window to open the Import Reports window.

4. Select the reports dictionary to import from.

Click the Source Dictionary lookup button to select the reports dictionary from which you want to import.



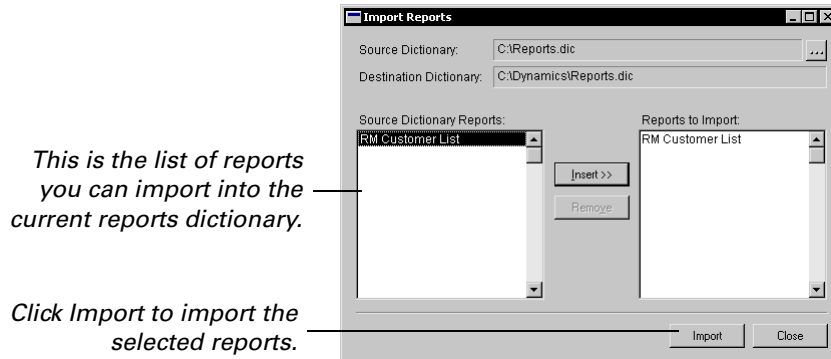
It's important that both the source dictionary and the destination dictionary be based on the same version of the Great Plains dictionary, and that they use the same account framework. Otherwise, reports may not be imported correctly.

5. Select the reports to import.

In the Source Dictionary Reports list, select the reports you want to import, and click Insert.

6. Import the reports.

Click Import to import the reports you have selected.

**7. Close the window.**

After you have finished, click Close to close the Import Reports window.

8. Validate the reports.

We recommend that you perform a validate operation on any reports you have imported.

Validating reports

After you have imported reports from another reports dictionary, it's important to verify that the report's references to tables and other resources are still valid. To validate a report, use the following procedure:

1. Select the report.

In the Report Writer window, select the report to validate in the Modified Reports list.

2. Validate the report.

Click Validate in the Report Writer window to validate the selected report.

3. View the validation results.

The Validation Results window will appear, listing any invalid references that were found. If invalid references were found, you must correct them before the report will run properly. The following table lists the messages that may be displayed, and describes what is causing the issue.

Message	Cause
No invalid references found	The report contains only valid references, so no changes are required.
Report XXX: Report XXX references a field that does not exist in table XXX.	A field in the layout of the specified report no longer exists in the specified table.
Report XXX: Restriction XXX references a field that does not exist in table XXX.	A field in the restriction definition for the specified report no longer exists in the specified table.
Report XXX: Expression XXX references a field that does not exist in table XXX.	A table field that's used as part of a calculated or conditional expression no longer exists in the specified table.
Report XXX: Field XXX in sort segment not in table XXX.	A field in the sorting method for the specified report no longer exists in the specified table.
Report XXX: Field XXX in header is not part of table XXX.	A field in the specified header no longer exists in the specified table.
Report XXX: Field XXX in footer is not part of table XXX.	A field in the specified footer no longer exists in the specified table.

Appendix

This manual has the following appendix:

- [Appendix A, “User-defined Functions,”](#) lists common user-defined functions available for use in calculated fields.

Appendix A: User-defined Functions

This appendix describes the common user-defined functions that are available for use in calculated fields. The following functions are described:

- [RW_Address](#)
- [RW_CityStateZip](#)
- [RW_GetAccountNumber](#)

RW_Address

Most addresses in Great Plains allow up to three address lines. In some cases, you may want to suppress the address lines that are empty, and have the remaining lines of the address move up to occupy the unused space. In earlier versions of the Report Writer, you needed several calculated fields to accomplish this. The `RW_Address` user-defined function provides this functionality with only four calculated fields, one for each line of the address. The function takes the following parameters:

```
in integer Line_Number
in string Line1
in string Line2
in string Line3
in string City
in string State
in string PostalCode
```

The `Line_Number` parameter indicates which line of the address the calculated field will be producing. The value ranges from 1 to 4. The remaining lines are string values that are used to pass address information into the function.

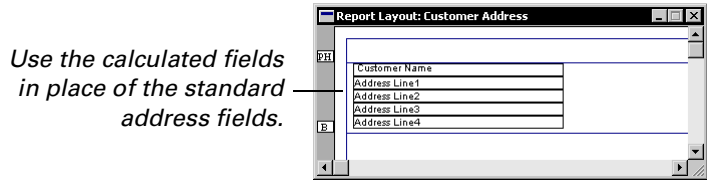
For example, the address information in the `RM_Customer_MSTR` table consists of the Address 1, Address 2, Address 3, City, State, and Zip fields. The following calculated field is used to display the first line of the address. Notice that the first parameter passed to the `RW_Address` function is the integer value 1, indicating this is the first line of the address. The remaining parameters pass in address information from the `RM_Customer_MSTR` table.

```
FUNCTION_SCRIPT(RW_Address 1 RM_Customer_MSTR.Address 1
RM_Customer_MSTR.Address 2 RM_Customer_MSTR.Address 3
RM_Customer_MSTR.City RM_Customer_MSTR.State RM_Customer_MSTR.Zip )
```

The following calculated field is used to display the second line of the address. Notice that the first parameter is the integer value 2, indicating this is the second line of the address. All of the other parameters remain the same.

```
FUNCTION_SCRIPT(RW_Address 2 RM_Customer_MSTR.Address 1
RM_Customer_MSTR.Address 2 RM_Customer_MSTR.Address 3
RM_Customer_MSTR.City RM_Customer_MSTR.State RM_Customer_MSTR.Zip )
```

The third and fourth calculated fields are similar. The only difference is the first parameter is either the integer value 3 or 4, indicating the third or fourth line of the address. When all of the calculated fields are complete, add them to the report layout in place of the standard address fields.



RW_CityStateZip

The RW_CityStateZip user-defined function strips the space from between the City, State, and Zip Code fields of an address. It takes the following parameters:

```
in string City
in string State
in string ZipCode
```

The following calculated field uses the function to remove the extra spaces from the City, State, and Zip fields retrieved from the RM_Customer_MSTR table:

```
FUNCTION_SCRIPT(RW_CityStateZip RM_Customer_MSTR.City
RM_Customer_MSTR.State RM_Customer_MSTR.Zip )
```

RW_GetAccountNumber

The `RW_GetAccountNumber` user-defined function retrieves an account number based on the account index. This allows you to retrieve an account number without having to link the Account Master table to your report. The function takes the following parameter:

```
in string AccountIndex
```

The following example shows an account number being retrieved, based on the Account Index field from the Year-To-Date Transaction Open table.

```
FUNCTION_SCRIPT (RW_AccountNumber GL_YTD_TRX_OPEN.Account Index )
```


Glossary

Additional headers and footers

Report sections that are printed when a specified field changes. Additional headers and footers are created using the Report Options and Header/Footer Options windows.

Alphanumeric

A combination of numbers and letters.

Array field

A field containing multiple occurrences of the same type of information. The individual pieces of information stored by an array field are called elements. For example, a seven-element array field could be used to store daily sales totals instead of seven individual fields.

Array index

The number designating a specific element within an array field. Each component field within an array field has an array index.

Boolean expression

An expression that results in a value of true or false.

“Break on” field

A field on a report, that when the value changes, causes an additional header or additional footer to be printed.

Calculated field

A field containing an expression that combines fields in a report’s table, report fields, constants, functions, and operators. The result of the calculation is displayed in the field if the field is placed on the report. Calculated fields are created in the Calculated Field Definition window.

Check box

A control type used to define data types that allow users to mark or unmark an option. Check boxes have boolean storage types.

Combo box

A control type used to define data types that allow users to enter a text value or choose that value from a list. The items in the list are determined by the static text values in the data type definition.

Component

One field of a composite field.

Composite

A group of fields and their associated data types that form a single data type. Composite data types are defined by the composite control type and the fields that make up the composite.

Concatenate

To connect two strings to form a single string.

Conditional expression

A boolean expression used to print the corresponding true or false case in a calculated field. Conditional expressions are written in the Calculated Field Definition window.

Control type

The main characteristic of a data type, controlling the type of information that can be stored in fields that use that data type, and some aspects of how the information will be displayed.

Custom report

A new report that you make. You can start with a blank report, or you can start by making a copy of a report that already exists.

Defaults file

A file that stores information specific to the current workstation. This file is named DEX.INI for Windows.

Definition window

A window that allows you to create a resource and specify its functional characteristics.

DEX.INI file

A file that stores information specific to the current workstation. Also referred to as the defaults file.

Dictionary

A group of resources that, when interpreted by the runtime engine, present a complete functioning application. See also [Reports dictionary](#).

Drop-down list

A control type used to define data types that allow users to select one item from a list. The integer value corresponding to the position of the item chosen, not the item’s static text value, is stored when the user’s selection is saved.

Expression

A sequence of operands and operators that are evaluated to return a value.

Field

A field contains a single piece of information used by the application dictionary.

Footer

A report section that is printed at the bottom of a report, page, or group. Reports can include report footers, page footers and additional footers.

Format

The extra characters, spacing, and attributes that can be applied to a data type when data is displayed.

Format field

An integer field that specifies the format to use for a string or currency field.

Format string

A data “mask” used for string and composite formats. The format string allows extra characters to appear in a field without affecting the way data in the field is stored.

Global variable

A variable available to any report or calculated field in the application at any time.

Graphics report

A report on which graphics, colors (if the printer has color capabilities), patterns, and fonts other than the default font can be printed.

Header

A report section that is printed at the top of a report, page, or group. Reports can include report headers, page headers, and additional headers.

HTML

HyperText Markup Language. Reports created with the Report Writer can be exported to HTML files.

Key

A field or combination of fields within a record that is used as a basis by which to store, retrieve, and sort records.

Key segment

One field of a group of fields that compose a key.

Keyable length

The number of characters that can be displayed by a field.

Launch file

A file that is used to start an application with the runtime engine. This file stores the location of the dictionaries that will be used, including the application dictionary and the reports dictionary.

Layout window

A window that allows you to design the layout of a report.

List box

A control type used to define data types that allow users to select one static text value from a list.

MAPI

An acronym for Mail Application Program Interface. If you have a MAPI-

compliant mail system, you can mail reports to other users.

Modified reports

A copy of an original report that you have made changes to. Modified reports are stored in the Reports dictionary. A modified report can be substituted for an original report in the accounting system.

Multi-select list box

A control type used to define fields from which one or more static text values can be selected.

Numeric expression

An expression that results in a numeric value.

One-to-many

A type of relationship between two tables. For every record in the first table, there are many records in the second table that are related to it. For example, an invoice header table contains a list of invoices, while an invoice line item table contains a list of the items on each invoice. For one invoice in the first table, there are many line items in the second table, so there's a one-to-many relationship between the tables. The relationship between two tables is viewed or defined in the Table Relationship Definition window.

One-to-one

A type of relationship between two tables. For every record in the first table, there is only one corresponding record that is related to it in the second table. The relation between two tables is viewed or defined in the Table Relationship Definition window.

Operand

An item in an expression that is acted on by an operator.

Operator

A symbol that indicates the action to perform on the operands in an expression.

Order of precedence

The order in which the operations are carried out for an expression. The traditional order of precedence for numeric expressions is: first unary minus, then exponentiation, followed by multiplication, division, and modulus, then addition and subtraction, and finally shift, equality, and logical operations. This is also referred to as the order of evaluation.

Original report

A report that was provided with the accounting system. You can make modified versions of original reports.

Overflow

The condition that occurs in a numeric expression when an intermediate or final result of the expression is too large to be stored by the type of data used in the expression.

Package files

Special text files that are used to deliver customizations made with the Modifier, VBA, and the Report Writer.

Package Loader

A special application that adds the reports you download from the Reports Library into your Great Plains installation.

Picture library

A feature in the Report Writer that allows you to store graphics in a generic format that can be used on any supported platforms.

Pixel

The smallest graphical element displayed on a monitor. The pixel is the smallest unit of measurement in layout windows. You can move objects one pixel at a time within a layout window by using the arrow keys on the keyboard.

Point size

The vertical size of a font. There are 72 points to an inch.

Precedence

The order in which operations are performed for a type of expression. See also [Order of precedence](#).

Radio button

A control type used to define data types that allow a single selection to be made from a group of two or more selections. Radio buttons must be used with a radio group.

Radio group

A control type that's used to group related radio buttons and store the value of the selected button. A radio group's value is stored as an integer corresponding to the selected radio button's position in the tab sequence, beginning with 0. For instance, if the second radio button in the tab sequence is selected, the radio group's value is 1.

Record

A collection of data made up of one instance of each field in a table.

Relationship

See [Table relationship](#).

Report field

In the Calculated Field Definition window, a report field is a field with a modified field type. Report fields can be used in conditional and calculated expressions in calculated fields.

Reports dictionary

The dictionary that stores modified reports from the main dictionary and new reports created with the Report Writer. The reports dictionary is created when the Report Writer is accessed for the first time. All reports you modify or create with the Report Writer are stored in the reports dictionary.

Reports Library

A special web site that contains reports have already had common modifications made to them.

Resource

An object such as a field, string, native picture, table, window, or script that can be used to create applications in Dexterity.

Resource definition window

See [Definition window](#).

Resource descriptions tool

A tool that displays information about the current dictionary's fields, windows, and tables.

Resource list window

A window in the Report Writer that allows you to view all the resources of a particular type, such as fields.

Runtime engine

An application that's used to interpret a dictionary. When a user starts an application, the runtime engine uses the resources in the dictionary to present a functioning application.

Series

A predefined category to which report and table resources are assigned. Series allow categorization of resources.

Static text value

Text that's displayed as part of a data type, such as the items in a list box.

Storage type

One of the standard forms used to store the data in a field. The storage types are: boolean, integer, long, currency, variable currency, string, text, date, and time. The control type determines which storage type is used to store the data in the field.

String

A sequence of up to 255 ASCII characters. See also [String resources](#).

String expression

An expression that results in a string value.

String resources

Sequences of up to 79 characters used throughout an application dictionary for window names, field prompts, static text values, and report text.

Table

A collection of related data formatted in rows. Each row represents a separate record, and each column represents a separate field.

Table relationship

A link between tables that have fields in common. These relationships allow the Report Writer to select fields from all of the related tables and use them on a single report. Table relationships are set up using the Table Relationship Definition window.

Text report

A report that can display only characters in a native printer font.

Toolbox

A window that opens in conjunction with the Report Layout window. It contains tools used to place and arrange items in the layout area.

Virtual table

A special type of table that allows data stored in separate tables to be read as if it had been stored in a single table.

Visual Basic for Applications (VBA)

A development system created by Microsoft that can be embedded into applications. VBA is embedded into the Report Writer, providing additional customization capabilities.

WYSIWYG

An acronym meaning "what you see is what you get." This applies to intuitive design tools used to create reports in the Report Writer.

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April 2003

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