

MODULE 2: INTERACTIVE FEATURES

Module Overview

The previous module introduced the new architecture of Microsoft Dynamics® NAV 2013 and it also provided a detailed explanation for the anatomy of a report.

You also learned how to create a basic report. The previous module introduced the new reporting solution, and you created a basic report and used the dataset to implement currency and date formatting.

Now you will learn more about the features that are offered in Reporting Services. In addition, in this module you will discover the interactive features from the new solution. You will learn to work with different types of headers and footers, how to define interactive sorting, how to apply visibility options, how to use images and how to add extra navigation features such as a document map.

In environments that support interactivity, reports can include a variety of features that provide interactivity to users. Users can influence the appearance of a report and the data it contains by typing or selecting a value for a filter before running the report. A user can show or hide items in a report and click links that go to other reports, webpages and pages. Visual Studio Report Designer also provides a document map, which acts like a table of contents. A user can click items in the document map to jump to areas within a report.

Formatting the items in your report makes the report look more attractive and enhances its readability. You can format the text boxes and individual items within the text boxes, the images, the expressions, and the data while in design mode.

You can design a report so that different styles are applied to report items or properties based on the data in the report. You can build conditional expressions using any feature supported by expressions, including a built-in report and aggregate functions, built-in collections, and custom code.

This module will explain some of the interactive features for the reports in Dynamics NAV.

Objectives

The objectives are:

- Explain when to use headers and footers and how to add or delete a header or footer section.
- Explain the difference between Print Preview and Print Layout.
- Describe the visibility options for the reports and how to use them.
- Explain interactive sorting and how to implement it.
- Explain how document maps work and how to add them to a report.

Working with Headers and Footers

A report can have a header and a footer that will be visible at the top and bottom of all the pages.

The page header and footer can contain static content, but they are more commonly used to display varying content such as page numbers or information about the contents of a page. They can also contain expressions, static text, images, lines, rectangles, borders, background color, and background images.

It is important to have a good understanding of the purpose, capabilities and limitations of headers and footers.

Headers and Footers

The Report Definition Language for Clients applications (RDLC) 2008 specification supports three section types: a page header, a body and page footer. No additional sections can be added. When you create a new report and open it in Visual Studio Report Designer, only the Body section is displayed. The Page Header and Page Footer sections must be manually added to the report.

A report can contain a header and footer that run along the top and bottom of each page, respectively. By default, page headers and footers are not part of a report. After you create a page header or footer, it is displayed on each report page.

The next paragraphs explain how to add, design or delete these sections.

Page Header and Footer

The page header is the first section that will print when a report is run. Typically, a header contains some general information, such as:

- Report title
- User who printed the report
- Date and time information
- Page number and or number of pages
- Company logo

A report can contain a page header and page footer that run along the top and bottom of each page, respectively. After you add a header or footer, you can selectively hide it on the first and last pages of a report using the properties:

PrintOnFirstPage and **PrintOnLastPage**.



Note: If you add paging information to a header, it might not always be correct when you run the report in preview mode, especially if the report has a long body section. If you print the report to a printer, the information will be correct. For more information, refer to the Print Preview and Print Layout section.

Design a Header/Footer Section

If no header or footer is defined for the report in Visual Studio, only the body section will appear. Headers and footers can be designed the same way as body sections. To add a control to a header section, grab the control in the **Visual Studio** Toolbox and drag it to the header section. Alternatively, select the control in the Toolbox, then click the header section to insert the control.

You can add the following controls to a header and footer:

- Text box
- Line
- Rectangle
- Image

You cannot add data region controls (table, matrix, chart, Gauge or list) to a header or footer.

You can use the header or footer properties to add borders, background images, or colors, or to adjust the width of the header. To access the Header or Footer properties, right-click the corresponding section and select Properties.

Delete a Page Header or Page Footer

You can easily remove headers and footers by using the same toggle items that you use to add a header or footer. By removing a header or footer section, you are deleting it from the report. Any controls that you previously added to the section will be deleted as well. If you add the header or footer section again, the controls will not be added again automatically.

To delete an existing page header or page footer section, select Report, and then in the menu, choose Remove Page Header or Remove Page Footer.

Alternatively, you can right-click the page header or page footer section, and then from the menu, choose Remove Page Header or Remove Page Footer.

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Finally, you can also delete a page header or footer section by right-clicking either the **report selection** menu or the **design surface** and then from the menu, choose Page Header or Page Footer.

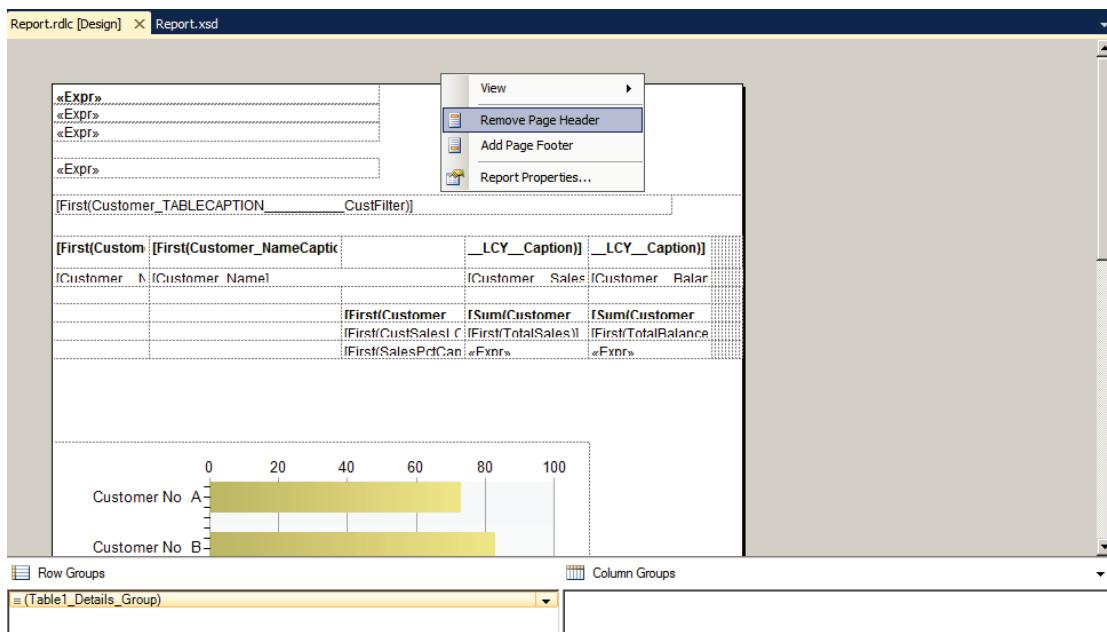


FIGURE 2.1: DELETE A PAGE HEADER OR FOOTER FROM THE DESIGN SURFACE AREA WINDOW

A Default Page Header, Footer and Body Section for All Reports

If you want to design a basic company layout for all reports, you can change the standard Visual Studio solution template that is used as a base for all new reports.

To do this, open the solution that is installed under C:\Program Files\Microsoft Dynamics NAV\70\RoleTailored Client\ReportLayout. This is the default location for the solution, but you can change it if this is required. Change the design to fit your needs (you can include embedded images) and save the files. The modified solution is used as a template for all new reports that are created from scratch in the Visual Studio Report Designer.

 **Note:** Remember to copy the modified solution to all clients that will be used to design reports.

Data Fields in a Page Header and Page Footer

The RDLC 2005 specification included a serious limitation: data fields could not be added to a Page Header or Footer. Although in design mode, you could add a text box to a Page Header, drag a field from the dataset to it, and import the RDLC data in the report, you could not save the report in Report Designer. Instead an error message displayed

"Error while validating RDL content:

The Value expression for the textbox 'X' refers to a field. Fields cannot be used in page headers or footers. "

Although this is a serious limitation, a scenario exists to work around this that can still be found in various standard reports. The scenario made use of the ReportItems collection.

The ReportItems built-in collection is the set of text boxes from report body. The ReportItems collection includes text boxes that are in the current scope of a page header, page footer, or report body.

Typically, a field from the dataset is added to the body section of the RDLC layout, as a separate text box or as a table column. Then the ReportItems collection is used on the page header to retrieve the contents of the invisible text box in the Page Header section. Because tables might span several pages, the variable (and its contents) will move and be available.

However, when the report body contains multiple tables, like in most document reports, another workaround is required. This makes use of a global variable that stores the data to be displayed in the page header and two functions: GetData and SetData. The SetData function stores information in the global variable and the GetData retrieves information from the variable.

This scenario is no longer required in Microsoft Dynamics NAV 2013. The RDLC 2008 specification now allows for data bound items to be placed in page headers and footers. As a result, the steps mentioned here are now obsolete. When you upgrade a report from Microsoft Dynamics NAV 2009 to Microsoft Dynamics NAV 2013 the scenario that is implemented in the 'old' report will be copied to the upgraded report, although it is no longer required. For more information about the report upgrade process, see module: Upgrade Reports of this course.

Demonstration: Add a Page Header or Footer

Demonstration Steps

1. Mort has to add a report header to his reports. To do this, he adds a Page Header section to the report.
 - a. Open the report in Visual Studio.
 - b. In this case, use report **123456700**. If the Object Designer isn't already open, open it using the menu: **Tools, Object Designer**. Select **Reports** in the Object Designer and **Design** report **123456700**. In the Report Dataset Designer select **View, Layout** to open Visual Studio.
 - c. To add a Page Header section, from the menu, select **Report, Add Page Header**.
 - d. To add a Page Footer section, from the menu, select **Report, Add Page Footer**.
2. As an alternative solution, you can use the following procedure to add the Page Header or Page Footer section.
 - a. Right-click either the report selection handle or the report design surface.
 - b. From the menu, select **Add Page Header** and/or **Add Page Footer**.

A header and/or footer will now be added to the report. In both menus, Page Header and Page Footer are toggle items; they can be used both for adding and deleting the section.

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3. As a result the report now contains a page header and footer.

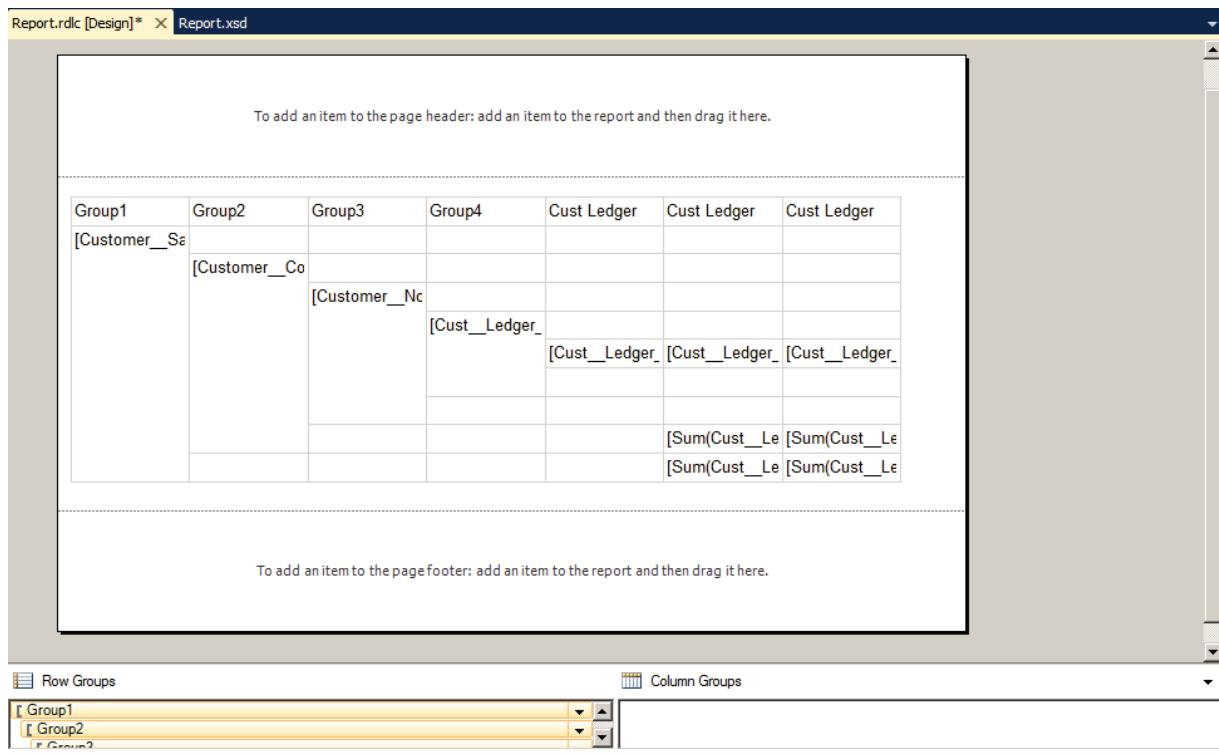


FIGURE 2.2: A REPORT WITH A PAGE HEADER AND PAGE FOOTER WINDOW

Table Header and Footer

When you drag and drop a field from the Report Dataset onto the Report Body in Visual Studio Report Designer, a text box is automatically created. When you run the report, only the first value of the field in the text box is shown.

For a report to show multiple records from the dataset, a data region such as a tablix is needed. A tablix is a data region control. Unlike a line or a rectangle, a tablix data region (and more in particular the detail row) is used to loop through the records and display data. Additionally, the detail row is designed only once and then repeated for all records in the recordset. You can add multiple tablix data regions to the body section.

Use the Tablix data region to display fields from a dataset either as detail data or as grouped data in a grid or free-form layout. There are three templates for a Tablix data region that you can add directly from the Toolbox:

- Table
- Matrix
- List

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A table can have three types of rows.

Row Type	Description
Table Header	By default, the table header is printed once for each table. This is a typical place to put captions. If you drag an item containing text from your dataset into a header, the environment automatically adds "First" to it. "First" means that it will show the first value in the dataset, as opposed to looping through each record in the dataset. Tables can have multiple table headers.
Table Details	The detail row is used to display data from the dataset. It can be compared to the body section of the classic Section Designer. Tables can have multiple detail rows.
Table Footer	The table footer is printed once for each table. It is a typical place to insert subtotals or grand totals. If you drag an item containing a numerical value from your dataset into a footer, the environment automatically adds "Sum" to it, and the report will print the total from the report. Tables can have multiple footers.

By combining table headers and footers with group header and footers, you can print any total you want.

When you add a table header and footer, two new rows are added to the table (one immediately above the detail row, and one immediately below). These are the table header and the table footer rows. If group headers and or footers are defined for the table, the table header will be inserted above all group headers and the table footer will appear after all group footers.

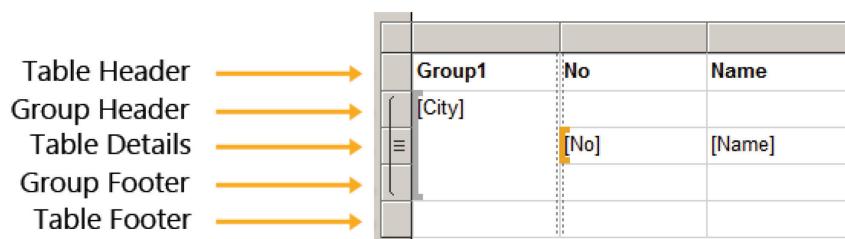


FIGURE 2.3: HEADERS AND FOOTERS IN A TABLE CONTROL WINDOW

Design a Table Header or Table Footer

To add data to a group header or footer, select an element in the dataset and drag it to a cell in the table header or footer. (You can obtain the same result by setting a value for the Value property of the header or footer cell.) You can also take values from cells in other rows.

If you add a decimal value to the header or footer, Visual Studio Report Designer will automatically add the Sum operator to the field value. As a result, the grand total for the table will display. By doing this, you can have totals calculated, without having to define any keys (with SumIndexFields) or set sorting, grouping and totaling properties in Microsoft Dynamics NAV.

Delete a Table Header or Table Footer

To delete a table header and the corresponding footer, follow these steps.

1. Right-click the **row** handle of the correct table header or footer.
2. Select Delete Rows.

Only the selected row will be deleted.

Demonstration: Add a Table Header or Footer

Mort will add a table header and a table footer row to display the field captions.

Demonstration Steps

1. To add a header row in a table:
 - a. Select a detail row in a table.
 - b. Right-click the **row** handle and select Insert Row, Above/Below.

Repeat Headers and Footers on New Pages

In the Visual Studio Report Designer, you can set the RepeatColumnHeaders in the Tablix Properties window.

1. Select any cell in the table, then press **ESC**. (If you want, you can obtain the same result by selecting the table control in the **Properties** window.)
2. Right-click the **grey dotted table border** and select Properties.
3. Set the RepeatColumnHeaders property.
4. Click **OK** to apply the changes and close the **Table Properties** window.

Changing the Table Properties window will cause the properties of the underlying table and the individual table rows to change.

Freezing the Header Rows

If you want the header rows to remain visible when scrolling in a report, you can also define this in the **Table Properties** window. When you export the report to Excel, the worksheet window in Excel will be split in multiple resizable panes. The Page Header section will be put in one pane (and remain visible) while the body section will be put in another.

Colors in Headers and Footers

Reports can be printed in color.

Using Colors in Headers and Footers

To fine-tune the layout and to acquire a better view on the contents of the report, you can work with colors. You can use colors to emphasize specific pieces of data and also to reflect the structure of the content. For example, you can have the **Unit Price** printed in blue and the **Unit Cost** in yellow, or you can print a specific group header row (and the corresponding group footer) with a green background color, so you can easily distinguish the logical structure of the report (everything between the two green rows is a logical group).

You can define the colors for each individual control by setting the **BackgroundColor** and **Color** properties. The **Color** property defines the text color; the **BackgroundColor** property determines the background color of the control. By default, the **BackgroundColor** property is set to **Transparent** and the **Color** is set to **Black**.

In Visual Studio Report Designer, you can also set the **BackgroundColor** and **Color** properties for multiple controls at the same time. If you select multiple individual controls or an entire table row or column, you can change the background and text color for all these controls by setting both properties. In addition to the **BackgroundColor** and **Color** properties, there are a number of other properties (**TextAlign**, **CanGrow**, **CanShrink**) and property collections (**Font**, **Padding**, **BorderColor**, **BorderStyle**, **BorderWidth**, and so on) that can be defined for multiple controls at the same time (provided that the properties are common to all selected controls).

Adding Texts to Headers and Footers

As you work with headers and footers and subtotals on different levels, it might be interesting to print extra "labels" explaining the data printed in the report. For example, next to each subtotal you can print text such as "Total for Customer 10000", "Total for Country AT," or you can add the name of the customer to a separate cell in the "Customer No." group header. Although additional texts can be a fixed text, an element from the dataset, or a combination of both, its recommended to use Labels instead.

These labels can be created in the **Report Label Designer**. By creating these labels in the Report Label Designer an advantage is the Multi Language functionality by using the CaptionML property of the label.

To print text in a specific cell, select the cell and change its **Value** property. It is recommended to use the **Expression** window, because you can enter text and select variables, functions, and so on from a list.

Remember that the width of the cell containing the text depends on the size of the column in the table detail row.

Demonstration: Enter Custom Text in a Merged Cell

If you want to include longer texts in a header or footer row, you might have to merge the cells from the row before you insert the text. To merge cells, select the necessary cells, right-click any of the selected cells and choose Merge Cells. If you want to split the cells, right-click the merged cell and select Split Cell.

Finally, you can change the alignment of the texts by setting the individual cell properties.

You might also want to have the customer name printed next to the customer number. To do this, merge the necessary cells (if necessary) then drag the Customer Name from the dataset to the right cell in the group header.

Demonstration Steps

1. To merge a cell, follow these steps.
 - a. Open Report 123456700 in Visual Studio.
 - b. Select the column header for the fifth row and right click.
 - c. Select **Insert Column, Left**.
 - d. Repeat the last two steps to insert another new column.
 - e. In the Detail row of the table, select the two textboxes next to each other (on the fifth and sixth column).
 - f. Right click and select: **Merge Cells**.

2. To enter custom text in the merged cell, follow these steps.
 - a. Select the merged cell.
 - b. Right-click the merged cell, and select <Expression...>. The **Expression** window will appear.
 - c. In the drop-down list box the current cell value—if any—is displayed. If the cell is empty, only the equal (=) sign will be displayed. Make sure not to delete the equal (=) sign. It indicates that the cell value is an expression and not a fixed text. If you remove the equal (=) sign, all text that you enter in the expression window will be displayed as plain text.

- d. In the drop-down list box, you can now compose an expression consisting of fixed texts and/or variables, functions, dataset elements, and so on. Fixed text should be placed between double quotes. To use a dataset element, function, variable, and more, select the element in the corresponding category and double-click it. If the text consists of multiple parts, you can use the ampersand (&) to concatenate the parts.
- e. Click **OK** to close the **Expression** window. The expression will be copied to the Value property.

Demonstration: Add Labels to a Report

The management of Cronus has asked Mort to modify the Inventory List report. A column needs to be added that shows the Inventory Quantity and a total for this column must be added at the bottom of the list.

Demonstration Steps

1. Open the report and add the Inventory field to the dataset.
 - a. Open the Object Designer.
 - b. Import report 123456711 **Inventory – List2** and click **Design**.
 - c. In the **Report Dataset Designer** add a new row at the end.
 - d. Select the **Field Menu** button.
 - e. The Field Menu window opens.
 - f. In the Field Menu window select the **Inventory** Field and click the **Ok** button.
 - g. The **Item.Inventory** field is added to the Report Dataset Designer.
 - h. Select the **Include Caption** for the newly added field.
2. Add a label for Total.
 - a. In the Report Dataset Designer, select the **menu** and open: **View, Labels**.
 - b. The Report Label Designer window opens.
 - c. Add a new line in the Report Label Designer and in the column named **Name** type **Total**.
 - d. In the column named **Caption** type **Total**.
 - e. Close the Report Label Designer.
3. Add the Inventory field and Total Label to the report.
 - a. Select **View, Layout** in the menu.
 - b. The Visual Studio Report Designer opens.

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- c. In the Tablix, right click the last column header and select **Insert Column, Right**.
- d. A new column is now added to the table.
- e. Right click the text box in the detail row of the last column and select: **Expression**.
- f. The expression Designer window opens.
- g. Type the following expression:
`=Fields!Inventory_Item.Value`
- h. In the properties of the field set the **Format** property to:
`=Fields!Inventory_ItemFormat.Value`
- i. Close the Expression Editor window.
- j. In the header row of the last column, open the expression editor and type the following expression:
`=Parameters!Inventory_ItemCaption.Value`
- k. In the **Row Groups** window, select the **Table1_Details_Group** and click: **Add Total, After** as shown in the next screenshot:

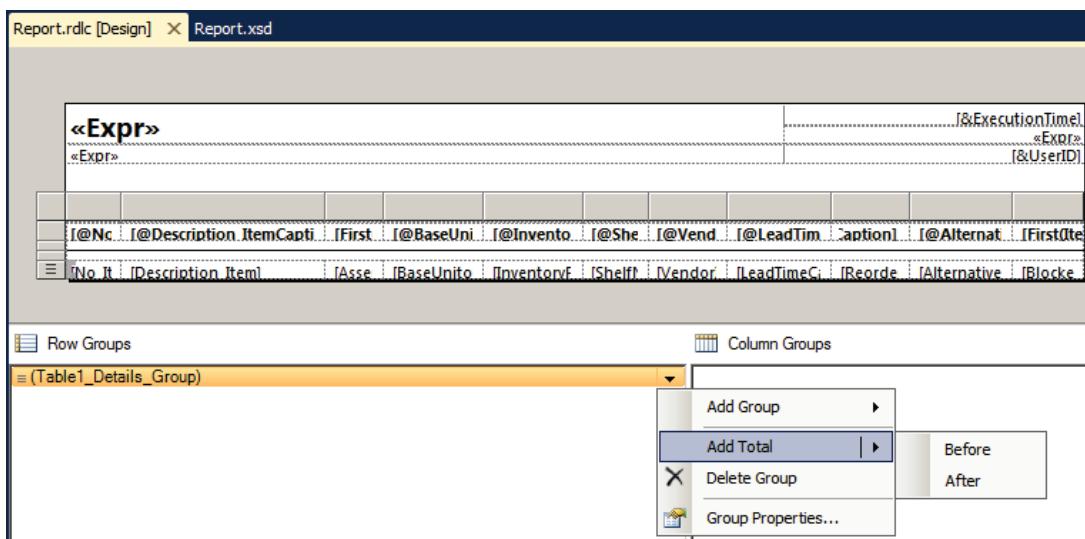


FIGURE 2.4: ADD A ROW TOTAL AFTER WINDOW

A new row is added to the table.

- i. In the last field of the last row enter the following expression:
`=Sum(Fields!Inventory_Item.Value)`
- m. In the properties of the field, set the property **FontWeight** to **Bold**.
- n. In the properties of the field set the **Format** property to:
`=Fields!Inventory_ItemFormat.Value`
- o. In the textbox to the left of the current textbox type the following expression:
`=Parameters!Total.Value`

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- p. In the properties of the field, set the property **FontWeight** to **Bold**.
 - q. Select the last row of the report and set the **BackGroundColor** property to: **No Color**.
4. Save and Run the report.
- a. Close the Visual Studio Report Designer.
 - b. When you are asked to save, click **Yes**.
 - c. Close the Report Dataset Designer and when you are asked to save, click Yes.
 - d. Select the report in the Object Designer and click **Run**.
 - e. Scroll to the last page of the report.

The result will look similar to this:

The screenshot shows a Microsoft Dynamics NAV Print Preview window. The title bar says 'Print Preview'. The main area displays a report titled 'Inventory - List' from 'CRONUS International Ltd.' dated 'woensdag 4 juli 2012' at 'Page 1' by 'NAV7DEMO\Administrator'. The report lists items with details like No., Description, BOM, Base Unit of Measure, Inventory Posting Group, Shelf No., Vendor Item No., Lead Time Calculation, Reorder Point, Alternative Item No., Blocked, and Inventory. A total row at the bottom right shows a total quantity of 11.736.

No.	Description	BOM	Base Unit of Measure	Inventory Posting Group	Shelf No.	Vendor Item No.	Lead Time Calculation	Reorder Point	Alternative Item No.	Blocked	Inventory
1000	Bicycle	No	PCS	FINISHED	F4			0	No		32
1001	Touring Bicycle	No	PCS	FINISHED	F5			0	No		0
1100	Front Wheel	No	PCS	FINISHED	F6			100	No		152
1110	Rim	No	PCS	FINISHED	F1	266666	2W	200	No		400
1120	Spokes	No	PCS	RAW MAT	A1	45455		5.000	No		10.000
1150	Front Hub	No	PCS	FINISHED	F7			100	No		200
1151	Axle Front Wheel	No	PCS	RAW MAT	A2	11111		100	No		200
1155	Socket Front	No	PCS	RAW MAT	A3	A-12122		100	No		200
1160	Tire	No	PCS	RAW MAT	A4	ADG-45		100	No		200
1170	Tube	No	PCS	RAW MAT	A5	GG-788		100	No		200
1200	Back Wheel	No	PCS	FINISHED	F9			100	No		152
										Total	11.736

FIGURE 2.5: INVENTORY LIST REPORT WITH TOTAL WINDOW

Report Header and Footer

A report can contain a header and footer that run along the top and bottom of each page, respectively. Headers and footers can contain expressions, static text, images, lines, rectangles, borders, background color, and background images. Expressions include dataset field references for reports with exactly one dataset and aggregate function calls that include the dataset as a scope.

By default, page headers and footers are not part of a report. After you create a page header or footer, it is displayed on each report page.

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The Report Header section generally contains the report title and other information you want to appear only at the beginning of the report. For example charts and cross-tabs placed in this section contain data for the entire report. Objects placed in the Report Header section print once, at the beginning of the report.

Page headers and footers are not the same as report headers and footers. Reports do not have a special report header or report footer area.

A report header consists of the report items that are placed at the top of the report body on the report design surface. They appear only once as the first content in the report.

Report footer consists of report items that are placed at the bottom of the report body. This section is used to contain information you want to appear only once at the end of the report, such as grand totals. They appear only once as the last content in the report.

The difference between a page header/footer and a report header/footer is illustrated in the following image.

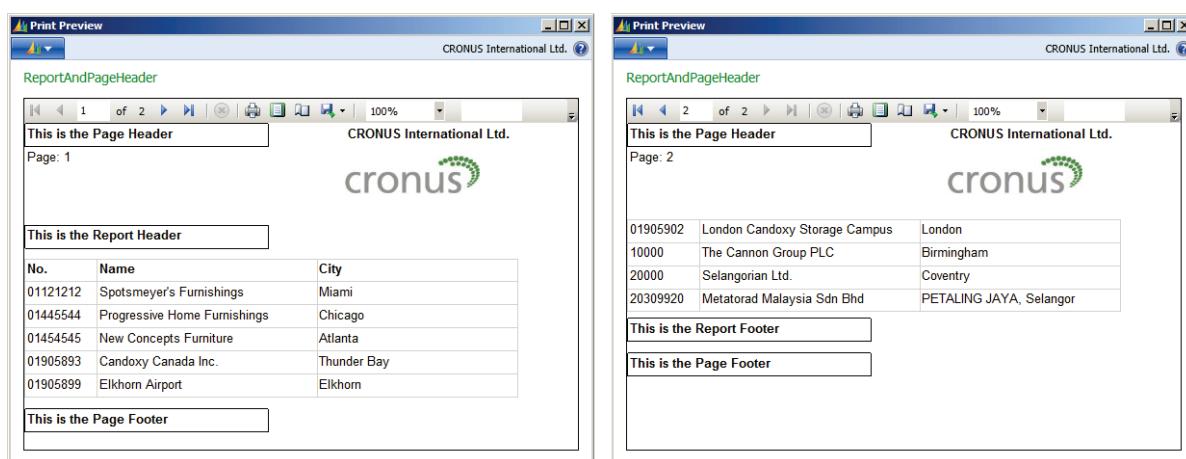


FIGURE 2.6: PAGE HEADER AND REPORT HEADER WINDOW

Grouping

Group Header and Footer

In a report, you can use groups to organize data on the report and/or to calculate aggregate summaries. Understanding how to define groups and use group features will help you design reports that are more concise and communicate summarized data in a more compact format.

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A group can be considered as a named set of data from the dataset that is bound to a data region. Basically, a group organizes a view of the report dataset. All groups in a data region specify different views of the report dataset.

To help visualize what a group is, the following figure shows the Tablix data region. In this figure, the row groups categorize the dataset by city and salesperson and the column groups categorize the dataset by month and year.

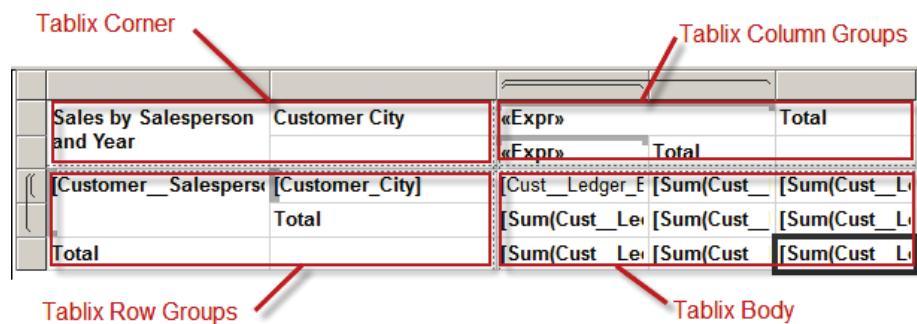


FIGURE 2.7: GROUPS IN A TABLIX DATA REGION WINDOW

Groups are internally organized as members of one or more hierarchies. A group hierarchy has parent/child groups that are nested and can have adjacent groups.

The Tablix data region includes a row group hierarchy and a column group hierarchy. Data associated with row group members expands horizontally across the page and data associated with column group members expands vertically down the page. The **Grouping** pane displays row group and column group members for the currently selected Tablix data region on the design surface.

For example, the **Grouping** pane of the Tablix data region mentioned here is shown in the following figure.

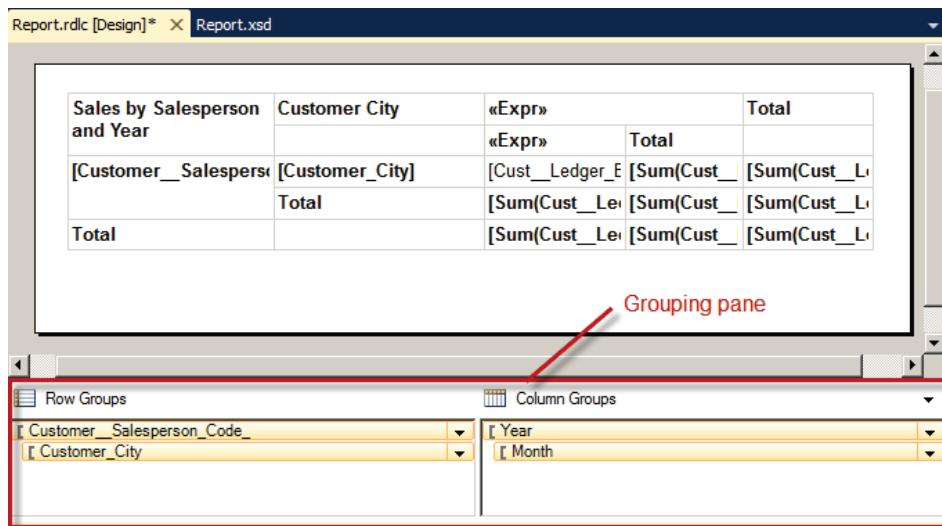


FIGURE 2.8: TABLIX GROUPING PANE

The **Row Groups** pane and the **Column Groups** pane display a hierarchical view for all parent groups, child groups, and adjacent groups. A child group appears indented under its parent group. An adjacent group appears at the same indent level as its sibling groups.

Typically, you add groups to a data region when you want to display your data in a visual hierarchy, align multiple data regions to show different views of the same data, or to calculate totals. After the data is grouped, you can sort the data within each group in ascending or descending order to make data easier to locate.

When you add a row or column to a table, matrix, or list, you can specify whether to add the row or column inside or outside a group. A row or column that is outside a group can serve as a group header or group footer, depending on where you position the row or column. When the data region renders in the report, you can set properties that help keep the row or column with the group.

Demonstration: Add a Parent or Child Row or Column Group to a Tablix

To group the data and display totals in the report, Mort will use groups.

Demonstration Steps

1. The following example shows how to add a tablix control in a report.
 - a. Open the Object Designer.
 - b. Import report **R123456714.fob**, confirm and click Design.
 - c. Click **View, Layout** to open Visual Studio Report Designer.

- d. Drag a field from the **Report Data** pane to the **Row Groups** pane or the **Column Groups** pane. For example use the field **City_Customer**.
- e. Drop the field above or below the group hierarchy using the guide bar to place the group as a parent group or a child group to an existing group.

The group is added with a default name, group expression, and a sort expression that is based on the field name as shown in the following screenshot:

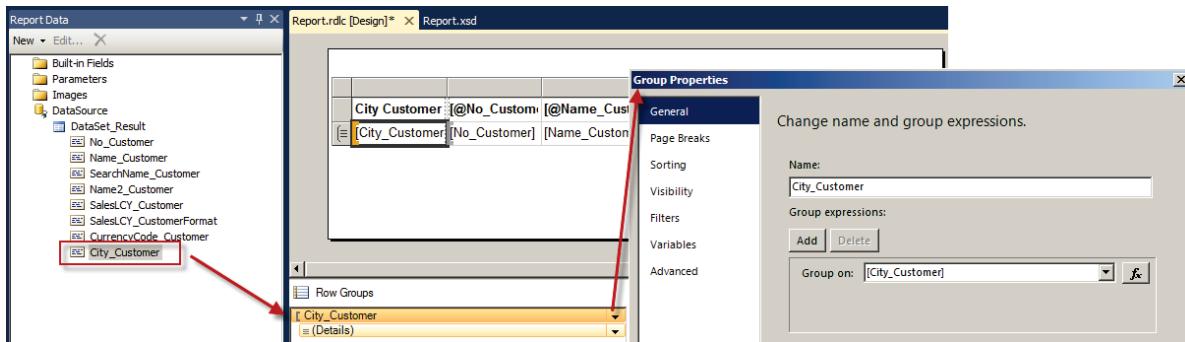


FIGURE 2.9: ADD ROW GROUP WINDOW

Demonstration: Add an Adjacent Row or Column Group to a Tablix

To group the sales data by product group and by territory, Mort will add an adjacent group to the report.

Demonstration Steps

1. To add an adjacent group to the report:
 - a. Open the Object Designer.
 - b. Select report R123456714.fob, click Design.
 - c. Click View, Layout to open Visual Studio Report Designer.
 - d. In the **Grouping** pane, right-click a group that is a peer to the group that you want to add. Click **Add Group**, and then click **Adjacent Before** or **Adjacent After** to specify where to add the group. The Tablix Group dialog box opens.
 - e. In Group by expression, select a field, for example, [CurrencyCode_Customer] or click the **expression** button (**fx**) to create an expression.
 - f. Click **OK**.
 - g. Select the group properties of the newly added group.
 - h. Set the **Name** to **CurrencyCode_Customer**.

The steps described here above are visualized in the following diagram:

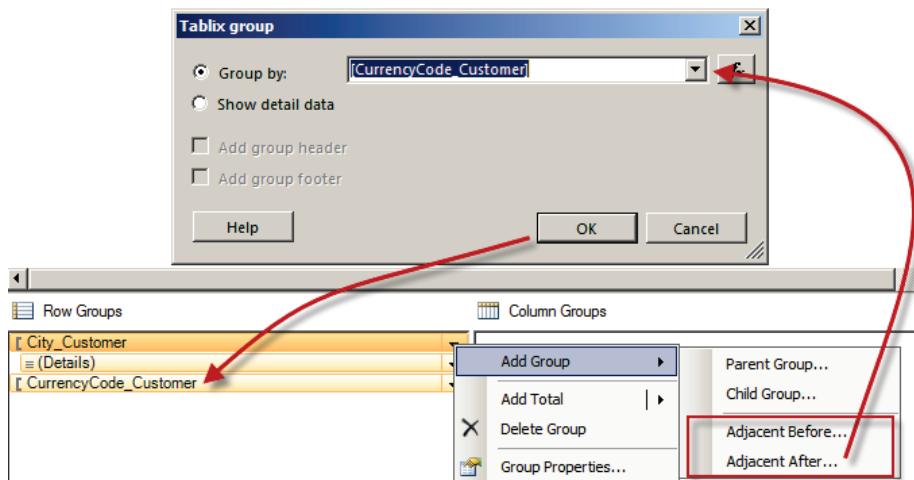


FIGURE 2.10: ADD ADJACENT GROUP WINDOW

Mort has now added a new group to the Tablix data region on the design surface.

Demonstration: Edit a Row or Column Group in a Tablix Data Region

Mort made an error when he added a group to the Tablix. To correct it he will now edit the group settings.

Demonstration Steps

1. To edit the group settings:
 - a. On the report design surface, click anywhere in the Tablix data region to select it. The **Grouping** pane displays the row and column groups.
 - b. Right-click the **group** and then click **Group Properties**.
 - c. In Name, type the name of the group, if you want to change it.
 - d. In **Group expressions**, type or select a simple expression, or click the **Expression (fx)** button to create a group expression.
 - e. Click **Add** to create additional expressions. All expressions you specify are combined using a logical AND to specify data for this group.
 - f. (Optional) Click **Page Breaks** to set page break options.
 - g. (Optional) Click **Sorting** to select or type expressions that specify the sort order for values in the group.

- h. (Optional) Click **Visibility** to select the visibility options for the item.
- i. (Optional) Click **Filters** to set filters for this group.
- j. (Optional) Click **Variables** to define variables that are scoped to this group and are accessible from any child groups.
- k. Click **OK**.



Demonstration: Delete a Group from a Tablix

Mort is asked to modify the layout of an existing report, to remove a group.

Demonstration Steps

1. The following example shows how to remove a Group from a Tablix control.
 - a. In the **Grouping** pane, right-click the **group**, and then click **Delete Group**.
 - b. In the **Delete Group** dialog box, select one of the following options:
 - i. **Delete group and related rows and columns**
Choose this option to delete the group definition and all related rows that display group data. For the details group, if the same row belongs to both detail and group data, only the detail data rows are deleted.
 - ii. **Delete group only**
Choose this option to keep the structure of the Tablix data region the same and delete only the group definition.
 - c. Click **OK**.

Using a Stepped Report

A stepped report shows detail rows or child groups indented under a parent group in the same column, as shown in the following example.

Service Item Group	Description	Unit Price
CD ROM		
80209	20/48x IDE CD ROM	17.5
80210	8x/4x/32x IDE CD Read-Write	32.7
CONTROLLER		
80204	Ultra 160/M SCSI Controller	6.8
DESKTOP		
80001	Computer III 533 MHz	12.6
80002	Computer III 600 MHz	15
80003	Computer III 733 MHz	16.1
80004	Computer III 800 MHz	17.3
80005	Computer III 866 MHz	20.8
8904-W	Computer - Basic Package	65.3
8908-W	Computer - Highline Package	114.2
8912-W	Computer - Trendy Package	148.4
8916-W	Computer - TIIRRO Package	187.1

FIGURE 2.11: STEPPED REPORT WINDOW

Traditional table reports place the parent group in an adjacent column on the report. The new Tablix data region enables you to add a group and detail rows or child groups to the same column. To differentiate the group rows from the detail or child group rows, you can apply formatting such as font color, or you can indent the detail rows.

Demonstration: Create a Stepped Report

Demonstration Steps

1. Add a parent group to your report.
 - a. Open the Object Designer.
 - b. Import report **R123456715.fob**, confirm and click Design.
 - c. Click View, Layout to open Visual Studio Report Designer.
 - d. Click anywhere in the table to select it. The Grouping pane displays the **Details** group in the **Row Groups** pane.
 - e. In the **Grouping Pane**, right-click the **Details Group**, point to **Add Group**, and then click **Parent Group**.

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- f. In the **Tablix Group** dialog box, type or select a group expression from the drop-down list, for example **[ServiceItemGroup_Item]**. The drop-down list displays the simple field expressions that are available in the Report Data pane.
- g. Select **Add group header**. This option adds a static row above the group for the group label and group totals.
- h. Click **OK**.

You now have a basic tabular report. When it is rendered, you see one column with the group instance value, and one or more columns with grouped detail data.

2. For a stepped report, you do not need the first column that shows the group instance. Instead, follow these steps
 - a. Copy the value in the group header cell, which is **[ServiceItemGroup_Item]**.
 - b. To remove the group column, right-click the group column or cell, and click **Delete**.
 - c. Paste **[ServiceItemGroup_Item]** in the first text box in the second row.
 - d. Change the expression of the first textbox on the first row to **[@ServiceItemGroup_ItemCaption]**.
 - e. The following figure shows what the data region might look like on the design surface.

	[@ServiceItemGroup_ItemCaption]	[@Description_ItemCaption]
	[ServiceItemGroup_Item]	
	[No_Item]	[Description_Item]

To indent the detail rows under the group header row in the same column, change the padding of the detail data cell.

- f. Select the cell with the detail field that you want to indent. In this example it's the textbox containing **[No_Item]**.
- g. In the **Properties** pane, expand the properties for **Padding**.
- h. For **Left**, type a new padding value, such as **.5in**. Padding indents the text in the cell by the value you specify. The default padding is **b** points. Valid values for the **Padding** properties are zero or a positive number, followed by a size designator.

Size designators are:

in	Inches (1 inch = 2.54 centimeters)
cm	Centimeters
mm	Millimeters
pt	Points (1 point = 1/72 inch)
pc	Picas (1 pica = 12 points)

Your data region will look similar to the following example.



FIGURE 2.13: DATA REGION FOR STEPPED REPORT LAYOUT

The report displays the group with indented levels for the child group values.

Demonstration: Create a Report With Multiple Groupings

Mort is asked to create a report to display customers and their transaction details.

Demonstration Steps

1. To create the report
 - a. Open the Object Designer.
 - b. Click the Report button.
 - c. Click **New** to create a new report.
 - d. In the Report Dataset Designer, select the first line, and in the **Data Type** field, select **Data Item**; enter **Customer** (or type 18) in the **Data Source** field. This means that our report will be built on the basis of the Customer table the data from which will be retrieved and displayed at the top level of the report.
 - e. On the next row, in the Data Type field, select Data Item; type **21** to insert the **Cust. Ledger Entry** table in the **Data Source** field.
 - f. The second data source is automatically indented under the first one. This means that for each customer record, the Customer Ledger Entry table will be looped through. You can adjust the indent at any time by clicking the arrow left or arrow right button in the bottom right corner.

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- g. On the next row, in the **Data Type** field, select **Data Item** option; enter **379** to insert the **Detailed Cust. Ledg. Entry** table in the **Data Source** field.
- h. Note that the third data source is automatically indented under the second one. The third data source is automatically indented under the second one.
- i. On the next row, in the **Data Type** field, select **Data Item** option; type **36** to insert the **Sales Header** table in the **Data Source** field.
- j. We need this data item to be indented under the Customer table (on the same level as the Cust. Ledger Entry table). To correct the indentation, use the arrow left and arrow right buttons in the bottom right corner of the designer.
- k. Now the report structure should look as shown in the screenshot below.

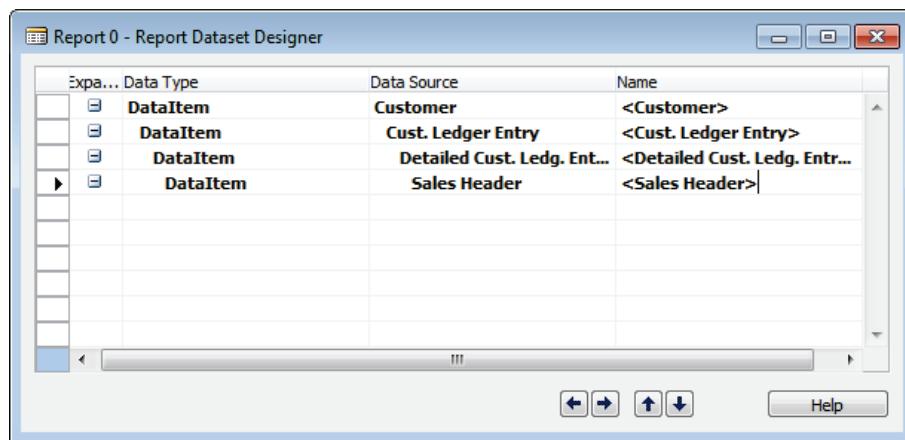


FIGURE 2.14: REPORT DATASET DESIGNER WINDOW

- l. Click **File, Save As** and enter **123456710** for the report ID and **CustomerDetails** for the report name.
- m. Click **OK**.
- n. Do not close the Report Dataset Designer.

2. Update the report data item properties.
 - a. Select the first row with the Customer data source and press **Shift+F4**.
 - b. Change the data item properties as shown and close the Properties window to save the values.

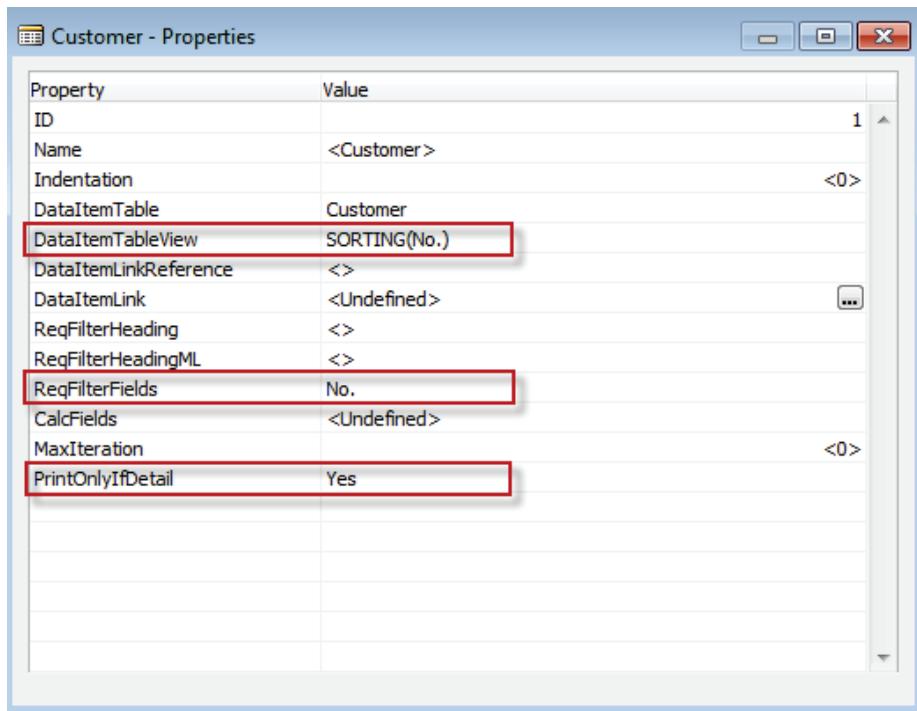


FIGURE 2.15: DATA ITEM PROPERTIES WINDOW

- c. In the Report Dataset Designer, select the second row with the **Cust. Ledger Entry** data source.

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- d. Change the **data item properties** as shown and close the **Properties** window to save the values.

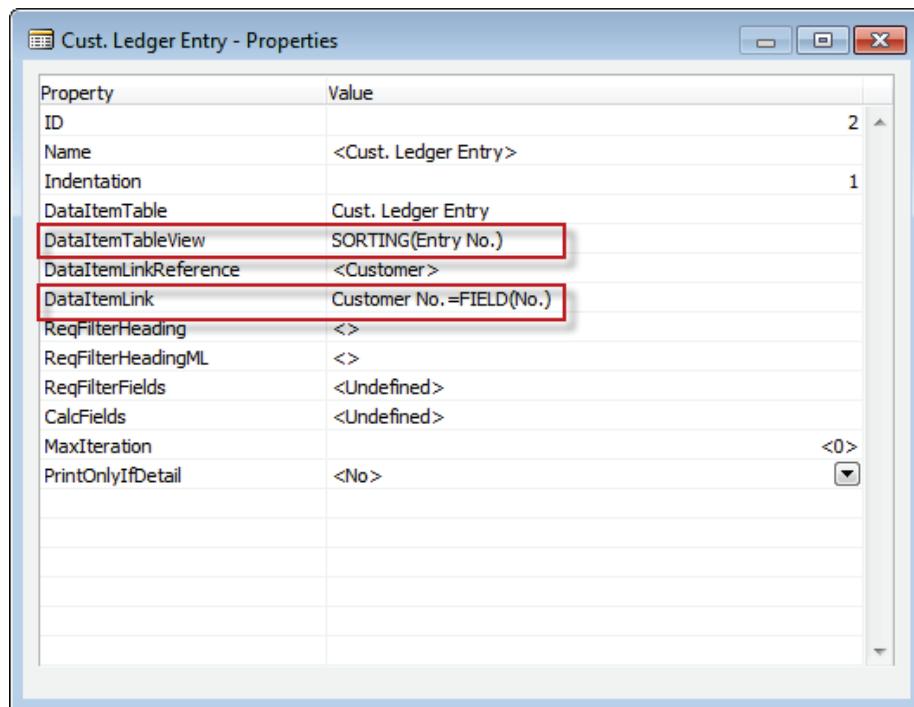


FIGURE 2.16: DATAITEMTABLEVIEW WINDOW

- e. In the Report Dataset Designer, select the third row with the **Detailed Cust. Ledger Entry** data source.

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- f. Change the data item properties as shown and close the Properties window to save the values.

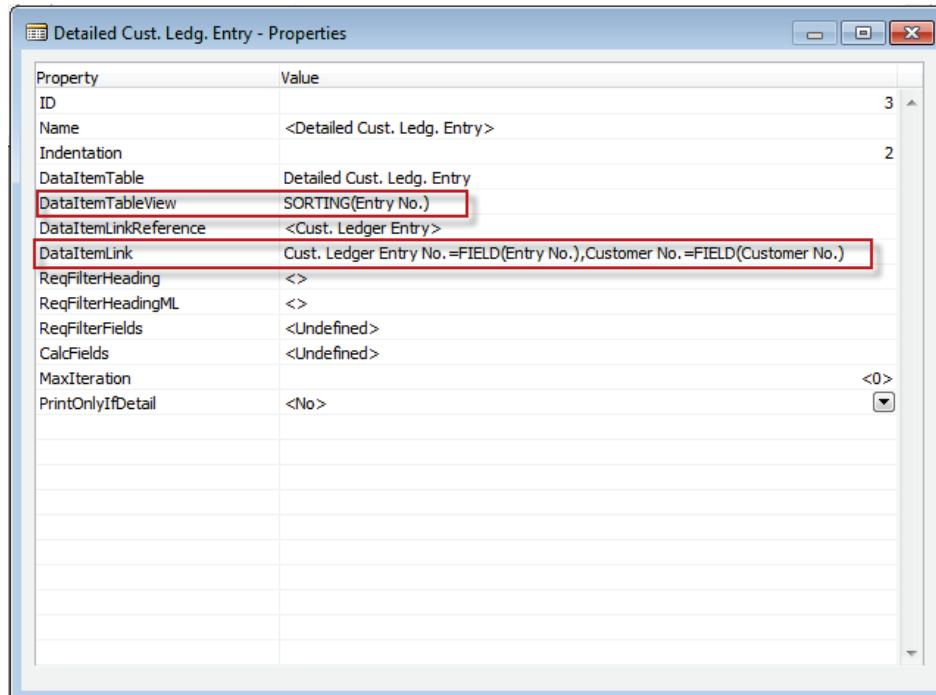


FIGURE 2.17: DATA ITEM LINK WINDOW

- g. In the Report Dataset Designer, select the fourth row with the **Sales Header** data source.
- h. Change the data item properties as shown and close the Properties window to save the values.

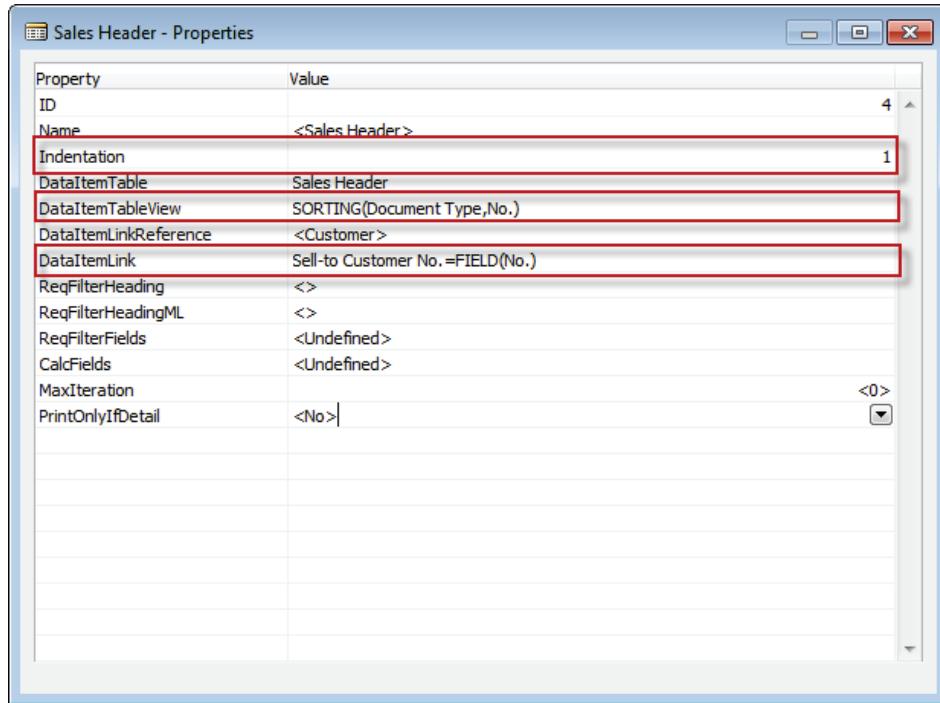


FIGURE 2.18: INDENTATION WINDOW

3. Add fields to the report.
 - a. In the Report Dataset Designer, select the first row with the Customer data item and click **View, Field Menu**.
 - b. In the Field Menu window, holding the Ctrl key, select the following fields: No., Name, Address, Phone No., and E-Mail, and then click **OK**.
 - c. Click **Yes** on the confirmation message to add the selected fields to the Report Dataset Designer.

The screenshot shows the 'Add Fields for Customer' window. It displays a list of data items and their corresponding data sources and names. The columns are labeled 'E.. Data Type', 'Data Source', 'Name', and 'I...'. The data items listed are:

E.. Data Type	Data Source	Name	I...
► <input checked="" type="checkbox"/> DataItem	Customer	<Customer>	
Column	Customer."No."	No_Customer	
Column	Customer.Name	Name_Customer	
Column	Customer.Address	Address_Customer	
Column	Customer."Phone No."	PhoneNo_Customer	
Column	Customer."E-Mail"	EMail_Customer	
► <input checked="" type="checkbox"/> DataItem	Cust. Ledger Entry	<Cust. Ledger Entry>	
► <input checked="" type="checkbox"/> DataItem	Detailed Cust. Ledg. Ent...	<Detailed Cust. Ledg. Entry>	
► <input checked="" type="checkbox"/> DataItem	Sales Header	<Sales Header>	

FIGURE 2.19: ADD FIELDS FOR CUSTOMER WINDOW

- d. The **Name** values in the Report Dataset designer must be short and Unique. Change the names of the added fields as shown:

Data Type	Data Source	Name
► DataItem	Customer	<Customer>
Column	Customer."No."	Cust_No_
Column	Customer.Name	Name
Column	Customer.Address	Address
Column	Customer."Phone No."	Phone_No_
Column	Customer."E-Mail"	Mail

FIGURE 2.20: FIELD NAME WINDOW

- e. In the Report Dataset Designer, select the row with the Cust. Ledger Entry data item and click **View, Field Menu**.
- f. In the Field Menu window, holding the Ctrl key, select the following fields: Entry No., Customer No., Posting Date, Document Type, Document No., Description, Currency Code, Amount, Original Amt. (LCY), and Remaining Amt. (LCY), and then click OK.
- g. Click **Yes** on the confirmation message to add the selected fields to the Report Dataset Designer.
- h. Change the values in the **Name** column as shown:

► DataItem	Cust. Ledger Entry	<Cust. Ledger Entry>
Column	"Cust. Ledger Entry"."Entry No."	CLE_Entry_No_
Column	"Cust. Ledger Entry"."Customer No."	Customer_No_
Column	"Cust. Ledger Entry"."Posting Date"	CLE_Posting_Date
Column	"Cust. Ledger Entry"."Document T..."	CLE_Document_Type
Column	"Cust. Ledger Entry"."Document No."	CLE_Document_No_
Column	"Cust. Ledger Entry".Description	Description
Column	"Cust. Ledger Entry"."Currency C..."	Currency_Code
Column	"Cust. Ledger Entry".Amount	CLE_Amount
Column	"Cust. Ledger Entry"."Original Amt..."	Original_Amt_LCY
Column	"Cust. Ledger Entry"."Remaining A..."	Remaining_Amt_LCY

FIGURE 2.21: CHANGED FIELD NAMES WINDOW

- i. In the Report Dataset Designer, select the row with the **Detailed Cust. Ledger Entry** data item and click **View, Field Menu**.
- j. In the Field Menu window, holding the Ctrl key, select the following fields: **Entry No., Entry Type, Posting Date, Document Type, Document No., Amount (LCY), Transaction No., Journal Batch Name, Debit Amount (LCY), Credit Amount (LCY)**, and then click OK.
- k. Click **Yes** on the confirmation message to add the selected fields to the Report Dataset Designer.

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- I. Change the values in the **Name** column as shown:

DataItem	Detailed Cust. Ledg. Entry	<Detailed Cust. Ledg. Entry>
Column	"Detailed Cust. Ledg. Entry". "Entry No."	DCLE_Entry_No_
Column	"Detailed Cust. Ledg. Entry". "Entry Type"	Entry_Type
Column	"Detailed Cust. Ledg. Entry". "Posting Date"	DCLE_Posting_Date
Column	"Detailed Cust. Ledg. Entry". "Document Type"	DCLE_Document_Type
Column	"Detailed Cust. Ledg. Entry". "Document No."	DCLE_Document_No_
Column	"Detailed Cust. Ledg. Entry". "Amount (LCY)"	Amount_LCY
Column	"Detailed Cust. Ledg. Entry". "Transaction No."	Transaction_No_
Column	"Detailed Cust. Ledg. Entry". "Journal Batch Name"	Journal_Batch_Name
Column	"Detailed Cust. Ledg. Entry". "Debit Amount (LCY)"	Debit_Amount_LCY
Column	"Detailed Cust. Ledg. Entry". "Credit Amount (LCY)"	Credit_Amount_LCY

FIGURE 2.22: UPDATED FIELD NAMES WINDOW

- m. In the Report Dataset Designer, select the row with the Sales Header data item and click **View, Field Menu**.
- n. In the Field Menu window, holding the Ctrl key, select the following fields: Document Type, No., Posting Date, Prices Including VAT, and Amount, and then click OK.
- o. Click Yes on the confirmation message to add the selected fields to the Report Dataset Designer.
- p. Change the values in the **Name** column as shown:

DataItem	Sales Header	<Sales Header>
Column	"Sales Header". "Document Type"	SH_Document_Type
Column	"Sales Header". "No."	SH_No_
Column	"Sales Header". "Posting Date"	SH_Posting_Date
Column	"Sales Header". "Prices Including VAT"	Prices_Including_VAT
Column	"Sales Header". "Amount"	SH_Amount

FIGURE 2.23: CHANGE FIELD NAMES WINDOW

- q. For each created row of the **Column** type, press Shift+F4 and, in the **Properties** window, set the **IncludeCaption** property to **Yes**.

Press Ctrl+S to save the report and click **OK** on the confirmation message. Do not close the Report Dataset Designer.

4. Add labels to the report.
 - a. Click **View, Labels**.
 - b. In the Report Label Designer window, enter the following two labels and their captions:

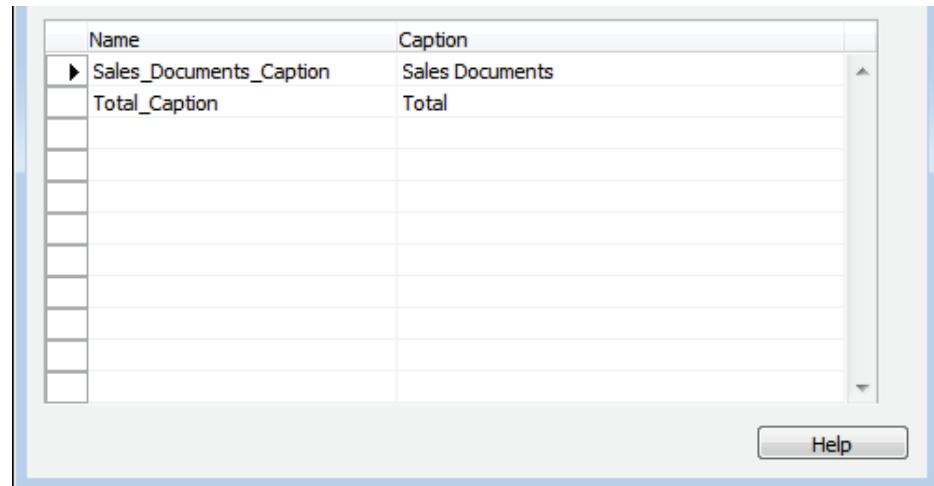


FIGURE 2.24: LABEL DESINGER WINDOW

- c. Close the Report Label Designer window.
- d. Close the Report Dataset Designer window and click **Yes** on the confirmation message to save changes.
- e. Run the Report.
- f. Observe the request page of the report.

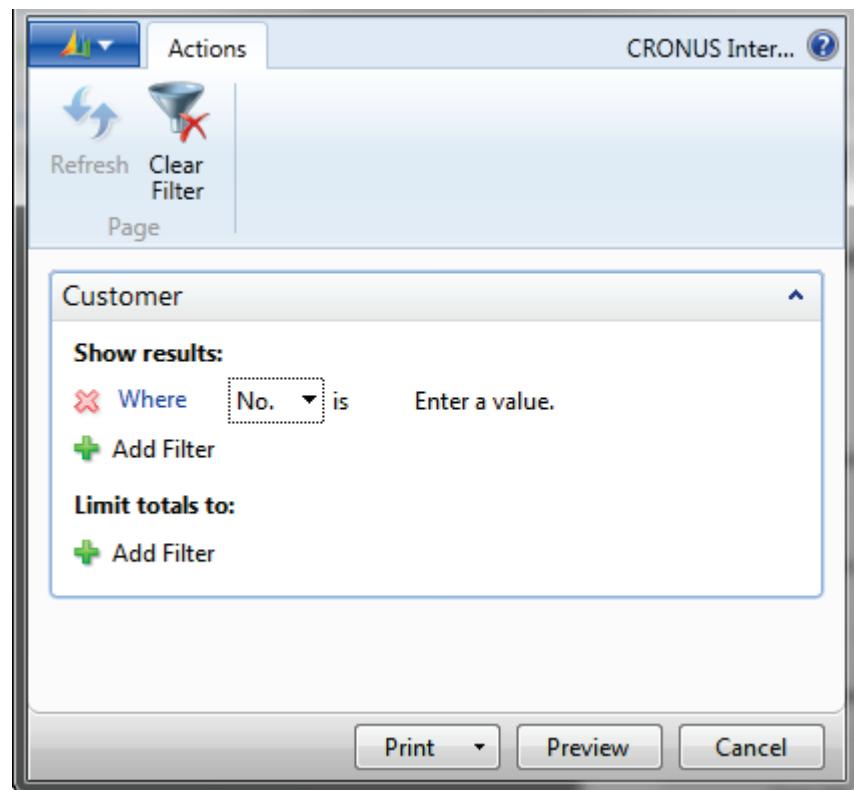


FIGURE 2.25: REQUEST PAGE WINDOW

- g. The request page contains only one **Customer filter** tab with the possibility to add other filters from the **Customer** table.

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If you click **Preview**, the report will display a blank page because there is no layout for the report created yet.

5. Arrange the list of tasks the report should perform.

a. **Functional requirements:**

- i. For each customer, the report should show the list of ledger entries and for each ledger entry, the report should show the list of detailed ledger entries.
- ii. After the ledger entries, the report should list the sales document headers for this customer with the basic information.
- iii. A check mark in the Show Customer Details field should enable the functionality of displaying the customer's contact details next to the customer number and name.
- iv. Each section of data for a single customer should begin on a new page.
- v. Report should display the current filters, company name, and company logo in the header on every page.
- vi. The Amount field from the Cust. Ledger Entry table should be totaled for each customer.

b. **Design requirements:**

- vii. Report should have a landscape orientation.
- viii. The Options tab with a Show Customer Details check box must be added on the request page to toggle the level of transaction detail to display.
- ix. The report should skip the data sections if there are no records to display (for example, no sales documents for a customer).
- x. The report layout should change depending on the value in the Show Customer Details check box on the request page.
- xi. A ShowCustomerDetails variable must be added and passed to the RDLC data set.
- xii. Amount fields must not display zero values.

6. Create the basic RDLC layout.

- a. Open report 123456710 in design mode.
- b. In the menu bar, click **View, Layout**.
- c. The RDLC report layout is displayed in Microsoft Visual Studio.
The layout is blank.

- d. Enable the report header by right-clicking anywhere outside of the report (in the grey area) and then clicking Add Page Header in the context menu.
- e. Set up a landscape orientation of the report and define the size of the visible area.
- f. Right-click anywhere outside of the report (in the grey area) and then click **Report Properties**.
- g. In the Report Properties window, on the **Page Setup** tab, in the **Paper size** section, select the **Landscape** orientation icon. Note, that the **Width** and **Height** properties will be changed accordingly.
- h. Click **OK** to close the Report Properties window.
- i. Place a **list** into the body section to group the report data.
- j. Click **View, Toolbox** (if not already shown). In the left-most corner next to the report, click the Toolbox tab to display the Toolbox pane, and then select the **List** control.
- k. Click the **Body** section of the report to place the **List** control into this section to store all the report data.
- l. Move the control to the top of the section and resize it to cover the whole page width.
- m. Change the **background color** for the control to make it visible (for the development time only):
- n. Right-click somewhere in the middle of the List control, and then click **Rectangle Properties**.
- o. In the **Rectangle** Properties window, browse to the **Fill** section.
- p. Set the **Fill color** property to an arbitrary color and click **OK**.

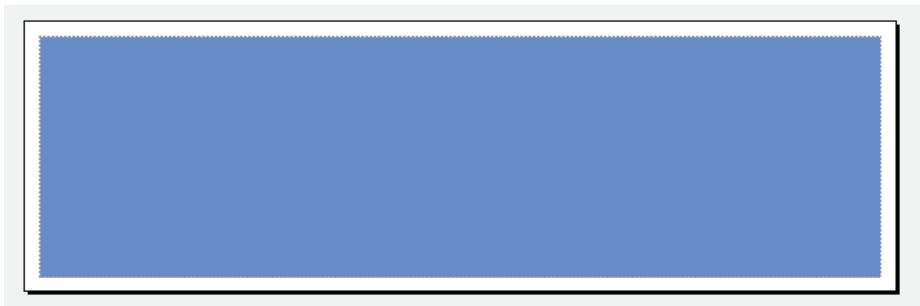


FIGURE 2.26: ARBITRARY COLOR WINDOW

Changing colors of all report elements will help you to identify them on the report preview. It is recommended to set different color properties for table header and detail rows, text boxes, and so on.

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7. Set up the list properties.
 - a. In the inserted list, right-click on the selected row (the shaded border to the left of the selected row) and then click **Tablix Properties**.
 - b. On the **General** tab, fill in the **Dataset name** field with **DataSet_Result** and click **OK** to close the Tablix Properties window.
 - c. In the inserted list, right-click on the shaded border of the selected row again and then click **Row Group, Group Properties**.
 - d. On the **General** tab, under **Group expressions**, click **Add**, click the drop-down arrow next to the Group on, and select the **[Cust_No_]** value to set up grouping of data by customer number.
 - e. On the **Page Breaks** tab, select the **Between each instance of a group** page break option and click **OK** to close the window.
 - f. Insert a table to store the customer data (customer number, name, address, phone number, and email).
 - g. Since this table must display one customer at a time, all customer fields must be put into table header rows; the table data and footer rows must be disabled.
 - h. In the **Toolbox** pane, click the **Table** control and drag the table to place it inside the list.
 - i. Shrink the table to about half the list width.

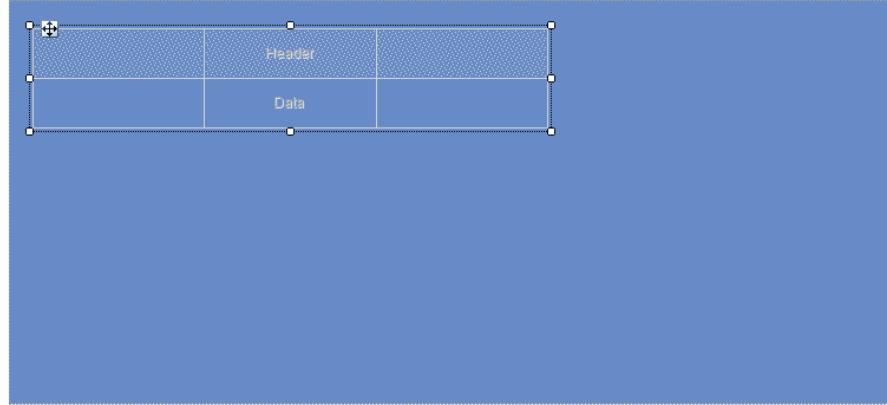


FIGURE 2.27: TABLE DATA REGION WINDOW

- j. Select any table row, right-click the shaded border and then click **Tablix Properties**. On the **General** tab, ensure that the **Dataset name** field is populated with **DataSet_Result** and then click **OK**.
- k. Right-click any column header and then click **Insert Column**, and select either **Left** or **Right** option to have four columns in the table.

- I. Select the second table row, which is the Data row. Right-click on the selected row and then click **Delete Rows** to delete the table details row.
- m. Click **OK** on the confirmation message to delete the row and its associated groups. Disable the table footer in a similar way (if present).
- n. Select the only table row left, right-click on the shaded border to the left side of it and then click **Insert Row, Below** to insert another table header row.
- o. Repeat this action to have three table header rows in the table.
- p. Right-click the first cell in the table, and then click **Expression**. In the Set Expression area, enter the following expression in the text box: `=Parameters!Cust_No_Caption.Value` and click OK to close the window.
- q. Do the same for the cell below this one, and assign the `=Parameters!NameCaption.Value` value to the cell.
- r. Ensure that the values of all caption fields begin with `=Parameters`. You can select caption values from the **Parameters** category.

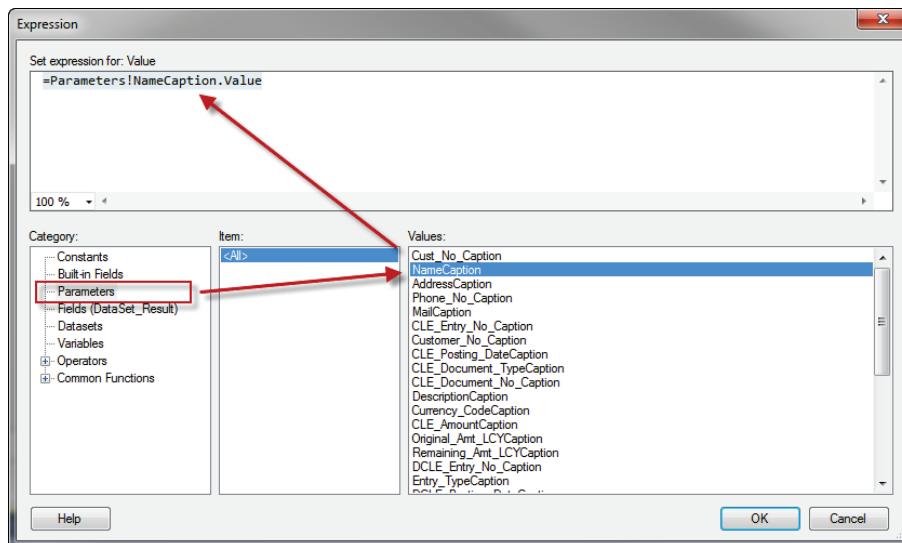


FIGURE 2.28: PARAMETERS NAME CAPTION VALUE WINDOW

- s. Place the values of the **No.** and Name fields of the **Customer** table in the second table column, next to their respective captions, by selecting the fields from the **Fields (DataSet_Result)** category. Ensure that the values of all fields begin with `=Fields`. The expressions should be `=Fields!Cust_No_.Value` and `=Fields!Name.Value` for the **No.** and **Name** fields respectively.

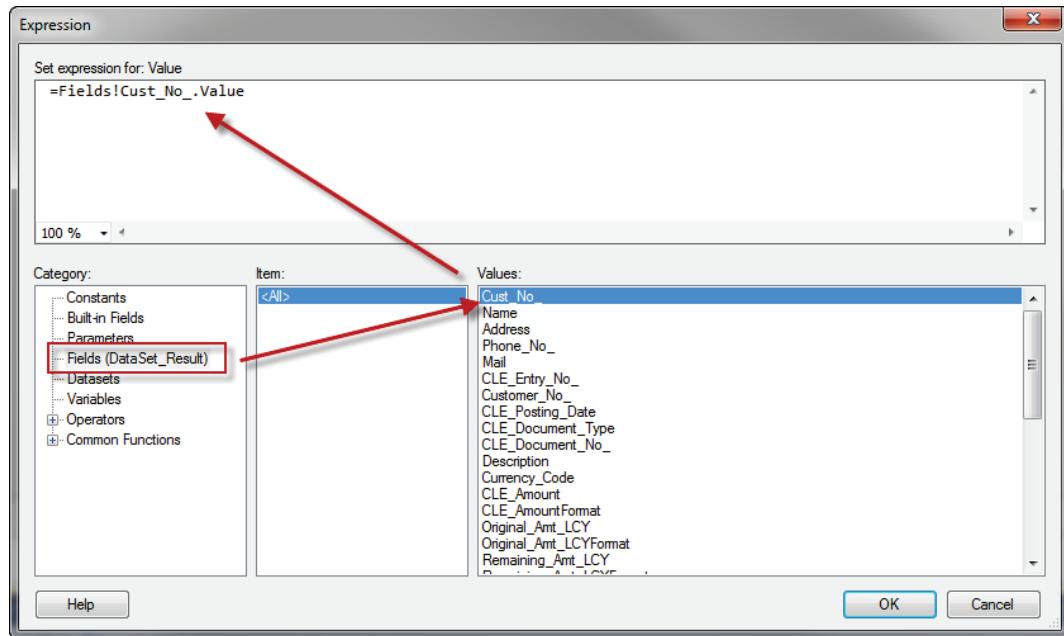


FIGURE 2.29: CUSTOMER NO WINDOW

- t. Place the values which represent the captions of the **Address**, **Phone No.**, and **E-Mail** fields of the Customer table into the third table column.
- u. Place the values of the **Address**, **Phone No.**, and **E-Mail** fields of the Customer table into the fourth table column, next to their respective captions.
- v. Ensure the values of fields do not contain any additional operators, such as **Sum** to avoid unnecessary calculations.
- w. The **Sum** function may be inserted into a field value automatically by the program if the data set name for a list control is empty.
- x. Select all table rows (not the table itself). Click **View, Properties** to open the Properties window if not already shown in the right bottom corner of the Visual Studio Report designer.
- y. Locate the **BackgroundColor** property and set it to an arbitrary color.

[@Cust_No_Ca]	[Cust_No_]	[@AddressCaption]	[Address]
[@NameCaption]	[Name]	[@Phone_No_Caption]	[Phone_No_]
		[@MailCaption]	[Mail]

FIGURE 2.30: BACKGROUND COLOR WINDOW

- z. In the menu bar, click **Build, Build Web Site**.
- aa. Inspect the Output pane and ensure that there are no errors.

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It is a good practice to use the Build Web Site function periodically during the report design to ensure there are no errors or receive detailed information about report design issues if any.

8. Insert a new table.
 - a. Insert another table to store the customer ledger entries and detailed ledger entries. Place the table below the one created previously.
 - b. Select the table, right-click the shaded border and then click **Tablix Properties**.
 - c. On the **General** tab, ensure that the **Data set name** field is populated with **DataSet_Result** and then click **OK**.
 - d. Select and right-click the table Data row, and then select **Insert Row, Outside Group – Below**.
 - e. Insert a parent group to store the customer ledger entry field captions and values.
 - f. Select and delete the first row of the table.
 - g. Add columns to the table so that the total number of columns is eleven.
 - h. Click the table Data row, right-click the shaded border to the left and then click **Add Group, Parent Group**.
 - i. In the Tablix group window, under **Group by**, set up grouping by the following expression: **[CLE_Entry_No_]**, select **Add group header** and click **OK**.

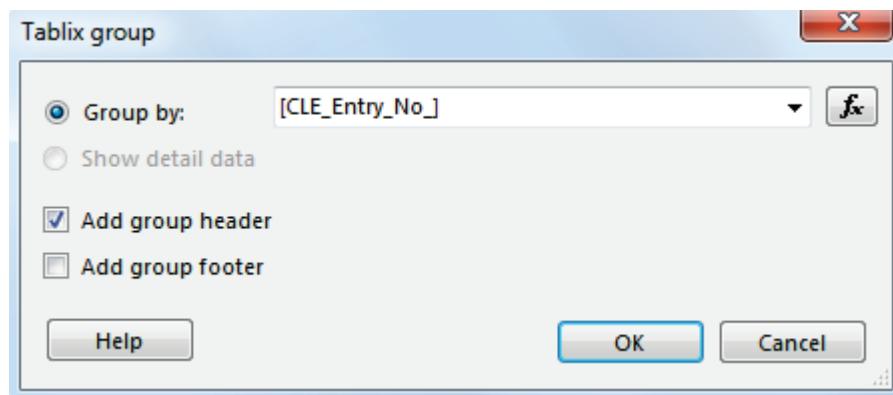


FIGURE 2.31: INSERT GROUP WINDOW

- j. Populate the group header row with the customer ledger entry data captions.
- k. Select the first row where the cell expression is [CLE_Entry_No_], right-click on it, and then click **Insert Row, Inside Group – Above**.

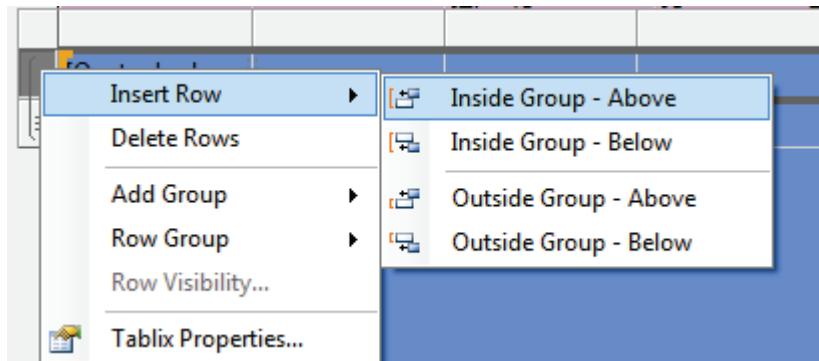


FIGURE 2.32: INSERT ROW WINDOW

- l. Populate the inserted row with the caption values of the fields from the Customer Ledger Entry table. Assign the text box expressions for the Customer table as described above. You need to insert caption values for the following fields from the Customer Ledger Entry table:
 - i. CLE_Entry No.
 - ii. Customer No.
 - iii. CLE_Posting Date
 - iv. CLE_Document Type
 - v. CLE_Document No.
 - vi. Description
 - vii. Currency Code
 - viii. CLE_Amount
 - ix. Original Amt. (LCY)
 - x. Remaining Amt. (LCY)

- m. Skip the column between Description and Currency Code fields.

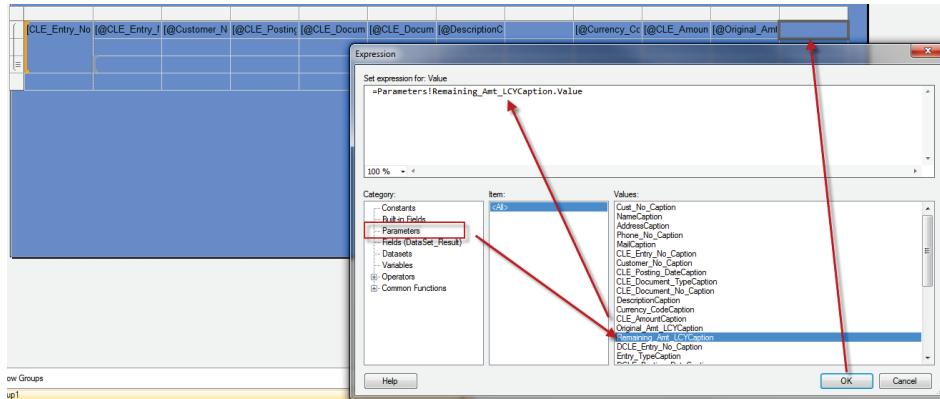


FIGURE 2.33: ADD FIELDS WINDOW

- n. For the left-most grouping cell in the table, right-click and select **Text Box Properties**. Select the **Visibility** tab, and set **Hide** in the Change display options area. Click OK to close the Text Box Properties window. This will create the necessary indent under the Customer table.
- o. When needed, shrink the columns to make the table fit inside the list.
- p. Populate the second group row with values of the fields of the Customer Ledger Entry table.
- q. Select the first group header row and set the **BackgroundColor** property in the Properties window for it to an arbitrary color.
- r. Repeat the same action for the second group header row, but make it a different color.
- s. Insert another row below in the group to store detailed ledger entry captions.
- t. Select the second table row, right-click the shaded border to the left of it and then click **Insert Row, Below**. As a result, you should have a table with 3 group rows, and 1 group data row, and 1 table footer row.
- u. Place the appropriate detailed ledger entry field captions into the third row.
- v. You need to insert caption values for the following fields from the Detailed Cust. Ledg. Entry table:
 - DCLE_Entry No.
 - Entry Type
 - DCLE_Posting Date
 - DCLE_Document Type
 - DCLE_Document No.
 - Transaction No.
 - Journal Batch Name

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- Amount (LCY)
- Debit Amount (LCY)
- Credit Amount (LCY)

9. To ensure that the Entry No. and Entry Type fields are located directly under the Customer No. field of the customer ledger entry, follow these steps:
- a. Shrink the column containing the Customer No. field of the customer ledger entry to about half of its size.
 - b. Right-click the column header and then click **Insert Column, Right**.
 - c. Merge the cell containing the caption of the Customer No. field with the cell in the inserted column by selecting the two cells, right-clicking them, and then clicking Merge Cells. Do the same for the cell containing the value of the Customer No. field (next row below).
 - d. Repeat the same for the value of the Description fields (caption and value rows).
 - e. Assign expressions representing the captions of the Entry No. and Entry type fields of the Detailed Customer Ledger Entry table to the text boxes in the first data row.
 - f. A similar procedure must be performed for the Transaction No. and Journal Batch Name fields, which must be located under the Description field of the Customer Ledger Entry table. Insert the rest of the fields from the table (see the list above).
 - g. Leave blank cells where empty space must be located (under the Currency Code field of the Customer Ledger Entry table and to the left of that column). Select the group row and set the **BackgroundColor** property for it to an arbitrary color.

[@Cust_No_Caption]	[Cust_No_]	[@AddressCaption]	[Address]	merged cells		[@Currency_Cc]	[@CLE_Amount]	[@Original_Amt]	[@Remaining_Amt]
[@NameCaption]	[Name]	[@Phone_No_Capti]	[Phone_No_]			[@Currency_Code]	[@CLE_Amount]	[@Original_Amt_L]	[@Remaining_Amt_L]
		[@MailCaption]	[Mail]			[@Amount_LCY]	[@Debit_Amou]	[@Credit_Amou]	
[CLE_Entry]	[@Customer_No_Caption]	[@CLE_Posting_I]	[@CLE_Docum]	[@CLE_Docum]	[@DescriptionCaption]				
[CLE_Entry_L]	Customer_No_	[CLE_Posting_Da]	[CLE_Documen]	[CLE_Documen]	Description]				

FIGURE 2.34: MERGED CELLS WINDOW

- h. Ensure that the values of all caption fields begin with =Parameters (displayed as @) and the values of fields do not contain any additional operators.
- i. Fill the last table row, which is the Data row, with values of the appropriate detailed customer ledger entry fields by placing them below the corresponding captions (see the list above).

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- j. Set the **BackgroundColor** property for the details row to an arbitrary color.

[@Cust_No_Caption]	[Cust_No_]	[@AddressCaption] [Address]	
[@NameCaption]	[Name]	[@Phone_No_Caption] [Phone_No_]	
		[@MailCaption]	[Mail]
[CLE_E	[@CLE_Entry] [Customer_No_Caption]	[@CLE_Posting_I] [CLE_Docum]	[@DescriptionCaption]
[CLE_Entry_N	[Customer_No_]	[CLE_Posting_Dat] [CLE_Documen]	[Description]
			[@Currency_Co]
			[@CLE_Amount]
			[@Original_Amt_L]
			[@Remaining_Am]
			[Currency_Code]
			[CLE_Amount]
			[Original_Amt_L]
			[@Remaining_Am]
			[@Amount_LCY]
			[@Debit_Amount]
			[@Credit_Amou]
			[Amount_LCY]
			[Debit_Amount]
			[Credit_Amount]

FIGURE 2.35: DETAILS BACKGROUNDCOLOR WINDOW

10. To hide the empty cells with no data, we need to place the relevant filters.
- Select any row which is grouped by [CLE_Entry_No_], right-click on the shaded border to the left of it, and click **Row Group**, **Group Properties**.
 - In the **Group Properties** window, select the **Filters** tab and click **Add** to add a filter as shown in the screenshot and click **OK** to apply the filter.

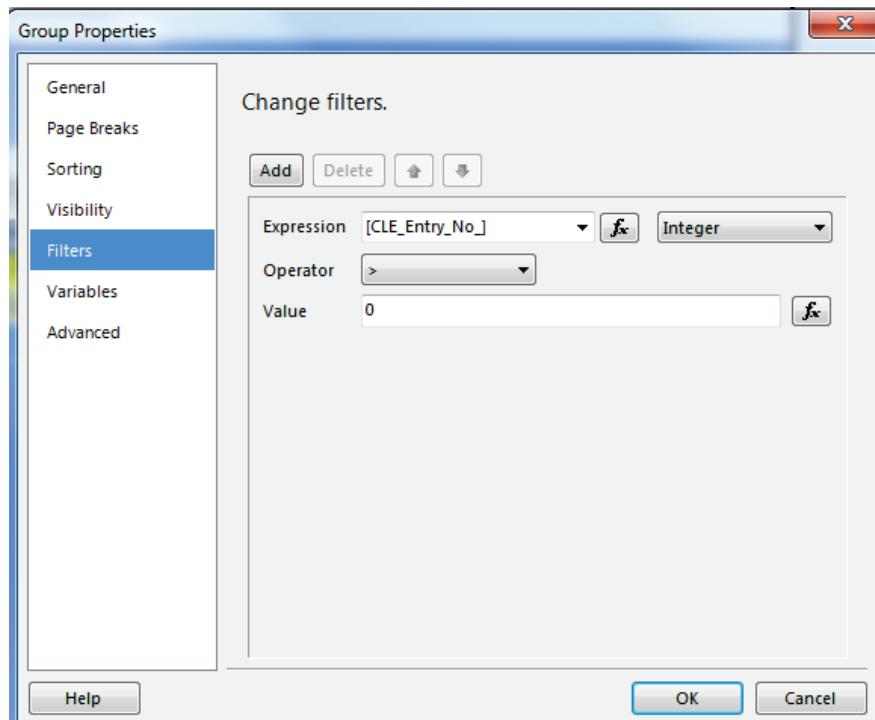


FIGURE 2.36: GROUP PROPERTIES WINDOW

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11. Place the field that displays the total amount with its respective caption into the footer row of the table storing the ledger entry data.
 - a. For the last row of the table, under the Amount field from the Cust. Ledger Entry table, assign the following expression to the text box: =Sum(Fields!CLE_Amount.Value).
 - b. For the filled in cell, in the Properties window, click the AssistButton next to the Format property and select Expression. In the Expression window, enter the formatting expression for this text box as follows: =Fields!CLE_AmountFormat.Value.
 - c. Click **OK**.
 - d. Merge the two cells located to the left of the inserted field.
 - e. Locate the data set item which represents the caption for the total field (Total_Caption) and assign its expression to the merged cell.
 - f. In case the cell in the top row of the current column is populated with Total Caption, clear it.
 - g. Select these two cells and set the **BackgroundColor** property for them to a different arbitrary color.
12. Hide the total amount for the cases where no customer ledger entry is available.
 - a. For the last table row, in the Properties window, click the AssistButton next to the Hidden property and select Expression. In the Expression window, enter the hidden expression for this row as follows: =Fields!CLE_Entry_No_.Value = 0.
 - b. Click **OK**.
 - c. Right-click the left-most cell in the last table row and select **Text Box Properties**.
 - d. Select the **Visibility** tab, and set **Hide** in the Change display options area.
 - e. Click **OK** to close the Text Box Properties window.
13. Insert another table to store the sales document data.
 - a. In the Toolbox pane, click the **Table** control and drag it to the list below the Cust. Ledger Entry table.
 - b. Shrink the table to about half the list width.
 - c. Insert columns into the table to have a total of five columns.
 - d. Delete the first header row from the table.
 - e. Select the data row and right-click on the left shaded border to the left. Click **Add Group, Parent Group**.

- f. Click the Expression button next to the **Group by** field, double-click Sales_Documents_Caption from the **Parameters** category and click **OK**.
- g. Select the **Add group header** check box.

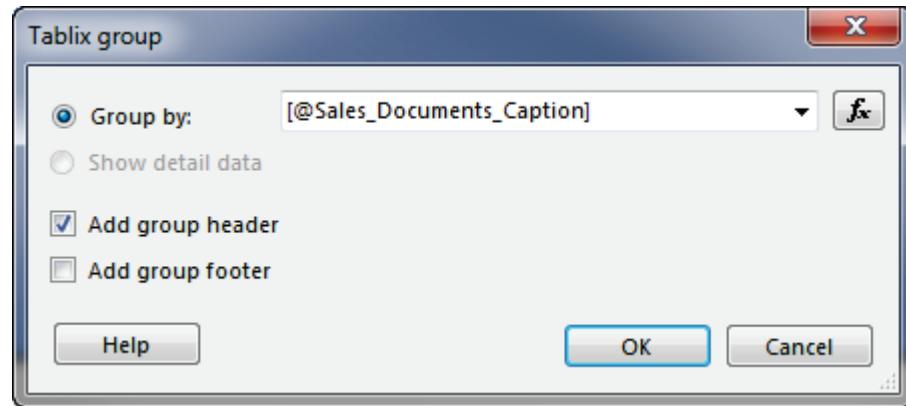


FIGURE 2.37: TABLIX GROUP WINDOW

- h. Click **OK** to add the group.
- i. Right-click the first row in the table, and then click **Insert Row, Inside Group – Above**.
- j. Reduce the size of the first column, which is the grouping one. Set its **Hidden** property to **True**.
- k. For the first table row, merge all cells (except the first large grouping cell) and, in the **Parameters** category, locate the data set item which represents the caption of the sales documents section (Sales_Documents_Caption). Make sure that expression is as follows: =Parameters!Sales_Documents_Caption.Value
- l. Fill in the second table group header row with the appropriate captions of the Sales Header table.
- m. **Captions** for the following fields from the Sales Header table are required:
 - SH_Document Type
 - SH_No.
 - SH_Posting Date
 - Prices Including VAT
 - SH_Amount
- n. The **values** of all caption fields should begin with =Parameters.
- o. Select the two table header rows and set the **BackgroundColor** property for them to an arbitrary color.
- p. Fill in the table data row with the data set items for the field values of the Sales Header table which correspond to the captions inserted into the header.

- q. Select the table data row and set the **BackgroundColor** property to a different arbitrary color.
- r. Select any row from this table, right-click the shaded border to the left of it and then click **Tablix Properties**.
- s. Go to the **Filters** tab and set a filter as shown in the screenshot, and then click **OK**.
- t. Resize the list control so that it exactly matches the height of the three tables inside it. Resize the report body section so that it exactly is the size of the list control.
- u. In the menu bar, click **Build, Build Web Site**.
- v. Inspect the Output pane and ensure that there are no errors.
- w. Click the **Close** button to exit Microsoft Visual Studio.
- x. Click **Yes** to save the modified files.
- y. Go back to the Dynamics NAV 7 Development Environment, and in the Report Dataset Designer, select either a blank line or another data item (a data item that differs from the current selected data item).
- z. Click **Yes** on the warning message stating that the report layout has been changed by another application, and asking to load the changes.
 - aa. Save and compile the report in the Object Designer.
 - bb. Run the report from the Object Designer.
 - cc. Ensure that no filters are specified on the request page and click **Preview**.
 - dd. Click the **Print Layout** button in the Print Preview window.
 - ee. Observe the report output (the 1st and 2nd pages of the report are displayed in the screenshot below).

Using Images in a Report

Using Images in a Report

An image is a report item that contains a reference to an image that is stored externally, embedded within the report, or stored in a database. An image can be a logo or picture, or it can be a picture that is repeated with rows of data. You can also use an image as a background for certain report items.

When you use an external image in a report, the image item contains a path that points to an image on the server or network. When you use an embedded image, however, the image data is stored within the report definition and does not exist as a separate file.

External images work well for logos and static pictures that are shared among several reports. Embedded images ensure that the images are always available to the report, but they cannot be shared. Report definitions with external images are smaller than definitions with embedded images.

Data-bound images can also be displayed from binary data stored in a database. For example, the pictures that appear alongside product names in a product list are database images.

Images can be displayed using the Image control. In the Visual Studio Report Designer, you can work with three sources of pictures:

- Embedded images
- External images
- Database images (Stored in BLOB fields and streamed with the dataset.)

Embedded Images

Embedded images are images that are stored in the report.

To import images in the report, select Report Data, New Image. Click the **New Image** button, select an image file, and click **OK**.

You can embed images in a report so that all image data is stored within the report definition. When you embed an image, Report Designer encodes the image and then stores it as text in the report definition. Using an embedded image ensures that the image is always available to the report, but it also increases the size of the report definition.

External Images

External images are not stored in the report or in a database. Instead they come from a public external location, for example, the Internet.

External pictures are supported in Microsoft Dynamics NAV 2013. To use external pictures, the **EnableExternalImages** property must be set to True. Using external pictures is not recommended for security reasons.

You can include stored images in a report by specifying a Uniform Resource Locator (URL) to the image. When you use an external image in a report, the image source is set to External and the value for the image is the URL address to the image.

Database Pictures from Microsoft Dynamics NAV

In the report, you can also work with pictures that are derived from the Microsoft Dynamics NAV database, for example, to print an item catalog that includes the item pictures, or to print the company logo that is stored in the Company Information table.

Database pictures can be added to Header, Body and Footer sections.

Image Properties

When working with pictures, there are three important properties:

- **Source:** This property indicates the source of the picture. Supported options in Microsoft Dynamics NAV 2013 are External, Embedded and Database. You can also use an expression to define the picture source.
- **MIME Type:** This property contains the MIME Type of the picture; MIME is an Internet standard for describing the contents of a file. The property is used in HTML to render the picture in the correct way. Examples are image/bmp, image/gif, image/jpeg and so on. MIMETYPE applies only if the Source property is set to Database. If the Source property is set to External or Embedded, the value of MIMETYPE is ignored.
- **Value:** This property contains the name of the picture that is displayed in the image control. The property can contain an image name (for embedded images) or a field from the dataset (for database images).

Adding Images

To add an image to a report, you must first add a control to the report that can contain an image: the image control.

A prerequisite of adding a database image course is that the image is part of the dataset, which implies that the image must be added as a Column in the Report Dataset Designer.

If you want to print a "standalone" picture (such as a company logo), you can work with a single Image control. If you want to print a picture as part of a record, you will have to work with a repeating container (such as a table control), and insert an image control in a table cell.

After you insert the Image control, you can use the other properties to further fine-tune the layout and the position of the image control.

Background Images

You can use an image as a background image in the body, header and/or footer of the report or in a rectangle, text box, list, matrix, or table. A background image has the same properties as an image. You can also specify how the image is repeated to fill the background of the item.

If you define a background image for the report body, but not the page header or footer, HTML reports will automatically use the same background image in all three regions of the report. If you do not want to use the background image in the header or footer, you must explicitly define a different image for those regions. If you do not want any image to appear in those regions, you can create and assign a small transparent image to the header or footer to create the effect of having no image at all.

Demonstration: Adding an Image Control

Mort is asked to modify the layout of an existing report, and add an image.

Demonstration Steps

1. To add an image control to the report, follow these steps.
 - a. In the Object Designer, select report **123456700** and click **Design**.
 - b. Select **View, Layout** to open Visual Studio Report Designer.
 - c. In Visual Studio Report Designer, click **Image** in the Toolbox.
 - d. Click a location on the design surface and drag the mouse to create a box that is the size of the desired image. Alternatively, click the design surface to create an image item of fixed size.
 - e. In the **General** page of the **Image Properties** dialog box, type a name in the **Name** text box or accept the default.
 - f. (Optional) In the **Tooltip** text box, type text to display when the user hovers the mouse over the image in a report generated for HTML.
 - g. In **Select the image source**, click the option that specifies where the source for the image exists.
 - i. **External**
Choose this option when you specify an image that exists on the report server or on a web server. For this option, you must type a URL to the image or select a dataset field that contains a URL to the image.
 - ii. **Embedded**
Choose this option when you specify an image that is part of the report definition.

iii. Database

Choose this option when you specify a dataset field that is bound to a database field that contains an image.

- h. Click **OK**.
- i. (Optional) Click **Size**, **Visibility**, **Action**, or **Border** to set additional properties for the image report item.

Demonstration: Display an Embedded Picture in a Report

Demonstration Steps

1. To add an embedded image in a report:
 - a. In Visual Studio Report Designer, in the **Report Data** pane, right-click the **Images** node, and then click **Add Image**.
 - b. Alternatively, click **Import**, navigate to the file, and then click **Open**. In Files of type, select the image file type, select the file **Image.png**, click **Open** and then click **OK**.

The file is displayed under the Images folder in the **Report Data** pane.

- c. The MIME type is derived when the image is imported. To change the MIME type, view the next procedure.
- d. To add the image to the report, drag the image from the **Report Data** pane to the design surface. The **Image Properties** dialog box opens.
- e. Click **OK**.

Demonstration: Adding a Database Image to a Report

Demonstration Steps

1. To a Database Image to a Report:
 - a. In Visual Studio Report Designer, click **Image** in the Toolbox.
 - b. On the design surface, click the design surface and then drag the mouse to create a box that is the size of the desired image. Alternatively, click the design surface to create an image item of fixed size.
 - c. In the **Image Properties** dialog box, type a name in the **Name** text box, or accept the default.
 - d. (Optional) In the **Tooltip** text box, type text that will display when the user hovers the mouse over the image in the rendered report.

- e. In Select the image source, select Database.
- f. In Use this Field, select the field that contains the image.
- g. In Use this MIME type, select the MIME type of the image.
- h. Click **OK**.

Demonstration: Adding a Background Image for a Report

Background images apply to a rectangle, text box, tablix, page header, page footer, report body, chart, and some parts of a chart, for example, a chart area. You can define a background image for any selected item on the report design surface that displays **BackgroundImage** in the **Properties** pane. If the **Properties** pane is not visible, from the **View** menu, click **Properties Window**.

Demonstration Steps

1. In Visual Studio Report Designer, select the report item to which you want to add a background image.
2. In the **Properties** pane, expand **BackgroundImage**, and then do the following:
 - a. For **Source**, select **External**, **Embedded**, or **Database**.
 - b. For **Value**, type or select an expression that evaluates to the source of the image.
 - c. If the **Source** property is set to **External**, the expression must evaluate to a valid path to an image. This can be a static path to an image hosted on a report server, or it can be a path based on a field.
 - d. If the **Source** property is set to **Embedded**, the expression must evaluate to the name of an image that is embedded in the report. If the **Source** property is set to **Database**, the expression must evaluate to a field that contains binary image data.
 - e. For **MIMETYPE**, select the appropriate MIME type for the image.
 - f. **MIMETYPE** applies only if the **Source** property is set to **Database**. If the **Source** property is set to **External** or **Embedded**, the value of **MIMETYPE** is ignored.
 - g. For **BackgroundRepeat**, select **Repeat**, **NoRepeat**, **RepeatX**, or **RepeatY**.
 - h. For background images in a chart, **BackgroundRepeat** can be set to **Fit**, but not **RepeatX** or **RepeatY**.

Print Preview and Print Layout

This section explains the difference between the two modes: Print Preview and Print Layout.

How Does It Work?

When you run a report, a request page appears (If you have set this to appear). In this page, you can have three options:

- Cancel the report.
- Print (or export) the report.
- Preview the report.

Cancel will close the pop-up menu and you will return to the client. Print will send the report to the printer, but Preview will open the Report Viewer.

In addition to these options in the request page, you can also apply filters to the report, or fill in options in the **Options** Tab, if options are defined for the report.

You can use the Report Viewer to preview the report before you send it to the printer, or save it as a PDF or Microsoft Excel™ or Microsoft Word™ file.

At the top of the **Report Viewer** window there is a toolbar with several buttons.

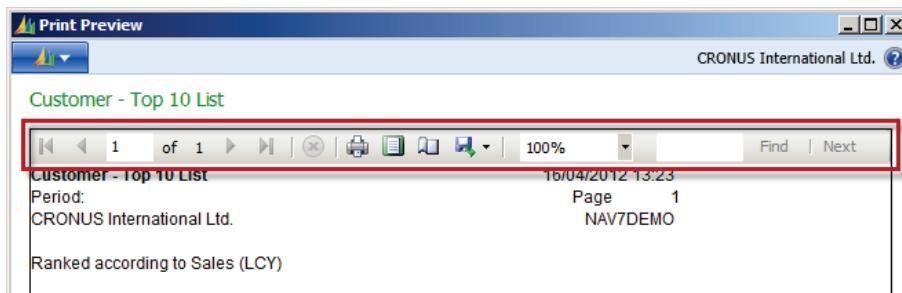


FIGURE 2.38: THE REPORT VIEWER TOOLBAR WINDOW

You can use the **Print** button to send the report to the printer.

 **Note:** Note that the print button is not available if the C/AL code in the report contains the function: **currReport.PREVIEW()**

To the right of the **Print** button is the **Print Layout** button. If you click the **Print Layout** button, the report will be regenerated in the Print Layout mode. This mode will provide you with a visual depiction of how the report will print on paper. However, if you select the Print Preview mode, you will not have a visual depiction of the width of the page and the page breaks. By clicking the **Print Layout** button again, you can switch back to the Print Preview mode.

 **Additional Reading:** For more information about report rendering behavior, please read: <http://go.microsoft.com/fwlink/?LinkId=267270>

Working with Visibility Options

This lesson describes the interactive features (such as visibility options, interactive sorting and document maps) that can be added to reports.

Lesson Objectives

Describe the visibility options in reports and how to use them.

Visibility Options

With the report viewer, the user can dynamically expand and collapse groups of data, and gradually move into the content of a report, which will make the report complete and easier to analyze.

Review report 123456700, Sales by Salesperson - L1.1. The report contains an overview of the total sales and profit amount separated by salesperson, country/region code, customer number and document type. Suppose you want to view the sales amount realized by John Roberts, particularly in Germany. You also want to view the details for Germany, and at the same time, you want to view the correct totals for all countries and regions.

Once the information is printed, you cannot collapse specific sections. All the details are visible, including those you are not interested in at this time. The next paragraph will show you how to work with visibility options.

The Visibility Feature

The Visibility feature is a toggle feature you can use to dynamically show or hide data regions using the Expand/Collapse technique.

When you add the visibility feature to a specific data region, the data region will get a small plus (+) icon. If you click it, the region will expand, and at the same time, the icon will change from a plus (+) icon to a minus (-) icon. If you click it again, the region will collapse and the icon will revert to a plus (+) icon.

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Conversely, visibility options defined for a group header will also apply to the corresponding group footer.

By providing a toggle on a text box, users can hide and display items interactively. For a table or matrix, you can show or hide static rows and columns, or rows and columns that are associated with groups. The main reason for hiding items is to provide a report that shows summary data, so that a user can drill down into detail data.

For example, you can initially hide all the rows except the outer group summary row for a table with row groups. For each inner group (including the details group), add a toggle to the grouping cell of the containing group. When the report is rendered, the user can click the text box to expand and collapse the detail data.

Implement the Toggle Visibility Functionality

The visibility feature is typically used in data region controls, to influence the visibility of grouped data (table rows, matrix columns). Although it can be defined for each cell, you normally define it by table row. Often you will define visibility options for all levels except the highest data level. Visibility options are often defined in a cascading scenario.

Visibility and Totaling

Although you have added visibility options for the different groupings, you still need to expand the different groups and examine the group footers to know the subtotals for each group. To avoid this, you can have the totals display in the group header row, so that the subtotals are visible without having to expand the individual groups. (In this case, the group footers become obsolete.)

To add the totals to the group header, select the fields in the dataset and drag them to the correct cell in the group header. (You can also copy or move the fields from the footer row.) When you add a numerical field to a header or footer, the Sum() function will be added automatically. As a result, the header will contain the same information as the footer. You can now disable the individual footers, as described in the Delete a Group Header or Group Footer section.

Demonstration: Adding Toggle Visibility Options

In report 123456700, you would define visibility options for the Country/Region Code, Customer No. and Document Type group headers and the table details row (showing the individual customer ledger entries).

Demonstration Steps

1. The following steps show how to define visibility options for a table row.
 - a. Import Report **R123456721.fob** and confirm.
 - b. Click Design to open the Report Dataset Designer.
 - c. Select View, Layout to open Visual Studio Report Designer.
 - d. Click the row group in the Row Groups window for the group you want to add visibility options to. In this case, select the **Country/Region Code** group (group2).
 - e. Select Group Properties.
 - f. On the **Visibility** Tab, select an initial visibility state for the data level. The default state is **Show** (which means that the data region will be expanded). If you select **Hide**, the data region will be collapsed. Select **Hide**.
 - g. Select the **Display can be toggled by this report item** check mark.
 - h. In the **Report Item** field, select the control that can influence the visibility of the selected table row. Select **Customer_Salesperson_Code_value**.
 - i. Click **OK** to close the **Grouping Properties** window.

Now that you have defined the visibility for one level, you can repeat this procedure to define it for the remaining levels. If you run the report afterward, the result will be similar to the Report With Visibility Options figure.

Salesperson Code	Country/Region No.	Document Type	Posting Date	Sales (LCY)	Profit (LCY)
JR				23811.67	6840.67
PS				31351.00	12367.70

FIGURE 2.39: REPORT WITH VISIBILITY OPTIONS WINDOW

Notice that the report shows only the two salespersons. The details for the Country/Region Code grouping (and all underlying groupings) are hidden. If you click the **Expand/Collapse** icon, the details of the next level are shown; if you click the button again, the details are hidden again.

You can have the initial visibility state determined by an expression. This is often used to influence the visibility of individual controls. Using expressions will be described in the **Adding Code to a Report module**.

Interactive Sorting

Sorting data in the Microsoft Dynamics NAV pages is strictly related to keys. These can be single or multiple field keys defined and enabled at table structure level. The different sorting orders for data must be defined as keys. After you define a key, you can use it in tables, pages, reports, and other objects to sort data in the order that you want, according to one of these keys. And you can also use these programmatically.

In reports, you can have the user define the sorting order, or you can predefine the sorting order (using the DataItemTableView property on data item level). In either way, the sorting order is defined before the report is printed. If a different sorting order is required, you must run the report again.

The report viewer client also supports interactive sorting. This means that you can add sort buttons to the data columns and use them to change the sorting of the data after the report is run, in preview mode.

When you view the report, columns that support interactive sorting have arrow icons that change to indicate the sort order. The first time you click an **interactive sort** button, items are sorted in ascending order. Subsequent clicks toggle the sort order between ascending and descending order.

When you work with interactive sorting, you will be able to support multiple user requirements while minimizing development time.



Note: Note that implementing interactive sorting on a report that has a big dataset, might have a negative impact on performance.

What is Interactive Sorting

Interactive sorting can be defined on multiple columns. In reports without grouping, the data will be sorted according to the selected column and the selected sort order (ascending or descending). In this case, interactive sorting will affect the whole data region, from top to bottom and from left to right, and equals interactive grouping: data will be sorted and also grouped differently (because each record will be a group on its own).

In reports with grouping, interactive sorting will depend on grouping. The interactive sort functionality is limited to a specific group of data. By changing the sorting of a specific group, you will affect the sorting of the data in the current group (and underlying groups), but it should not affect the sorting and will not affect the grouping that is defined on a higher level. For reports with grouping, it is important to define the correct sorting scope.

For each column the user can select the sort order. For example, you can have the first column sorted in ascending order, the second in descending order, and the third in ascending order again.

Visibility options might have a side-effect on interactive sorting: when you change the sorting on a column, the data for the current group will be refreshed, taking into account the Initial visibility settings. When you combine interactive sorting and visibility options, you must remember to first select the right sorting order for the different columns before you expand the data groups.

The most common use of an interactive sort is to add a **sort** button to all column headers. The user can then choose which column to sort by.

When you add an interactive sort, you must specify the following items:

- What to sort: Rows or columns?
- What to sort by: A field that is displayed in a table column? A field that is not displayed?
- What context to sort in: For example, you can sort on rows associated with row groups, columns associated with column groups, detail rows, child groups within a parent group, or parent and child group together.
- Which text box to add the sort button to: In the column header or in the group row header?
- Whether to synchronize the sort for multiple data regions: You can design a report so that when the user toggles the sort order, other data regions with the same ancestor also sort.



Demonstration: Adding Interactive Sorting - No Grouping

Mort needs to add interactive sorting to report 101, Customer - List, so that customers can be sorted interactively on the salesperson code.

The following steps show how to activate interactive sorting for a column in a report without grouping.

Demonstration Steps

1. Open report 123456700 in Visual Studio Report Designer.
 - a. Right-click the cell (first row, second column) and select Text Box Properties to open the **Text Box Properties** window.
 - b. On the **Interactive Sorting** Tab, enter a check mark in **Enable an interactive sort action on this text box**.
 - c. In the Sort by field, select the name of the field to sort on, for example [Customer_Salesperson_Code].

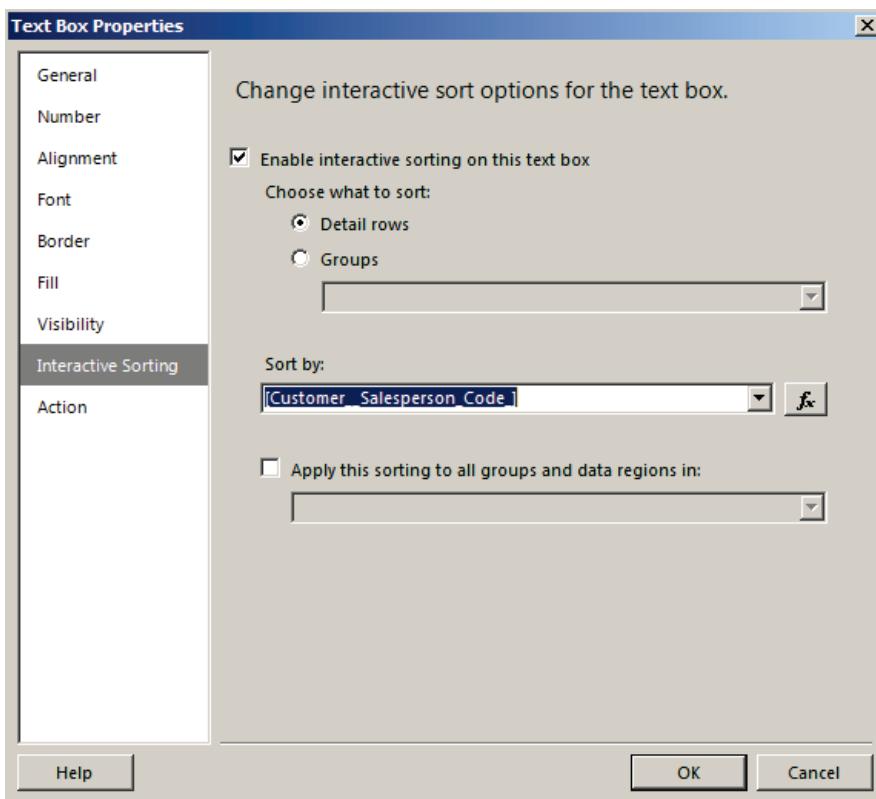


FIGURE 2.40: ADDING AN INTERACTIVE SORT TO A TEXT BOX WINDOW

- d. Click **OK** to close the Text Box Properties window.
- e. Exit Visual Studio, save and import the RDLC changes, save and compile the report in the Report Designer and run the report.

Demonstration: Adding Interactive Sorting - Grouping (Group Header Field)

After he introduced interactive sorting in some reports, Mort receives similar requests for other reports. Michael asks him to change the sorting in report 123456713, Customer/Item Sales 2, so that he can sort by Customer No. Additionally, Michael wants to sort the data by Item No. and by Item Description.

Mort will first define interactive sorting on the **Customer No.** field, which is a group header field.

Demonstration Steps

1. The following steps show how to activate interactive sorting for a group header field in a report with grouping.
 - a. Select Tools, Object Designer to open the Object Designer.
 - b. Select File, Import.
 - c. Browse to the report **R123456713.fob**.
 - d. Click Open to start the import.
 - e. In the dialog box, choose to open the Import Worksheet window.
 - f. In the Action column, verify that the action is set to Create.
 - g. Click Open to import the object in the database
 - h. Open report **123456713** in Visual Studio Report Designer.
 - i. Select the header cell for the column you want to add an interactive sort to. In this case, an interactive sort must be added to the **Customer No.** column. Note that the **Customer No.** column does not contain a caption. You can either include one or leave it blank.
 - j. Right-click the **cell** and select Text Box Properties to open the **Text Box Properties** window.
 - k. On the **Interactive Sorting** Tab, enter a check mark in **Enable interactive sorting on this text box**.
 - l. In the **Sort by** field, select the name of the field to sort on, and then select [Customer_No_].

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- m. In **Choose what to Sort:** select the Group option.
- n. In the **Choose data region or grouping** field, select **Table1_Group**. This means that changing the sort order will only affect the selected group (and the underlying groups). It is important that you select the correct scope for each group).

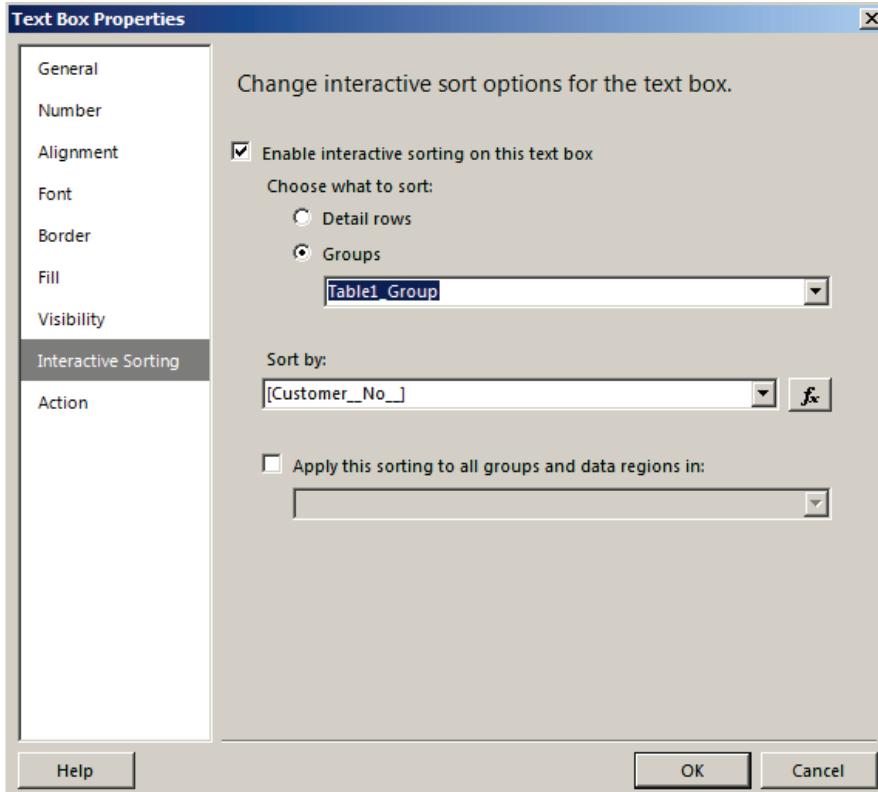


FIGURE 2.41: INTERACTIVE SORT FOR A GROUP HEADER FIELD WINDOW

- o. Click **OK** to close the **Text Box Properties** window.

Exit Visual Studio, save and import the RDLC changes, save and compile the report in Report Designer and run the report.

Demonstration: Adding Interactive Sorting - Grouping (Detail Field)

Now that an interactive sort is added to the **Customer No.** field, Mort needs to add interactive sorting for the **Item No.** and **Item Description** fields.

Demonstration Steps

1. The following step shows how to activate interactive sorting for a detail column in a report with grouping:
 - a. Open the report in Visual Studio Report Designer.
 - b. Select the header cell for the column you want to add an interactive sort to. In this case, you will add an interactive sort to the **Item No.** field (in the first column).
 - c. Right-click the **cell** and select **Text Box Properties** to open the **Text Box Properties** window.
 - d. On the **Interactive Sorting** Tab, enter a check mark in **Enable interactive sorting on this text box**.
 - e. In the **Sort by** field, select the name of the field to sort on. In this case, select `[ValueEntryBuffer_Item_No_]`
 - f. In the **Choose what to sort**, select the **Detail Rows**. This means that changing the sort order will only affect the detail scope of the table.

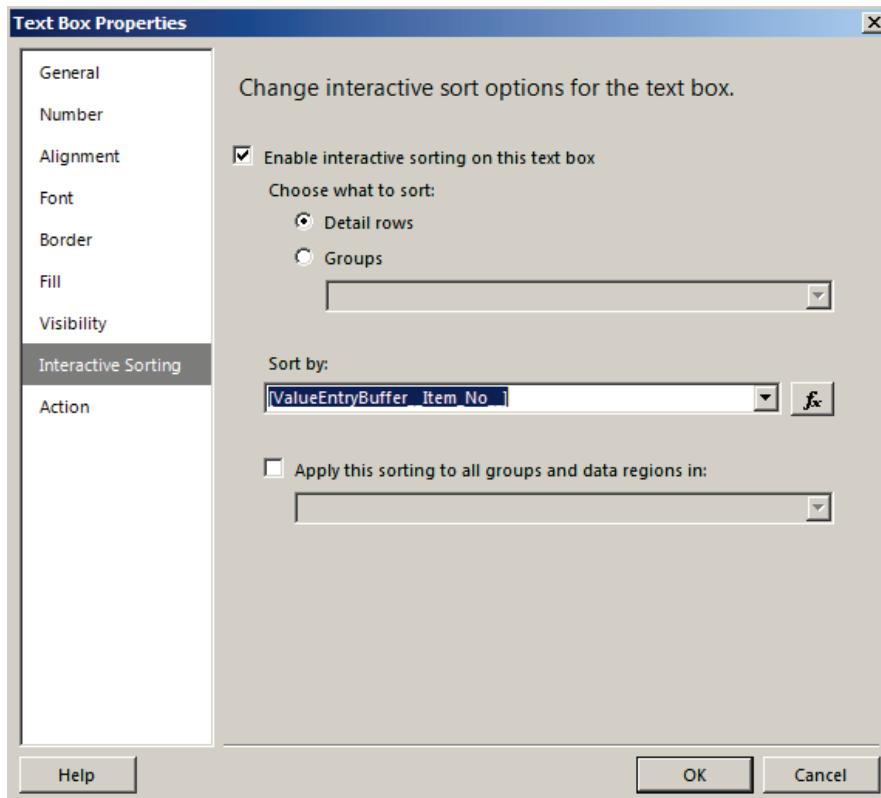


FIGURE 2.42: INTERACTIVE SORT FOR A DETAIL ROW FIELD WINDOW

- g. Click **OK** to close the **Text Box Properties** window.
- h. Next, you will add an interactive sort to the **Item Description** field (in the first row, third column).
- i. Right-click the **cell** and select Text Box Properties to open the **Text Box Properties** window.
- j. On the **Interactive Sort** Tab, enter a check mark in **Enable an interactive sort action on this text box**.
- k. In the **Sort by** field, select the name of the field to sort on. In this case, select **[Item_Description]**.
- l. In the **Choose data region or grouping** field, again select the **Detail Rows** option.
- m. Click **OK** to close the **Text Box Properties** window.
- n. Exit Visual Studio, save and import the RDLC changes, save and compile the report in the Report Designer and run the report.

Working with Document Maps

In this lesson, you will learn how to improve the navigation of a report by working with a document map, and how to define a name and map levels for the document map. Additionally, you will learn what happens to the document map when you export it in different formats.

Lesson Objectives

Explain how document maps work and how to add them to a report.

What is a Document Map

A document map is a report feature that is used to quickly navigate through the contents of a report. The document map has a tree view structure. It appears as a separate side pane next to the report content, and functions as a table of contents. When you click an item in the document map, the report content at the right side will be refreshed.

If you change the sorting of the report, the document map will be rebuilt to follow the sorting of the document.

The document map will be rendered differently depending on how the report will be exported:

- PDF renders a document map as the **Bookmarks** pane. All items in the document map are listed one after the other down the pane. There is no hierarchy to the list of links.
- Microsoft Excel renders a document map as a named worksheet that includes a hierarchy of links. Report sections are rendered in separate worksheets that are included with the document map in the same workbook.
- Microsoft Word does not render the document map.

You can use a document map in a report so that users can navigate to certain areas of the report. When you view an Excel or PDF report, a document map appears on the side of the report. Clicking items in the document map refreshes the report and displays the area of the report that corresponds to the item in the document map.

You can add multiple document maps to a report. If the report contains multiple data region controls, you can add a document map for each data region control. In this case, it is recommended to specify a document map label for each data region control.

Document maps provide a hierarchical overview of the information in the report, and they can contain entries for the different groups that are defined.

Demonstration: Adding a Document Map

Demonstration Steps

1. The following steps show how to create a document map.
 - a. Open report **123456700** in Visual Studio Report Designer.
 - b. On the **Row Groups** Tab, select the group that you want to include in the document map, for example Group1, and click **Group Properties**.
 - c. In the Advanced Tab, in the Document map field, select the field that you want to show in the document map. In this example, select **[Customer_Salesperson_Code]**.
(You can select other fields than the one in the Group on field. For example, you can group the data on Customer No. and include the Customer Name in the document map. You can even combine multiple fields by entering an expression.)
 - d. Click **OK** to close the **Grouping Properties** window.
 - e. Repeat steps 2 through 4 for each group level that you want to include in the document map (**Group2**, **Group3**, **Group4**) and the corresponding fields(**[Customer_Country_Region_Code]**, **[Customer_No_]**, **[Cust_Ledger_Entry_Document_Type]**).
 - f. On the **tablix properties**, enter a name for the data region in the **DocumentMapLabel** field. You can use the name to identify the data region control in the document map. This is convenient if the report contains multiple data region controls.
 - g. Exit Visual Studio, save and import the RDLC changes, and then save and compile the report in the Report Designer.

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When you run the report, the result is similar to the A Report With A Document Map figure.

Salesperson Code	Country/Region Code	No.	Document Type	Posting Date	Sales (LCY)	Profit (LCY)
JR					23811,67	6840,67
PS	GB				31351,00	12367,70
		10000		The Cannon Group PLC		
				Total for Customer 10000	17100,96	5338,26
		20000		Selangorian Ltd.		
			Credit Memo		-1546,18	-425,38
			Invoice		8056,82	2937,32
			Payment		0	0
				Total for Customer 20000	6510,64	2511,94
		30000		John Haddock Insurance Co.		
				Total for Customer 30000	6142,9	2921,0
		40000		Deerfield Graphics Company		
				Total for Customer 40000	1063,1	1063,1
		50000		Guildford Water Department		
				Total for Customer 50000	533,4	533,4

FIGURE 2.43: A REPORT WITH A DOCUMENT MAP WINDOW

Notice the **Expand** button in the top left corner.

 **Note:** If you want to hide the Document Map you could do this in two ways. Click in the small left arrow placed in the middle of the separating column between document map and report or right click anywhere in the report and uncheck the Document Map option.

The Document Map Settings

The document map settings are defined in the **Grouping Properties** window. If this is how you define the document map settings, you must open the **Table Properties** window instead to specify a document map label for the table.

Specifying a document map label for the table is not mandatory. However it is recommended to do this when the report contains multiple data region controls. If you do not specify any names for the different tables, all document map entries will be included sequentially, and the document map will lose some of its added value.

You can also include a document map in reports that do not define groups.

1. In the **Row Groups** window, select the detail group and select Group Properties.
2. On the **Advances** Tab, select the field that you want to add to the map in the **DocumentMapLabel** field.
3. In the **Group by** field, select the field that you want to group the data on. This is typically the **default sorting** field.
4. Click **OK** to close the **Group Properties** window.

Creating a Multi Column Report

What is a Newsletter Style Report

You can design multi-column newsletter-style reports whereby data flows down multiple adjacent columns. A newsletter-style layout applies to the entire report. It is not possible to specify a newsletter-style layout on the top half of the report, and a tabular layout on the bottom half of the report. When you specify a newsletter-style layout, the report server creates each column as a series of very narrow pages that are rendered in close sequence, giving the appearance of multiple columns. Properties that you set at the page level are applied to each column in the report. You can define as many columns you want.

For best results, use the Table or List data region.

Viewing a Multi Column Report

Not all rendering extensions support a newsletter-style layout. You can use the following rendering extension to view a newsletter-style report:

- PDF

You can preview a newsletter-style report using Print Preview. In Preview and in the rendering extensions that produce Excel and Word output, a newsletter-style layout is displayed as a single column.

To view a newsletter-style report, you must export it to a PDF file, and then open the file from the file system. For best results, consider to create a codeunit that delivers the report as a .pdf file to a shared folder location.

Demonstration: Create a Newsletter-Style Report

Multicolumn, newsletter-style reports display report data down multiple adjacent columns. A newsletter-style layout applies to the entire report. When you define more than one column in a report, Report Viewer calculates the width of the columns in the report, the width of the report, and the width of the space between columns based on the number of columns. It then displays a reduced design surface so that you can place report items on the report that will fit within the column. Note that the layout of the entire report must be placed on the reduced design surface. Additional columns are displayed so that you can verify that the number of columns you defined will fit the page size dimension. You can adjust page size, padding, and margins to fit more columns on the page.

Demonstration Steps

1. To create a newsletter-style report
 - a. Select Tools, Object Designer to open the Object Designer.
 - b. Select File, Import.
 - c. Browse to the report **R123456716.fob**.
 - d. Click **Open** to start the import.
 - e. In the dialog box, choose to open the Import Worksheet window.
 - f. In the Action column, verify that the action is set to Create.
 - g. Click Open to import the object in the database.
 - h. Open report **123456716** in Visual Studio Report Designer.
 - i. In Visual Studio Report Designer, select **Report** from the drop-down list in the Properties pane. The report properties appear in the Properties pane.

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- j. In the **Properties** pane, expand the **Columns** node.
- k. In **Columns**, type 2 as the number of columns in the report.
- l. In **ColumnSpacing**, type the width of the space between columns as **0.5in**.

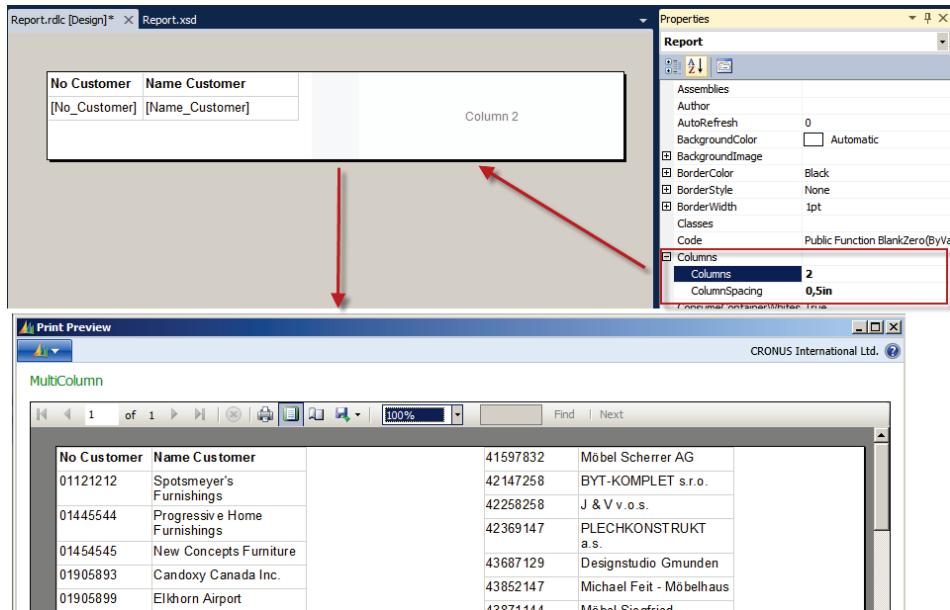


FIGURE 2.44: MULTI COLUMN REPORT WINDOW



Note: The default unit of measurement is based on the user's locale settings. To designate a different unit, type a physical unit designator such as cm, mm, pt, or pc after the numeric value.

Formatting Reports and Report Items

Formatting the items in your report makes the report look more attractive and enhances its readability. You can format the text boxes and individual items within text boxes, the images, the expressions, and the data while in design mode.

You can change formatting options by selecting the item that you want to format and then opening the item's Properties dialog box. For example, if you want to format the contents of an entire text box or a selected word within the text box, right-click the item and select Text Box Properties. Then, you can apply the formatting styles that you want.

To Format a Textbox With a Placeholder

A text box can be a report item or an individual cell within a data region that contains text, a calculated field, a pointer to a field in a database, or a combination of all three items. You can mix fonts and colors, add bold and italic styles, and use paragraph styles such as alignment and hanging indents. You can format an entire text box or you can format specific text, numbers, expressions, or fields within the text box.

Font, size, color, and effects all contribute to the readability of a report. Font, font style, font size, and underline effects can be applied to text within a text box or data region. By default, the report font that is used is Arial, 10 points, and black. By using the Text Box Properties dialog box, you can specify how the text appears when the report is rendered.

When a simple or complex expression is defined inside a text box, the resulting UI representation of this expression is known as a placeholder. You can define colors, fonts, actions, and other behavior on any number of placeholders or sections of text within a single text box.

The value of a placeholder is always a simple or complex expression. You can add a placeholder to a text box by creating an expression using one of the following methods:

- Drag a field from the Report Data pane and drop it into the text box. If you drag the expression anywhere else on the report body, a new text box will be created that contains the placeholder. The value of this placeholder will be the field expression that corresponds to the field that was dropped.
- Right-click anywhere in the text box and select **Create Placeholder**. In the Placeholder Properties dialog box, you can specify an expression as the value of your placeholder.
- Type any simple or complex expression into the text box. For example, if you type Name: **[Name]** into the text box, the **[Name]** text will be displayed as a placeholder that represents the expression `=Fields!Name.Value`
- Type an expression in an empty text box by starting with an equal sign (`=`). When you change the focus off the text box, the resulting expression is converted into a placeholder that you can edit. If the text box is not empty, or the equal sign is inserted anywhere but as the first character in the text box, the equal sign is treated as a string literal and a placeholder is not created.

Formatting Placeholders and Static Text in a Text Box

You can format placeholders using the **Placeholder Properties** dialog box. You can format only the entire placeholder, not sections of the placeholder. If you want to see the underlying expression, you can pause your pointer on the placeholder. You can change the underlying expression by double-clicking the placeholder or right-clicking the placeholder and selecting **Placeholder Properties**. You can also specify a UI label using the **Label** property in **General** of the **Placeholder Properties** dialog box. This will be the text that is shown at design-time for the placeholder.

Unlike placeholder text, you can align individual text in a text box separately, use multiple paragraphs within a single text box, and define other behavior for any subset of text.

You can define colors, fonts, actions, and other behavior on any subset of text within a single text box to create a mail merge or template for text in your report. You can also use multiple paragraphs inside a single text box. For example, if you have two separate paragraphs of text, you can separate the paragraphs by pressing **ENTER** in the text box. You can also set an alignment value for any individual string of text. You can also define an action for individual text in a text box. This can be useful if you want to add a hyperlink for a string of text that is contained inside a text box.

 **Note:** Actions defined on the text box have a higher priority than actions defined for individual text in a text box.

Using HTML in a Text Box

The text box report item enables you to insert HTML-formatted text that you have retrieved from a field in your dataset into a report. The text can come from any simple or complex expression that evaluates to correctly formatted HTML. Formatted text can be rendered to all supported output formats, including PDF.

The following is a list of tags that will render as HTML when defined as placeholder text:

- Hyperlinks: <A href>
- Fonts:
- Header, style and block elements: <H{n}>, <DIV>, , <P>, <DIV>, , <HN>
- Text format: , <I>, <U>, <S>
- List handling: , ,

Any other HTML markup tags will be ignored during report processing. If the HTML represented by the expression in the placeholder text is not well formed, the placeholder is rendered as plain text. All HTML tags are case-insensitive.

If the text in your text box contains only one block of text, any HTML in the placeholder that defines block elements will render correctly. However, if the text box has multiple blocks of text, the HTML tags are ignored and the structure of the text is defined by the blocks of text.

If more than one tag is defined for text, and Reporting Services detects a conflict between the HTML and existing report constraints, only the innermost HTML tag will be treated as HTML.

 **Note:** When you use text that contains HTML markup, the data must always be parsed by the text box first. Because only a subset of HTML tags is supported, the HTML that is shown in the rendered report may differ from your original HTML.

Demonstration: Combine Multiple Formats in a Text Box

You can format any part of the text separately within a text box. This ability to mix formats by adding placeholder text enables you to create mail merges or templates for text in your report. Any expression can be defined and formatted separately using a placeholder.

Demonstration Steps

1. To combine multiple formats in a text box
 - a. Open report **123456714** in Visual Studio Report Designer.
 - b. In the Toolbox, double-click a Textbox report item, or drag it to the design surface.
 - c. Inside the text box, type some text and select the text you want to format.
 - d. Right-click the selected text, and click **Text Properties**.
 - e. Set formatting options. For example, select the **Font** tab and in the **Style** select **Bold**.
 - f. Click **OK**.
 - g. Repeat steps c through f for the remaining text you want to format.

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These steps are visualized in the following diagram:

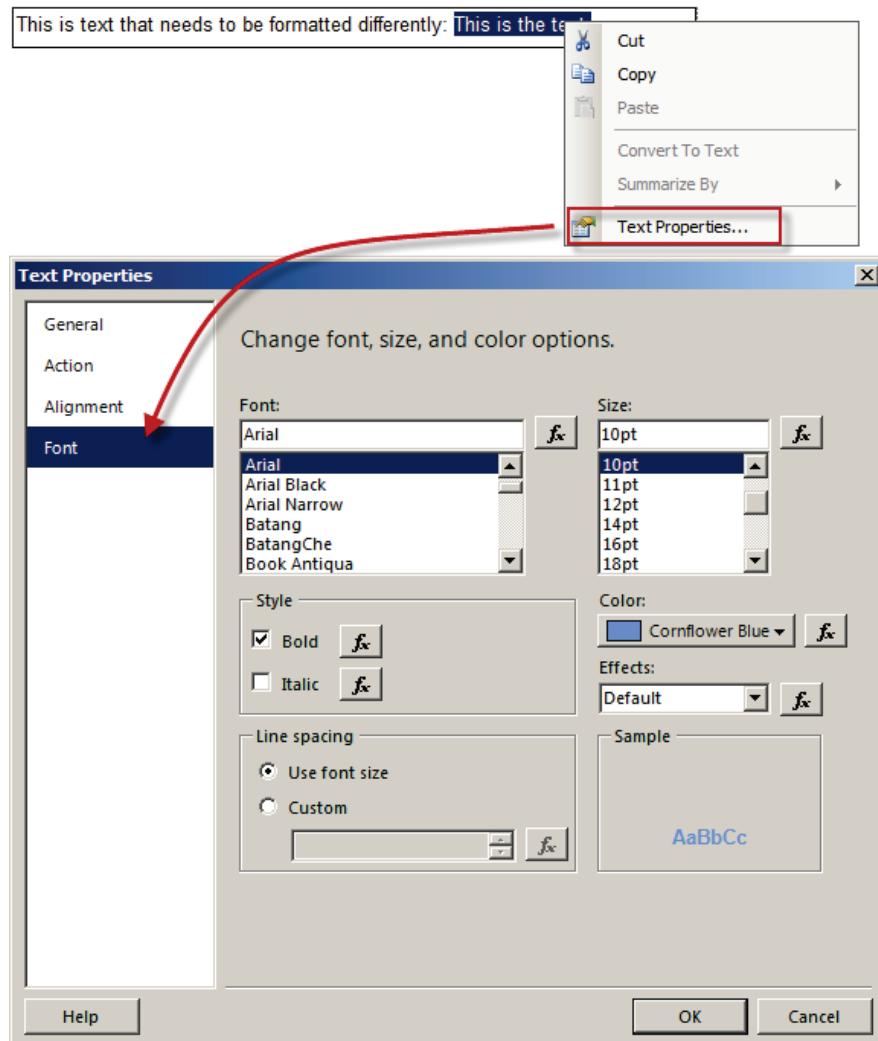


FIGURE 2.45: TEXT PROPERTIES WINDOW

Demonstration: Add HTML From a Field in your Dataset into a Text Box

Using a placeholder, you can import HTML from a field in your dataset for use in the report. By default, a placeholder represents plain text, so you will need to change the placeholder mark-up type to HTML.

Demonstration Steps

1. To add HTML from a field in your dataset into a text box
 - a. Open report **123456714** in Visual Studio Report Designer.
 - b. When you drag a field from your dataset into a text box. A placeholder is created for your field.
 - c. For example, in the second textbox of the second row, double-click and then the **Placeholder Properties** open.
 - d. Click **HTML - Interpret HTML tags as styles**. This causes the field to be evaluated as HTML.
 - e. Click **OK**.

These steps are visualized in the following diagram:

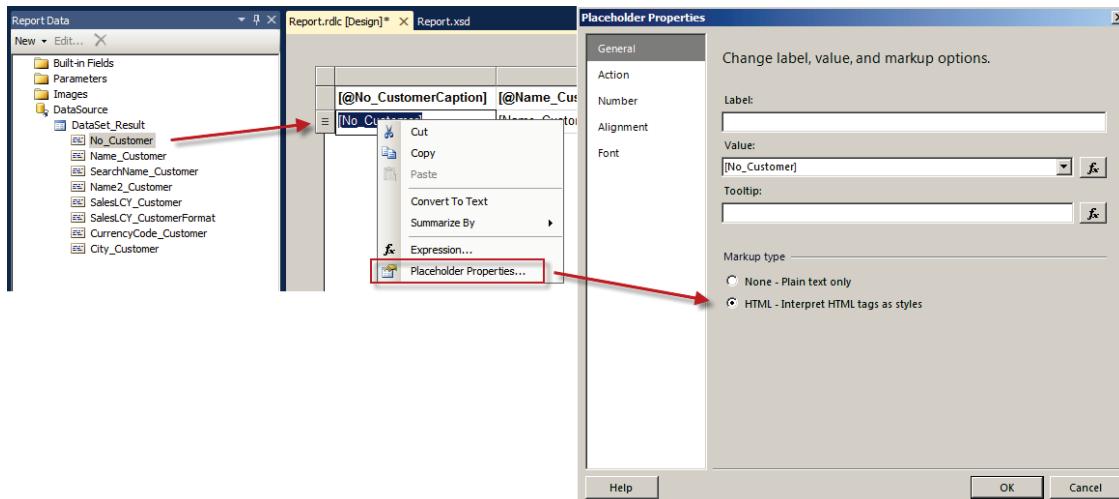


FIGURE 2.46: PLACEHOLDER PROPERTIES WINDOW

Formatting Lines, Colors, and Images

Visual Studio Report Designer Services gives you the ability to format lines, colors, data regions, images, and other report items.

Borders, Lines and Gridlines

Borders, lines, and gridlines can visually tie items together on the page and help your report readers easily read the contents of the report. Using the predefined border styles, you can quickly add a border around a text box, a group of text boxes, or an image. In addition, you can change the style, width, and color for the borders, lines, and gridlines. Borders are added around the entire item selected or around a border along an edge of the item, for example, a border along the bottom of a text box.

To format borders and gridlines in a text box, report layout, or around an image, use the report item's **Properties, Border** dialog box. For example, if you want to add a border around an image, right-click the image and then select **Image Properties, Border**.

In addition to the standard border frames, additional border frames can be applied to charts.

Applying Background Colors

A solid color can be added to the background of the entire report, a text box within the report, or to a cell or group of cells within a data region. By default, the background color is white; however, you can select a color from the report item's Properties, Fill dialog box. For example, if you want to change the background color of a text box, right-click the text box and select Text Box Properties. Click Fill and then you can select the color you want. In this dialog box, you can select a background color for the selected item or you can add an image that appears in the background.

When you use the chart, you can also specify gradients and pattern styles for background colors.

Formatting Images

Fields that contain images can be added to a data region. If you use an image field, the images appear in the report with the report is run. You can adjust the height and width of the images by changing the display size in the **Image Properties, Size** dialog box.

Images, such as logos, can also be added to the background of your report. If you use an image in your report layout, you can adjust the height and width of the images using the **Image Properties** dialog box.

You can apply a background image to a rectangle, text box, table, matrix, or to the body and page sections of a report.

Demonstration: Apply a Border to a Chart

To give a chart more visual impact, consider using a border frame around the outside of the chart. You can select a border frame by using the Chart Properties dialog box or by using the Properties pane. The chart border frames cannot be applied to any other data region.

Demonstration Steps

1. To apply a border to a chart:
 - a. Select Tools, Object Designer to open the Object Designer.
 - b. Select File, Import.
 - c. Browse to the report **R123456709.fob**.
 - d. Click Open to start the import.
 - e. In the dialog box, choose to open the Import Worksheet window.
 - f. In the Action column, verify that the action is set to Create.
 - g. Click Open to import the object in the database.
 - h. In the Object Designer, open report **123456709, Job Actual to Budget - Chart** in design mode.
 - i. Select **View, Layout** to open Microsoft Visual Studio.
 - j. Right-click anywhere on the chart and select **Chart Properties**.
 - k. If you do not see the Chart Properties, point to Chart on the shortcut menu and select **Chart Properties**.
 - l. Select **Border**, and click the type of border to apply to the chart.
 - m. Select a value or type an expression that represents the style of the border.
 - n. Specify the color of the line that will be drawn around the chart as the border.
 - o. The **Line color list** contains common colors. If you want to select from a list of more colors, click **More colors** in the list or click the expression (**fx**) button next to the list to bring up the Expression editor.
 - p. Specify the width of the border. Valid values are between **0.25pt** and **20pt**. Consider keeping the size of your border to between **1** and **3pt** for the best visual effect.
 - q. If your report contains a background color other than white, consider defining a page color that is the same color. The page color is the background color outside of the border line.
 - r. If you choose a **Frame type**, specify a **style** and **color** for the frame. The **Frame fill color list** contains common colors.

Merge Cells in a Data Region

You can merge cells in a data region to combine cells, improve data region appearance, or provide spanning labels for column groups and row groups.

Cells can only be merged within each area of a data region: corner, column headers, group definition (or row headers), and body. You cannot merge cells that cross area boundaries. For example, you cannot merge a cell in the data region corner area with a cell in the row group area.

Demonstration: Merge Cells

Demonstration Steps

1. To Merge Cells in a data region:
 - a. In the Object Designer, open report **123456714** in design mode.
 - b. Select **View, Layout** to open Microsoft Visual Studio.
 - c. In the data region on the report design surface, click the first cell to merge.
 - d. Holding the left mouse button down, drag vertically or horizontally to select adjacent cells. The selected cells are highlighted.
 - e. Right-click the selected cells and select **Merge Cells**.
 - f. The selected cells are combined into a single cell.
 - g. Repeat steps c and d to merge other adjacent cells in a data region.

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These steps are visualized in the following diagram:

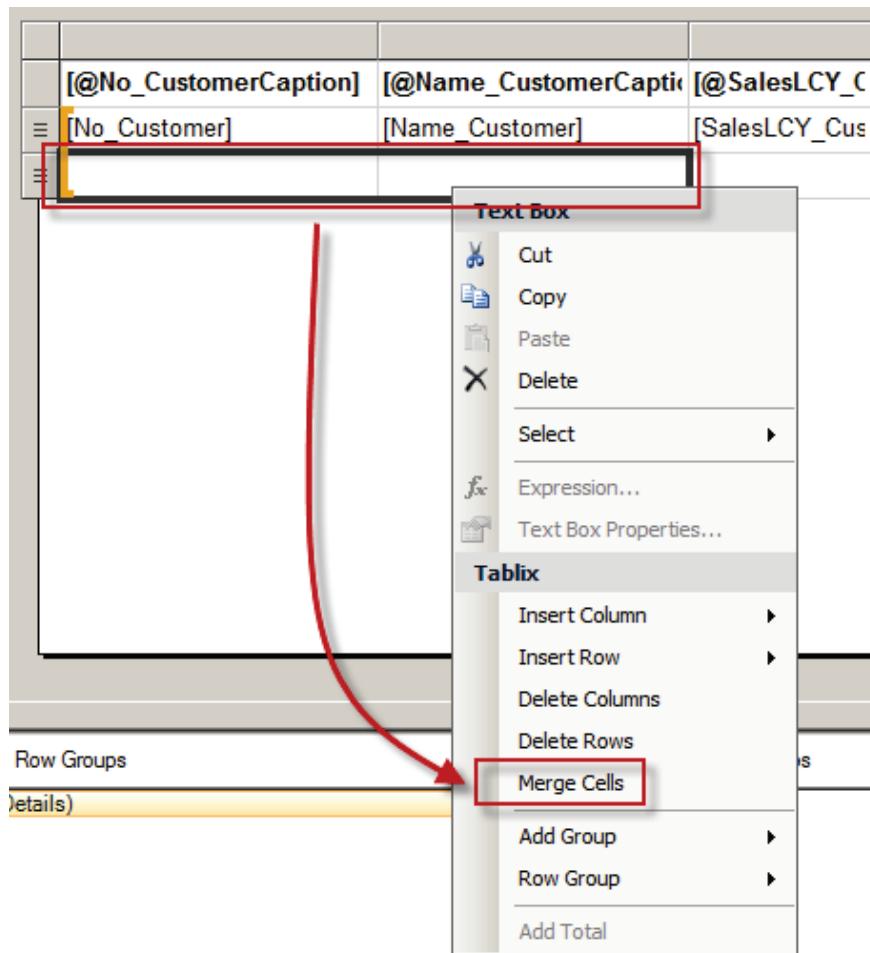


FIGURE 2.47: MERGE CELLS WINDOW

Lab 2.1: Adding Visibility Options

Scenario

In Lab 1.1 Mort finished the rough design of the Sales by Salesperson report. He added the necessary groups and also included subtotals and grand totals. However, Kevin wants some additional information added to the report. He wants to have the totals displayed on a group level (with drill down possibilities). Additionally, he wants the Customer Name printed next to the Customer No. He also wants Mort to use different colors in the headers and footers, to ease report navigation.

Objectives

In this lab you will learn how to add interactive features to a report.

Exercise 1: Adding Visibility Options to the Sales by Salesperson Report

Exercise Scenario

Mort adds the necessary visibility options and the additional information to the report.

Task 1: Adding Visibility Options

High Level Steps

1. Change the report so that:
2. Add Visibility Options for the Country/Region Code, Customer No., Document Type Levels.
3. Add Visibility Options for the Detail Row.
4. Have the Salesperson Group Totals Displayed in the Header.
5. Have the Country/Region Code Group Totals Displayed in the Header.
6. Have the Customer No Group Totals Displayed in the Footer.
7. Have the _Document_Type Group Totals Displayed in the Header.
8. Add an Information Label to the Customer No. Footer Row.
9. Change Background Colors of the Headers and Footers.
10. Add the Customer Name to the Customer Group Header.
11. Run the Report.

Detailed Steps

1. Change the report so that:
 - a. By default, only the salesperson codes are displayed.
 - b. By clicking the **Salesperson Code**, the Country/Region Code group will be expanded.
 - c. By clicking the **Country/Region Code**, the Customer No. group will be expanded.
 - d. By clicking the **Customer No.**, the Document Type group will be expanded.
 - e. By clicking the **Document Type**, the Customer Ledger Entry details will be expanded.
 - f. Subtotals are displayed in the Header rows.
 - g. Extra information labels such as "Total for XX" are displayed next to the totals.
 - h. The Headers and Footers have different background colors.
 - i. The Customer Name is displayed in the Customer Group Header.
2. Add Visibility Options for the Country/Region Code, Customer No., Document Type Levels.
 - a. Open the RDLC layout of report 123456700 in the Visual Studio Report Designer.
 - b. Right click on the textbox in which the [Customer_Salesperson_Code_] is shown. This is the textbox located in the first column, second row.
 - c. In the dropdown menu, select Textbox Properties. The Textbox Properties window opens.
 - d. In the Textbox Properties window change the value of the Name field from **Group1** to **Customer_Salesperson_Code_**
 - e. Right click on the textbox in which the [Customer_Country_Region_Code_] is shown. This is the textbox located in the second column, third row.
 - f. In the dropdown menu, select Textbox Properties. The Textbox Properties window opens.
 - g. In the Textbox Properties window change the value of the Name field from **Group2** to **Customer_Country_Region_Code_**
 - h. Right click on the textbox in which the [Customer_No_] is shown. This is the textbox located in the third column, fourth row.
 - i. In the dropdown menu, select Textbox Properties. The Textbox Properties window opens.

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- j. In the Textbox Properties window change the value of the Name field from **Group3** to **Customer_No_**
 - k. Right click on the textbox in which the [Cust_Ledger_Entry_Document_Type] is shown. This is the textbox located in the fourth column, fifth row.
 - l. In the dropdown menu, select Textbox Properties. The Textbox Properties window opens.
 - m. In the Textbox Properties window change the value of the Name field from **Group4** to **Cust_Ledger_Entry_Document_Type_**
 - n. On the Row Groups Tab, select **group2** and click **Group Properties**.
 - o. On the Visibility Tab, in the **When the report is initially run** field, select **Hide**.
 - p. Enter a check mark in the Display can be toggled by this report item field.
 - q. In the drop-down list box, select **Customer_Salesperson_Code_**.
 - r. Click **OK** to close the Grouping Properties window.
 - s. On the Groups Tab, select the **group3** group and click Group Properties.
 - t. On the Visibility Tab, in the **When the report is initially run** field, select **Hide**.
 - u. Enter a check mark in the Visibility can be toggled by this report item field.
 - v. In the drop-down list box, select **Customer_Country_Region_Code_**.
 - w. Click **OK** to close the Grouping Properties window.
 - x. On the Groups Tab, select the **group4** group and click Group Properties.
 - y. On the Visibility Tab, in the **When the report is initially run** field, select **Hide**.
 - z. Enter a check mark in the Visibility can be toggled by this report item field.
 - aa. In the drop-down list box, select **Customer_No_**
 - bb. Click **OK** to close the Grouping Properties window.
3. Add Visibility Options for the Detail Row.
 - a. On the Groups Tab, select the **Details** and click Group Properties.
 - b. On the Visibility Tab, in the **When the report is initially run** field, select **Hide**.
 - c. Enter a check mark in the Visibility can be toggled by this report item field.

- d. In the dropped-down list box, select **Cust_Ledger_Entry_Document_Type_**.
 - e. Click **OK** to close the Grouping Properties window.
4. Have the Salesperson Group Totals Displayed in the Header.
 - a. Right-click the row handle for the Salesperson Code group footer.
 - b. Select **Delete Rows**. (The footer will be deleted.)
 - c. Click the drop-down handle for the text box in the Salesperson Code group header row (column 6, row 2) and select [Cust_Ledger_Entry_Sales_LCY_] from the drop-down list box.
 - d. Click twice inside the text box to select the contents. (The selected context will become blue.)
 - e. Right-click the selected text and select **Summarize by, Sum**.
 - f. The text box now contains the expression:
[Sum(Cust_Ledger_Entry_Sales_LCY_)].
 - g. Repeat steps c through f for the
Cust_Ledger_Entry_Profit_LCY_ expression (column 7, row 2).
 5. Have the Country/Region Code Group Totals Displayed in the Header.
 - a. Right-click the row handle for the Customer_Country_Region_Code_group footer.
 - b. Select Delete Rows. (The footer will be deleted.)
 - c. Click the drop-down handle for the text box in the Customer_Country_Region_Code_header row (column 6, row 3) and select [Cust_Ledger_Entry_Sales_LCY_] from the drop-down list box.
 - d. Click twice inside the text box to select the contents. (The selected context will become blue.)
 - e. Right-click the selected text and select Summarize by, Sum.
 - f. The text box now contains the expression:
[Sum(Cust_Ledger_Entry_Sales_LCY_)].
 - g. Repeat steps c through e for the
Cust_Ledger_Entry_Profit_LCY_ expression. (column 7, row 3)

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6. Have the Customer No Group Totals Displayed in the Footer.
 - a. Click the drop-down handle for the text box in the Customer_No_footer row (column 6, row 8) and select [Cust_Ledger_Entry_Sales_LCY_] from the drop-down list box.
 - b. Click twice inside the text box to select the contents. (The selected context will become blue.)
 - c. Right-click the selected text and select Summarize by, Sum.
 - d. The text box now contains the expression:
[Sum(Cust_Ledger_Entry_Sales_LCY_)].
 - e. Repeat steps a through c for the Cust_Ledger_Entry_Profit_LCY_ expression. (column 7, row 8)
7. Have the _Document_Type Group Totals Displayed in the Header.
 - a. Click the drop-down handle for the text box in the Cust_Ledger_Entry_Document_Type_header row (column 6, row 5) and select [Cust_Ledger_Entry_Sales_LCY_] from the drop-down list box.
 - b. Click twice inside the text box to select the contents. (The selected context will become blue.)
 - c. Right-click the selected text and select Summarize by, Sum.
 - d. The text box now contains the expression:
[Sum(Cust_Ledger_Entry_Sales_LCY_)]
 - e. Repeat steps a through e for the Cust_Ledger_Entry_Profit_LCY_ expression. (column 7, row 5)
8. Add an Information Label to the Customer No. Footer Row.
 - a. In the group footer row for group 3, select the fifth cell. (column 5, row 8)
 - b. Right-click the cell and select Expression.
 - c. In the Build an expression using Visual Basic language syntax, after the equal (=) sign, enter "Total for Customer ", followed by the ampersand (&) sign. (Be sure to include the double quotes and add a space before and after the ampersand.)
 - d. In the Category list, select Fields (DataSet_Result).
 - e. In the Field list, double-click Customer_No_
 - f. The resulting expression should now be:

```
= "Total for Customer " & Fields!Customer_No_.Value
```

- g. Click **OK** to close the Expression window.
- h. In the Properties window for the cell (column 5, row 8), set the **TextAlign** property to **Right**.
- i. In the Properties window for the cell, set the **FontWeight** property (in the Font property collection) to **Medium**.
9. Change Background Colors of the Headers and Footers.
 - a. Click the row-handle for the first group header row.
 - b. In the Properties window, set the **BackgroundColor** to **LightCoral**.
 - c. Click the row-handle for the second group header row.
 - d. In the Properties window, set the **BackgroundColor** to **LightGreen**.
 - e. Click the row-handle for the third group header row.
 - f. Press the CTRL key, and keep it pressed down, while you click the row-handle for the corresponding group footer row. (Now two rows are selected, the fourth and last row)
 - g. In the Properties window, set the **BackgroundColor** to **LightSkyBlue**.
 - h. Click the row-handle for the fourth group header row. (fifth row)
 - i. In the Properties window, set the **BackgroundColor** to **Yellow**.
10. Add the Customer Name to the Customer Group Header.
 - a. In the textbox in column 4, row 4: select the **Customer_Name** field in the dataset.
11. Run the Report.
 - a. Exit Visual Studio.
 - b. Save and import the RDLC changes.
 - c. Save and compile the report in the Report Designer.
 - d. Run the report from the Start, Run menu.

Lab 2.2: Adding Interactive Sorting

Scenario

After implementing the Visibility options, Mort presents the new report to Kevin. Kevin asks Mort to duplicate the report, but with different sorting. Mort decides to implement interactive sorting for a number of fields, so that Kevin can change the sorting of the data without having to run the report again.

Objectives

In this lab you will add Interactive Sorting for a number of fields.

Exercise 1: Add Interactive Sorting for a Number of Fields

Task 1: Add Interactive Sorting

High Level Steps

1. Add interactive sorting for the following fields:
2. Add Interactive Sorting for the Salesperson Code Field.
3. Add Interactive Sorting for the Country/Region Code Field.
4. Add Interactive Sorting for the Customer No. Field.
5. Add Interactive Sorting for the Document Type Field.
6. Add Interactive Sorting for the Profit (LCY) Field.
7. Run the Report.

Detailed Steps

1. Add interactive sorting for the following fields:
 - a. Salesperson Code
 - b. Country Region Code
 - c. Customer No.
 - d. Document Type
 - e. Posting Date
 - f. Profit (LCY)
2. Add Interactive Sorting for the Salesperson Code Field.
 - a. Open report **123456700** in Visual Studio Report Designer.
 - b. Select the first cell in the table header row.
 - c. Right-click the cell and select **Text Box Properties**.
 - d. On the Interactive sorting Tab, enter a check mark in Enabled interactive sorting on this text box.

- e. In the Sort by expression field, select [Customer_Salesperson_Code].
 - f. In Choose what to sort:, select **Groups, Group1**.
 - g. Click **OK** to close the Text Box Properties window.
3. Add Interactive Sorting for the Country/Region Code Field.
 - a. Open the report in Visual Studio Report Designer.
 - b. Select the second cell in the table header row.
 - c. Right-click the cell and select Properties.
 - d. On the Interactive sorting Tab, enter a check mark in Enabled interactive sorting on this text box.
 - e. In the Sort by expression field, select [Customer_Country_Region_Code].
 - f. In Choose what to sort:, select **Groups, Group2**.
 - g. Click **OK** to close the Text Box Properties window.
 4. Add Interactive Sorting for the Customer No. Field.
 - a. Open the report in Visual Studio Report Designer.
 - b. Select the third cell in the table header row.
 - c. Right-click the cell and select Properties.
 - d. On the Interactive sorting Tab, enter a check mark in Enabled interactive sorting on this text box.
 - e. In the Sort by expression field, select [Customer_No].
 - f. In Choose what to sort:, select **Groups, Group3**.
 - g. Click OK to close the Text Box Properties window.
 5. Add Interactive Sorting for the Document Type Field.
 - a. Open the report in Visual Studio Report Designer.
 - b. Select the fifth cell in the table header row.
 - c. Right-click the cell and select Properties.
 - d. On the Interactive sorting Tab, enter a check mark in Enabled interactive sorting on this text box.
 - e. In the Sort by expression field, select [Cust_Ledger_Entry_Document_Type].
 - f. In Choose what to sort:, select **Groups, Group4**.
 - g. Click **OK** to close the Text Box Properties window.

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6. Add Interactive Sorting for the Profit (LCY) Field.
 - a. Open the report in Visual Studio Report Designer.
 - b. Select the last cell in the table header row, the cell containing the caption for the Profit LCY field.
 - c. Right-click the cell and select Properties.
 - d. On the Interactive sorting Tab, enter a check mark in Enabled interactive sorting on this text box.
 - e. In the Sort by expression field, select [Cust_Ledger_Entry_Profit_LCY_].
 - f. In Choose what to sort:, select **Detail rows**.
 - g. Click **OK** to close the Text Box Properties window.
7. Run the Report.
 - a. Exit Visual Studio.
 - b. Save and import the RDLC changes.
 - c. Save and compile the report in the Report Designer.
 - d. Run the report from the Start, Run menu.

Lab 2.3: Adding a Document Map

Scenario

During his conversations with Kevin, Mort notices that Kevin focuses his attention mostly on the report navigation.

Meanwhile, Mort has learned about document maps, a built-in feature of Microsoft SQL Server Reporting Services. With this feature, users can quickly navigate through the contents of a report, so Mort decides to implement a document map in the Sales by Salesperson report.

Objectives

In this lab, you will add a document map to the report. You will also learn how to add a named document map.

Exercise 1: Implement a Document Map in the Sales by Salesperson Report

Task 1: Add the Document Map

High Level Steps

1. Add a document map to the report with the following specifications:
2. Define a Name for the Data Region Control in the Document Map.
3. Add Fields to the Document Map.
4. Run the Report.

Detailed Steps

1. Add a document map to the report with the following specifications:
 - a. The document map should be labeled "Sales by Salesperson".
 - b. The document map should contain the following data levels: Salesperson Code, Country Code, Customer Name.
2. Define a Name for the Data Region Control in the Document Map.
 - a. Open the RDLC layout of report 123456700 in Visual Studio Report Designer.
 - b. In the Properties window select Tablix1.
 - c. Enter "Sales by Salesperson" in the DocumentMapLabels property. This will appear as a label for the current table (data region control) in the report. This is convenient if the report contains several tables with a document map.

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3. Add Fields to the Document Map.
 - a. On the Row Groups Tab, select the group1 and click Group Properties. The Grouping Properties window will appear.
 - b. On the Advanced Tab, select [Customer_Salesperson_Code_] in the Document map field.
 - c. Click OK to close the Grouping Properties window.
 - d. On the Row Groups Tab, select the group2 and click Properties. The Grouping Properties window will appear.
 - e. On the Advanced Tab, select [Customer_Country_Region_Code_] in the Document map field.
 - f. Click OK to close the Grouping Properties.
 - g. On the Row Groups Tab, select the group3 and click Properties. The Grouping Properties window will appear.
 - h. On the Advanced Tab, select [Customer_No_] in the Document map label field.
 - i. Click OK to close the Grouping Properties window.
4. Run the Report.
 - a. Exit Visual Studio.
 - b. Save and import the RDLC changes.
 - c. Save and compile the report in the Report Designer.
 - d. Run the report from the Start, Run menu.

Lab 2.4: Adding Pictures to a Report

Scenario

Michael, the Account Manager, must visit with a new customer. To give the customer advanced information, Michael wants to provide the customer with an Item Catalog.

Michael arranges a meeting with Mort to explain the specifications of the Item Catalog. The report should have a header (printed on all the pages). Apart from the report title, the header should contain the CRONUS company logo as an embedded picture. Additionally, the basic company information such as, company name, address, postal code, city, country and value added tax (VAT) Registration No. should be included.

The list should also include pictures of the items. However, because not all items have pictures, you will include the picture as a hidden field that can be made visible when the user clicks the **Item No.**

Objectives

In this lab, you will work with pictures. You will use embedded images and database pictures. Additionally, you will add a report header and add data fields to the header.

Exercise 1: Create an Item Catalog Report

Task 1: Add Images to the Report

High Level Steps

1. Create an Item Catalog report with the following specifications:
2. Import the Object.
3. Export the Company Logo from the Demonstration Database.
4. Create the Table in the Report Layout.
5. Set the Format for the Unit Price Field.
6. Set the Format for the Inventory Field.
7. Change the Layout of the Table Header Cells.
8. Add the Picture Field to the Table.
9. Set the Visibility for the Picture Field.
10. Embed the Company Logo Picture in the Report.
11. Add a Page Header Section to the Report.
12. Add the Report Title to the Page Header.
13. Add Text Boxes for the Company Information to the Page Header.
14. Run the Report.

Detailed Steps

1. Create an Item Catalog report with the following specifications:
 - a. The body contains the following item information: No., Description, Base Unit of Measure, Unit Price, Inventory and Picture.
 - b. The Picture can be made visible by clicking the **Item No.**
 - c. The header contains the report title, basic company information (company name, address, postal code, city, country and VAT Registration No.) and the Cronus logo (as an embedded picture). The header must appear on all the pages.
2. Import the Object.
 - a. Open the Microsoft Dynamics NAV 2013 demonstration database.
 - b. Select Tools, Object Designer to open the Object Designer.
 - c. Select File, Import.
 - d. Browse to report **R123456724**.
 - e. Click OK to start the import.
 - f. In the dialog box, choose to open the Import Worksheet window.
 - g. In the Action column, verify that the action is set to Create.
 - h. Click OK to import the object in the database.
3. Export the Company Logo from the Demonstration Database.
 - a. Open the CRONUS International Ltd. company in Microsoft Dynamics NAV.
 - b. In the Object Designer, run page **1, Company Information**.
 - c. Right-click Picture, **Save As**.
 - d. Save the company logo as a bitmap (cronus.bmp) on the Windows desktop.
 - e. Close the Company Information window.
4. Create the Table in the Report Layout.
 - a. Open report **123456724** in Visual Studio Report Designer.
 - b. Add a table to the Body section.
 - c. Add two columns to the table.
 - d. In the Website Data Sources window, select **No_Item** and drag it to the first cell in the table detail row.

- e. In the Website Data Sources window, select **Description_Item** and drag it to the second cell in the table detail row.
 - f. In the Website Data Sources window, select **BaseUnitofMeasure_Item** and drag it to the third cell in the table detail row.
 - g. In the Website Data Sources window, select **UnitPrice_Item** and drag it to the fourth cell in the table detail row.
 - h. In the Website Data Sources window, select **Inventory_Item** and drag it to the fifth cell in the table detail row.
5. Set the Format for the Unit Price Field.
- a. On the table detail row, select the cell containing the **[Unit_Price_Item]**.
 - b. Right-click the cell and select Properties.
 - c. On the properties window, select Number tab, click Custom in right panel, enter below format code in Expression window:
- =Fields!UnitPrice_ItemFormat.Value.
- d. Click **OK** to close the Text Box Properties window.
6. Set the Format for the Inventory Field.
- a. On the table detail row, select the cell containing the **[Inventory_Item]**.
 - b. Right-click the cell and select Properties.
 - c. On the Format Tab, in the Format Code field, select the proper format code using the Expression window:
- =Fields!Inventory_ItemFormat.Value
- d. Click **OK** to close the Text Box Properties window.
7. Change the Layout of the Table Header Cells.
- a. Click the row handle for the table header row.
 - b. Set the **FontWeight** property (in the Font collection) to **Bold**.
 - c. Set the **VerticalAlign** property to **Bottom**.
8. Add the Picture Field to the Table.
- a. Add a column to the right side of the table.
 - b. From the Toolbox window drag an Image control to the new column.
 - c. In the Image Properties window, set the **Select image source** property to **Database**.

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- d. In the Image Properties window, set the **Use this image** property to **[Picture_Item]**.
 - e. In the Image Properties window, set the Use this **MIME Type** property to **image/bmp**.
9. Set the Visibility for the Picture Field.
- a. In the Properties window, in the **Visibility** property collection, set the **Hidden** property to **True**.
 - b. In the Properties window, in the **Visibility** property collection, set the **ToggleItem** property to **No_Item**.
10. Embed the Company Logo Picture in the Report.
- a. In the Report Data Tab, select the Images folder.
 - b. Right-click and select **Add Image**.
 - c. Browse to the Windows desktop and select **cronus.bmp**.
 - d. Click **OK** to import the picture in the report.
11. Add a Page Header Section to the Report.
- a. In the Report menu, select **Add Page Header** in case there is none present in the report.
 - b. In the Images folder, select the **CRONUS** image you just added and drag it onto the page header.
 - c. In the Image Properties window that opens, click the **OK** button.
12. Add the Report Title to the Page Header.
- a. In the Toolbox window, select the Text box control and insert it in the top left corner of the page header section.
 - b. Select the Text box control.
 - c. Set the value property to "**Item Catalog**".
 - d. Set the **FontSize** property to **18pt**.
 - e. Set the **Color** property to **RoyalBlue**.
13. Add Text Boxes for the Company Information to the Page Header.
- a. Add six new text boxes to the Page Header.
 - b. Select the **CompanyName** in the Report Dataset and drag it onto the first text box.
 - c. Select the **CompanyAddress** in the Report Dataset and drag it onto the next text box.

- d. Select the **CompanyPostCode** in the Report Dataset and drag it onto the next text box.
 - e. Select the **CompanyCity** in the Report Dataset and drag it onto the next text box.
 - f. Select the **CompanyCountryRegionCode** in the Report Dataset and drag it onto the next text box.
 - g. Select the **CompanyVATRegistrationNumber** in the Report Dataset and drag it onto the next text box.
14. Run the Report.
- a. Exit Visual Studio.
 - b. Save and import the RDLC changes.
 - c. Save and compile the report in the Report Designer.
 - d. Run the report from the Start, Run menu.

Module Review

Module Review and Takeaways

In this module you learned how to work with the enriched functionalities of the new reporting solution. This module also described the different types of headers and footers and how to activate them. Additionally, you learned how to use interactive sorting, visibility options, document maps and different types of images.

The most important aspects covered in this module are:

- Adding groups in a tablix data region.
- Using images in a report.
- The difference between print preview and print layout.
- Apply visibility options, interactive sorting and document maps.

Test Your Knowledge

Test your knowledge with the following questions.

1. Which header sections are not supported by Visual Studio Report Designer?

- () Page Header
() Group Header
() Transport Header
() Table Header

2. Which properties are not supported by Visual Studio Report Designer?

- () FixedRowHeaders
() RepeatColumnHeaders
() KeepTogether
() PlaceInBottom
() LayoutDirection

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3. In which windows can you delete a group?

- () Properties window
- () Table Properties window
- () Row Groups window
- () Header Properties window
- () Toolbox window

4. Which is not a valid option for the Source property of an image control?

- () Internal
- () External
- () Embedded
- () Database

5. Which controls cannot be added to a Page Header section?

- () Chart
- () Line
- () Text box
- () Rectangle
- () Image

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6. Which of the following statements is true?
 - () Database images can only be visualized in the Report Body Section
 - () Database images can only be visualized in the Report Header or Footer Section
 - () Database images can be visualized in all sections of the report
 - () None of the answers is correct

7. Which properties can be used to set the background and the foreground color of a control?
 - () BackgroundColor and ForegroundColor
 - () BackgroundColor and TextColor
 - () BackgroundColor and Color
 - () BackgroundColor and CellColor

Test Your Knowledge Solutions

Module Review and Takeaways

1. Which header sections are not supported by Visual Studio Report Designer?

- Page Header
- Group Header
- Transport Header
- Table Header

2. Which properties are not supported by Visual Studio Report Designer?

- FixedRowHeaders
- RepeatColumnHeaders
- KeepTogether
- PlaceInBottom
- LayoutDirection

3. In which windows can you delete a group?

- Properties window
- Table Properties window
- Row Groups window
- Header Properties window
- Toolbox window

4. Which is not a valid option for the Source property of an image control?

- Internal
- External
- Embedded
- Database

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5. Which controls cannot be added to a Page Header section?

- () Chart
- () Line
- () Text box
- () Rectangle
- () Image

6. Which of the following statements is true?

- () Database images can only be visualized in the Report Body Section
- () Database images can only be visualized in the Report Header or Footer Section
- () Database images can be visualized in all sections of the report
- () None of the answers is correct

7. Which properties can be used to set the background and the foreground color of a control?

- () BackgroundColor and ForegroundColor
- () BackgroundColor and TextColor
- () BackgroundColor and Color
- () BackgroundColor and CellColor

