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Crystal Reports Explorer XI
User's Guide

Crystal Reports Explorer XI



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..... 1 Welcome to Crystal Reports Explorer 10 Crystal Reports Explorer User's Guide Welcome to Crystal Reports Explorer About this guide 1 About this guide This guide provides you with information and procedures covering a wide range of reporting tasks.

Procedures are provided for common tasks. Conceptual information and technical details are provided for advanced topics as required. What is Crystal Reports Explorer? Crystal Reports Explorer allows users to create and modify reports, design layouts, and perform data analysis using a zero client interface.

This functionality reduces IT reporting backlog by enabling users to create, save, and redistribute personalized report views in BusinessObjects Enterprise.

Who should read this guide This guide is intended for users of BusinessObjects Enterprise who use the Crystal Reports Explorer to create and modify reports.

Familiarity with BusinessObjects Enterprise, Business Views, Crystal Reports, and your overall reporting environment is beneficial, but not required. Online help Access the online help in Crystal Reports Explorer by clicking Help. The online help contains all of the information found in this guide. Business Objects

information resources For more information and assistance, see Appendix A: Business Objects Information Resources. This appendix describes the Business

Objects documentation, customer support, training, and consulting services, with links to online resources.

Crystal Reports Explorer User's Guide 11 1 Welcome to Crystal Reports Explorer What is Crystal Reports Explorer? 12 Crystal Reports Explorer User's

Guide Using Crystal Reports Explorer chapter 2 Using Crystal Reports Explorer Overview Overview Crystal Reports Explorer brings together key

information delivery technologies from the BusinessObjects product family: · The BusinessObjects Enterprise framework of server components authenticates

and authorizes users, and enables users to work with report objects in a managed environment. Crystal Reports Explorer allows users to design, modify, and

process Crystal reports and Business Views on demand, over the Web, within the BusinessObjects Enterprise environment. Logging on to BusinessObjects

Enterprise To access Crystal Reports Explorer through InfoView, type the URL for InfoView in your web browser. On Windows, you can also select InfoView

from the program group on the Windows Start menu. 1. To access InfoView Go to the BusinessObjects Enterprise Administration Launchpad, and then click

the InfoView link. Or go to the following URL: <http://webserver/businessobjects/enterprise11/InfoView> Replace webserver with the name of the web server

that is set up for BusinessObjects Enterprise. You may need to check with your administrator for the web server name or exact URL to enter. Tip: If you have

any BusinessObjects Enterprise client tools installed, you can also click Start > Programs > BusinessObjects XI > BusinessObjects Enterprise > BusinessObjects Enterprise .NET InfoView (or Java InfoView).

The Log On page appears. 2. Enter your user name, password, authentication type and system name; then click Log On. To use Crystal Reports Explorer, you must ensure that you have a user name and password that is recognized by BusinessObjects Enterprise. If you are unsure of your account information, or if your account is not recognized by the system, contact your administrator for details. Tip: Alternatively, you can access Crystal Reports Explorer without entering InfoView: 14 Crystal Reports Explorer User's Guide Using Crystal Reports Explorer Creating and modifying reports 2 · Enter the URL for Crystal Reports Explorer. If you are logging on to the CSP version under Windows, the default URL is: <http://webserver/crystal/enterprise11/adhoc> where webserver is the name of the BusinessObjects Enterprise web server. If you are logging on to the JSP version, the default URL is: <http://webserver:port/adhoc/> For more information, contact your administrator. · · On the Log On Details page, enter your user name, password, authentication type and system name; then click Log On. Click Create Report.

Once you have logged on to InfoView, you can create and modify reports. Creating and modifying reports Check with your BusinessObjects Enterprise administrator to ensure that you have the correct permissions and access to the Crystal reports and Business Views that you want to use. 1. 2. To modify a report Log on to BusinessObjects Enterprise and navigate to InfoView.

Find the Crystal report that you want to change, and then select the Modify link beneath it. This opens the Modify Report page (also known as the Modify Viewer). For more information about modifying reports, see "Working with Report Data" on page 19. 1. 2.

To create a report Log on to BusinessObjects Enterprise and navigate to InfoView. From the New list in the toolbar, select Crystal Report. The Create Report page appears. By default, you can create a report based on a Business View. However, your administrator can also give you access to report data sources. To begin building your report, see "Working with Report Data" on page 19. Crystal Reports Explorer User's Guide 15 2 Using Crystal Reports Explorer Working in the Create Report page Working in the Create Report page This page provides access to all the reporting tools that are available to you. The various tools are accessible through a number of toolbar options, control buttons, and tabs. The Create Report page and the Modify Report page provide identical functionality. Note: The features that are available to you in Crystal Reports Explorer depend on the right assigned to you by your administrator.



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For more information, contact your BusinessObjects Enterprise administrator. · Control buttons Use the control buttons in the top-right corner of your screen to navigate: Name Restart Close View Preferences About Help Description Click to restart the report design or modification process from the selected data source. Click to return to the main page. Click to open a report viewer in a new window. Click to set user preferences. Click for information on this release. Click to access this guide. · Toolbar options The options on the toolbar allow you to select a data source for your report, add fields to the report, group and sort the data in various ways, add summary fields and formula calculations, and so on. The options that 16 Crystal Reports Explorer User's Guide Using Crystal Reports Explorer Working in the Create Report page 2 are available to you depend upon how your administrator has set up your user account.

The rest of this guide discusses each of these options in full detail.

Tip: Drag the title of the toolbar to move it from the left side of your screen. Then position the floating toolbar where you want. Double-click the title bar to expand the toolbar options. Click X to return the toolbar to its original position. · Source tab As you work through the options on the toolbar, use the fields on the Source tab to keep track of the objects that you are working with.

For instance, when you select a data source, additional information may appear in the Description field. Also, the list of fields in the data source appears in the Available Fields field. As you select fields and add other objects, their entries appear in the corresponding fields on the Source tab. For more information, see "Working with Report Data" on page 19. · Data tab Click the Data tab to view the data in a plain grid without formatting.

This grid provides the easiest way for you to preview the raw data as you modify and refine your report by adding groups, filters, summaries, calculations, and so on. Switch back and forth between the Source tab and the Data tab as you work on retrieving the data that interests you. For more information, see "Viewing your report on the Data tab" on page 37. · Design tab Click the Design tab to view and modify the layout and formatting of your report. Here you can move and format field objects, add text objects, rearrange and format report sections, and so on. For more information, see "Formatting overview" on page 58. · Report tab Click the Report tab to view your Crystal report. Here you can preview and modify the report's layout and formatting, as you position and format objects such as fields and charts. Switch back and forth between the Design tab and the Report tab as you complete the final formatted report. For more information, see "Formatting overview" on page 58.

· Click the View button in the top-right corner of your screen. This option opens a report viewer in a new window. Crystal Reports Explorer User's Guide 17 2 Using Crystal Reports Explorer Working in the Create Report page 18 Crystal Reports Explorer User's Guide Working with Report Data chapter 3 Working with Report Data Using Business Views Using Business Views A Business View is a collection of Business Elements and provides the highest level of data abstraction for end users. Users see Business Views as an abstract database connection, and the contained Business Elements as virtual tables that contain Business Fields. Business Views are created using a thick-client designer in BusinessObjects Enterprise, the Business View Manager. End users access Business Views through applications such as Crystal Reports, OLAP Intelligence, and when creating reports with Crystal Reports Explorer. For more information on Business Views, see the Business Views Administrator's Guide. Business Elements A Business Element is roughly equivalent to an OLAP dimension or logical view. It comprises a logically related collection of data fields that are based on a Data Foundation. These fields can be organized hierarchically, resulting in different levels within a Business Element.

A common example of a Business Element is a hierarchical structure that contains the following fields: Country, State or Province, and City. When you select fields for your report, you are in fact selecting from the hierarchy of Business Fields that make up a Business Element. For more information on selecting fields for your report, see "Selecting and renaming fields" on page 22. Business Fields A Business Field is a Data Field, a formula, or a SQL expression. A Business Element consists of a number of Business Fields.

These Business Fields are visible to a report designer through one of more Business Elements that are included in a Business View. Using report data sources A report data source is a Crystal report provided by your administrator or report designer, typically containing report fields, parameters, filters, and formulas. Report data sources are created in the Define Report Data Source page. Report data sources are stored in the designated Data Sources folder in BusinessObjects Enterprise. Your administrator determines whether you have access to report data sources, Business Views, or both.

For details, see the Crystal Reports Explorer Administrator's Guide. 20 Crystal Reports Explorer User's Guide Working with Report Data Choosing a data source 3 Choosing a data source You can create reports based on Business Views or report data sources. 1. 2. To select a data source for a report Log on to BusinessObjects Enterprise and navigate to InfoView. From the New list in the toolbar, select Crystal Report. The Create Report page and Choose Data Source window appear. Tip: To select a data source in Crystal Reports Explorer, click Choose Data Source from the toolbar. 3. In the Choose Data Source dialog box, select the type of data source you want: · · 4.

Expand the Choose Business View folder to select a Business View. Expand the Choose Report Data Source folder to select a report data source. Click OK. Working with report parameters Once you have selected your data source, you can begin to build your report. If the report or Business View that you selected as a data source includes parameters, the Parameters dialog box appears. A report parameter is a field that a report designer uses to prompt report users for information that is then used to filter data in the report. For example, a worldwide sales report might include a parameter that prompts you to select from a list of available countries, in order to limit the report's data to any single country. Alternatively, a customer account report might include a parameter that prompts you to type the name of one or more customers whose account data you want to see in the report.



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Note: The options in the Parameters dialog box vary, depending upon the number and type of parameters in the original report. Some parameters are optional, and some are mandatory.

Some parameters provide a list of default values, while others require you to provide the information yourself. If you are unsure how to set a particular report parameter value, you may need to check with the person who designed the original report. Tip: You can modify parameter values by clicking Report Parameters on the toolbar to open the Parameters dialog box. Crystal Reports Explorer User's Guide 21 3 Working with Report Data Selecting and renaming fields Selecting and renaming fields There are two ways to select fields for your report. Click Fields on the toolbar; then select directly from the list of available fields.

Alternatively, click Advanced to access the fields dialog box, which also allows you to rename fields. The Advanced dialog displays the available fields in a hierarchy. If you have chosen a Business View as your data source, the Available Fields pane displays a list of Business Elements. Click a Business Element to expand the list of Business Fields contained within it, and then make your selection from these fields. If you have chosen a report data source, the Available Fields pane displays a list of tables.

Click a table to expand the list of fields contained within it and then make your selection from these fields. 1. 2. To select fields On the toolbar, click Fields. Several options are available to you: · Click any field in the list to add it to the report. Fields appear in the report from left to right in the order that you add them. In the list, an asterisk () is appended to the name of each field that you add. · Click any field already marked with an asterisk to remove it from the report. 22 Crystal Reports Explorer User's Guide Working with Report Data Selecting and renaming fields 3 · Click Advanced to open the fields dialog box. The Available Fields area lists all fields that are available in the data source.*

The Fields to Display area lists the fields that have already been added to the report. Select any field and click the appropriate arrow to add/remove it from the report. Hold SHIFT and click to select multiple fields. You can also drag fields from one list to another. To change the name that is used for a particular field in a report, select the field in the Fields to Display area; then click Rename. To rearrange fields that appear in the data grid, select the field in the Fields to Display area; then click the up and down arrows to change the sequence. To change the position of the fields on the report, use the Design tab. 3. 1. 2. 3. Click OK. To browse the data in a field On the toolbar click Fields; then click Advanced. Expand the Business Element or table to show the available fields; then click the field you want. Click Browse Data.

The data contained in the field is displayed in the Field Browser dialog box. 1. To find a field On the toolbar click Fields; then click Advanced. Crystal Reports Explorer User's Guide 23 3 Working with Report Data Grouping records 2. 3.

4. 5. The Fields dialog box displays the list of available fields in a hierarchy. Click Find Field. In the Find Field dialog box, type the name of the field you want to find. Click OK. The field is displayed within the hierarchy. Grouping records Grouped data is data that is sorted and broken up into meaningful groups. In a customer list, for example, a group might consist of all those customers living in the same Zip Code, or in the same Region. In a sales report, a group might consist of all the orders placed by the same customer, or all of the orders generated by a particular sales representative.

The Advanced dialog box displays the available fields in a hierarchy. If you have chosen a Business View as your data source, the Available Fields pane displays a list of Business Elements. Click a Business Element to expand the list of Business Fields contained within it and then make your selection from these fields. If you have chosen a report data source, the Available Fields pane displays a list of tables. Click a table to expand the list of fields contained within it and then make your selection from these fields. Note: If sorting and grouping are performed on the database server, sort order may vary when Unicode or UTF-8 data is used. The order applied depends on the rules in place for your data source. In certain cases, Unicode data is sorted by its binary value, but it can also be sorted according to a particular locale setting. Refer to the documentation for your data source for details on how Unicode data fields are sorted. 1.

2. To group records On the toolbar, click Groups. Several options are available to you: · Click any field in the list to specify the desired grouping. If you specify multiple fields for grouping, records are grouped at each level, according to the order in which you select fields. In the list, an asterisk () is appended to the name of each field that is already being used as a group.*

· Click any field already marked with an asterisk to remove the group from the report. 24 Crystal Reports Explorer User's Guide Working with Report Data Grouping records 3 · Click Advanced. The Available Fields area lists all fields or Business Elements that are available in the data source. The Group On area lists the fields that have already been grouped in the report. Select any field and click the appropriate arrow to add or remove its group from the report. Hold SHIFT and click to select multiple fields. You can also drag and drop fields from one list to another. To rearrange groups in the report, select the field in the Group On area; then click the up and down arrows to change the sequence. 3. 1. 2. 3. Click OK. To browse the data in a field On the toolbar click Fields; then click Advanced. Expand the Business Element or table to show the available fields; then click the field you want.

Click Browse Data. The data contained in the field is displayed in the Field Browser dialog box. 1. 2. 3. 4. To find a field On the toolbar click Fields; then click Advanced. The Fields dialog box displays the list of available fields in a hierarchy. Click Find Field. In the Find Field dialog box, type in the name of the field you want to find.

Crystal Reports Explorer User's Guide 25 3 Working with Report Data Filtering records 5. Click OK. Filtering records You can use filters to limit the number of records that are retrieved from the database. Filters not only remove unwanted or unnecessary data from your report, but they can also improve the speed with which your report is processed. A filter consists of two main parts: the filter field and the filter condition.

The filter field is the database field whose values are assessed in order to determine whether or not each available record belongs in the result set.



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For example, you might filter a monthly product sales report to display only those products whose Units Sold field contains a value greater than 5000. In this case, the filter field is Units Sold. The filter condition provides the rule that allows BusinessObjects Enterprise to determine whether or not a particular record belongs in the result set. The filter condition consists of the filter type (a comparison or pattern operator) and the filter value: the filter type specifies the comparison that you are interested in; the filter value defines the value against which the actual database field values are compared.

The result set includes only those records whose value in the filter field meets your filter condition. In the previous example, where the filter condition is "greater than 5000," the filter type is "greater than" and the filter value is 5000. Valid filter operators vary, depending upon the data type of the filter field: Use the standard comparison operators to compare numeric field values (including currency, date, time, and date-time values) against a numeric filter value.

For details, see "Comparison operators" in the online help. Use the Is Equal To or Is Not Equal To comparison operators in conjunction with the pattern operators to compare string field values against a string filter value. For details, see "Pattern operators" in the online help. "Pattern operators" on page 525 Use the AND and OR operators to set up a filter based on two or more conditions. For more information, see "Creating multiple filter conditions" on page 28.

For example, if you have a national sales report as your data source, you can filter the data to retrieve the sales data from only the Western region. To accomplish this, select Region as the filter field, select the Is Equal To operator as the filter type, and type "Western" as the filter value.

1. To add a filter On the toolbar, click Filters. 26 Crystal Reports Explorer User's Guide Working with Report Data Filtering records 3 2. 3. 4. Click the first list to specify the filter field. Click the second list to specify the filter type. Type the corresponding filter value in the text field, or click the button next to the field to browse and select from the relevant field data. If you are filtering on a date field, click the button next to the field to open the pop-up calendar. If your filter value is text, select the Match Case check box to make the filter case sensitive.

5. Click Add to apply the new filter. A description of the filter is added to the Filters area on the Source tab. Note: The order of the lists for creating filters is different in the Japanese version of the Crystal Reports Explorer. For information on multiple filters, see "Creating multiple filter conditions" on page 28.

1. 2. To remove a filter On the toolbar, click Filters. Click Advanced. The Filters dialog box appears.

3. 4. Select the filter that you want to remove. Click Remove; then click OK. Tip: You can also use the Filters dialog box to add new filters, but the toolbar options provide identical functionality. Crystal Reports Explorer User's Guide 27 3 Working with Report Data Filtering records 1. 2. 3. 4. 5.

To modify a filter On the toolbar, click Filters. Click Advanced. The Filters dialog box appears. Select the filter that you want to modify. Change the filter conditions as required. Click OK. Creating multiple filter conditions You can combine filter conditions using the AND operator, the OR operator, and parenthesis. 1. 2. 3.

4. 5. To create multiple filters On the toolbar, click Filters. Click Advanced. The Filters dialog box appears.

Click the first list to specify the filter field. Click the second list to specify the filter type. Type the corresponding filter value in the text field, or click the button next to the field to browse and select from the relevant field data. If you are filtering on a date field, click the button next to the field to open the pop-up calendar. If your filter value is text, select the Match Case check box to make the filter case sensitive.

6. 7. 8. 9. Click Add to apply the filter. Double-click the operator buttons (AND, OR, and parenthesis) to build up the second part of your filter condition. Click Add to apply the filter. Repeat the above steps until you have finished constructing your filters. 10. Click OK to close the Filters dialog box.

"Operators" on page 103 For more information on filter precedence, see "Operators" in the online help. 28 Crystal Reports Explorer User's Guide Working with Report Data Summarizing grouped data 3 Summarizing grouped data One of the primary purposes for breaking data into groups is to run calculations on each group of records instead of on all the records in the report. When the program summarizes data, it sorts the data, breaks it into groups, and then summarizes the values in each group. The program includes a number of summarizing options. Depending on the data type of the field you plan to summarize, you can: Sum the values in each group. Count all the values or only those values that are distinct from one another. Determine the maximum, minimum, average, or Nth largest value. Customer list reports: determine the number of customers in each state. The summary would count the distinct customers in each state group. Order reports: determine the average order placed each month.

The summary would calculate the size of the average order for each month group. Sales reports: determine the total sales per sales representative. The summary would sum or subtotal the order amounts for each sales representative group. To summarize grouped data On the toolbar, click Summaries. Click the Summary Of list and select the field whose values you want to summarize.

Click the next list and select from the available summary operations. Click Add. For example: 1. 2. 3.

4. Note: When you add a summary, the summary field is aligned with its default field. 1. 2. To remove a summary field On the toolbar, click Summaries. Click Advanced. Crystal Reports Explorer User's Guide 29 3 Working with Report Data Sorting records The Summaries dialog box appears. 3. 4. In the Summary Fields area, select the summary field that you want to remove.

Click Remove; then click OK. Tip: You can also use the Summaries dialog box to add new summaries, but the toolbar options provide identical functionality.

1. 2. 3. 4. 5. 6. To modify a summary field On the toolbar, click Summaries. Click Advanced.

The Summaries dialog box appears. In the Summary Fields area, select the summary field that you want to modify. Change the summary categories as required. Click Modify. The modified summary field appears in the Summary Fields area.

Click OK. Sorting records Sorting means placing data in some kind of order to help you find and evaluate it.



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When you first insert a database field into your report, the data within the fields appears in the order in which it was originally entered into the database. Locating information in this kind of report is difficult. It is much easier to review 30 Crystal Reports Explorer User's Guide Working with Report Data Sorting records 3 or find information when you can see it sorted in a logical format.

For example, you may want to have a customer list sorted alphabetically by name or by country. When you sort, the program asks you to define two things: · · Sort field. Sort direction. Note: If sorting and grouping are performed on the database server, sort order may vary when Unicode or UTF-8 data is used. The order applied depends on the rules in place for your data source. In certain cases, Unicode data is sorted by its binary value, but it can also be sorted according to a particular locale setting. Refer to the documentation for your data source for details on how Unicode data fields are sorted. Sort field A sort field is the field that determines the order in which data appears on your report. Almost any field can be used as a sort field, including formula fields. A field's data type determines the method in which the data from that field is sorted.

Note: You cannot sort on memo or BLOB fields. Field Type Single-character string fields Sort Order blanks punctuation numbers uppercase letters lowercase letters two letters three letters four letters, and so on For example: · "BOB" comes before "bob" Multiple-character string fields · · Currency fields "123" comes before "124" " " (blank) comes before "a" "aa" comes before "aaa" numeric order Crystal Reports Explorer User's Guide 31 3 Working with Report Data Sorting records Field Type Number fields Date fields DateTime fields Time fields Boolean comparison fields Null values Sort Order numeric order chronological order chronological order same-date values sorted by time chronological order FALSE values (0) TRUE values (1) null values non-null values Sort direction Direction refers to the order in which the values are displayed, once sorted. · Ascending Ascending order means smallest to largest (1 to 9, A to Z, FALSE to TRUE). The program sorts the records in ascending order based on the values in the sort field you select. · Descending Descending order means largest to smallest (9 to 1, Z to A, TRUE to FALSE). The program sorts the records in descending order based on the values in the sort field you select.

Sorting records in the Details section When you sort rows of data that are displayed in the Details section of a report, you arrange them in ascending or descending order according to the values in a single field, or the values in multiple fields. In single-field sorting, all the records used in the report are sorted based on the values in a single field. Sorting an inventory report by stock number or sorting a customer list by customer number are examples of single-field sorts. In multiple-field sorts, the program first sorts the records based on the values in the first field selected, putting them in ascending or descending order as specified.

When two or more records have the same field value in the first sort field, the program then sorts those records based on the value in the second sort field. 32 Crystal Reports Explorer User's Guide Working with Report Data Sorting records 3 For example, if you choose to sort first by the {customer.COUNTRY} field and then by the {customer.REGION} field, both in ascending order, the report would appear with countries listed in alphabetic order, and regions within each country listed in alphabetic order. Any other fields, such as the postal codes within each region, would remain unsorted.

Note: If the records are also grouped, the records in each group's Details section are sorted according to your sort field and sort direction. 1. 2. 3. 4. 5. 1. 2. To sort records in the Details section On the toolbar, click Report Sorting. Click the first list and select your first sort field. Click the second list to specify the sort direction. Click Add. Repeat this process to further sort records on another field. To display and modify your sorted records On the toolbar, click Report Sorting. Click Advanced.

The Sorts dialog box appears. The list of all the sorted records (including those for groups and summaries) is displayed under the Details tab. 3. 4. 5. 6. Under the Details tab, select the sorted record you want to modify. Ensure the correct sort field is displayed in the first list. Click the second list to specify the sort direction. Click Modify; then click OK.

Sorting groups of records By sorting on a grouped field, you order entire groups of records in ascending or descending order. For instance, sorting a grouped Country field in descending order places the Zimbabwe group at the top of the report, and the Argentina group at the end. When you group a field, that group is automatically sorted in ascending order. You can modify the sort order using the Advanced dialog box under Report Sorting. Note: To sort records within a group, see "Sorting records in the Details section" on page 32.

1. To sort groups of records On the toolbar, click Report Sorting. Crystal Reports Explorer User's Guide 33 3 Working with Report Data Sorting records 2. Click Advanced. The Sorts dialog box appears. 3. On the Groups or Summaries tab, select Groups. A list of available groups appears, along with the sort direction that have been allocated to the groups. 4. 5. Click the first list to select the grouped field whose groups you want to sort. Click the second list to specify the sort direction. You can choose either Ascending or Descending. If you select a date or time field in the first list, you can specify the granularity of the sort, for example "for each day" or "for each week". 6.

Click Modify; then click OK. Sorting and selecting groups based on summarized values Groups can be organized in either ascending or descending order by summary value. For example, in an orders report, if you subtotal the order amount by state, you could order the groups: · 34 From lowest to highest order amount (ascending). Crystal Reports Explorer User's Guide Working with Report Data Sorting records 3 · From highest to lowest order amount (descending).

In addition, you can select the top or bottom groups (Top N and Bottom N, based on a summary value) to further organize your report. Note: Before completing these steps, ensure that you have added the appropriate groups and summaries to your report. 1. 2. 3. 4. 5. To sort grouped data based on summaries On the toolbar, click Report Sorting. Click Advanced. The Sorts dialog box appears. On the Groups or Summaries tab select Summaries.



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In the first list select the summary by which you want to sort your groups of records. In the second list, choose the sort order from the following options:
. . . . 6. Ascending Descending Top N Top 5 Top 10 Bottom N Bottom 5 Bottom 10 For a sort order based on an N value, type the value into the N Value field.
Note: If you sort by a specific value, for example Top 5, or an N value, you can combine the records from all remaining groups in a new group called "Others", by selecting the include Others group. 7.

Click Add; then click OK. Removing sorting 1. 2. 3. On the toolbar, click Report Sorting. Click Advanced. The Sorts dialog box appears. On the Details tab, select the sort that you want to remove, then click Remove. Crystal Reports Explorer User's Guide 35 3 Working with Report Data Sorting records 4. Click OK.

36 Crystal Reports Explorer User's Guide Working with Report Data Viewing your report on the Data tab 3 Viewing your report on the Data tab The Data tab displays the report data in a grid. The data in the grid is refreshed against the database each time you refine the report. We recommend that you build your report on the Source tab, and switch to the Data tab to preview the data, in order to minimize the impact on your database servers and to improve the performance of your report. The Data tab displays data in both Group View and Flat View. In Group View, you can click on a group in the Group Tree to display only the records in that specific group. Flat View displays all records in the data grid. Click a group in the Group Tree to jump to the section of the report that displays the records for that group. You can click Show/Hide Group Tree to switch the Group Tree off or on. Note: The Data tab and the Source tab are only available if you have BusinessObjects Enterprise Premium installed. For more information, contact your BusinessObjects Enterprise administrator.

1. 2. 3. 4. To browse grouped data Choose a data source for your report.

On the toolbar, click Fields; then specify your fields. On the toolbar click Groups; then specify your groups. Click the Data tab. The Group Tree is displayed to the left of the data grid. The data grid displays the grouped data in Flat View.

5. Click a group to jump to the section of the report that displays the records for that group. Tip: Click Switch to Flat View/Switch to Group View to switch between Flat and Group View. Each row in the data grid is numbered. The grid viewer displays how many rows are contained in the overall report, and which rows are currently displayed. To jump to a specific row in the report In the Find Row text box, enter the row number you want to display; then click Find Row. The data grid displays the report beginning at the specified row. Crystal Reports Explorer User's Guide 37 3 Working with Report Data Publishing and exporting the report Publishing and exporting the report Once you have created a report, you can publish it to one of your BusinessObjects Enterprise folders, or export a copy to your local drive in one of several file formats. 1. 2.

3. To publish a report On the toolbar, click Save Report. In the Save dialog box, type a name for the report in the Save As field. Type extra information about your report in the Description field. This description is displayed to other BusinessObjects Enterprise users who have access to the report. 4. 5. 1. 2. 3.

Navigate through the available folders to place your new report in a particular location. Click OK. To export a report to a local drive Click the Report tab (or click the View Report button) to view the formatted Crystal report in a report viewer. Click the Export button on the viewer's toolbar. When prompted, select from the available file formats and provide any additional information the report viewer prompts you for (page range, file name, disk location, and so on).

38 Crystal Reports Explorer User's Guide Adding Calculations with Formulas chapter 4 Adding Calculations with Formulas Formulas overview Formulas overview In many cases, the data needed for a report already exists in database table fields. For example, to prepare an order list you would place the appropriate fields on the report. Sometimes, however, you need to put data on the report that does not exist in any of the data fields. In such cases, you need to create a formula. For example, to calculate the number of days it takes to process each order, you need a formula that determines the number of days between the order date and the ship date.

Crystal Reports Explorer makes it easy for you to create such a formula. Note: Using Crystal Reports Explorer, you can write or modify report formulas in Crystal syntax only. Report formulas are formulas that you create to stand alone in a report; they calculate and return one of the seven simple data types supported (Number, Currency, String, Boolean, Date, Time, and DateTime). For example, a formula that calculates the days between the order date and the shipping date is a report formula. You cannot create the conditional formatting, record selection, or search formulas that you can create in Crystal Reports.

Typical uses for formulas There are many uses for formulas. If you have a need for specialized data manipulation, you can do it with a formula. Creating calculated fields to add to your report To calculate a price discounted 15%: Crystal syntax example: {Orders_Detail.Unit Price}*0.85 Formatting text on a report To change all the values in the Customer Name field to uppercase: Crystal syntax example: UpperCase ({Customer.

Customer Name}) Pulling out a portion, or portions, of a text string To extract the first letter of the customer name: Crystal syntax example:

{Customer.Customer Name} [1] 40 Crystal Reports Explorer User's Guide Adding Calculations with Formulas Formula components and syntax 4 Extracting parts of a date To determine what month an order was placed: Crystal syntax example: Month ({Orders.Order Date}) Formula components and syntax

Formulas contain two critical parts: the components and the syntax. The components are the pieces that you add to create a formula while the syntax is the rules that you follow to organize the components. Formula components Creating a formula using the Crystal Reports Explorer is like creating a formula in any spreadsheet application. You can use any of the following components in your formula: Fields Example: {customer.CUSTOMER LAST NAME}, {customer.LAST YEAR'S SALES} Numbers Example: 1, 2, 3.1416 Text Example: "Quantity", ":", "your text" Operators Example: + (add), * (multiply), /

(divide), -x (negate) Operators are actions you can use in your formulas. Functions Example: Round (x), Trim (x) Functions perform calculations such as average, sum, and count.



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All functions available are listed with their arguments and are arranged by their use. Control Structures Example: "If" and "Select", "For" loops Crystal Reports Explorer User's Guide 41 4 Adding Calculations with Formulas Creating and modifying formulas Group field values Example: Average (fld, condFld), Sum (fld, condFld, "condition") Group field values summarize a group. For example, you could use group field values to find the percentage of the grand total contributed by each group. Other formulas Example: {@GrossProfit}, {@QUOTA} Formula syntax Syntax rules are used to create correct formulas. Some basic rules are: · · · Crystal syntax Enclose text strings in quotation marks.

Enclose arguments in parentheses (where applicable). Referenced formulas are identified with a leading @ sign. Crystal Reports supports formulas written in both Crystal and Basic syntax. However, when adding or modifying calculations using Crystal Reports Explorer, you must use Crystal syntax. For details, see "Crystal syntax overview" on page 80.

Creating and modifying formulas Creating a formula and inserting it into a report 1. On the toolbar, click Formulas. The Formulas dialog box appears. 42 Crystal Reports Explorer User's Guide Adding Calculations with Formulas Creating and modifying formulas 4 2. Click New. 3. 4. In the Formula Name field, enter a name for the formula. In the Formula Text field, define your calculation in Crystal syntax. · · · 5.

Double-click any field in the Fields list to add it to the formula. For basic calculations between fields, use the standard arithmetic operators. For details, see "Arithmetic operators" in the online help. For details about additional functions and operators that allow you to create more advanced formulas, see Functions Reference and Operators Reference in the online help. Click Check. If the formula contains an error, BusinessObjects Enterprise displays the error message returned by the formula compiler. You must correct the problem in order to add the formula to the report. For additional detail about each of the possible error messages, see "Error messages and formula compiler warnings" on page 46. 6. Click OK to add the formula to the Formulas list.

The new calculation is added to the Fields area on the Source tab and to the list of fields in the Fields dialog box. Crystal Reports Explorer User's Guide 43 4 Adding Calculations with Formulas Creating and modifying formulas Editing formulas 1. On the toolbar, click Formulas. The Formulas dialog box appears. 2.

3. 4. 5. In the Formula list, click the formula that you want to edit. In the Formula Name field, type in the modified formula name.

In the Formula Text field, modify the calculation as desired. Click Check. If the formula contains an error, BusinessObjects Enterprise displays the error message returned by the formula compiler. You must correct the problem in order to add the formula to the report. For additional detail about each of the possible error messages, see "Error messages and formula compiler warnings" on page 46. 6. Click OK. The new calculation is added to the Fields area on the Source tab and to the list of fields in the Fields dialog box. 44 Crystal Reports Explorer User's Guide Adding Calculations with Formulas Deleting formulas 4 Deleting formulas When you create a formula, BusinessObjects Enterprise: · · Stores the specification for creating the formula, using the name you assigned to it. Places a working copy of that formula in the Fields area of the Source tab.

You can remove a working copy of a formula from the report, without having to delete the formula specification entirely. Or, you can delete the formula specification, thereby entirely deleting all occurrences of the formula. Removing the working formula from your report 1. 2. 3. On the toolbar, click Fields; then click Advanced to open the Fields dialog box. In the Fields to Display list, click the formula that you want to remove from the report. Use the arrow key to move the formula into the Available Fields list. The formula is removed from the Fields area of the Source tab. Note: Even after you have deleted the working copies of a formula from the report, the formula specification remains unchanged.

Deleting the formula specification 1. 2. 3. 4. On the toolbar, click Formulas.

In the Formula list area, click the formula that you want to delete. Click Remove. Click OK. All working copies of the formula are deleted, and the formula specification is removed from the list of available fields. Crystal Reports Explorer User's Guide 45 4 Adding Calculations with Formulas Error messages and formula compiler warnings Error messages and formula compiler warnings If you add a calculation whose formula contains an error, BusinessObjects Enterprise displays the error message returned by the formula compiler.

You must correct the problem in order to add the formula to the report. This section provides additional detail about each of the possible error messages. A) is missing. Parentheses must be used in pairs; each opening parenthesis must be matched with a closing parenthesis. One of your opening parentheses is not matched by a closing parenthesis. Insert the missing parenthesis and recheck. A] is missing. Brackets must be used in pairs; each opening bracket must be matched with a closing bracket. One of your opening brackets is not matched by a closing bracket. Insert the missing bracket and recheck.

A Boolean range variable is not allowed. You have entered a Boolean range variable. Range variables are allowed in all data types other than Boolean. Either change the data type to something other than Boolean, or enter a Boolean item variable to replace the Boolean range variable. A day number must be between 1 and the number of days in the month. You have entered a day number that does not fit the month. The Formula Checker displays this warning if, for the month of January, for example, you enter a day number of zero (0) or a number 32 or greater. Change the day number to fit the month and recheck. A field is required here. You have entered something in your formula other than a field at a position where a field is expected.

Correct the problem and recheck. A formula cannot refer to itself, either directly or indirectly. You cannot enter a formula that refers to itself. For example, in creating the formula @Profit, you cannot use @Profit as the argument to a function. Remove the reference and recheck.

46 Crystal Reports Explorer User's Guide Adding Calculations with Formulas Error messages and formula compiler warnings 4 A function is required here. The Formulas dialog box is expecting a function but none was entered. Review your formula and enter the required function or correct the formula if it is in error.



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A month number must be between 1 and 12. You have entered a month number that falls outside the allowable range.

Enter a month number between 1 and 12 and recheck. A string can be at most 65534 characters long. The program allows strings in formulas to be up to 65534 characters long. You have entered a string that exceeds that limit. Reduce the length of the string and recheck. A subscript must be between 1 and the length of the string. You have entered a subscript number that specifies a character that does not exist. If you enter a subscript that references the 6th or the 8th character in a five character string, for example, you will get this warning. Change the subscript to a value that exists and recheck. A subscript must be between 1 and the size of the array.

You have entered a subscript that specifies an array item that does not exist. If you enter a subscript that references the 6th or 8th item in a five item array, for example, you will get this warning. Change the subscript to a value that exists and recheck. A subtotal condition is not allowed here. You have entered a subtotal condition for a subtotal that uses something other than a date or Boolean field as the sort and group by field. Your subtotal does not require a condition. Delete the condition and continue. A subtotal condition must be a string. You have entered a subtotal condition that is not in string format. Make certain when you enter the condition in the formula that it is surrounded by single or double quotation marks.

A variable cannot be redeclared with a different type. You have declared a variable with the same name but a different data type than a variable already declared. This is not allowed. Either change the name of the variable or change the data type so it conforms with the original data type. Crystal Reports Explorer User's Guide 47 4 Adding Calculations with Formulas Error messages and formula compiler warnings A variable is required here.

You have used the assignment operator (=:) in a formula without preceding it with a variable. The program expects to see a variable immediately before (to the left of) the assignment operator. Enter a variable and try again. A variable name is expected here. You have declared a variable data type without declaring a variable name.

You must enter a variable name to complete the declaration. Enter the variable name and continue. Dates must be between year 1 and year 9999. You have entered a date that falls outside the allowable range. Enter a date that falls within the range of years 1 to 9999 (including the end values), and then recheck. Division by zero. You have entered a formula that attempts a division by zero. The program does not allow such a division. Edit the formula so it does not attempt to divide by zero, and then recheck. To avoid this type of problem, you can use a test such as this: If {file.

FORECAST} = 0 Then 0 Else {file.SALES} / {file.FORECAST} Error in formula code. Please contact Business Objects. There is something unusual about the formula that was not foreseen. Please save the formula text that produced this warning and contact the company. Error in parse tree. Please contact Business Objects. In parsing your formula, the program encountered a situation that the parse tree could not process. Please save the formula text that produced this warning and contact the company.

Field still in use. The field you are requesting is currently in use. Try again once the field becomes available. File name already in use. Please close the window for xxx before saving under this name.

You have tried to save a file under the name of a file already in use in an open report. Close that report first, and then try again. 48 Crystal Reports Explorer User's Guide Adding Calculations with Formulas Error messages and formula compiler warnings 4 Non unique table reference: tablename. This is usually caused if a table name contains an underscore or is more than 15 characters long, or starts with a number. Not enough arguments have been given to this function.

The function requires more arguments than you have entered. Enter the missing argument(s) and recheck. Numeric overflow. An intermediate result or the final result cannot be represented because it is too big. Restructure or subdivide the formula to create smaller results, and then recheck. Physical database not found. The program is unable to locate either a DLL or the database. Check to make certain that the directories that hold these files are listed in the path statement. Sorry, this feature is not yet implemented. Try again later.

You have attempted to use a feature that has not been implemented in the current release. Wait till an upgrade that implements the feature and try again. The formula cannot be evaluated at the time specified. You are trying to force a field, formula, or function to be evaluated earlier than is possible. Evaluation time functions can only force a later evaluation time, never an earlier one. Change the formula to accommodate the required evaluation time. This field cannot be used because it must be evaluated later. You are trying to force a field, formula, or function to be evaluated earlier than is possible. Evaluation time functions can only force a later evaluation time, never an earlier one. Change the formula to accommodate the required evaluation time.

This formula cannot be used because it must be evaluated later. You are trying to force a field, formula, or function to be evaluated earlier than is possible. Evaluation time functions can only force a later evaluation time, never an earlier one. Change the formula to accommodate the required evaluation time.

Crystal Reports Explorer User's Guide 49 4 Adding Calculations with Formulas Error messages and formula compiler warnings This function cannot be used because it must be evaluated later.

You are trying to force a field, formula, or function to be evaluated earlier than is possible. Evaluation time functions can only force a later evaluation time, never an earlier one. Change the formula to accommodate the required evaluation time. The formula is too complex. Try simplifying it.

*The formula could not be evaluated because it exceeds the limit of 50 pending operations. Pending operations are operations that are on hold due to order of precedence rules; they will be performed once the operations with higher level precedence are finished. Sometimes it is possible to rearrange the formula and calculate the same value without requiring as many pending operations. As a very simplified example, in the formula 2+3*4, the addition cannot be performed until the multiplication has been done. The addition thus becomes pending, on hold until the multiplication is complete. If the formula is written as 3*4+2 instead, the operations can be performed left-to-right with the same result, thus eliminating the pending operation. Correct the formula and recheck.*

The matching } for this field name is missing.



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