TSM Report Designer

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The TSM Report Designer is used to create and modify your TSM reports. Each report in TSM prints data found in the databases assigned to that report. TSM opens these databases according to the type of report you have selected to customise. As such, you can only place information in the report from the databases available.

If you want to learn more about using the TSM report designer, most computer/technical bookstores will have books available for using Visual FoxPro. This is the language that TSM has been developed in. The sections that will interest you are the Report Designer and Using Visual FoxPro expressions.

Should you need to produce more complicated reports than the TSM report writer can manage, you can also purchase any of a number of 3rd party stand alone report generator programs such as **Crystal Reports**, **Relational Report Writer** and many others. These programs can provide you with advanced reporting capabilities.

Even Microsoft Excel's Data Import add-in can be used to extract TSM information into an Excel spread sheet for reporting.

The Report Designer allows you to customize the appearance of your report. For example, you can add graphics such as a company logo, change the colour of parts of the report, add lines or boxes, rearrange fields, etc. This feature is only available to users defined as "advanced".

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	Summary

A report consists of various objects, such as labels, fields, and lines, organised into bands. You can add, move, remove, or change the various properties of objects, either by clicking or dragging the objects or choosing functions from the menu and toolbars that appear when the Report Designer is open.

The Report Designer window can be moved, resized, or scrolled like any other window. Rulers at the top and left edge of the window and a status bar at the bottom of the application window help determine the size and position of objects. Clicking outside this window causes the Report Designer to close. When the Report Designer is displayed, the menu has the following functions:

File Menu

Close:

Closes the Report Designer. If you made any changes to the report since it was last saved, you are asked if you want to save them. You can also close the Report Designer by clicking on the close box (the X in the upper right corner) of the designer window.

Save:

Saves the report.

Revert:

Reverts the report to the last saved version. This function is handy if you've made a lot of changes and want to discard them all.

Page Setup:

Displays the Page Setup dialog. This dialog has the following options:

<mark>%</mark> Page Setup		×
Page layout:	Columns Number: Width: 7.5433 Spacing: Openation Print area Print area Print able page Whole page Left margin: 0.2000 💼 Dimensions: Inches	OK Cancel Print Setup Print order:

Page Layout:

Shows a graphical representation of the page.

Columns:

Number: specifies the number of columns to print across the page.

Width:

Specifies the width of individual columns, in inches or centimetres.

Spacing:

Specifies the space between columns, in inches or centimetres.

Print Area:

Specifies how the minimum margins are determined. Printable Page means the currently selected printer determines them, while Whole Page means the paper size determines them.

Left Margin:

Specifies the width of the left margin, in inches or centimetres.

Print Order:

Specifies how records wrap when you have multiple columns.

Print Setup:

Displays the Print Setup dialog, where you select printer and paper settings.

Edit Menu

This menu contains the usual Windows edit functions.

Help Menu

This menu has a single Help function to display help for the Report Designer.

Format Menu

The report designer provides a number of tools to help you precisely position and format the look of a control. You can align a number of controls in a row, resize controls, set the font, font size and colour and many other formatting options.

Some of these items are only enabled when you select more than one object since they affect the size or position of objects relative to each other.

Align:

Provides alignment options in a submenu. See the Layout Toolbar below for a description of the various choices.

Aligns controls in a report. You can align controls in relationship to each other or to the grid in the Report Designer. You can align controls by a particular side or by the centre. To do more than just centre a single control vertically or horizontally on a report you must select more than one control.

Selecting Multiple Controls

To select multiple controls at once hold down the Shift key and click on each control that you wish to select. Controls selected in this way will all be selected.

Size:

Providing sizing options in a submenu:

To Grid:

Sizes the object in grid increments when you drag it if the Snap to Grid option (see below) is checked.

To Tallest:

Sizes all selected objects to the height of the tallest selected object.

To Shortest:

Sizes all selected objects to the height of the shortest selected object.

To Widest:

Sizes all selected objects to the width of the widest selected object.

To Narrowest:

Sizes all selected objects to the width of the narrowest selected object.

Horizontal Spacing:

The submenu items adjust the horizontal spacing between objects:

Make Equal:

Spaces the selected objects equally across the band.

Increase:

Increases the horizontal space between the selected objects.

Decrease:

Decreases the horizontal space between the selected objects.

Vertical Spacing:

The submenu items adjust the vertical spacing between objects:

Make Equal:

Spaces the selected objects equally down the band.

Increase:

Increases the vertical space between the selected objects.

Decrease:

Decreases the vertical space between the selected objects.

Bring to Front:

Brings the selected objects in front of all other objects.

Send to Back:

Sends the selected objects behind all other objects.

Group:

Joins selected objects so they can be manipulated (moved, sized, removed, etc.) as a single object.

Ungroup:

Separates previously grouped objects.

Snap to Grid:

When this function is turned on (indicated with a checkmark in front of it), objects can only move in fixed increments (see the next item for the scale of those increments).

Set Grid Scale:

Displays the Set Grid Scale dialog, in which you can define the horizontal and vertical increments (in pixels, from 1 to 48) of the grid. You can also set the scale of the ruler: "System Default" means use inches or centimetres (depending on your setting in the Regional Settings of the Windows Control Panel), and "Pixels" specifies that pixels should be used.

<mark>%</mark> Set Grid Scale	×
Grid in pixels: Horizontal: 12 ÷	OK Cancel
Ruler scale © <u>S</u> ystem default © <u>P</u> ixels	

Font:

Allows you to select the font name, style, size, effects, and colour for labels and fields.

Text Alignment:

Use this submenu to set the alignment (left, centre, or right) for labels and fields, and the spacing (single, 1 1/2, or double) for labels.

Reading Order:

This item is not used.

Fill:

Allows you to specify a pattern with which to fill shapes (rectangles, rounded rectangles, ellipses, and circles).

Pen:

This submenu allows you to specify the line thickness and type for lines and shapes.

Mode:

Lets you determine whether the selected object is opaque, which prevents objects behind the selected object from showing through, or transparent, which allows objects behind the selected object to show through.

Report Menu

Title/Summary:

Allows you to maintain the title and summary bands.

Data Grouping:

Maintains group bands.

Variables:

Maintains report variables.

Default Font:

Allows you to specify the default font for the report. This font is used by default for any objects you add and as the basis for object dimensions. You shouldn't have to change this setting.

Private Data Session:

This item is for the application's internal use and should be left alone.

Quick Report:

This item, which is normally disabled, is for the application's internal use and should be left alone.

Run Report:

This item isn't currently used.

Toolbars

Three toolbars are also displayed, just below the menu bar. The first is the Report Controls toolbar, which allows you to add objects to the report.

Report Controls

Information is placed on the report as report controls. Whenever the Report Designer window is active, TSM displays the Report Controls toolbar, allowing you to choose whichever report controls you want to place on the report. If this tool bar is not visible, choose the View -> Report Controls Toolbar menu option.

Report	
k	SELECT OBJECT Resizes and moves controls. Once you create a control, the Select Objects button is automatically reselected, unless the Button Lock button is pressed down
Α	LABEL Used for text that you don't want the user to change, such as a caption above check boxes or under a graphic
ab	FIELD This includes all the text fields on a report such as headings and field labels
+	LINE Use to draw a variety of line styles on your report

	RECTANGLE
	Use to draw rectangles on your report
0	ROUNDED RECTANGLE Use to draw rectangles with rounded corners and ellipse shapes on your report
	PICTURE Use to display a picture or contents of a general data field on your report. Use this control to place your company logo onto the report
•	BUTTON LOCK Lets you add multiple controls of the same type without having to click the control button on the toolbar more than once

Placing Controls onto the Report

You can create controls on your report or label with the Report Controls tool bar.

From the Report Controls tool bar click on the control you wish to place on the report. Place the cursor wherever you want the control to appear and click on the report.

- Align Left Sides:Aligns the selected objects on the leftmost edge.
- Align Right Sides Aligns the selected objects on the rightmost edge.
- Align Top Edges:Aligns the selected objects on the topmost edge.
- Align Bottom Edges:Aligns the selected objects on the bottommost edge.
- Align Vertical Centres:
 Aligns the selected objects' centres on a vertical axis.
- Align Horizontal Centres:
 Aligns the selected objects' centres on a horizontal axis.
- Same Width:Adjusts the width of the selected objects to the widest object.
- Same Height: adjusts the height of the selected objects to the tallest object.
- Same Size:
 Adjusts the height of the selected objects to the largest object.

Centre Horizontally: Aligns the selected objects' centres with the horizontal middle of the report.

- Centre Vertically:Aligns the selected objects' centres with the vertical middle of the report.
- Bring to Front: Brings the selected objects in front of all other objects.
- Send to Back:Sends the selected objects behind all other objects.

Labels

Click on the Label control. Place the cursor wherever you wish to place the label and click on the report. The cursor will flash ready for you to type in the text of the label. When you have finished, click anywhere else on the report to save the label.

Fields

Click the Field control button, position the mouse pointer on the report at the position you wish to create a database field and click the report to place the control. You can also drag the control to size it as large as you want.

Once placed, the Report Expression dialog box will appear. This is where you tell the report what information you want printed on the report.

On a report, you can also double-click any control to display a dialog box for setting options.

Deleting Controls from the Report

Deleting a control is a simple matter of selecting it by clicking with the mouse and then deleting the control by clicking on the **Delete** key. If you make a mistake you can select **Undo** from the **Edit** menu.

Moving a Control

To move a control around the report, simply select it with the mouse. Whilst holding the left mouse button down, drag the control to its destination.

You can also use the arrow keys to move the control in precise small movements. The arrow keys allow you to precisely place the control wherever you want it to go.

The second toolbar is the Layout toolbar; it helps you specify how report objects are laid out on the report. It has the following buttons, many of which are only enabled when you select more than one object since they affect the size or position of objects relative to each other:

Layout

Hint: Choose the alignment command that will align by an edge which all the selected objects have open and away from each other. Objects that are in a row and selected to align by their right side, left side, or vertical centres will stack on top of each other. Likewise, objects that are in a vertical line and selected to align by their top, bottom, or horizontal centres will overlap.

Colour Palette

The third toolbar is the Colour Palette, which allows you to assign colours to objects. Most of the buttons simply select the displayed colour. The following buttons have other purposes:



Foreground colour: Sets the foreground colour for the selected objects. Push this in, then click on the desired colour. Note: if the Background colour button is also pushed in, then clicking on a colour will set both the foreground and background to the same colour, which likely isn't what you want.

Background colour:

Sets the background colour for the selected objects. Push this in, then click on the desired colour. Note: if the Foreground colour button is also pushed in, then clicking on a colour will set both the foreground and background to the same colour, which likely isn't what you want.

dther colours:

Displays the Windows Colour dialog box, where you can define custom colours.

To move a toolbar somewhere else, click on it and drag it to the desired position. Toolbars automatically "dock" at the top, bottom, left, and right edges of the screen. If a toolbar is moved away from an edge, it automatically "undocks", becoming a floating toolbar.

Report Bands

The Report Designer is a "band-oriented" designer. That is, objects that appear in the report appear in one of several bands.

The Report Designer stores all of the information for the report into Bands. By default, the Report Designer displays three bands: Page Header, Detail, and Page Footer. A separator bar is located at the bottom of each band. The name of the band type appears in the grey bar next to a blue arrow, which indicates that the band is above, not below, the grey bar.

The types of bands available are:

🔺 Title

Information that appears at the beginning of the report only This optional band prints at the start of the report, either on a separate page or at the top of the first page. To create a title band, choose Title/Summary from the Report menu and check the Title Band option. To have a separate page for the title band, check the New Page option. To remove the title band, uncheck this option; if any objects exist in the band, you will be asked to confirm that these objects will be deleted if the band is removed.

🔺 Page Header

Includes information that appears at the top of each page. This typically includes information that only appears once for the report such as name and addressing details, Job Card information etc.

🔺 Group Header 1:company

Similar to the page header, generally includes headings for column based data.

🔺 Detail

Information that appears repetitively in a report such as parts used, time sheet details etc. Prints once for every record in the report.

▲ Group Footer 1:company

Information to print at the bottom of the detail section such as totals.

🔺 Page Footer

Information to print at the end of the report.

🔺 Summary

This optional band prints at the end of the report, either on a separate page or after the end of the last page. To create a summary band, choose Title/Summary from the Report menu and check the Summary Band option. To have a separate page for the summary band, check the New Page option. To remove the summary band, uncheck this option; if any objects exist in the band, you will be asked to confirm that these objects will be deleted if the band is removed.

To change the height of a band, click on the band's grey bar and drag it up or down. You can also double-click on the grey bar to display a properties dialog for the band and enter the height of the band directly (the other options in this dialog are for the application's internal use and should be left alone). You cannot make a band smaller than the bottom of the lowest object in the band.

Report Objects

Six types of objects can exist on a report:

Label:

Literal text such as "My Company Name".

Field:

A field from the database or a calculation.

Line:

A horizontal or vertical line.

Rectangle:

A box.

Rounded Rectangle:

A box with rounded corners or an ellipse or circle.

Picture:

An image such as a company logo.

Objects are added to a report using the Report Controls Toolbar. Click on the appropriate button in the toolbar, then click and drag in the report window to specify where the object should go and its size. In the case of a field, the Report Expression dialog appears since you must specify the expression for the field; see below for details.

To do something with an object, you must first select it. Ensure the Select Objects item in the Report Control toolbar is selected, then click on the desired object. To select more than one object, hold down the Shift key while you select objects. You can also select multiple objects by clicking outside one of the desired objects and dragging a "marquee" rectangle around the desired objects; any object even partially inside the marquee will be selected. To select all the objects in a band, hold down the Shift key and double-click in the grey bar for the band. To unselect a selected object, hold down the Shift key and click on it.

Once an object is selected, you can do many things to it:

Move:

Drag it to the desired position or press the arrow keys to move in smaller increments. You can even move an object to a different band if necessary.

Resize:

Click on one of the tiny black squares at the edge of the object and drag it until the object is the desired size.

Size or position:

Use one of the options in the Layout Toolbar or Format menu to align or size selected objects, move them in front or other behind other objects, etc.

Edit:

Double-click on an object to edit its properties. See below for information on object properties.

Remove:

Press the Delete key.

Properties

Different objects have different types of properties. To see the properties dialog for an object, double-click on it. The properties all objects have are described below.

Position

It's possible the height of a band can change when it's printed. For example, the detail band may only appear as one line high in the Report Designer, but if a field is marked as "Stretch With Overflow" (see field properties below), that field may take more than one line if it contains a lot of information, and therefore so will the detail band. The position settings allow you to specify what happens to objects when the band they're in changes height.

Float:

Specifies that the selected object moves vertically relative to the size of the surrounding objects.

Fix relative to top of band:

As the band changes height, this object will maintain its position relative to the top of the band.

Fix relative to bottom of band:

As the band changes height, this object will maintain its position relative to the bottom of the band.

Print When

Click on the Print When button in an object's properties dialog to display the Print When dialog. This dialog allows you to conditionally print an object so it can be ignored under some conditions.

🛃 Print When	×	
Print repeated values— ⊙ ⊻es	OK	
© <u>N</u> ∘	Cancel	
Also print In first whole band of new page/column When this group changes When detail overflows to new page/column		
☑ <u>R</u> emove line if blank		
Print only when expression	n is true:	

Print repeated values:

In the case of a field, setting this to No is like checking the Suppress Repeating Values for a field in the Field Properties dialog: if several records in a row have the same value in this field, only the first occurrence will be printed; the field in subsequent records will appear blank. For any other type of object, setting this to No means the object won't print at all unless one or both of the following are checked: In First Whole Band of New Page/Column and When Detail Overflows to New Page/Column.

In first whole band of new page/column:

Prints the object in the first band of a new page or column that isn't an overflow from a previous page or column. This option is automatically checked (and disabled) if you check Yes for Print Repeated Values, and optional if you check No for Print Repeated Values.

When this group changes:

Prints the object when the chosen group changes. This option is available only if a group exists and you choose a group from the list beside this option.

When detail overflows to new page/column:

Prints the object when the detail band overflows to a new page or a new column.

Remove line if blank:

Removes the entire line of the report the object is on if the object isn't printed and no other object is on the same line.

Print only when expression is true:

An expression to be evaluated before the object prints. If the expression is true, the object is printed; otherwise, it isn't printed. All other options in this dialog except Remove Line if Blank are disabled if you include an expression.

Comment

Allows you to enter comments to yourself about the object. Comments are automatically put into some objects; you can add additional comments if you wish (start on a new line), but don't remove any comments you didn't put there.

Fields

Fields have the following additional properties:

Report Expression	×
Expression:	ОК
Eormat:	Cancel
Field position	<u>C</u> alculations <u>P</u> rint When
Comment	

Expression:

The name of the field or the calculated expression to print. You can use a table field or memory variable for the expression.

Use the expression to type in the name of the TSM table field you want to appear. If you do not know the name of the field to include, click is to display the Expression Builder dialog box that will allow you to pick a field out of the database.

You can also press Right Mouse Click in TSM in any field to display the report expression for that field.

Format:

How the field should be formatted. Various formatting codes may appear in this option.

When a valid expression is displayed in the Expression box, you can specify a format in this text box. The format affects how the field will be displayed on the report.

You do not have to enter codes: just click on the button beside this option to display the following dialog of options:

<mark>%</mark> Format		×
Eormat:		ОК
I		Cancel
C <u>C</u> haracter ⊙ <u>N</u> un	neric O <u>D</u> ate	
Editing options		
Left justify	C <u>R</u> if positive	
🔲 Blank if <u>z</u> ero	🗖 DB if negati <u>v</u> e	
🔲 (Negative)	Leading zeros	
SET DATE format	Currency	
🔲 <u>B</u> ritish date	🔲 Sciențific	

Character, Numeric, or Date:

Determines which of the following options are available.

To upper case:

Converts all characters to uppercase.

Ignore input mask:

Not applicable.

SET DATE format:

Displays dates using the current format specified in the Regional Settings of your Windows Control Panel.

British date:

Displays dates as DD/MM/YY.

Left justify, Right justify, and Centre justify:

Specify the alignment of the field.

Blank if zero:

Displays a blank space if the field contains zero.

(Negative):

Places negative numbers in parentheses.

CR if positive:

Displays CR (credit) after positive numbers.

DB if negative:

Displays DB (debit) after negative numbers.

Leading zeros:

Prints all leading zeros.

Currency:

Displays numbers using the format specified in the Regional Settings of your Windows Control Panel.

Scientific:

Displays very large or very small numbers in scientific notation.

Calculations:

Displays the Calculate Field dialog box so you can select an expression for a summary field.

🔀 Calculate Field	×
Reset: End of Report	OK
Calculate	Cancel
C <u>C</u> ount	
C <u>S</u> um	
C <u>A</u> verage	
© <u>L</u> owest	
O <u>H</u> ighest	
© Standard <u>d</u> eviation	
C ⊻ariance	

Nothing:

No calculations are made on this field.

Count:

Counts the number of times a field is printed per group, page, column, or report (depending on your selection in the Reset list). The calculation is based on the number of times the field occurs, not on the field's value.

Sum:

Computes the sum of the field's values. This option keeps a running total of the values for a group, page, column, or report (depending on your selection in the Reset box).

Average:

Computes the arithmetic mean (average) of the field values within a group, page, column, or report (depending on your selection in the Reset box).

Lowest:

Displays the lowest value that occurred in the field for a group, page, column, or report (depending on your selection in the Reset list).

Highest:

Displays the highest value that occurred in the field for a group, page, column, or report (depending on your selection in the Reset box).

Standard deviation:

Returns the square root of the variance for the field values within a group, page, column, or report (depending on your selection in the Reset box).

Variance:

Measures the degree to which individual field values vary from the average of all the values in the group, page, column, or report (depending on your selection in the Reset box).

Stretch with overflow:

Causes the field to expand down if there is more information in the field than can be displayed on one line.

Rectangles and Lines

Rectangles and lines have the following additional properties:

🖪 Rectangl	e / Line	×
Print Wh	en	ОК
		Cancel
_Object po:	sition	
	● <u>F</u> loat	
. <mark>↓</mark>	⊂ Fix relative to top of band	
	C Fix relative to <u>b</u> ottom of band	
-Stretch do	wnwards	
	€ <u>N</u> o stretch	
	C Stretch relative to tallest object in gro	bup
	${f C}$ Stretch relative to <u>h</u> eight of band	
C <u>o</u> mment:		
		<u></u>
		~

No stretch:

Specifies that the object doesn't stretch vertically as the band stretches.

Stretch relative to tallest object in group:

Specifies that the object stretch to accommodate the tallest object in the group.

Stretch relative to height of band:

Specifies that the object stretch to fit in the band.

Rounded Rectangles (including ellipses and circles)

Rounded rectangles, ellipses, and circles have the following additional properties:

Round Re	ctangle 🛛 🗙
Style:	OK Cancel
Object pos	ition C <u>F</u> loat C Fix relative to <u>t</u> op of band C Fix relative to <u>b</u> ottom of band
Stretch dov	vnwards [●] <u>N</u> o stretch [●] Stretch relative to ta <u>l</u> lest object in group [●] Stretch relative to <u>h</u> eight of band
Print Whe	n

Style:

Specifies how the object appears, and determines if it's a rounded rectangle or ellipse/circle.

No stretch:

Specifies that the object doesn't stretch vertically as the band stretches.

Stretch relative to tallest object in group:

Specifies that the object stretch to accommodate the tallest object in the group.

Stretch relative to height of band:

Specifies that the object stretch to fit in the band.

Pictures

🛃 Report Pi	cture			
Picture fror ● <u>F</u> ile: ● F <u>i</u> eld:	n	OK Cancel		
		Print When		
• <u>C</u> lip pic				
C <u>S</u> cale picture, retain shape				
O Sc <u>a</u> le p	icture, fill the frame			
CObject Pos	stion			
	C Float			
	Fixed relative to top of band			

C Fixed relative to bottom of band

×

Pictures have the following additional properties:

File:

Center picture

Comment:

The graphics file name. Type the path and file name in the box, or choose the dialog button to open the Open dialog box so you can select the desired file.

Field:

This option isn't used.

Clip picture:

Shows a section of the original picture in the frame, retaining the picture's original dimensions if the picture is bigger than the frame you

created in the Report Designer. The picture is anchored at the top and at the left of the frame. You cannot see the lower-right portion of the picture that extends beyond the frame.

Scale picture, retain shape:

Displays the whole picture, filling as much of the frame as possible while retaining the relative proportions of the picture. This will protect your picture from vertical or horizontal distortion.

Scale picture, fill the frame:

Displays the whole picture, filling the frame completely. If necessary, the picture will be distorted vertically or horizontally to fit the frame.

Centre picture:

Not used.

Variables

Report variables allow you to define calculations to be performed for every record. This can be used, for example, for running totals. To define or edit a variable, choose the Variables function in the Report menu.

Report Variables	×
¢	OK Cancel
	<u>I</u> nsert Delete
Value to store: 0 Initial value: 0 Belease after report Reset at: End of Report	Calculate Nothing C Count Sum Average Lowest Highest Std. deviation Yariance

To define a new variable, click on the first open slot in the variables list and type a name. To edit a variable, choose it in the list. To delete a variable, choose it and click on the Delete button.

The following options are available for variables:

Value to store:

The value or calculation to store to the variable for every record. It could be the name of a field, a constant value (such as 1), or an expression.

Initial value:

The variable's value before any calculations are performed, and the value to which the variable is reset.

Release after report:

This setting is ignored.

Reset:

Allows you to specify the point at which the variable is reset to its initial value. By default, End of Report is displayed in the list box. You can also select End of Page or End of Column. If there are any groups in the report, the Reset box displays an item for each group.

Calculate:

These options allow you to specify a calculation that the variable performs. The variable begins calculating with its initial value, and continues until it is reset to this initial value. The choices are:

Nothing:

No calculations are made on this variable.

Count:

Counts the number of times a variable is printed per group, page, column, or report (depending on your selection in the Reset list). The calculation is based on the number of times the variable occurs, not on the variable's value.

Sum:

Computes the sum of the variable's values. This option keeps a running total of the values for a group, page, column, or report (depending on your selection in the Reset box).

Average:

Computes the arithmetic mean (average) of the variable values within a group, page, column, or report (depending on your selection in the Reset box).

Lowest:

Displays the lowest value that occurred in the variable for a group, page, column, or report (depending on your selection in the Reset list).

Highest:

Displays the highest value that occurred in the variable for a group, page, column, or report (depending on your selection in the Reset box).

Standard deviation:

Returns the square root of the variance for the variable values within a group, page, column, or report (depending on your selection in the Reset box).

Variance:

Measures the degree to which individual variable values vary from the average of all the values in the group, page, column, or report (depending on your selection in the Reset box).

Expression Builder

The Expression Builder allows you to create and edit expressions that appear on the report. An expression can be as simple as a TSM field name or as complex as a calculation involving multiple fields added or multiplied together. The main purpose of the **Expression Builder** is to facilitate the creation of expressions by providing you with lists of appropriate options each step of the way.

Use the expression builder if you do not know the name of the TSM data field you want to include in the report.

To create an expression, you can type it directly into the expression box, or you can select items from the functions drop-down lists in the dialog box to have TSM paste them into the expression box for you.

You might find some of the following functions useful when manipulating information in expressions.

If you want to	Use this function
Remove leading and trailing blanks from character expressions	ALLTRIM()
Remove leading blanks	LTRIM()
Remove trailing blanks	RTRIM()
Add specified characters to the left, right, or both sides of a string	PADL(), PADR(), PADC()
Work with parts of a character string for comparisons	SUBSTR()
Use a specified number of characters starting with the left of a string	LEFT()
Use a specified number of characters starting from the right of a string	RIGHT()
Change uppercase to lowercase, or lowercase to uppercase	UPPER(), LOWER()
Convert a string to initial capitals	PROPER()

Have a numeric field interpreted as a character string STR()

Expression Builder		×				
Expression for Field on Report:						
servcard.priority	ОК					
	T	Cancel				
Functions		Verify				
String: <u>M</u> ath:		<u></u> emy				
"text"	^	Options				
Logical:						
0	▼ {date} ▼					
<u>F</u> ields:	Va <u>r</u> iables:	_				
servcard.acthrecid	mignore_error N	7				
servcard.action	mresource L	1				
servcard.actsrecid	mregistered L	-				
servcard.allocated	mregusers N					
servcard.approved	merrfound L					
servcard.assetno	multiloc L					
servcard.authno	mlastday L					
servcard.billcust	mwarning L					

Expression

Displays the expression that you are creating or editing.

Functions

Contains list boxes of four function types. When you select a function from one of the four types, TSM automatically pastes it into the expression box. Use functions to modify the expression selected or drop system information into the field. For example, you could use a date function to display the system date, convert a string to upper case, or calculate the maximum of two values.

- String Lists available character string functions.
- Logical Lists available logical functions.
- Math Lists available math functions.
- Date Lists available date and time functions.

Fields

Lists the fields in the current table or view. To paste a field into the expression box, either double-click the field or select the field and press Enter.

The field name is preceded by the name of the table the field belongs to. For example, the Job Card job number is called Servcard.Servcardid.

Note: If the Field list is blank, close the Expression Builder and press the Right Mouse button anywhere on the report screen. From the local menu, select Data Environment. Immediately close the Data environment as soon as it appears. Now go back to the Expression Builder and you should see a list of fields.

Variables

Lists the variables in the current table or view. To paste a variable into the expression box, either double-click the field or select the variable and press Enter.

Verify

The Verify Button validates the syntax of the expression in the expression box. If the expression is valid, "Expression is valid" is displayed in the status bar. If it is not valid, TSM displays an error message. This will work for most reports but some reports will give you a false rejection even though there is nothing wrong as the tables for the report are only opened when the report is printed and are not open at design time.

Note: The best way to understand how field expressions work is to double click on any of the fields of an existing report and look at its report expression. You will quickly come to terms with how this option works.