











Quick reports (64-bit)

Compatibility note

Welcome to the new Quick Report editor of 4D. This editor is available in 64-bit versions of 4D Developer Edition and will gradually replace the standard 32-bit editor in future versions of 4D.

-  Overview
-  Managing quick reports
-  Adding columns and labels
-  Graphic attributes of a quick report
-  Sorting records and adding breaks
-  Adding calculations
-  Setting column display formats
-  Hiding rows or columns
-  Adding headers and footers
-  Executing a quick report

One of the most important tasks in data management is report generation. The Quick Report editor is one of two tools made available by 4D for the purpose of designing reports. You use the Quick Report editor to create ad-hoc reports in the Design and Application environments.

The other tool is the **Form editor**, which you can use to design reports in the Design environment (which can be altered subsequently in Application mode). You should use an output form to design reports that require complex designs or programmatic processing. This possibility is detailed in the **Output forms and reports** chapter.

Using the Quick Report editor, you can:

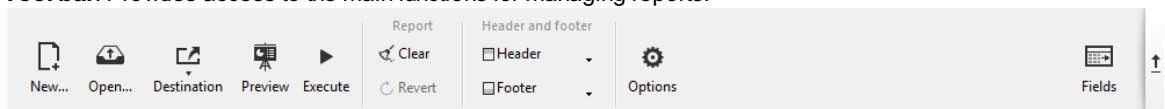
- Produce lists of records
- Create break areas
- Produce cross-table reports
- Compute summary calculations
- Modify fonts and styles in the report
- Define background colors on a cell basis
- Save and open quick report designs to/from disk
- Select different output types such as HTML or text file, printing or saving to disk.

The Quick Report editor can be managed by programming using the commands of the **Quick Report** theme.

Description of the editor

The Quick Report editor contains the following elements:

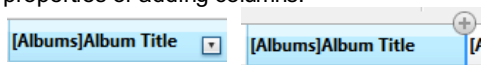
- **Tool bar:** Provides access to the main functions for managing reports.



- **New...:** Creates a new blank quick report design. This button allows you to select the report type: list or cross-table (see below).
 - **Open:** Manages quick report files. These buttons are described in the **Managing quick reports** section.
 - **Destination:** Used to designate the output type for the report. This is described in more detail in the **Executing a quick report** section.
 - **Preview:** Uses the preview system of your OS to display a print preview of the report.
 - **Execute:** Generates report with the current data in the destination format defined (see **Executing a quick report** section).
 - **Clear:** Erases all columns and rows of the report design template so that you can start over with a blank window. This button displays a confirmation dialog box.
 - **Revert:** Replaces the current report design with the last version saved to disk. This button is disabled when the design displayed has not been saved in a file on disk.
 - **Header and Footer:** Used to set the header and footer areas of quick reports. These options are described in the **Adding headers and footers** section.
 - **Options:** Displays the report options window. The options displayed depend on the current output destination of the report.
 - **Fields:** Displays a window listing all the fields of the current table and any related tables on one side, along with all the columns of the report on the other side. You can easily add, move or delete fields in the report (see **Defining the report using a fields list**).
 - **Hide bar:** You use the vertical arrow button to hide or display the tool bar.
- **Report design and preview area:** This area lets you build your report design template and insert fields using the (+) button or the pop-up window; you can also adjust the width of columns, add or remove subtotals and formulas, set cell background or text colors, and so on.

		[Albums]Album Title	[Albums]Musician	[Albums]Purchase Price
Title row	Title	Title	Musician	Price
Detail row (body)	Format			
Subtotal row	[Albums]Musician changed			
Total row	Grand total			

- **Title row:** Displays the names of fields or formulas that have been inserted into the report. This row is repeated for each page of the report. The Quick Report editor inserts field names by default, but you can modify the contents.
- **Format (Detail) row:** Contains information drawn from each record and is repeated in the report for each record. You can associate a display format with it, depending on the type of data represented.
- **Subtotal row(s):** Displays intermediate calculations as well as the wording associated with them. A subtotal row is created for each sort order.
- **Column data sources:** Indicates the source of the data for each column.
- **Pop-up windows and local menus:** Provide access to various editor functions, such as modifying cell properties or adding columns.



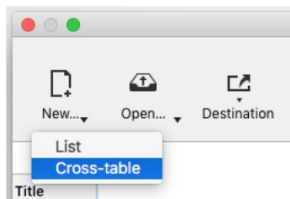
The following diagram illustrates the relationship between the specifications in the design itself and the printed output:

	[Albums]Music Category	[Albums]Album Title	[Albums]Purchase Price
Title	Genre	Title	Purchase Price
Format			
[Albums]Music Category changed		Total :	Σ
Grand total		Grand total :	Σ

Genre	Title	Purchase Price
Blues	Best of B. B. King	19.55
	Total :	19.55
Classical	Rhapsody in Blue, An American in Paris	12.95
	Virtuoso - Ludwig Van Beethoven	10.55
	Brahms Piano Quintet - Clarinet Quintet	0
	Season for Love	12.99
	Total :	36.49
Country	Lucille and Other Classics by Kenny Rogers	11.5
Rock	The Long Run	14.99
	Total :	14.99
Soul	The Best of the Sylistics	8.2
	Temptations 25th Anniversary Volume II	10.55
	Best of Gladys Knight & the Pips, 1973-1988	6.99
	Bad	20.99
	Double Good Everything	12.99
	Gettin' Ready	14
	Kool & The Gang Spin Their Top Hits	15.5
	Total :	89.22
	Grand total :	273.53

List mode and Cross-table mode

In the Quick Report editor there are two operation modes available that generate two specific types of reports: List and Cross-table.



- **List mode**

This is the default mode. In this mode, reports typically display records as a list with break levels where sums are performed. The following is a typical List type quick report:

First Name	Last Name	Department Name	Salary
Biff	Davis	Accounting	43780
Smeldorf	Garbando		19610
Alan	Hull		41460
Bryan	Pfaff		26440
Shirley	Ransome		36040
Marlys	Wilson		36500
Sum for Department : Accounting			203830
Kathy	Forbes	Engineering	18840
Dennis	Hanson		40520
Mary	Smith		55000
Andy	Venable		43520
Lance	Wolfram		27300
Sum for Department : Engineering			185180

- **Cross-table mode**

This mode allows you to display your report as a two-dimensional table. This is useful when you want to display data from one data source broken down into categories that are actually a function of two other data sources. For example, a cross-table form would let you display, in a table, how many of each product type was sold in each quarter. The following is a typical Cross-table type quick report:

	AV Preamplifier	Power module	Remote control	Line Total
Q1	34	29	39	102
Q4	48	64	21	133
Q3	49	68	40	157
Q2	64	74	47	185
Grand total	195	235	147	577
	5.9090909090909	5.875	5.4444444444444	5.77
	1	1	1	1

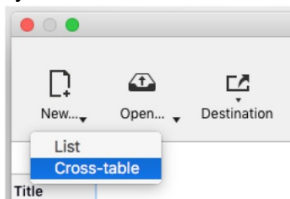
Creating a Quick Report

The Quick Report editor lets you create reports in the Design or Application environments. You can open the report editor in its own window, or insert it into a form area.

Compatibility note: Plug-in areas of the former 4D Quick Report editor are supported and converted on the fly into subform areas.

To design a Quick Report in the editor:

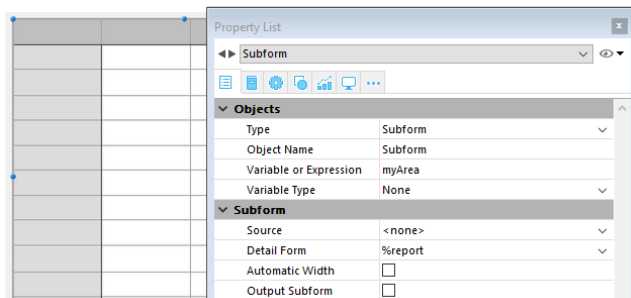
1. Choose **Quick Report...** from the **Tools** menu or click on the **Tools>Quick Report** button in the toolbar.
4D displays the Quick Report editor in List mode, by default.
If a previous report has been defined, it appears in the editor window. To clear the contents of the window, click on **Clear** or **New...** in the standard toolbar of the editor.
2. If you want to create a cross-table report, select **New>Cross-table** in the standard toolbar:



3. Begin defining the contents of your report.

To create a Quick Report in a form:

1. Add a subform area and assign the following properties to it:
 - "Output Subform": option deselected
 - "Detail Form": select the system subform **%report (4D Report)**
 - "Variable or Expression": reference of the area (to be passed to commands of the **Quick Report** theme)



Note: For more information on subforms, refer to [Page subforms](#).

2. In the form method, initialize the field with a code of the type:

```
If (Form event=On_Load)
  C_LONGINT (myArea)
  QR SET REPORT TABLE (myArea;1) //pass the number of the report table
End if
```

3. Start defining the contents of the report using the context menu or via the language commands.

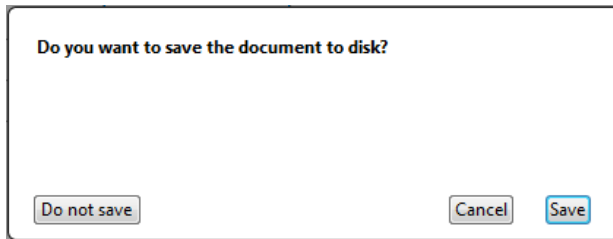
Loading and saving a quick report

You can save a quick report design as a file that you can open from the Quick Report editor. The quick report design includes all of your specifications for the report, but not the data. By saving report designs, you can maintain a library of quick report designs that you can use according to your needs.

When the Quick Report editor is open, you can load a saved design and use it to print a new report. You can use the same quick report design repeatedly to print different selections of records.

To save a quick report design:

1. Close the Quick Report editor or click on the **New...** or **Open** button in the tool bar of the editor.
If the current report design has not yet been saved, the following window appears:



2. Click on **Save**.

4D displays a standard save file dialog box in which you can name the quick report design. Quick report files in 4D are denoted by the file extension “.4qr”.

Note: If you close the editor without saving your report, it is nevertheless stored in the current memory until the database is exited. This means that it will still be displayed if the editor is opened again.

3. Enter a filename for the quick report and click **Save**.

4D saves the report as a file that you can open again with the Quick Report editor. You can save the file on your hard disk. If you modify the parameters of the report subsequently, they will be automatically saved in the report file, without the standard save file dialog box appearing.

To load a report design saved on disk:

1. Click **Open...** in the tool bar of the editor.

OR

Click the **Open...** icon in the file management tool bar.

4D displays an open file dialog box displaying a list of available quick report designs.

2. Double-click a file name or select a file name from the list and click **Open**.

4D replaces the current design with the design you opened.

Compatibility note: Reports created with the former Quick Report editor of 4D are supported; they can be opened, modified and saved without changing their internal format.

Adding columns and labels

You create a list report by adding columns containing field references or formulas, and a cross-table report by adding field references or formulas in the data cells.

For both types of reports, you can add and organize field references in two ways:

- directly in the quick report preview area
- using a fields list window, named "field picker"

Adding formulas is described in the [Adding calculations](#) section.

Principles of use for database fields

- When you work in Design mode, the Quick Report editor considers all database relations as automatic, and thus allows access to all the related data of the database. In Application mode, when the editor is called using the **QR REPORT** command, non-automatic relations are not automatically enabled and it is up to the developer to manage the status of the relations.
- Invisible tables and fields do not appear in the lists of fields of the Quick Report editor. For more information about this property, refer to the "Invisible" paragraph of the [Table properties](#) and [Field properties](#) sections.
- Object and Blob type fields are not supported by the Quick Report editor.

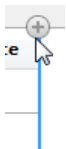
Defining a report in the preview area (List reports)

You can work with columns directly in the report template or using the field picker window (see the following section).

Adding or inserting columns

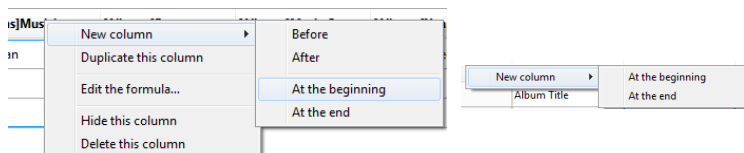
You can add, insert or duplicate columns in the report design template. When you add a column, the editor automatically uses the next "available" field of the current table, in the order of creation.

You can use the (+) icon that is shown at the top of each column separator:



- Clicking directly on the icon adds a new column at the end of the report.
- A right-click on this icon displays a pop-up window where you can either choose to add all fields of the current table, or add a formula.

Each column of the report has a pop-up window that you can use to insert another column: either before or after the existing one, or at the beginning or end of the report. A pop-up window is also available at the top left corner of the report design template:



You can also duplicate a column using the pop-up window available when you right-click on its header: just choose the **Duplicate this column** command and an identical column is added to the right of the original one.

You can move a column at any time by clicking on its header and dragging it to a new location.

Deleting columns

As you specify fields for your quick report, you may want to remove certain columns. To delete a column, right-click on its header, then select the **Delete this column** command from the pop-up window.

Replacing columns

You can replace a field with a formula and vice versa:

1. Double-click on the column header, or right-click on it and choose **Edit the formula...** in the pop-up window. The standard **Formula editor** of 4D appears, allowing you to designate the new data source of the column (field or formula). When you print the quick report, 4D prints the results of the formula for each record that appears in the **Format** row. For more information about this point, refer to [Associating formulas with a quick report](#).

Defining a report using the field picker (List reports)

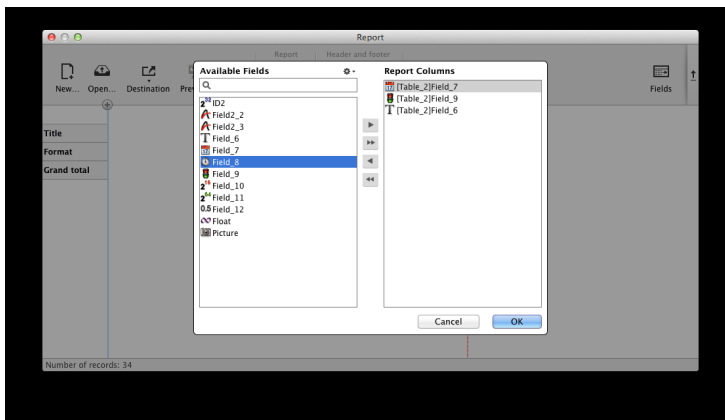
You can click on the **Fields** button in order to access the available fields window, where you can organize the columns of the editor displayed in the form of a list.



Fields

The window has two adjacent lists:

- **Available Fields** includes all the fields of the current table as well as fields of any related tables
- **Report Columns** lists the columns currently included in the report.

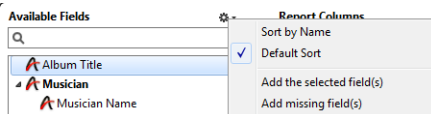


You can add and remove fields in the **Report Columns** list using the arrow buttons found between the lists, and you can change the order of the fields by dragging them up or down directly in this list. You can also add fields by simply double-clicking them in the **Available Fields** list.

When you click **OK**, all the changes made are automatically mirrored in the report itself. For example, if you remove or add a field in the **Report Columns** list, the corresponding column is also removed or added in the report itself; the same goes for any changes made in the field/column order.

Note: The search area performs a "contains" type search; i.e., it displays all fields whose name contains the letter(s) entered.

You can use the action menu  to sort the **Available Fields** list, or quickly add multiple fields from this list to the **Report Columns** list.



- **Sort by Name:** sorts fields alphabetically.
- **Default Sort:** sorts fields based on order of creation.
- **Add the selected field(s):** adds fields to **Report Columns** list, in the same order they are selected.
- **Add missing field(s):** adds all fields (not already included) to **Report Columns** list.

Adding or modifying values in data cells (Cross-table reports)

You can add or modify values in the different data cells ("Columns", "Rows" and "Cells") either by using the field picker dialog box, or by double-clicking on each data cell separately.

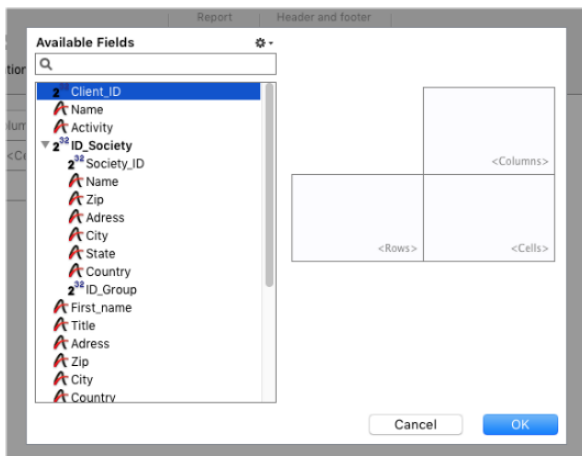
Using the field picker dialog box

To assign fields to data cells, click on the **Fields** button in the tool bar of the Quick report editor:



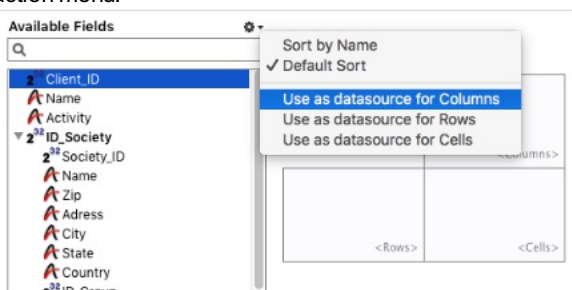
Fields

The field picker dialog box is displayed:



You have three ways to add or organize fields in the data cells:

- Double-click on an item in the Available Fields list to assign it to the first empty data cell (order is columns, rows, cells),
- Drag an item in the Available Fields list and drop it in a data cell in the right-hand part.
- Select an item in the Available Fields list and assign it to a data cell by choosing the corresponding command in the action menu:



Using the formula editor

You can assign a formula to a data cell (or edit the existing one) by double-clicking the cell area to display the Formula editor. You can then select a field, or write a formula for the cell.

The Formula editor is also available using the **Edit the formula...** command in the context menu of a data cell.

Associating formulas with a quick report

You can add quick report columns whose contents are calculated automatically by formulas when the report is generated. For example, you can add a formula that computes employees' monthly salaries from an Annual Salary field.

To add a formula type column:

1. Add or insert a new column (see above).
2. Double-click on the column header or right-click on it and choose **Edit the formula...** in the pop-up window. 4D displays the **Formula editor**. The editor displays the current contents of the column. The formula you create will replace it.
Note: Make sure that the formula you create does not change the current selection. Changing the current selection will cause problems when you print the quick report since the report is based on the current selection.
3. Build the formula by selecting fields, operators, 4D commands and/or methods, then enter the desired values in the editing area.
 OR
 Click the **Load...** button to retrieve an existing formula from disk.
 For more information about the formula editor, refer to the **Formula editor** section.
 To save the formula as a file that you can retrieve and use in another column or in another report, click the **Save...** button and enter a file name in the dialog box.
4. Click **OK** to assign the formula to the column.
 4D adds a new label to the column that identifies it as a formula. You can rename the column by typing a label into the header cell for that column. The formulas are labelled **C1** to **Cx**. These labels are the name of the variables

containing the current value of the column. You can use these variables in other formulas.

C1
Monthly salary

Note: The Cx variables for quick reports must be typed in case of database compilation (see [Quick report variables](#)).

Sizing columns

By default, the Quick Report editor sizes columns automatically, as reflected in the Automatic Width button. It sizes each column based on the maximum length of data displayed in the column as well as any labels typed into the column. The Quick Report editor sizes the columns when the report is printed.

This operation is enabled for a column when the **Automatic Width** attribute has been associated with it. You can set and view the activation of this option in the pop-up window associated with the column:

To view the widths of each column, preview the report on screen by clicking on the **Preview** button.

Because selecting the **Automatic Width** option changes the column width based on the maximum width of the data in the records being printed, selecting different records can change the column size.

You can resize a column manually, which automatically causes the **Automatic Width** option to be deselected (where applicable). When a column size is set manually, the column text wraps within the specified area.

Adding and modifying text

You can add or modify text in the quick report form to label parts of the report. For example, if you requested summary calculations, you can label them by adding text to other cells in the Subtotal and Grand total rows. You can add and modify text as follows:

- Edit the text that 4D automatically adds to the Title row of the report.
- Insert text in empty cells of the Subtotal and Totals rows.
- Insert the value of a Subtotal field in the Subtotal rows,
- Specify the font, font size, justification, and style for any text that appears in the report.

To add text, double-click on an empty cell in the quick report form. A text insertion point appears in the cell, so that you can enter your label:

Note: A local menu also appears so that you can add a calculation.

If you are entering a label for a summary calculation, select a cell in the same row as the cell containing the calculation icons. You cannot enter text in the same cell that contains summary calculations.

To modify text, double-click in a cell to switch to editing mode. You can also right-click in order to display a pop-up window allowing you to edit or clear the cell contents:

Graphic attributes of a quick report

You can modify the graphic appearance of a quick report. The Quick Report editor lets you set the following attributes:

- the character font, as well as its size, justification, style and color,
- the background color of the cells, as well as an alternate background color.

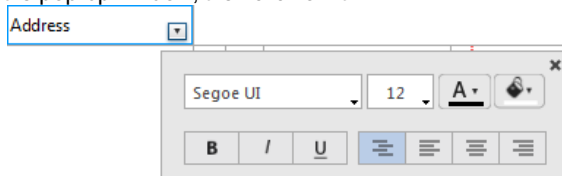
Note: Appearance specifications are only taken into account for the “Printer” and “HTML” output destinations (colors). For more information about report destinations, refer to [Executing a quick report](#).

Specifying character font, size, justification, style, and color attributes

While designing your quick report, you can specify different fonts, font sizes, justification, styles, font colors and background colors. You can then apply these specifications to text, data, and summary calculations within rows, columns, or cells in the quick report.

To specify a character font, font size, style, justification or color:

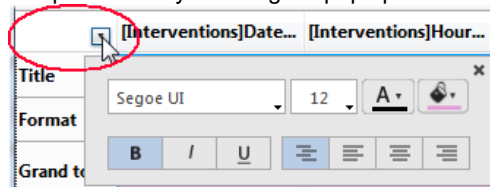
1. Place the mouse over the bottom right of the element you want to configure in order to display the button for calling the pop-up window; then click on it:



Note: The pop-up window can display additional options in its lower part based on the element being configured.

2. In the upper part of the window, choose the graphic property to be defined:
 - font,
 - font size,
 - font color,
 - background color,
 - style,
 - justification of contents.

4D applies the parameters to the text, data or calculations included in the selected area. You can define parameters for all report areas by selecting the pop-up button in the top left cell of the report design:

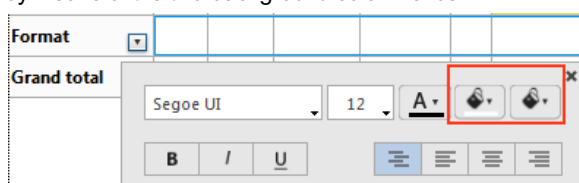


Note: Justification parameters are not previewed in the report area, but are applied in generated reports.

Specifying an alternating background color

The Quick Report editor allows you to set an alternating background color for the report, which provides better readability for tables.

To set an alternating background color, display the pop-up window of the **Format** row and specify two colors to be used by means of the two background color menus:



Here is an example of a generated report (preview) that has alternating background colors:

Music Category	Album Title	Musician
Soul	Bad	Michael Jackson
Blues	Best of B. B. King	B. B. King
Soul	Best of Gladys Knight & the Pips, 1973-1988	Gladys Knight & the Pips
Classical	Brahms Piano Quintet - Clarinet Quintet	Benda Musicians, The
Easy Listening	Carpenters - Their Greatest Hits	Carpenters, The
Soul	Double Good Everything	Smokey Robinson
Soul	Gettin' Ready	Temptations
Jazz	Jazzis Magazine April 1995 Collection	Various
Easy Listening	Johnny Mathis, 16 Most Requested Songs	Johnny Mathis

Background colors are also taken into account in reports generated in HTML format.

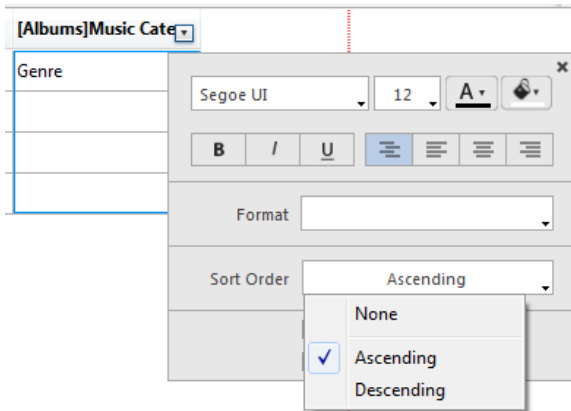
Sorting records and adding breaks

An important feature of the Quick Report editor is the ability to sort the records in your report. You sort records for two reasons:

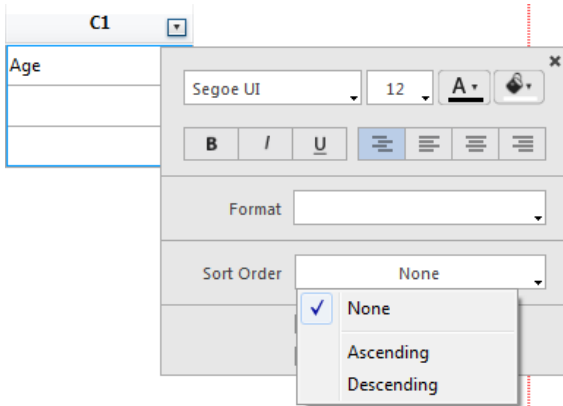
- To view records in a particular order,
- To create groups of records and subtotal areas in the report for the purpose of reporting summary calculations for groups.

Specifying a sort order for a list report

You can specify a sort order at any time using the pop-up window associated with the column header. You choose a sort order (ascending or descending) using the **Sort Order** menu of this window:



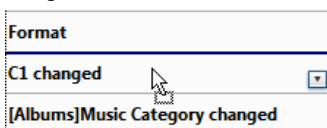
This works for columns containing fields or formulas:



For more information about formulas, refer to [Associating formulas with a quick report](#).

Changing the sort level

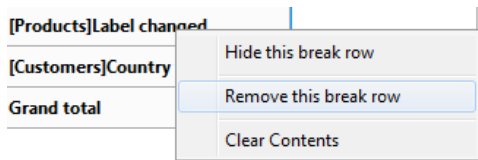
You can sort a report on several levels. Sort levels are displayed in order as break rows (subtotals) in the report design area. To change the level of a sort, you can drag and drop the break rows to move them up or down within the report design area:



Deleting a sort or a break row

You can delete any break level along with the associated sort of the column either by:

- choosing **None** in the "Sort Order" menu of the pop-up window for the associated column, or
- selecting **Remove this break row** in the pop-up window for the row:



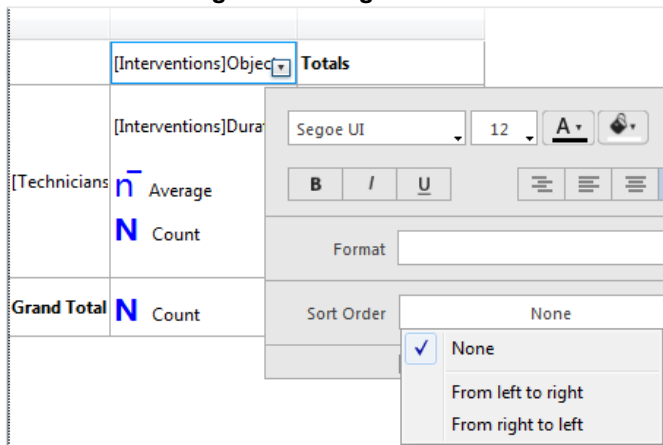
The break level is then removed. Note that in both cases, the column is no longer sorted. If you want to sort a column without adding a corresponding break level, you can simply hide the break row using the pop-up window (see [Hiding rows or columns](#)).

Sorting cross-table values

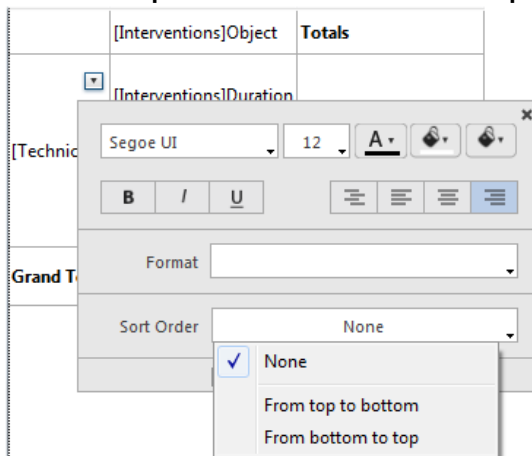
In a Cross-table report, the only values that can be sorted are the horizontal and vertical data sources (the two data sources that are used as categories in the final table).

To sort the categories in a cross-table report, open the contextual window related to the category and select a value in the **Sort Order** menu of the pop-up window:

- select **From left to right** or **From right to left** to sort the horizontal data source:



- select **From top to bottom** or **From bottom to top** to sort the vertical data source:



For example, the following cross-table report was sorted from right to left and from bottom to top:

Average duration of intervention

	Training	System	Software	Network	Hardware	Totals
NEY	01:14:04 179	00:17:49 341	00:50:34 155	00:51:31 387	00:25:28 411	00:39:05 1473
MURAT	01:15:04 248	00:17:29 386	00:49:21 180	00:51:26 494	00:23:37 530	00:39:16 1838
MUIRON	01:13:21 238	00:16:45 430	00:50:10 201	00:49:53 522	00:24:54 582	00:38:09 1973
MASSENA	01:13:42 218	00:17:51 360	00:49:38 190	00:49:10 429	00:25:03 506	00:38:34 1703
LANNES	01:14:19 188	00:16:07 372	00:48:58 143	00:50:17 431	00:25:14 499	00:37:30 1633
BONAPARTE	01:13:59 160	00:18:22 325	00:48:25 178	00:51:25 417	00:23:37 510	00:37:40 1590
BERTHIER	01:14:21 191	00:16:19 332	00:51:07 146	00:48:45 389	00:24:38 461	00:37:47 1519
Grand Total	1422	2546	1193	3069	3499	11729

Subtotal levels

In a quick report, you set break levels to separate or “break” records into groups according to values in one or more sort fields. A break area is printed at each break level. You can print summary calculations in the break area. The summary calculations — sum, average, minimum, maximum, count and standard deviation — are calculated for each group of records.

Break levels are determined by the sort levels and Break rows. For example, if you sort records by Sales Region, 4D inserts a break between each group of records that have the same sales region. These rows are automatically inserted when a sort is defined.

After you add a subtotal row to the quick report, you can request summary calculations on each break. For example, you can insert a summary calculation in a subtotal row to display subtotals for sales from each state in a marketing region. For more information about adding summary calculations to Subtotal and Total rows, refer to [Adding summary calculations](#).

	[Customers]Country	[Products]Label	[InvoiceLines]Quanti...
Title	Country	Article	Quantity
Format			
[Customers]Country changed			
[InvoiceLines]Quantity changed			
Grand total			

The label of a subtotal row indicates which change in value triggers the break.

Using the values of break fields in labels

You can improve the appearance and clarity of your reports by labeling each Subtotal row using the value of the Break field.

To request that the value of a Break field be printed in a label placed in the Break area, use the number sign (#) in the label. For example, the text “Total salaries for # department” will insert the department name (in this case, the value of the Department field) in place of the number sign when the report is printed.

The number sign does not need to be placed in the same column as the Break field. It will display the value of the Break field in any cell in the Subtotal row.

The following figure illustrates the use of the number sign in a label in the Subtotal row:

	[Customers]Country	[Products]Label	[InvoiceLines]Quanti...
Title	Country	Article	Quantity
Format			
[Products]Label changed			
[Customers]Country changed		Total quantity for #	Σ
Grand total			Σ

In the report generated, the following break row will be added to each country group:

Rye	91
	19
Soy	50
Total quantity for France	612

Adding calculations

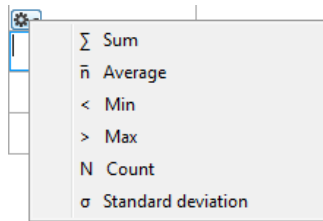
Adding summary calculations

You can add summary calculations on the contents of fields and formulas to total row, subtotal rows as well as (cross-table reports) to total column.

The summary calculation options available for quick reports are found in the pop-up window for a subtotal row or total row/column:



These calculations are also available in the menu that appears when you double-click a cell in a subtotal row or total row/column:



- **Sum:** Totals the values in the report or break.
- **Average:** Calculates the average of the values in the report or break.
- **Minimum:** Displays the lowest value in the report or break.
- **Maximum:** Displays the highest value in the report or break.
- **Count:** Calculates the number of records in the report or break.
- **Standard deviation:** Displays the square root of the variance of the report or break (the variance is a dispersion value around the average).

The **Sum**, **Minimum**, **Maximum** and **Average** calculations only work on a numeric field or formula.

- **List Reports**

When you place a summary calculation in the Total row, the calculation is done for all records in the report. If you place the summary calculation in a Subtotal row, separate calculations are done for the records in each break.

- **Cross-table reports**

Summary calculations will apply as follows:

	[Invoices]Item	Totals
[Invoices]Quarter	<div><div>Σ Sum</div><div>n̄ Average</div><div>1</div></div>	<div><div>Σ Sum</div><div>n̄ Average</div><div>2</div></div>
Grand Total	<div><div>Σ Sum</div><div>n̄ Average</div><div>< Min</div><div>3</div></div>	<div><div>Σ Sum</div><div>n̄ Average</div><div>< Min</div><div>4</div></div>

1 = Applies to each cell of the table

2 = Applies to values in each row

3 = Applies to values in each column

4 = Applies to values in both the last column and last row

4D displays a calculation icon in the selected cell for each type of summary calculation you request (when no label is added). You can place several calculations in the same cell; they will be stacked in the report generated. The following figure shows the Sum, Average and Min icons in a Subtotal row:



Note that if you insert text labels in the cell, the calculations appear as codes (see below). If you add several calculations, you can format the cell, add commas, carriage returns, and so on.

Total: ##S
Average: ##A

Using calculations and column values in labels

You can insert summary calculations using the following codes:

- ##S will be replaced by the **sum** in the Subtotal or Total row.
- ##A will be replaced by the **average**.
- ##C will be replaced by the **count**.
- ##X will be replaced by the **max**.
- ##N will be replaced by the **min**.
- ##D will be replaced by the **standard deviation**.
- ##xx, where xx is a column number. This will be replaced by that column's value, using its formatting. If this column does not exist, then it will not be replaced.

These codes can be useful when you want to mix labels and data in a cell.

Displaying repeated values for break columns

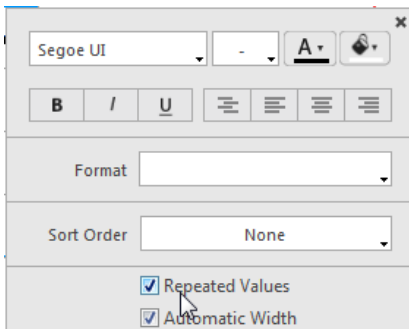
In a report with subtotals, the columns which are used to group records so that summary calculations can be done are called Break columns. In the report shown below, the Department field is a Break column since the records in the report are grouped by department.

When a report like this is printed, the values for the Break column are printed only once per break.

In other words, a department name is printed only for the first record in the group and is not repeated until the department changes.

First Name	Last Name	Department Name	Salary
Biff	Davis	Accounting	43780
Smeldorf	Garbando		19610
Alan	Hull		41460
Bryan	Pfaff		26440
Shirley	Ransome		36040
Marlys	Wilson		36500
Sum for Department : Accounting			203830
Kathy	Forbes	Engineering	18840
Dennis	Hanson		40520
Mary	Smith		55000
Andy	Venable		43520
Lance	Wolfram		27300
Sum for Department : Engineering			185180

In some cases, you may want to repeat the values for the Break columns so that they appear for every record in the Break area. You do so by selecting the **Repeated Values** column property. This property is set in the pop-up window associated with the column header:



When the report is printed, break column values are repeated for each record.

The following figure shows the previous report after the **Repeated Values** check box has been checked for the Department Name column:

First Name	Last Name	Department Name	Salary
Biff	Davis	Accounting	43780
Smeldorf	Garbando	Accounting	19610
Alan	Hull	Accounting	41460
Bryan	Pfaff	Accounting	26440
Shirley	Ransome	Accounting	36040
Marlys	Wilson	Accounting	36500
		Sum for Department : Accounting	203830
Kathy	Forbes	Engineering	18840
Dennis	Hanson	Engineering	40520
Mary	Smith	Engineering	55000
Andy	Venable	Engineering	43520
Lance	Wolfram	Engineering	27300
		Sum for Department : Engineering	185180

Setting column display formats

You can specify display formats for columns that contain numeric, alphanumeric, date, time and picture data.

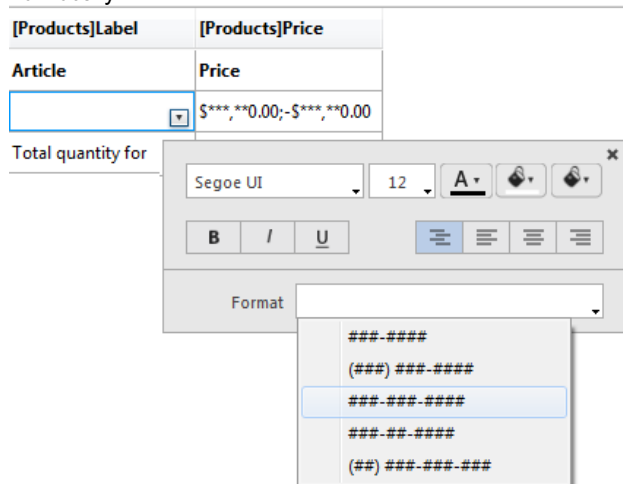
For example, if you are displaying prices in a column, you can add a numeric format to the Detail cell for the Price field. The `$###,##0.00;-###,##0.00` format places a dollar sign (\$) to the left of the number and can display dollar amounts from `-$999,999.99` to `$999,999.99`.

If your report includes Alpha fields, such as a telephone number or Social Security number, you can use an Alpha format. If your report displays dates, times or pictures, you can also assign display formats to them.

4D provides different default display formats. However, you can create your own display styles for numeric and alphanumeric formats. For more information about this point, refer to [Display formats](#).

To assign a display format to a numeric, alpha, date, time or picture field:

1. Display the pop-up window associated with the cell where you want to associate a style. You can use the header, in which case all the cells in the column will be formatted, or you can format each cell individually.



2. Select the desired display format from the **Format** submenu. The contents of the submenu vary according to the type of data contained in the column: numeric, alphanumeric, date, time or picture. If the report column contains data that cannot be formatted, the **Format** command does not appear in the pop-up window.

The format is entered in the cell of the **Format** row. If you have also requested summary calculations for the column, the format specified in the Format cell will automatically be applied to the summary calculations. The only exception is the "Count" calculation which is always displayed as an integer and does not accept any formatting symbols, such as a dollar sign.

You can also enter formats to be applied manually by clicking twice in the cell and entering the elements of the format using the keyboard.

Different formats can be applied to different columns in the report.

Hiding rows or columns

4D lets you hide rows or columns in a quick report in List mode. If desired, you can show a hidden column or row. Hiding rows is useful when you want the report to include only summary calculations. For example, hide the Detail row if you want to display only the summary calculations that appear in the Total and Subtotal rows. You can also use this feature to hide a Subtotal row or the Total row. You can hide a column if you need to use the column as a sort column, but do not want the report to display it.

You can hide/display a row or column using the Quick Report pop-up window.

To hide a row or column:

1. Right-click on the header of the row or column to be hidden, then choose **Hide this column** (or **Hide this row**, or **Hide this break row**) in the pop-up window.

4D displays the column in gray to remind you that the row will not appear when you print or preview the quick report.

	[Customers]Country	[Products]Label	[Products]Price	[InvoiceLines]Quanti...
Title	Country		Price	Quantity
Format	(###) ###-####		\$###,###,##0.00	
[Products]Label changed				
[Customers]Country changed		Total quantity for #		
Grand total				

Showing a hidden row or column

When a row or column is hidden, a check mark is displayed next to the **Hide this column** (or **Hide this row**, or **Hide this break row**) menu command in the pop-up window.

You can display a hidden row or column by choosing **Hide this [...]** again from the pop-up window. When you do so, the row or column is displayed normally in the Quick Report area.

Adding headers and footers

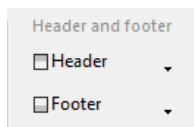
You can add page headers and footers to your quick report. They are inserted when the report is executed.

The Quick Report editors allow you to do the following:

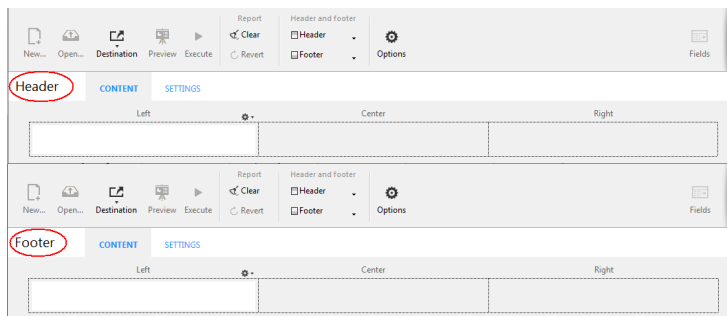
- Add page header and footer text or pictures,
- Specify the height of the page header and footer areas,
- Use separate text for left, center and right parts of the header and footer,
- Specify fonts, font sizes, and font styles for page header and footer text,
- Insert codes that add page numbers as well as the date and/or time to your reports.

You can only specify page headers and footers when printing to a printer. However, once they are defined, they are kept with the report, even if the destination is modified. For more information about alternate output destinations, refer to [Executing a quick report](#).

To add page headers and footers in a report design template, click on the **Header** or **Footer** button in the tool bar of the editor:



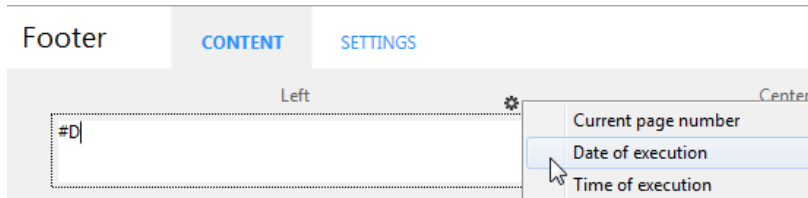
A definition area appears. This area works the same for headers or footers, only the label changes depending on which button you clicked:



Defining the content

You can use the **Content** page of the header and/or footer editor to define the content, both static and/or variable, to be displayed in each header and footer.

In the **Left**, **Center** and/or **Right** areas, you can enter information to be included in the report. You can insert the page number, as well as the date and/or time of execution in the header or footer of your report. There is a local menu above each entry area that you can use to insert variables:



You can also enter the code of these variables directly in the area:

- #H to insert the time of execution,
- #D to insert the date,
- #P to insert the page number.

Defining the settings

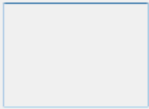
You can use the **Settings** page to configure the appearance of header and footer areas:

Header

CONTENT
SETTINGS

Height: 25 Points

Text style: Segoe UI 12Pts

Picture:


For each area, you can define:

- its height
- the font and text style
- a picture

Height

Enter the desired height for the header or footer in the **Height** area as well as, optionally, the unit. By default, the header and footer size is set to 25 points. You can change this value as well as the unit used. Click on the unit in order to scroll through the available values:

Height: 25 Centimeters

Text style

You can modify the font using a menu linked to the "Text style" area. To choose a font style, size or color, choose the **Show font...** command at the bottom of this menu in order to display a font selection system dialog box.


Picture

You can use this area to set a picture as the header or footer.

Picture:


To add a picture, you can:

- drag and drop a picture or a picture file onto the area.
- choose the **Load...** command in the local menu associated with the area:

Picture:


Load...
Clear
Aligned to left
☒ Centered
Aligned to right
Apply the height of the picture to the area

By default, the picture is pasted in the center of the header or footer area. However, you can modify its location (Aligned to left, Centered, or Aligned to right) using the local menu.

The **Apply the height of the picture to the area** option lets you automatically resize the height of the header or footer based on that of the picture inserted:

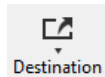


Executing a quick report

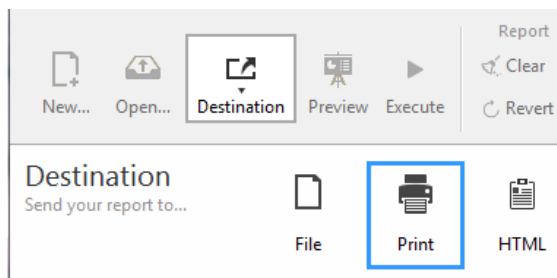
After you have completed your report design, you can “print” the quick report. You can print a quick report to a variety of output types:

- To disk, in a Text file,
- On the standard printer selected,
- To an HTML document.

To select an output destination, click on the **Destination** button in the tool bar of the editor.



The destination selection window appears where you can choose one of the following: **File**, **Print** or **HTML**.



Notes:

- The options available (**Options** button) depend on the current destination.
- You can also use the **Preview** button at any time (available only with the "Print" destination) in order to preview the execution of your report.



Disk file

This option saves your quick report to a disk file that you can open and modify with other applications, including text editors and spreadsheets. This option exports the records in the quick report to a text file.

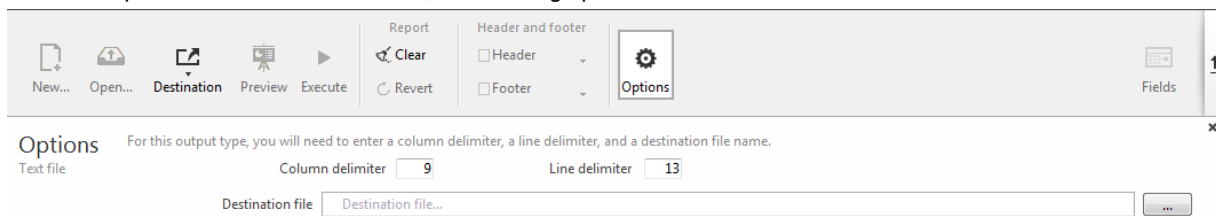
When you select this destination, 4D automatically uses the column headings as the first “record” that is exported.

When you click on the **Execute** button, a standard save file dialog box appears. If you have specified a name and location on the **Options** page (see below), they are proposed by default. Enter a file name and click **OK**. After the report is printed to a file, 4D returns you to the Quick Report editor. Remember to change the output device if you want to send the quick report to a standard printer.

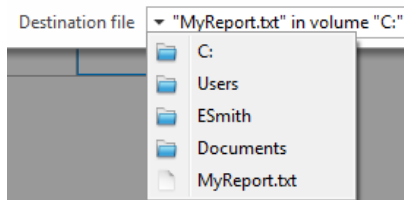
Note: This option does not benefit from the Preview function.

Text file options

When the report destination is set to "File", the following options are available:



- **Column delimiter** and **Line delimiter:** These entry areas allow you to modify the character codes used by 4D to delimit, respectively, the columns and lines in the text file generated. By default, 4D uses the character 9 (tab) for column delimiters and 13 (carriage return) for line delimiters.
- **Destination file:** Used to set a name and destination for the file generated. The name and location entered will be proposed by default when the report is executed. Once the location is set, you can preview it by clicking in the area:



Note that this option does not generate an actual file; it just saves the path.

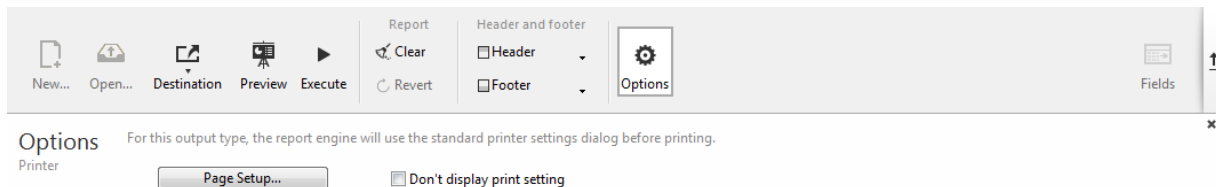
Printer

This option uses the printer you have chosen in your current print settings. If you are printing to a printer, you can preview the report before printing it.

When you click on the **Execute** button, 4D displays the standard print preview dialog box of your OS. You can hide this dialog box by checking the **Don't display print setting** option on the Options page (see below).

Print options

When the report destination is set to "Print", the following options are available:



- **Page Setup...:** Displays the print settings dialog box of your OS, where you can set the paper size, orientation and print margins.
- **Don't display print setting:** If this option is checked, when you click on the **Execute** button, the report is printed on the current printer without the print settings dialog box being displayed.

HTML file

This option sends your quick report to an HTML file. When you choose this option, it uses the default HTML template unless it was changed programmatically. You can also build your own templates and load them using the Options page (see below).

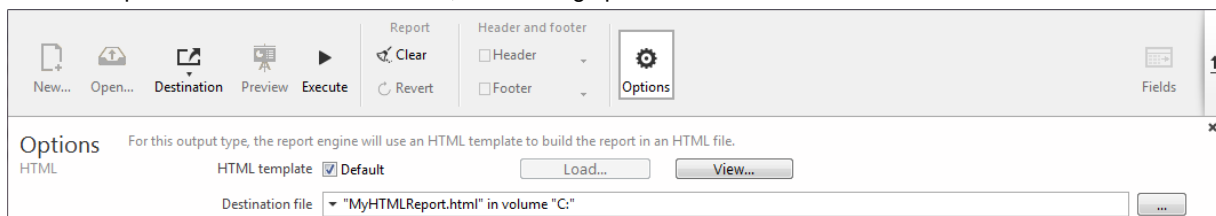
When you select this destination, 4D automatically uses the column headings as the first "record" that is exported.

When you click on the **Execute** button, a standard save file dialog box appears. If a name and location are defined on the **Options** page (see below), they are proposed by default. Enter a file name and click **OK**. After the report is printed to an HTML file, 4D returns you to the Quick Report editor. Remember to change the output device if you want to send the quick report to a standard printer.

The character set used for generating HTML code is specified using the "Standard Set" parameter of the Database settings (see the [Web/Options \(II\) page](#)).

HTML options

When the report destination is set to "HTML", the following options are available:



- **HTML template:** Sets the HTML template to use for generating the report. You can either:
 - use the default template (**Default** option), or
 - load a custom template by means of the **Load...** button.

The **View...** button lets you view the code of the selected template in a separate window.

For more information about custom HTML templates, please refer to the [QR SET HTML TEMPLATE](#) and [QR Get HTML template](#) commands.

- **Destination file:** Used to set a name and destination for the HTML file generated. The name and location entered will be proposed by default when the report is executed.

Once the location is set, you can preview it in menu form by clicking in the area. Note that this option does not generate an actual file; it just saves the path.