

# Crystal Reports

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## About the Tutorial

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SAP Crystal Reports is a business intelligence tool helps in generating reports from SAP as well as non-SAP data sources. Knowledge of this tool is a plus for managers and business leaders who can generate quality advanced level reports which will help them in making better strategic decisions.

This tutorial covers the key concepts of SAP Crystal Reports and how you can use it to generate professional reports.

## Audience

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This tutorial is designed for those who want to learn how to generate simple as well as advanced reports for end-users using the specialized tool of Crystal Reports.

## Prerequisites

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Crystal Reports is quite a user-friendly tool. It can be easily learnt. All that you need is a basic knowledge of how to connect with the database from where the data is to be drawn to generate the reports.

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# 1. Overview

SAP Crystal Reports is a **Business Intelligence tool** which is used to generate reports from both SAP and non-SAP data sources. It enables end users to generate reports that includes exceptional visualizations and implement new business requirements into reports to reduce dependency on IT and Report developers.

SAP Crystal Reports can connect to any data source that include **Relational databases** like Oracle, OLAP data source systems like BW, or also with XML data. You can create a simple report or you can also use complex or specialized tool of Crystal Reports to create advance level reports for end users. It is mostly used for pixel perfect reporting for CEO's and Managers.

## Benefits of Using Crystal Reports

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**Flexible and customized report:** You can quickly create highly formatted, pixel-perfect reports using SAP Crystal Reports with high level design interface and efficient workflows.

**Powerful report delivery options:** You can deliver personalized reports to your business end-users in their preferred language and format.

**Data source connectivity:** You can connect to information sources directly. Data sources include: Native, ODBC, OLE DB, and JDBC connectivity to relational, OLAP, web services, XML, enterprise data sources, and salesforce.com.

**Expanded support for Excel:** You can take full advantage of the Excel file format by allowing more data to be exported to a single worksheet, without spanning multiple worksheets.

**Windows operating system compatibility:** SAP Crystal Reports software 2013 is certified compatible with Microsoft Windows 7.

**Mobile compatibility:** You can also open interactive reports through your mobile devices.

**SAP Crystal Reports, Adobe Flash and HTML 5 integration:** It enables SAP Crystal Reports developers to produce powerful "mash-ups" pulling data from various sources.

**Competitors:** SAP Crystal Reports competes with several products in Microsoft market like SQL Server Reporting Services SSRS, XtraReports, ActiveReports, and List & Label.

## Installation Requirements for Crystal Reports

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Following are the basic requirements to install Crystal Reports:

- PC with AMD or Intel based processors, Dual Core CPU, 2 GB RAM
- Approximately 4GB available hard drive space (for English only, 8 GB for all languages)
- Microsoft Windows 7 SP1, Windows 8, Windows Server 2008 SP2, Windows Server 2008 R2 SP1, Windows Server 2012

**Languages available:** English, Finnish, French, German, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Chinese simplified, Chinese traditional, Czech, Danish, Dutch, Slovakian, Slovenian, Spanish, Swedish, Thai, Turkish, Romanian, Russian

## Technical Specifications

- **Hardware Requirements:** Intel Pentium III or equivalent processor, minimum 512 MB RAM recommended
- **Disk Space:** 2 GB for default installation with English language, 4 GB for default installation with all languages installed

## Versions and Features Comparison

Let us take an example to decode the SAP Crystal Reports version format. Assume 12.1.2.957.12 is the version of CR 2008. Here **1** signifies that it is Service Pack 1, **.2** signifies that Fix Pack 1.2 has been applied on top of Service Pack 1. The last three of four digits are not important. Another example, if you have version 12.3.1.684, I know I am using CR 2008, Service Pack 3, Fix Pack 3.1.

### Editions – Developer (D), Professional (P), Standard (S)

High-Productivity Report Creation Features	SAP Crystal Reports for				Version for			XI
	2016	2013	2011	2008	Enterprise*	Visual Studio	Eclipse	
Wizards and experts for report creation	x	x	x	x	x	x	x	D,P,S
Database expert for graphical table linking	x	x	x	x	x	x	x	D,P,S
Field explorer to manage report fields	x	x	x	x	x	x	x	D,P,S
Drill down in runtime	x	x	x	x	x	x	x	D,P,S
Autosave	x	x	x	x	x			D,P,S
Editable preview window	x	x	x	x	x		x	D,P,S
Browse field data	x	x	x	x	x	x	x	D,P,S
Move, resize, and multiselect objects	x	x	x	x	x	x	x	D,P,S
Custom templates	x	x	x	x	x			D,P,S
Repository for component reuse	x	x	x	x	x			D,P
Workbench tool for managing projects	x	x	x	x	x			D,P,S
Automatic patch notification and installation	x	x	x	x	x		x	D,P,S
Start page to stay connected with latest information	x	x	x	x	x		x	D,P,S
HTML preview	x	x	x	x	x	x	x	D,P
Extension points for custom wizards, toolbar, buttons, and designer events							x	
Extension points for toolbar buttons	x	x	x	x	x			
Multilingual report design and view	x	x	x	x	x			
Dual monitor support	x	x	x	x	x	x	x	
Freehand SQL command object to optimize relational queries	x	x	x	x	x			
Verify database options	x	x	x	x	x			
New range based functions	x							



## Editions – Developer (D), Professional (P), Standard (S)

	2016	2013	2011	2008	SAP Crystal Reports for Enterprise*	Version for Visual Studio	Version for Eclipse	XI
<b>Comprehensive Formatting and Design Control Features</b>								
Cross-tab objects	x	x	x	x	x	x	x	D,P,S
Subreport objects	x	x	x	x	x	x	x	D,P,S
Save subreport as stand-alone report	x	x	x	x	x	x		D,P,S
Text objects	x	x	x	x	x	x	x	D,P,S
Line and box objects	x	x	x	x	x	x	x	D,P,S
Multipass reporting with powerful grouping and sorting	x	x	x	x	x	x	x	D,P,S
Top-n and bottom-n sorting	x	x	x	x	x	x	x	D,P,S
Sorting on groups and detail records	x	x	x	x	x	x	x	D,P,S
Hierarchical grouping	x	x	x	x	x	x	x	D,P,S
Custom (named) grouping	x	x	x	x	x	x	x	D,P,S
Conditional font and text formatting	x	x	x	x	x	x	x	D,P,S
Formula control of formatting	x	x	x	x	x	x	x	D,P,S
Text rotation	x	x	x	x	x	x	x	D,P,S
Integrated charting	x	x	x	x	x	x	x	D,P,S
Chart on subtotals, group details, and formulas	x	x	x	x	x	x	x	D,P,S
BLOB bitmap support	x	x	x	x	x	x	x	D,P,S
Graphic image support for BMP, TIFF, JPEG, PNG, PCX, TGA, and PICT formats	x	x	x	x	x	x	x	D,P,S
BASIC-like syntax in formula language	x	x	x	x	x	x		D,P,S
Hierarchical group summary	x	x	x	x	x	x		D,P,S
Support for Unicode data and text	x	x	x	x	x	x	x	D,P,S
Display string formatting	x	x	x	x	x	x	x	D,P,S

Support for vector-based images	x	x	x	x	x	x	x	D,P,S
Formula workshop for building formulas	x	x	x	x	x	x	x	D,P,S
Custom functions to reuse logic	x	x	x	x	x	x	x	D,P,S
Define report parts for portal integration	x	x	x	x	x			D,P,S
Format painter to reuse formatting	x	x	x	x	x	x	x	D,P,S
Horizontal page numbers	x	x	x	x	x	x	x	D,P,S
Parameterized n value for top-n style reports	x	x	x	x	x	x		D,P,S
Drag-and-drop charting and cross-tabs	x	x	x	x	x		x	D,P,S
Dynamic image location	x	x	x	x	x	x	x	D,P,S
Save export options within the report	x	x	x	x	x			D,P,S
Add XSLT transform to XML export	x	x	x	x	x			
Flash objects	x	x	x	x	x	Runtime	Runtime	
Cross-tab calculated members for custom rows and columns	x	x	x	x	x			
Insert blank lines in cross-tabs	x	x	x	x	x			
Change parameters without refreshing data	x	x	x	x	x	x	x	
Page break after n-detail records	x	x	x	x	x	x	Runtime	
Page size measured in pixels	x	x	x	x	x	x	Runtime	
Formula-driven page margins	x	x	x	x	x	x	Runtime	
Portrait or landscape orientation by section	x	x	x	x	x	x	Runtime	
Optional parameters	x	x	x	x	x	x	Runtime	
Built-in bar-code support	x	x	x	x	x	Runtime	Runtime	
Vertical alignment of text within cell	x							

## Editions – Developer (D), Professional (P), Standard (S)

	2016	2013	2011	2008	SAP Crystal Reports for Enterprise*	Version for Visual Studio	Version for Eclipse	XI
<b>Interactive Analysis Tools</b>								
Smart navigation: group tree, drill down, and search	x	x	x	x	x	x	x	D,P,S
Geographic maps	x	x	x	x	x			D,P,S
Customizable cross-tabs	x	x	x	x	x	x	x	D,P,S
Report alerts	x	x	x	x	x			D,P,S
Integrated analyzer for charts	x	x	x	x	x			D,P,S
Conditional formatting on charts	x	x	x	x	x			D,P,S
Drill-down-level functionality	x	x	x	x	x	x	x	D,P,S
On-report sort controls for interactive sorting	x	x	x	x	x	x	Runtime	
Parameter panel for interactive filtering and formatting	x	x	x	x	x	Runtime	Runtime	
Adobe Flash integration (embed SWF objects)	x	x	x	x	x	Runtime	Runtime	

## Editions – Developer (D), Professional (P), Standard (S)

Report Types	2016	2013	2011	2008	SAP Crystal Reports for Enterprise*	Version for Visual Studio	Version for Eclipse	XI
Mailing labels	x	x	x	x	x			D,P,S
Cross-tab reports	x	x	x	x	x	x	x	D,P,S
Form-style reports	x	x	x	x	x	x	x	D,P,S
Subreports	x	x	x	x	x	x	x	D,P,S
Conditional reports	x	x	x	x	x	x	x	D,P,S
Top-n and bottom-n reports	x	x	x	x	x	x	x	D,P,S
Drill-down and summary reports	x	x	x	x	x	x	x	D,P,S
OLAP reports	x	x	x	x	x <sup>6</sup>			D,P

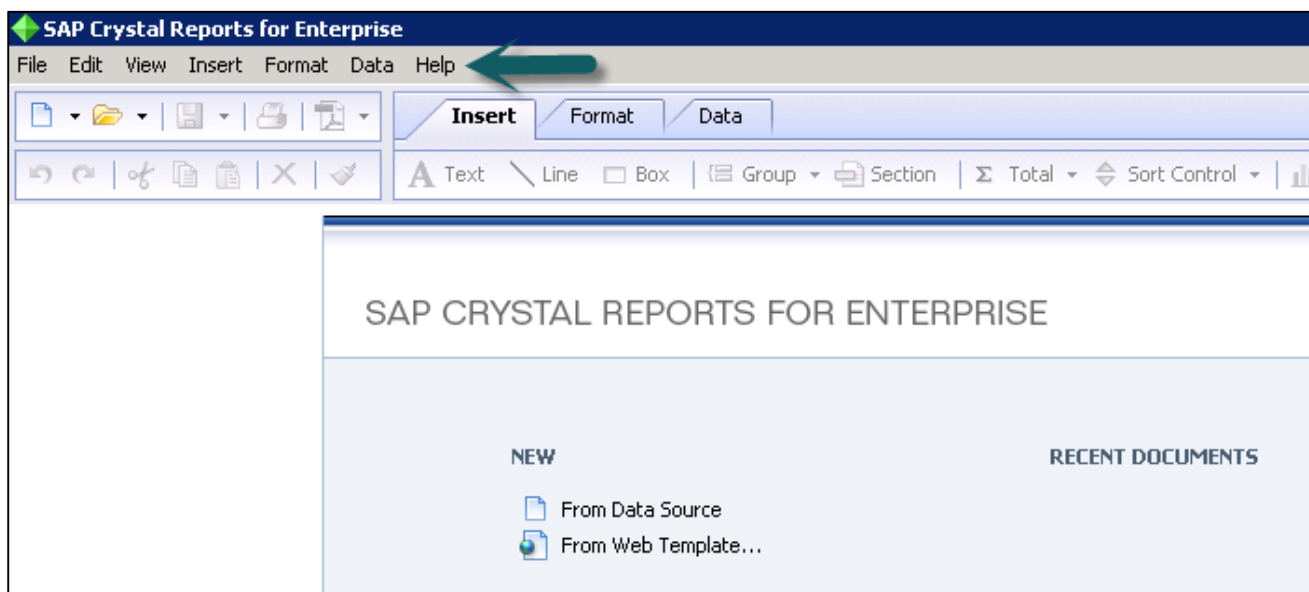
Chart Types	2016	2013	2011	2008	SAP Crystal Reports for Enterprise*	Version for Visual Studio	Version for Eclipse	XI
Bar, stacked bar, column, stacked column	x	x	x	x	x	x	x	D,P,S
Line, area, pie scatter, bubble	x	x	x	x	x	x	x	D,P,S
Gantt, gauge	x	x	x	x	x	x	x	D,P,S
Numeric or date-time x-axis	x	x	x	x	x	x	x	D,P,S
Funnel	x	x	x	x	x	x	x	D,P,S
Stock, 3D Surface, 3D Rise, Radar, Histogram, Donut, XY Scatter	x	x	x	x	x	x	x	D,P,S
Box plot, Tag Cloud, Tree Map, Waterfall	x				x			

SAP HANA <sup>®</sup> platform support	2016	2013	2011	2008	SAP Crystal Reports for Enterprise*	Version for Visual Studio	Version for Eclipse	XI
Relational data access (JDBC and ODBC)	x	x	x		x			
Relational semantic layer support (UNX)					x			
Multidimensional access to SAP HANA analytical and calculation views					x <sup>8</sup>			

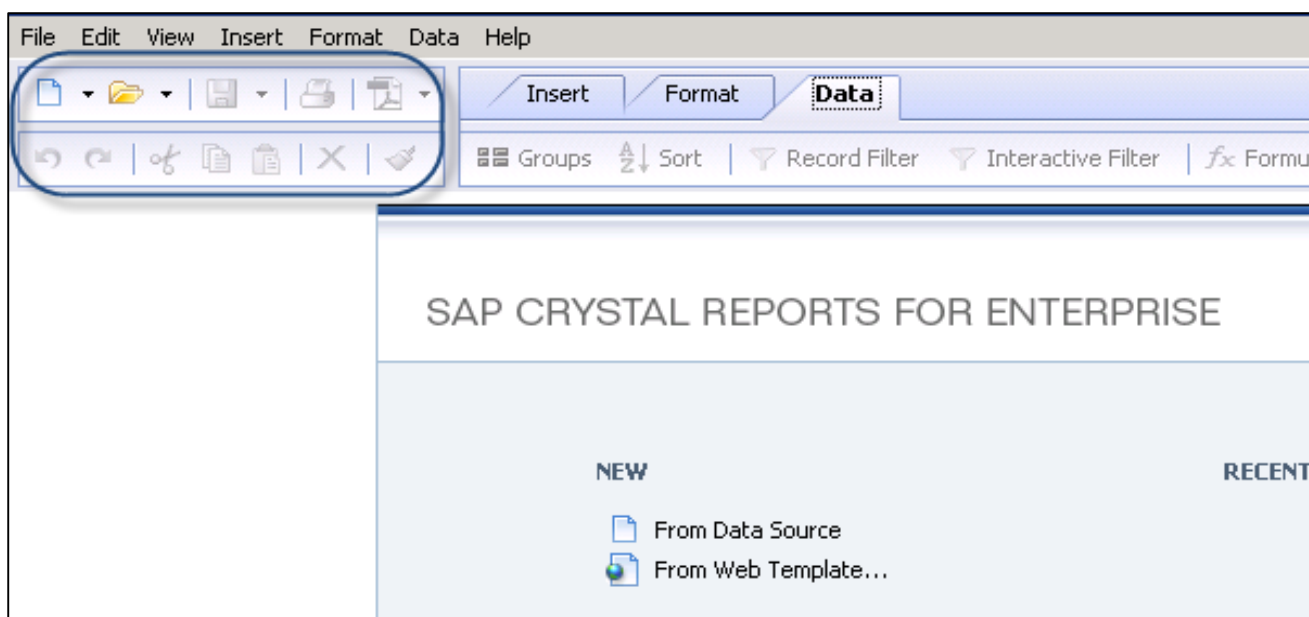
## 2. GUI Navigation

Crystal Reports for enterprise provides an interface that enables you to quickly and easily create, format, and publish effective reports.

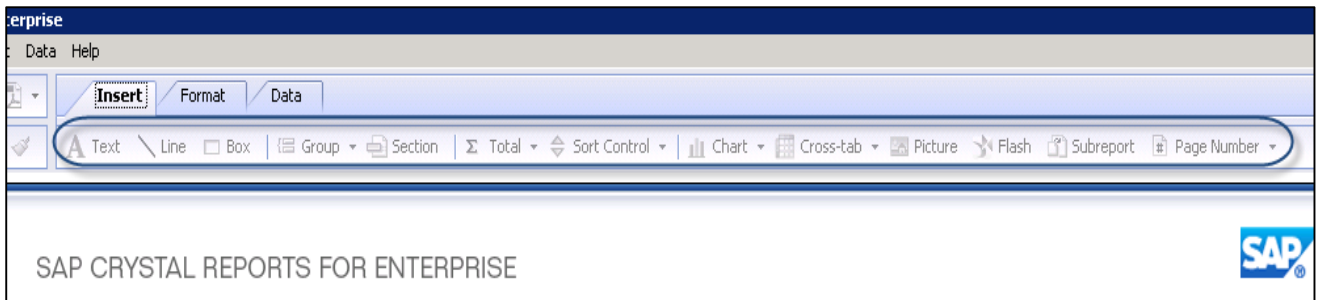
The menu bar provides full range of features available in Crystal Reports for Enterprise as shown in the following image.



The standard toolbar as shown in the following image allows you to access common Report functions such as: Open an existing report, create a new report, save a report, print a report, cut, paste, export and undo.

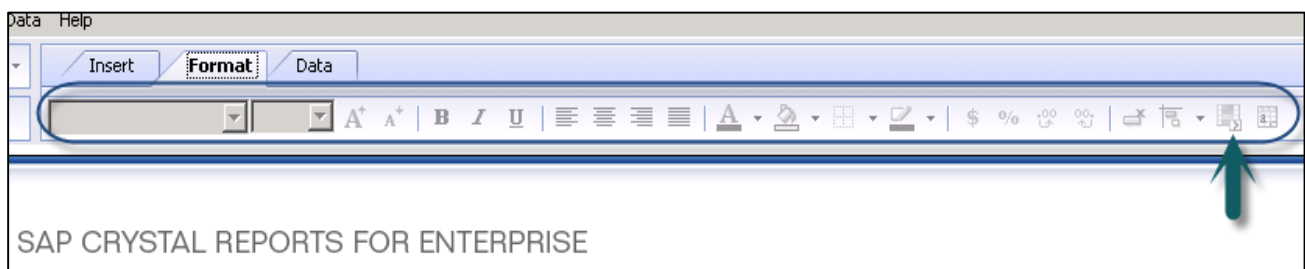


The Insert tab allows you to insert objects into you report, such as inserting a text, line, box, groups, sections, pictures, calculations and/or charts, as shown in the following image.



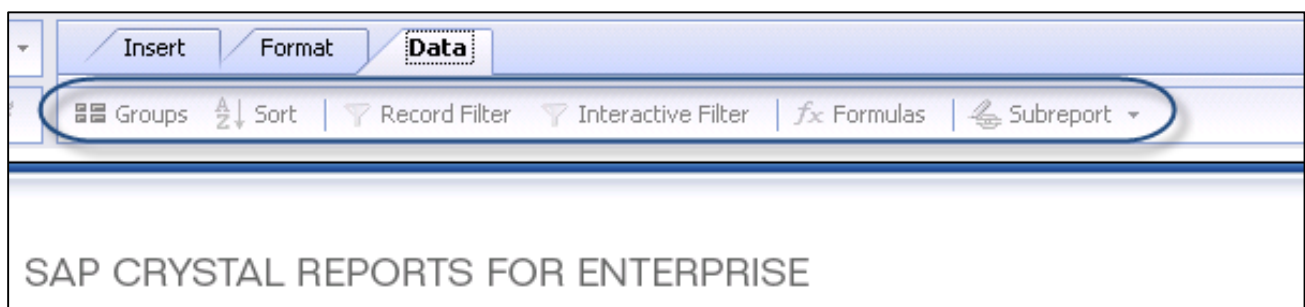
The Format tab as shown in the following image, allows you to use functions for formatting the selected field such as: changing the font size or font color, background color, alignment of text to center, left, right, etc.

It also allows you to apply conditional formatting, such as highlighting values above or below a specific threshold value in the report.

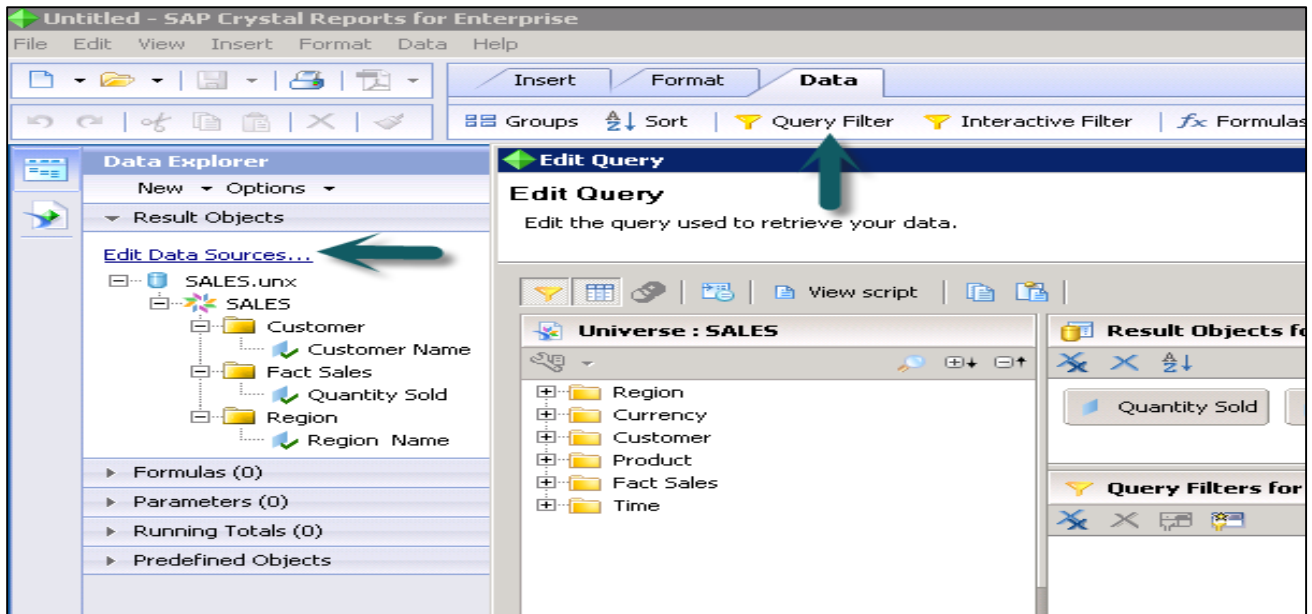


When you click on conditional formatting option at top right corner, the formatting box open. In this box, you define the condition under which you want conditional formatting to appear. In setting area, specify the formatting to appear when condition is met, like changing font style or color of text.

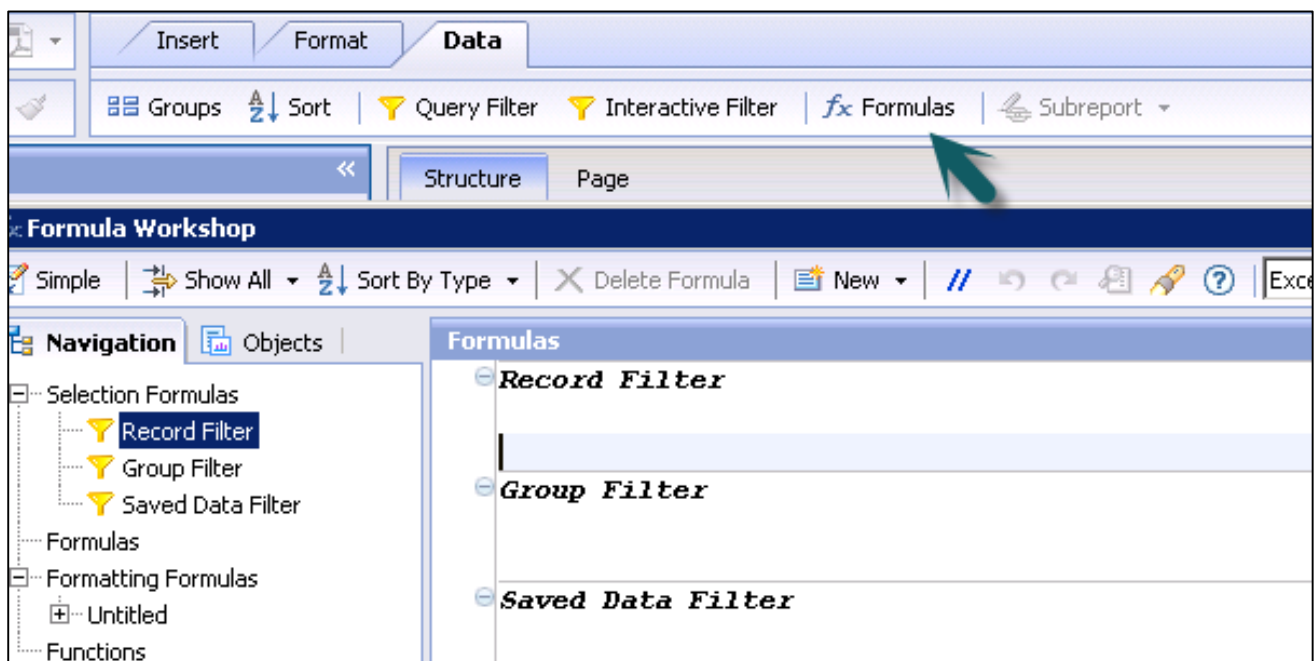
The Data tab as shown in the following figure, enables you to work with data-editing queries, creating groups and sorts, applying filters to limit data in the report and creating formulas to add custom calculations to reports.



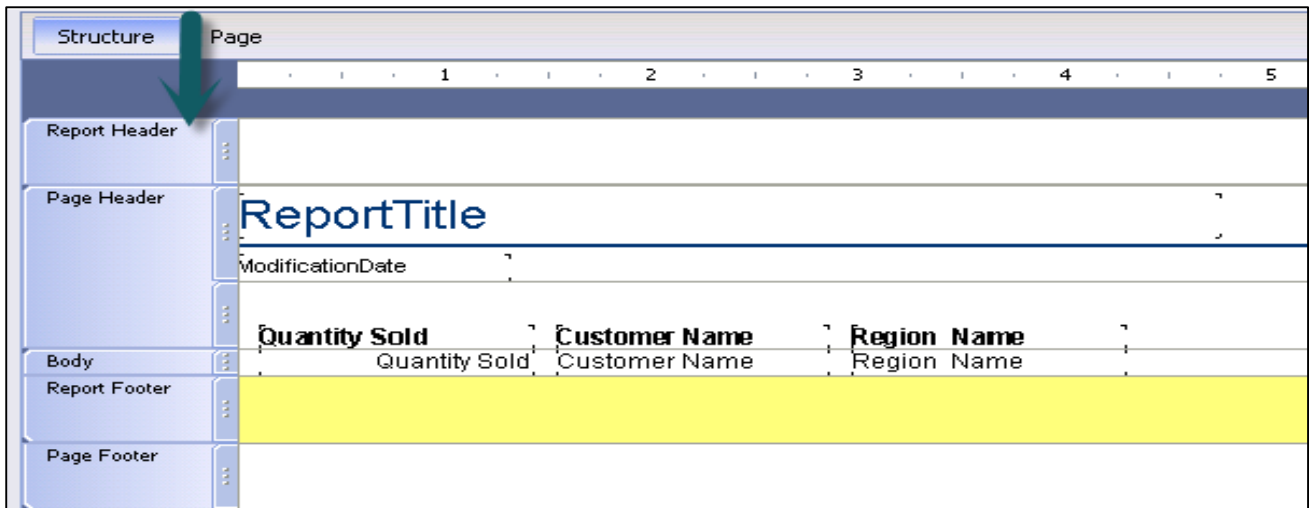
When you click on Query filter option or on Edit data sources, as shown in the following image, a query panel opens. In the Query panel, you can select objects that you want to see in the report. In the filter option, you can apply filters to restrict the data returned by the report.



When you click on Formula button, as shown in the following image, the Formula workshop opens. This allow you to use custom calculations in the report. You can apply formulas by typing or by clicking on objects, functions and operators in the data explorer.

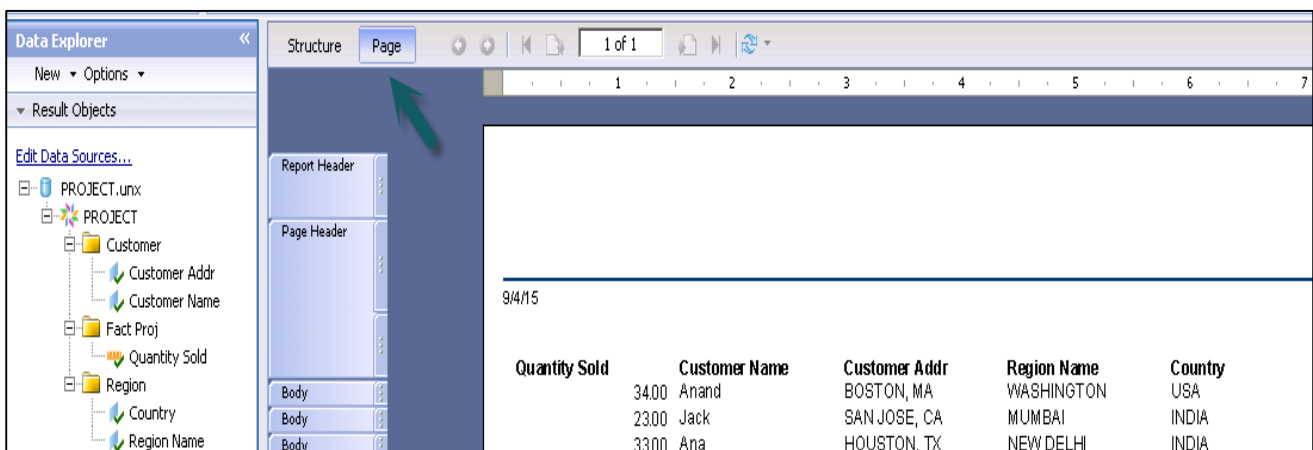


The main working area in Crystal Reports is known as **Report Design Canvas** and is divided into structure tab and page tab. Crystal Report is divided into five different parts by default and additional sections are added if you apply grouping to the report.



Using the Structure tab, as shown in the above image, you can create the overall structure by placing items in various sections of the report. You can also apply any required sorting, grouping, etc. Here, you work with placeholders for data and not data itself.

The Page tab, as shown in the following image, displays the report data on the basis of the structure you created in the structure tab. Here, you can evaluate formatting and layout of the report design for distribution.

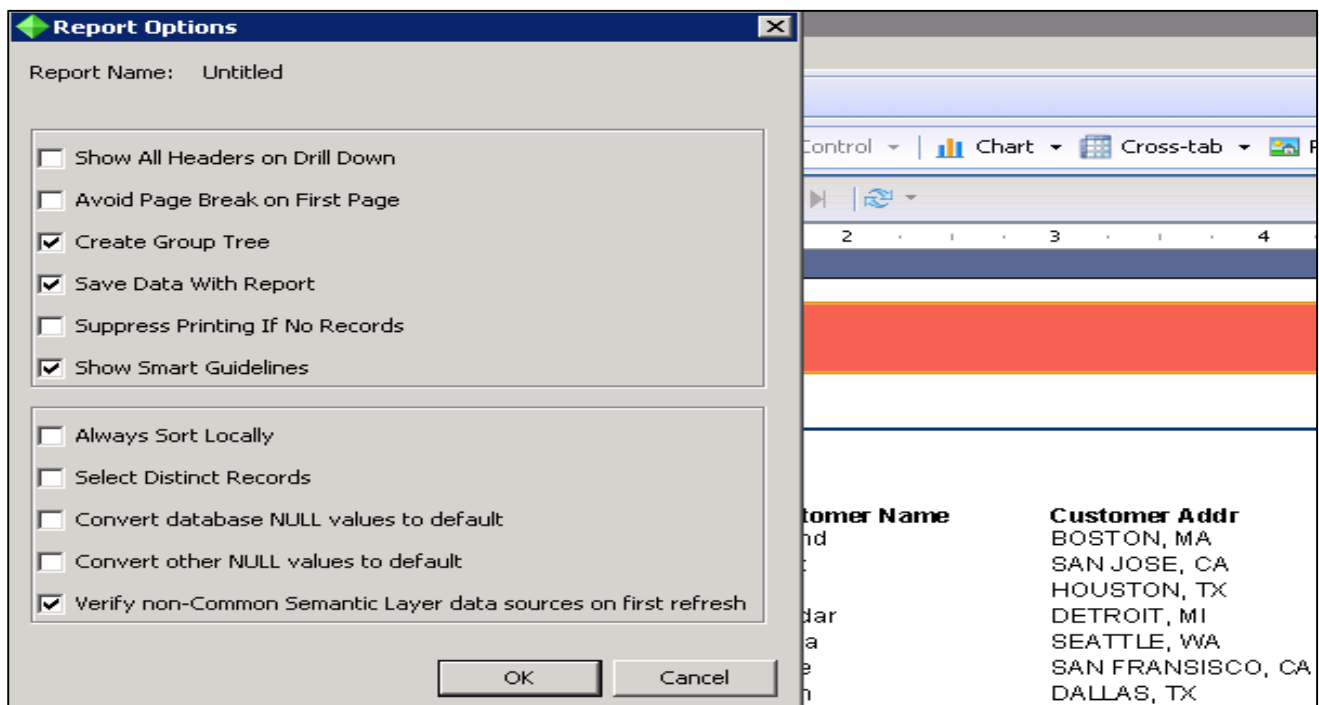
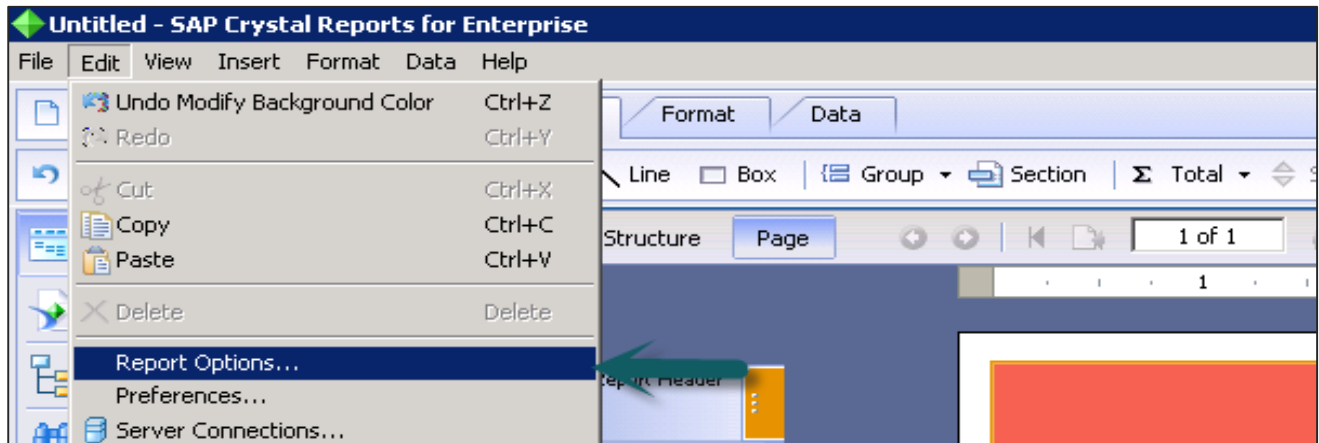




# 3. Report Options

Report Options is one of the most commonly used feature in **Crystal Report Designer**, when you need to access/modify the values of Report Options of a Crystal report at runtime in a Crystal Reports .NET application.

Go to Edit -> Report Options

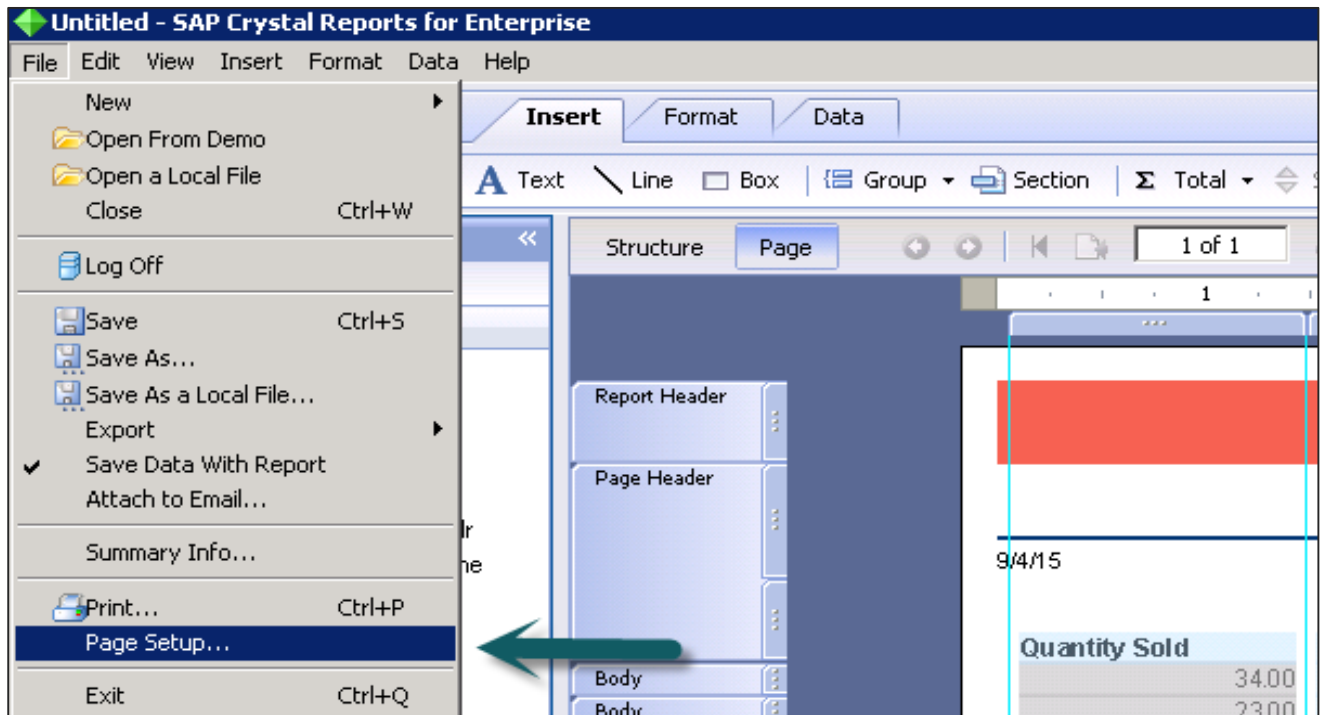


Report Options feature is used to set various fields in a Crystal Reports such as, smart guidelines feature that lets you select, move, and resize entire columns of report elements without needing to manually select each element. When you select a report element, the smart guidelines appear and automatically select related elements in the column.

# 4. Page Layout

SAP Crystal Report gives two options of page layout - landscape and portrait. Landscape means the page is oriented horizontally, while portrait means the page is oriented vertically.

To open Page Layout option in Crystal Report, go to File-> Page Setup.

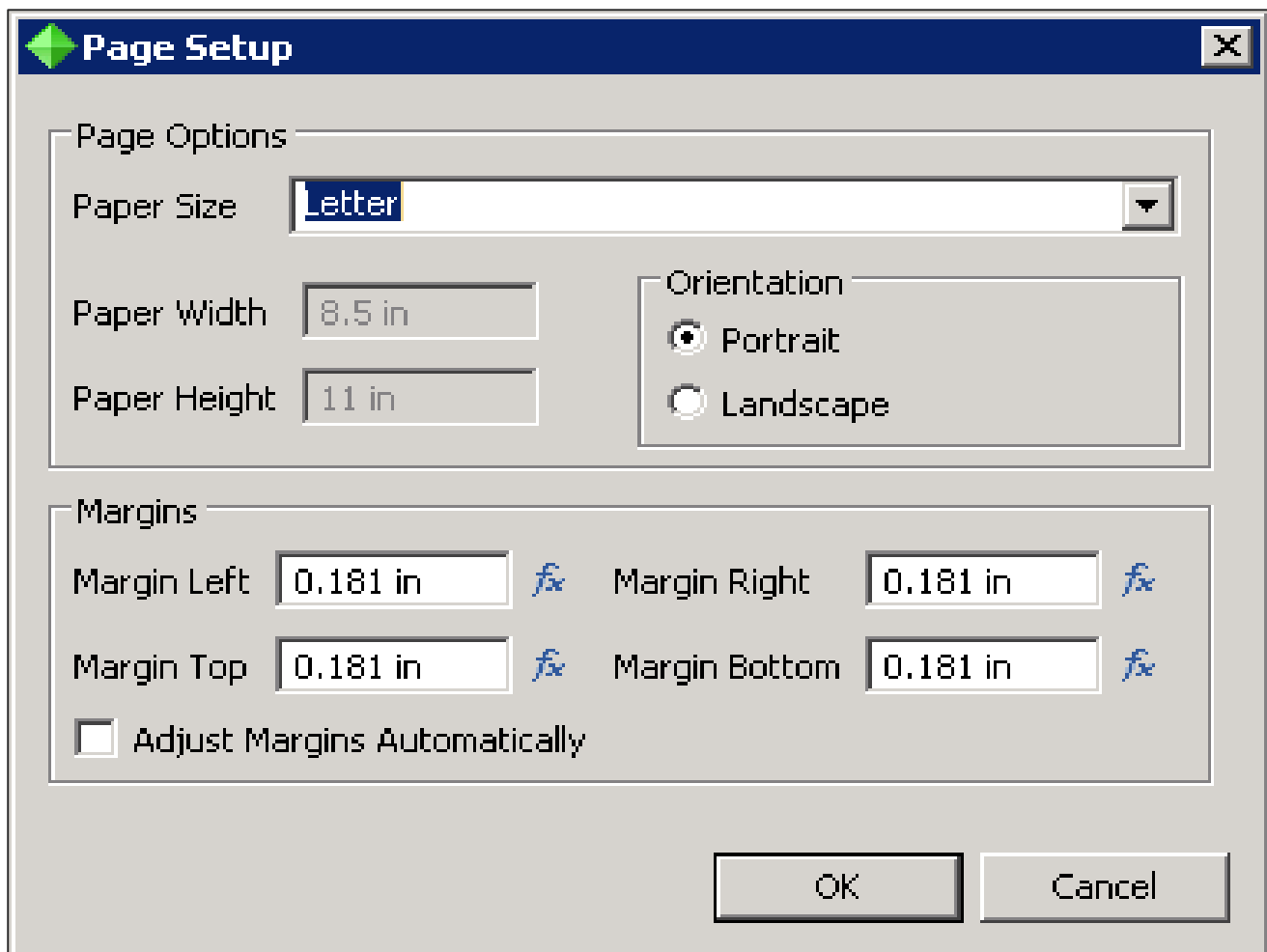


This option allows you to choose page options like: Paper size, paper width, paper height, and margins (left, right, top and bottom).

### To change the page layout:

Select the Page Setup tab in File Menu. Click the Orientation option in the Page Setup group.





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**End of ebook preview**

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