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**User manual BUSINESS OBJECTS CRYSTAL REPORTS 10**  
**User guide BUSINESS OBJECTS CRYSTAL REPORTS 10**  
**Operating instructions BUSINESS OBJECTS CRYSTAL REPORTS 10**  
**Instructions for use BUSINESS OBJECTS CRYSTAL REPORTS 10**  
**Instruction manual BUSINESS OBJECTS CRYSTAL REPORTS 10**

**Crystal Reports™ 10**  
**Technical Reference Guide**

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**Manual abstract:**

*Issue 1. @@@@All other trademarks or registered trademarks referenced are the property of their respective owners. Contents Chapter 1: Welcome to Crystal Reports Development About Crystal Reports .....*

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properties, methods and events. Chapter 3: Programming the Crystal Report Viewers The Crystal Report Viewer is a front-end user interface for viewing reports.

In this section you will find detailed information on implementing the ActiveX and Java Bean viewers in your application. Chapter 4: Report Viewer Object Model The Crystal Report Viewer contains an extensive object model allowing you complete control over how the viewer appears and functions. This section provides detailed information on the properties, methods and events of the Crystal Report Viewer object model for both the ActiveX viewer, and the Java Bean viewer. Chapter 5: Programming the Embeddable Crystal Reports Designer Control This section demonstrates how to integrate the Embeddable Crystal Reports Designer Control (Embeddable Designer) into your application. Included are tutorials on creating sample applications in both Microsoft Visual Basic and Microsoft Visual C++. A brief section on creating reports in the designer at runtime is also included. Chapter 6: Embeddable Crystal Reports Designer Control Object Model The Embeddable Crystal Reports Designer Control (Embeddable Designer) is a new addition to the Report Designer Component; it enables you to provide a Crystal Reports designer in your application.



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In this section, you will find a general overview of the control as well as detailed information on its properties and methods. Crystal Reports Technical Reference Guide 5 Product registration Chapter 7: Active Data This section provides information on using active data in the Crystal Reports Development environment. Three areas are covered: the active data drivers, the Crystal Data Object, and the COM Data Provider.

By reading these sections you will learn how to create active data reports, create recordsets, and connect to the data source through the Report Designer Component automation server. Chapter 8: Crystal Data Source Object Models Crystal Reports provides support for reporting off data when no true data source exists. In this section you will find detailed information, including properties and methods, on Crystal Data Objects. Chapter 9: Creating User-Defined Functions in C Crystal Reports allows you to create User-Defined Functions that are recognized by the Crystal Reports Formula Editor. In this section you will find detailed information on programming User-Defined Functions in C.

Chapter 10: Creating User-Defined Functions in Visual Basic Crystal Reports allows you to create User-Defined Functions that are recognized by the Crystal Reports Formula Editor. In this section you will find detailed information on programming User-Defined Functions in Microsoft Visual Basic. Chapter 11: Creating User-Defined Functions in Delphi 3.0 Crystal Reports allows you to create User-Defined Functions that are recognized by the Crystal Reports Formula Editor. In this section you will find detailed information on programming User-Defined Functions in Delphi.

Chapter 12: Deprecated and Retired API Reference The following developer APIs, interfaces, methods, and properties are retired or deprecated. Retired features are no longer available or supported. Deprecated features, while they may be supported for backwards compatibility, are not recommended for use in the current version of Crystal Reports. Deprecated features may become obsolete in future versions of the product. Product registration There are several ways you can register your product: · Fill out the Product Registration form on the Crystal Decisions web site at: <http://www.crystaldecisions.com/register/> 6 Crystal Reports Technical Reference Guide 1 Welcome to Crystal Reports Development · Print the Product Registration form and fax it to the registration fax number closest to you. Crystal Decisions will then fax you a registration number that can be entered into the product the next time you use it. Registration fax numbers USA/Canada +1 (604) 681-5147 United Kingdom +44 (0) 20 8231 0601 Australia +6 2 9955 7682 Germany +49 (0) 69 9509 6182 Hong Kong +852 2893 2727 Singapore +65 777 8786 Registering the product ensures that you are kept up-to-date with product advancements. Customer Handbook For the latest details about product registration, maintenance, support, and services, visit our web site and download the Customer Handbook that corresponds to your region: · North America: <http://www.crystaldecisions.com/about/loyalty/handbook.asp> (English) · Europe: <http://www.crystaldecisions.com/about/loyalty/handbook.asp> (English) <http://germany.crystaldecisions.com/about/loyalty/handbook.asp> (German) <http://france.crystaldecisions.com/about/loyalty/handbook.asp> (French) If a Crystal Decisions Customer Handbook is not available for your region, please refer to the rest of this Welcome chapter, or contact your sales or support representative for complete details. Crystal Care technical support To access Crystal technical support specialists, you must: register your software online at: <http://www.crystaldecisions.com/register/> To find out about the technical support programs available for Crystal Reports: · Go to our support web site at: <http://support.crystaldecisions.com/crystalcare/> · Contact your regional office. For details, go to: <http://www.crystaldecisions.com/contact/offices.asp> Crystal Reports Technical Reference Guide 7 Crystal Training Crystal Training Whether you're a developer, information technology professional, or business user, we offer a wide range of Crystal Reports training courses designed to build or enhance your existing skills. Courses are available online, at certified training centers, or at your own site: · For a complete list of training courses and special offers, visit: <http://www.crystaldecisions.com/training/> · Or contact your regional office. For details, go to: <http://www.crystaldecisions.com/offices/> Crystal Consulting Our global team of certified consultants and consulting partners can guide you through a corporate-wide solution--including strategy, design, integration and deployment--for the fastest results, maximum performance, and increased productivity. · To learn more, visit: <http://www.crystaldecisions.com/consulting/> · Or contact your regional office.

For details, go to: <http://www.crystaldecisions.com/offices/> Document conventions This online help uses the following conventions: · Commands and buttons For easy recognition within procedures, User Interface (UI) features appear in bold type. For example: On the File menu, click New. · Keyboard shortcuts Delete means the Delete key, or the Del key on your numeric keypad. Enter means the Enter, Return, or CR key, depending on which of these keys appears on your keyboard. · Key combinations CTRL+KEY, SHIFT+KEY, and ALT+KEY are examples of key combinations. Hold down the first key in the combination and, at the same time, press the second key in the combination (designated above as KEY). For example: CTRL+C means hold the Control key down and press the letter C on your keyboard (CTRL+C is the Windows Copy command). · Key terms are italicized when first defined.

· Monospaced font indicates file paths and names, lines of code, and data that you enter using your keyboard (for example: In the Formula Editor, type If Sales > 1000 Then crRed). 8 Crystal Reports Technical Reference Guide 1 Welcome to Crystal Reports Development · Monospaced, italicized font indicates variable data that you must replace with data appropriate to your current settings, environment, or task. For example, in the following URL, you would replace webserver: <http://webserver/crystal/enterprise/> Crystal Reports Technical Reference Guide 9 Document conventions 10 Crystal Reports Technical Reference Guide Report Designer Component Object Model 2 The Report Designer Component is the ultimate development tool for your reporting needs. In this section you will find a detailed description of the Report Designer Component Object Model and its properties, methods, and events. Click the appropriate link to jump to that section: · Overview of the Report Designer Object Model · Unification of the RDC object model · Runtime licensing · Object naming conflicts · Objects and Collections · Creatable Objects · Application Object · Area Object · Areas Collection · BlobFieldObject Object · BoxObject Object · ConnectionProperty Object · ConnectionProperties Collection · CrossTabGroup Object · CrossTabGroups Collection · CrossTabObject Object · Database Object · DatabaseFieldDefinition Object · DatabaseFieldDefinitions Collection · DatabaseTable Object · DatabaseTables Collection · ExportOptions Object · FieldDefinitions Collection · FieldElement Object · FieldElements Collection Crystal Reports Technical Reference Guide 11 ······

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Unification of the RDC object model Craxddrt.dll (Crystal Reports ActiveX Designer Design and Runtime Library) is a unified object model that combines the runtime capabilities of the Craxdrt.dll (Crystal Reports ActiveX Designer Run Time Library) with the design time capabilities of the Craxddt.dll (Crystal Reports ActiveX Designer Design Time Library). Craxddrt.

dll will replace Craxddt.dll for versions 8.5 and up. Both the Craxddrt.dll and the Craxdrt.dll contain all the objects and associated methods, properties, and events needed for creating, opening, exporting, saving, and printing a report at run time. In addition, Craxddrt.dll is either used with the RDC ActiveX Designer when designing reports at design time, or used with the Embeddable Designer when designing reports at run time. See "Embeddable Crystal Reports Designer Control Object Model" on page 381 for more information. Note: The RDC ActiveX Designer is only available in Microsoft Visual Basic.

Prior to version 8.5, the Craxdrt.dll would be distributed with an application. Now the developer has a choice of two automation servers to distribute. Craxdrt.dll is backwards-compatible with previous versions and contains all the features introduced in this version. Use the Craxdrt.dll for any client-side application that does not contain the Embeddable Designer, or use it for any server-side application. Craxddrt.dll is apartment-model threaded, but is not thread safe, and can only be used in a client-side application.

Although the Craxddrt.dll is a fully functional automation server for the RDC, and can work in any client-side application, it will increase the install size. Therefore, it is recommended that you only use Craxddrt.dll with the Embeddable Crystal Reports Designer Control. Runtime licensing Your Crystal Reports developer edition license provides the rights to distribute software applications that use or embed most files and functionality of the product, free of charge. In addition, your Crystal Reports developer edition contains features that provide a great deal of flexibility and power for developers to embed reporting into their applications. These runtime report creation features may only be used and distributed if the appropriate licensing is obtained from Crystal Decisions by paying the required royalty fees. Please refer to the License Manager Help (License.hlp) for lists of features that are royalty-free and royalty-required. Object naming conflicts If your project includes other libraries that contain objects named identical to those found in the Crystal Report Engine Object Library, you will encounter conflicts Crystal Reports Technical Reference Guide 15 Objects and Collections unless you reference the objects using a prefix. For example, if you have included the DAO Library with the Crystal Report Engine Object Library in your project, both libraries include a Database Object. In order to avoid conflicts, you must prefix the objects as follows: CRAXDRT.Database for the Crystal Report Engine Object Library, or DAO.Database for the DAO Library. Objects and Collections The following Objects and Collections, listed alphabetically, are discussed in this section. Properties, Methods, and Events are listed under the appropriate Object or Collection. Note: Some of the report creation calls are not included in the free runtime license included with Crystal Reports. For a list of calls that require additional licensing, please see the License Manager Help (License.hlp). Creatable Objects There are several Crystal Reports objects which can be created by passing their Prog Ids into the CreateObject function provided by Visual Basic.

The table below lists these objects. Object Application Object ParameterValue Object ParameterValues Collection ParameterValueInfo Object ParameterValueInfos Collection Prog Id CrystalRuntime.Application CrystalRuntime.ParameterValue CrystalRuntime.ParameterValues CrystalRuntime.ParameterValueInfo CrystalRuntime.ParameterValueInfos Note: The version number can be appended to the Prog Id (for example, CrystalRuntime.ParameterValue.10). If the version number is not specified, CreateObject will create the object using the most recently installed version of craxdrt.

dll. 16 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Application Object An instance of the Application object can be created using the Visual Basic New keyword or the CreateObject function and the Prog Id CrystalRuntime.Application.10. For example: · Using the New keyword Dim app as New CRAXDRT.

Application Set app = New CRAXDRT.Application Or, ' Automatically creates a new instance of the object when it is first ' referenced in the code, so it doesn't have to be set. Dim app as New Application · Using the CreateObject function ' If the version number of the application is not specified, CreateObject will create an application running against the most recently installed `version of craxdrt.dll Dim app As Application Set app = CreateObject("CrystalRuntime.Application") Or, ' Specify the version number to require version 8.

5 of the dll. Dim app As Application Set app = CreateObject("CrystalRuntime.Application.8.5") Click Application Object Methods to continue. Application Object Methods The following methods are discussed in this section: · "CanClose Method (Application Object)" on page 18 · "GetLicenseStatus Method (Application Object)" on page 18 · "GetVersion Method (Application Object)" on page 18 · "LogOffServer Method (Application Object)" on page 19 · "LogOnServer Method (Application Object)" on page 20 · "LogOnServerEx Method (Application Object)" on page 21 · "NewReport Method (Application Object)" on page 22 · "OpenReport Method (Application Object)" on page 22 · "SetMatchLogOnInfo Method (Application Object)" on page 23 Crystal Reports Technical Reference Guide 17 Application Object CanClose Method (Application Object) The CanClose method indicates whether or not the "Application Object" can be destroyed. This method will return FALSE as long as there are valid Report objects in existence and at least one Report Object is in the printing-in-progress state. The Application object can only be destroyed if no instances of the "Report Object" are in the printing-in-progress state. If you obtain a Report object directly from the Report Designer Component added to your project at design time, then CanClose will always return False until you destroy that object (usually by setting it equal to Nothing). Syntax Function CanClose () As Boolean Returns · TRUE if the Engine can be closed.

· FALSE if the Engine is busy. GetLicenseStatus Method (Application Object) The GetLicenseStatus method is used to get the license number of the Report Creation API License and the current count of licenses in use.



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Syntax *GetLicenseStatus*(pMaxLicenseNumber, pLicenseUsed) As Boolean Returns · True if the license is active and the pLicenseUsed parameter was used in the call. · False if the license is not active and the pLicenseUsed parameter was used in the call. *GetVersion Method* (Application Object) The *GetVersion* method returns an integer that, when converted to hex, represents the version number of the dll. Syntax Function *GetVersion* () As Integer 18 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Returns · Returns an integer that represents the version number of the dll when converted to hexadecimal. Sample 'Display the version number in a text box. Text1.text = Hex(CRXApplication.GetVersion) *LogOffServer Method* (Application Object) The *LogOffServer* method logs off an SQL server or other data sources such as ODBC or OLEDB provider.

Use this method when you have logged on to the data source using "*LogOnServer Method* (Application Object)". Syntax Sub *LogOffServer* (pDllName As String, pServerName As String, [pDatabaseName], [pUserID], [pPassword]) Parameters Table 1: Parameter pDllName Description Specifies the name of the DLL for the server or password protected non-SQL table you want to log on to, for example "P2SODBC.DLL". Note that the DLLName must be enclosed in quotes. DLL names have the following naming convention: P2B\*.

DLL for standard (non-SQL) databases, P2S\*.DLL for SQL/ODBC databases. Specifies the log on name for the server used to create the report. (For ODBC, use the data source name.) This value is case-sensitive.

See Remarks below. Specifies the name for the database used to create the report. See Remarks below. Specifies the User ID number necessary to log on to the server. See Remarks below. Specifies the password necessary to log on to the server. pServerName [pDatabaseName] [pUserID] [pPassword] Crystal Reports Technical Reference Guide 19 Application Object Remarks · For parameters pServerName, pDatabaseName, and pUserId, pass an empty string ("") to preserve the existing setting or pass a non-empty string (for example, "Server A") to override a value that is already set in the report. · If you try to log off a server that is still in use (i.e., there is an object variable still in focus that holds reference to a report that requires being logged on to the server to access data) you will be unable to log off.

This will apply to every object that comes from the "Report Object", as they all hold reference to the report through their respective Report properties. · If you assign the Report object to the ReportSource property of the "CRViewer Object (CRVIEWERLib)", in the Crystal Reports Report Viewer, enabling the report to be displayed through the Report Viewer, you cannot call *LogOffServer* for the report until you assign a new report to the Report Viewer or close the CRViewer object. *LogOnServer Method* (Application Object) The *LogOnServer* method logs on to an SQL server or other data sources such as ODBC. Once logged on using this method, you will remain logged on until you call "*LogOffServer Method* (Application Object)", or until the "Application Object", is destroyed and craxdr.dll is unloaded. Syntax Sub *LogOnServer* (pDllName As String, pServerName As String, [pDatabaseName], [pUserID], [pPassword]) Parameters Table 2: Parameter pDllName Description Specifies the name of the DLL for the server or password protected nonSQL table you want to log on to, for example "P2SODBC.DLL". Note that the dllName must be enclosed in quotes. DLL names have the following naming convention: P2B\*.DLL for standard (non-SQL) databases, P2S\*.

DLL for SQL/ODBC databases. Specifies the log on name for the server used to create the report. (For ODBC, use the data source name.) This value is case-sensitive. See Remarks below.

Specifies the name for the database used to create the report. See Remarks below. pServerName [pDatabaseName] 20 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Table 2: Parameter [pUserID] [pPassword] Description Specifies the User ID number necessary to log on to the server. See Remarks below. Specifies the password necessary to log on to the server.

\*When you pass an empty string ("") for this parameter, the program uses the value that's already set in the report. If you want to override a value that's already set in the report, use a non-empty string (that is, "Server A"). Remarks For parameters pServerName, pDatabaseName, and pUserId, pass an empty string ("") to preserve the existing setting or pass a non-empty string (for example, "Server A") to override a value that is already set in the report.

*LogOnServerEx Method* (Application Object) The *LogOnServer* method logs on to an SQL server or other data sources such as ODBC. Using *LogOnServerEx*, you can pass server type or connection information. Once logged on using this method, you will remain logged on until you call "*LogOffServer Method* (Application Object)", or until the "Application Object", is destroyed and craxdr.dll is unloaded. Syntax Sub *LogOnServerEx* (pDllName As String, pServerName As String, [pDatabaseName], [pUserID], [pPassword], [pServerType], [pConnectionString]) Parameters Table 3: Parameter pDllName Description Specifies the name of the DLL for the server or password protected nonSQL table you want to log on to, for example "P2SODBC.DLL". Note that the dllName must be enclosed in quotes.

DLL names have the following naming convention: P2B\*.DLL for standard (non-SQL) databases, P2S\*.DLL for SQL/ODBC databases. Crystal Reports Technical Reference Guide 21 Application Object Table 3: Parameter pServerName Description Specifies the log on name for the server used to create the report. (For ODBC, use the data source name.) This value is case-sensitive. See Remarks below. Specifies the name for the database used to create the report. See Remarks below. Specifies the User ID number necessary to log on to the server.

See Remarks below. Specifies the password necessary to log on to the server. Specifies the database Server Type. Specifies the connection string. [pDatabaseName] [pUserID] [pPassword] [pServerType] [pConnectionString] *NewReport Method* (Application Object) The *NewReport* method creates a new empty Report Object.

Syntax Function *NewReport* () As Report Returns · Returns a new empty Report Object. *OpenReport Method* (Application Object) The *OpenReport* method opens an existing report file, creating an instance of the Report object. Through the "Report Object", you can change formatting, formulas, selection formulas, and sort fields for the report, then print, preview, or export the report. Syntax Function *OpenReport* (pFileName As String, [OpenMethod]) As Report 22 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Parameters Table 4: Parameter pFileName OpenMethod Description Specifies a string value indicating the file name and path of the report that you want to open.



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"CROpenReportMethod".

Specifies whether you want to open the report exclusively. If you do not provide this parameter the report is opened exclusively and it cannot be opened a second time. Returns · Returns an instance of the "Report Object" if the report was successfully opened. · Returns 0 if the report file does not exist or if an error occurs. Remarks · The OpenMethod parameter can take the values "0" (open by default) or "1" (open temporary copy). If you open a report as a temporary copy ("1"), you must save the report using the SaveAs Method (Report Object) rather than the Embeddable Designer's SaveReport Method in order to avoid a runtime error. SetMatchLogOnInfo Method (Application Object) The SetMatchLogOnInfo Method sets global match log on info option, matching the log on password. Syntax Sub SetMatchLogOnInfo (bl As Boolean) Parameter Table 5: Parameter bl Description Specifies whether the option is selected (TRUE). Crystal Reports Technical Reference Guide 23 Area Object Area Object The Area Object represents an area in a report. An area is a group of like sections in the report (i.

e., Details A - Da, Details B - Db, etc.) that all share the same characteristics. Each section within the area can be formatted differently. This object allows you to retrieve information and set options for a specified area in your report. Area Object Properties Table 6: Property ConditionFormula Description String. Gets or sets the condition formula. The condition formula can be based on recurring records or on summary fields, but it cannot be based on print-time fields, such as running totals or printtime formulas. Condition formulas cannot have shared variables. Integer.

Gets or sets the number of copies of each item in the Details section of the report. For example, by default, each line of the Details section only prints once. By setting this to 3, each line of the Details section would print 3 times. Long. Gets the mailing label report detail area height, in twips.

Long. Gets multiple column report detail area width, in twips. Boolean. Gets or sets the discard other groups option. Boolean.

Gets or sets group hierarchically flag. "CRGroupCondition". Gets or sets the group condition. Read/ Write Read / Write Restriction in event handler Can be written only when formatting idle. CopiesToPrint Read / Write Can be written only when formatting idle. DetailHeight DetailWidth DiscardOtherGroups EnableHierarchicalGroupSorting GroupCondition Read only Read only Read / Write Read / Write None None Formatting idle. Can be written only when formatting idle. 24 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Table 6: Property GroupConditionField GroupIndent Description Object. Gets or sets the group condition field. Long.

Gets or sets group indent, in twips. Read/ Write Read / Write Read / Write Read only Read / Write Read only Read only Read / Write Read / Write Read only Read / Write Read / Write Read / Write Restriction in event handler Can be written only when formatting idle. Formatting idle. GroupNumber Integer. If the area is a group area, this returns the group number. Otherwise, exception is thrown. Boolean. Gets or sets hide for drill down option. Long. Gets the horizontal gaps going across page in a multiple column report.

A field definition object. Gets the instance ID field. See Remarks. Boolean. Gets or sets the keep group together option.

Boolean. Gets or sets the keep area together option. "CRAreaKind". Gets which kind of area (for example, Details, Report Header, Page Footer, etc.). String. Gets or sets the area name. None HideForDrillDown HorizontalGap InstanceIDField KeepGroupTogether KeepTogether Can be written only when formatting idle. None Formatting idle. Can be written only when formatting idle. Can be written only when formatting idle. None Kind Name Can be written only when formatting idle. Can be written only when formatting idle. Can be written only when formatting idle. NewPageAfter Boolean.

Gets or sets the new page after options. Boolean. Gets or sets the new page before option. NewPageBefore Crystal Reports Technical Reference Guide 25 Area Object Table 6: Property NumberOfTopOrBottomNGroups Parent ParentIDField PrintAtBottomOfPage RepeatGroupHeader ResetPageNumberAfter Sections SortDirection Description Integer. Gets or sets the number of top or bottom groups. "Report Object". Gets reference to the parent object. A field definition object. Gets the parent ID field. See Remarks.

Boolean. Gets or sets the print at bottom of page option. Boolean. Gets or sets the repeating group header option. Boolean.

Gets or sets the reset page number after option. "Sections Collection". Gets a Collection of all the sections in the area. "CRSortDirection". Gets or sets the group sort direction.

Gets or sets the specified groups. Read/ Write Read / Write Read Only Read only Read / Write Read / Write Read / Write Read Only Read / Write Read / Write Read / Write Read / Write Restriction in event handler Formatting idle. None Formatting idle. Can be written only when formatting idle. Can be written only when formatting idle. Can be written only when formatting idle. None Can be written only when formatting idle. Can be written only when formatting idle. Can be written only when formatting idle. Formatting idle.

SpecifiedGroups Suppress Boolean. Gets or sets the area visibility. TopOrBottomNGroupSortOrder TopOrBottomNSortField "CRTopOrBottomNGroupSortOrder". Gets or sets the top or bottom N group sort order. "SummaryFieldDefinition Object". Gets or sets the top or bottom n sort field. Formatting idle. 26 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Remarks After getting the field definition object from the InstanceIDField or the ParentIDField property, you can use the Kind property to determine what type of field definition object it is. All field definition objects have the Kind property. Area Object Methods The following methods are discussed in this section: · "SetInstanceIDField Method (Area Object)" on page 27 · "SetParentIDField (Area Object)" on page 27 SetInstanceIDField Method (Area Object) Use the SetInstanceIDField method to set an instance ID field.

Syntax Sub SetInstanceIDField (InstanceIDField) Parameter Table 7: Parameter InstanceIDField Description Specifies the instance ID field that you want to set. SetParentIDField (Area Object) Use the SetParentIDField method to set the parent ID field. Syntax Sub SetParentIDField (ParentIDField) Parameter Table 8: Parameter ParentIDField Description Specifies the parent ID field that you want to set. Crystal Reports Technical Reference Guide 27 Areas Collection Areas Collection The Areas Collection contains the area objects for every area in the report.



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Access a specific "Area Object" in the collection using the Item property.

Areas Collection Properties Table 9: Property Count Item (index) Description Long. Gets the number of areas in the collection. "Area Object". Gets an item from the Collection. Item has an index parameter that can be either a string reference to the area (for example, "RH", "PH", "GHn", "D", "GFn", "PF", or "RF") or a numeric, 1-based index (for example, Item (1) for the Report Header area).

The items in the collection are indexed in the order they are listed for each section/area. "Report Object". Gets reference to the parent object. Read/ Write Read only Read only Restriction in event handler None None Parent Read only None Remarks Instead of using the Item property as shown, you can reference an area directly (for example, Areas("RH") or Areas(1)). BlobFieldObject Object The BlobFieldObject Object allows you to get and set information for bitmap database fields in a report. 28 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model BlobFieldObject Object Properties Examples How to format a blob field object Table 10: Property BackColor Description OLE\_COLOR. Gets or sets the object background color. OLE\_COLOR. Gets or sets the object border color. Long.

Gets or sets bottom cropping size, in twips. "CRLLineStyle". Gets or sets the bottom line style. Boolean. Gets or sets the close border on page break. String. Gets or sets the condition formula. The condition formula can be based on recurring records or on summary fields, but it cannot be based on print-time fields, such as running totals or print-time formulas. Condition formulas cannot have shared variables. String.

Gets or sets the cascading style sheet Class. "DatabaseFieldDefinition Object". Gets the database field definition object containing information about the BLOB field. Read/ Write Read / Write Read / Write Read / Write Read / Write Read / Write Restriction in event handler Can be written only when formatting idle or active. Can be written only when formatting idle or active.

Can be written only when formatting idle. Can be written only when formatting idle or active. Can be written only when formatting idle or active. Can be written only when formatting idle. BorderColor BottomCropping BottomLineStyle CloseAtPageBreak ConditionFormula CssClass Read / Write Read only Can be written only when formatting idle.

None Field Crystal Reports Technical Reference Guide 29 BlobFieldObject Object Table 10: Property HasDropShadow Height Description Boolean. Gets or sets the border drop shadow option. Long. Gets or sets the object height, in twips. Boolean. Gets or sets the keep object together option. "CROBJECTKind". Gets CROBJECTKind which specifies the kind of object (for example, box, cross-tab, field, etc.). Long.

Gets or sets the object upper left position, in twips. Long. Gets or sets the left cropping size, in twips. "CRLLineStyle". Gets or sets the left line style. String. Gets or sets the object name. Read/ Write Read / Write Read / Write Read / Write Read only Read / Write Read / Write Read / Write Read / Write Read only Read / Write Read / Write Restriction in event handler Can be written only when formatting idle or active. Can be written only when formatting idle or active. Can be written only when formatting idle or active.

None KeepTogether Kind Left Can be written only when formatting idle or active. Can be written only when formatting idle. Can be written only when formatting idle or active. Can be written only when formatting idle. None Can be written only when formatting idle.

Can be written only when formatting idle or active. LeftCropping LeftLineStyle Name Parent RightCropping "Section Object". Gets reference to the parent object. Long. Gets or sets the right cropping size, in twips.

"CRLLineStyle". Gets or sets the right line style. RightLineStyle 30 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Table 10: Property Suppress Description Boolean. Gets or sets the object visibility. Read/ Write Read / Write Read / Write Read / Write Read / Write Read / Write Read / Write Restriction in event handler Can be written only when formatting idle or active. Can be written only when formatting idle or active. Can be written only when formatting idle. Can be written only when formatting idle or active. Can be written only when formatting idle or active. Can be written only when formatting idle.

Top Long. Gets or sets the object upper top position, in twips. Long. Gets or sets the top cropping size, in twips. "CRLLineStyle". Gets or sets the top line style. Long. Gets or sets the object width, in twips. Double. Gets or sets the width scaling factor.

For example, 1 means 100%, 2 means 200%, 0.5 means 50% etc. The scaling factor may range from 0.01 to 100. Double.

Gets or sets the height scaling factor. For example, 1 means 100%, 2 means 200%, 0.5 means 50% etc. The scaling factor may range from 0.01 to 100. TopCropping TopLineStyle Width XScaling YScaling Read / Write Can be written only when formatting idle. BoxObject Object The Box Object represents a box that has been drawn on the report. This object allows you to get information about boxes in a report. Crystal Reports Technical Reference Guide 31 BoxObject Object BoxObject Object Properties Examples How to format a box object Table 11: Property Bottom Description Long. Gets or sets the object lower bottom position, in twips. "Section Object". Gets the bottom right section. Boolean. Gets or sets the close border on page break option. String.

Gets or sets the condition formula. The condition formula can be based on recurring records or on summary fields, but it cannot be based on print-time fields, such as running totals or print-time formulas. Condition formulas cannot have shared variables. Long. Gets or sets the corner ellipse height, in twips. Long.

Gets or sets the corner ellipse width, in twips. String. Gets or sets the cascading style sheet Class. Boolean.

Gets or sets the extend to bottom of section option. OLE\_COLOR. Gets or sets the fill color. Read/ Write Read/ Write Read only Read/ Write Read/ Write Restriction in event handler Can be written only when formatting idle. Can be written only when formatting idle.

Can be written only when formatting idle. Can be written only when formatting idle. BottomRightSection CloseAtPageBreak ConditionFormula CornerEllipseHeight CornerEllipseWidth CssClass ExtendToBottomOfSection FillColor Read/ Write Read/ Write Read/ Write Read/ Write Read/ Write Can be written only when formatting idle. Can be written only when formatting idle. Can be written only when formatting idle.

32 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Table 11: Property HasDropShadow Kind Description Boolean.



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*Gets or sets the border drop shadow option.. "CRObjektKind". Gets which kind of object (for example, box, cross-tab, field, etc.). Long. Gets or sets the upper left position, in twips. OLE\_COLOR. Gets or sets the line color.*

*"CRLLineStyle". Gets or sets the line style. Long. Gets or sets the line thickness, in twips. String. Gets or sets the object name. "Section Object". Gets reference to the parent object. Long. Gets or sets the object lower right position, in twips.*

*Boolean. Gets or sets the object visibility. Long. Gets or sets the object upper top position, in twips. Read/ Write Read/ Write Read only Read/ Write Read/ Write Read/ Write Read/ Write Read/ Write Read only Read/ Write Read/ Write Read/ Write Restriction in event handler Can be written only when formatting idle.*

*None Left LineColor LineStyle LineThickness Name Parent Right Suppress Top Can be written only when formatting idle or active. Can be written only when formatting idle. Can be written only when formatting idle. Can be written only when formatting idle.*

*None Can be written only when formatting idle. Can be written only when formatting idle. Can be written only when formatting idle. ConnectionProperty Object The ConnectionProperty Object is a property bag that stores connection information for the report. Information is dependent on the Crystal Decisions database DLL used by the report and the database drivers that support the DLL. The collection of ConnectionProperty objects can hold common properties defined in our database DLLs, connection properties from the supporting drivers, or both. For example a report based off an OLEDB (ADO) connection to Microsoft SQL Server will contain properties supplied by the database DLL (crdb\_ado.dll) such as Crystal Reports Technical Reference Guide 33 ConnectionProperty Object Provider, Data Source, Initial Catalog, User ID, and Password, as well as the properties supplied by the supporting drivers such as Local Identifier, Connect Timeout and so on. The values for these properties can be set to connect to the current data source for the report or to change the data source for the report. For more information on the common connection properties see "Common Connection Properties" on page 36.*

*ConnectionProperty Object Properties Examples How to connect to a Microsoft Access database How to connect to a secured Microsoft Access database How to connect to an ODBC data source How to connect to an OLEDB data source How to change the data source How to list the connection properties and connect to a report Table 12: Property ChildProperties Description "ConnectionProperties Collection". Gets the child properties of this connection property in a hierarchal property structure. String. Gets or sets the description of the connection property. String. Gets or sets the localized name of the connection property. String. Gets or sets the name of the connection property. Variant. Gets or Sets the value of the connection property.*

*Note: Some Values are Write only. For example the value for the Password connection property. Read/ Write Read only Read/ Write Read/ Write Read/ Write Read/ Write Restriction in event handler None Description LocalizedName Name Value None None None None 34 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Common Connection Properties The following table lists the connection properties defined in the Crystal Decisions database DLLs. Use these properties when connecting to the desired data source. Table 13: Data source ODBC (RDO) crdb\_odbc.*

*dll Connection String String. The complete connection string containing the driver information. This can be obtained from content of a File DSN. String. The name of the database.*

*DSN, FILEDSN and Connection String are mutually exclusive Connection property name Connection property value description Remarks Database This property can be used together with the DSN, FILEDSN, and Connection String. This is an optional property. Database Type String. The type of file. For example: ODBC (RDO) - or OLE DB (ADO) String. The ODBC data source name. String. Path to the File DSN. DSN DSN, FILEDSN and Connection String are mutually exclusive. DSN, FILEDSN and Connection String are mutually exclusive This property can be used together with the DSN, FILEDSN, and Connection String.*

*This property can be used together with the DSN, FILEDSN, and Connection String. FILEDSN Password String. The password used to connect to the data source. Trusted\_Connection Boolean. Set to True if you want the connection to use NT Authentication. Crystal Reports Technical Reference Guide 35 ConnectionProperty Object Table 13: Data source Connection property name User ID Connection property value description String. The user name required to connect to the data source. Remarks This property can be used together with the DSN, FILEDSN, and Connection String. OLE DB (ADO) crdb\_ado.dll Data Source String.*

*The data source that the OLE DB provider is connected to such as a file path and database name or a server name. String. The name of the database. This property can be used together with the Provider and Microsoft Data Link File. This property can be used together with the Provider and Microsoft Data Link File.*

*This is an optional property. Database Database Type String. The type of file. For example: ODBC (RDO) - or OLE DB (ADO) Boolean. Set to True if you want the connection to use NT Authentication.*

*String. The file path to the Data Link. String. The password used to connect to the data source. Integrated Security This property can be used together with the Provider and Microsoft Data Link File. Provider and Microsoft Data Link File are mutually exclusive. This property can be used together with the Provider and Microsoft Data Link File. Provider and Microsoft Data Link File are mutually exclusive. Microsoft Data Link File Password Provider The name of the OLEDB provider. For example: Microsoft.*

*Jet.OLEDB.4.0 -orSQLOLEDB 36 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Table 13: Data source Connection property name User ID Connection property value description String. The user name required to connect to the data source. Remarks This property can be used together with the Provider and Microsoft Data Link File. Access/Excel (DAO) crdb\_dao.dll Database Name String. The full file path to the database. This property is required for changing the location and name of the database.*

*This property is only required if the database has database level security. This is an optional property. Database Password String. The password used to connect to the data source. Database Type String.*

*The type of file. For example: ODBC (RDO) - or OLE DB (ADO) String. The password for a system DSN. Session Password You must provide System Database Path if Session UserID and Session Password are provided.*



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You must provide System Database Path if Session UserID and Session Password are provided.

You must provide System Database Path if Session UserID and Session Password are provided. Session UserID String. The user name for a system DSN. System Database Path String. Crystal Reports Technical Reference Guide 37 ConnectionProperty Object Table 13: Data source Oracle crdb\_oracle.dll Database Type String. The type of file. For example: ODBC (RDO) - or OLE DB (ADO) String. The Service name. String.

The password used to connect to the data source. String. The user name required to connect to the data source. These include Act!, Btrieve, DB2, Dbase, FoxPro, Paradox and so on. Database Path String. The full file path to the database. This property is required for changing the location and name of the database. This is an optional property. This is an optional property. Connection property name Connection property value description Remarks Server Password User ID Native connections to local databases.

crdb\_p2b\*.dll Database Type String. The type of file. For example: ODBC (RDO) - or OLE DB (ADO) String. The password used to connect to the data source.

String. The user name required to connect to the data source. Password User ID 38 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Table 13: Data source Native connections to server data sources. crdb\_p2s\*.dll Database Database Type String. The database name. String. The type of file. For example: ODBC (RDO) - or OLE DB (ADO) String. The server name. String. The password used to connect to the data source. String. The user name required to connect to the data source. This is an optional property.

Connection property name Connection property value description Remarks These include Informix, DB2 Server, Lotus Domino, and so on. Server Password User ID Field Definitions Only crdb\_fielddef.dll Database Type String. The type of file. For example: ODBC (RDO) - or OLE DB (ADO) String. The full file and path to the Field definition file (\*.txt). This is an optional property. Field Definition File File System Data crdb\_FileSystem.dll Crystal Reports Technical Reference Guide 39 ConnectionProperties Collection Table 13: Data source Connection property name Database Type Connection property value description String.

The type of file. For example: ODBC (RDO) - or OLE DB (ADO) String. A mask to filter the types of files returned. For example: \*.exe Boolean. Set to True to include empty directories. Integer. The number of subdirectory levels to include. Set this value to -1 to include all subdirectories. Remarks This is an optional property.

File Mask Include Empty Directories Max Number of Subdirectory Levels Starting Directory String. The path to the starting directory. ConnectionProperties Collection The ConnectionProperties Collection is a collection of "ConnectionProperty Object" in a report. Each object in the collection is a property bag that contains information on a connection property. Use the Item property to access a specific ConnectionProperty Object in the Collection. For more information on the common connection properties see "Common Connection Properties" on page 36. 40 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model ConnectionProperties Collection Properties Examples How to connect to a Microsoft Access database How to connect to a secured Microsoft Access database How to connect to an ODBC data source How to connect to an OLEDB data source How to change the data source How to list the connection properties and connect to a report Table 14: Property Count Item (indexAs Long) NameIds Definition Long. Gets the number of objects in the collection. "ConnectionProperty Object". Gets an item from the Collection specified by name.

Variant. Returns an array containing the name of each connection property in the collection. Read/ Write Read only Read only Read only Restriction in event handler None None None ConnectionProperties Collection Methods The following methods are discussed in this section: · "Add Method (ConnectionProperties Collection)" on page 42 · "Delete Method (ConnectionProperties Collection)" on page 43 · "DeleteAll Method (ConnectionProperties Collection)" on page 44 Add Method (ConnectionProperties Collection) Use the Add method to add a ConnectionProperty Object to the Collection as a name value pair. Crystal Reports Technical Reference Guide 41 ConnectionProperties Collection Examples How to change the data source Syntax Function Add (Name As String, Value) Table 15: Parameter Name Value Description Specifies the name of the connection property that you want to add to the Collection. Specifies the value of the connection property. Remarks Use this method if alternate connection properties are required to establish a connection to a new data source. For example changing the report's database driver through the DLLName property in the "DatabaseTable Object", or connecting to a report created off an OLEDB (ADO) data source to a different provider (Microsoft.Jet.OLEDB.4.

0 to SQLOLEDB). Use the "Delete Method (ConnectionProperties Collection)" or the "DeleteAll Method (ConnectionProperties Collection)" to remove any connection properties. Delete Method (ConnectionProperties Collection) Use the Delete method to remove a ConnectionProperty Object from the Collection. Examples How to change the data source Syntax Sub Delete (index) 42 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Parameter Table 16: Parameter index Description Specifies the index number of the Object that you want to remove from the Collection. Remarks Use this method to remove any connection properties that are no longer required when connecting to a new data source.

For example changing the report's database driver through the DLLName property in the "DatabaseTable Object", or connecting a report created off an OLEDB (ADO) data source to a different provider (Microsoft.Jet.OLEDB.4.0 to SQLOLEDB).

Use the "Add Method (ConnectionProperties Collection)" to add any new connection properties. DeleteAll Method (ConnectionProperties Collection) Use the Delete method to remove all ConnectionProperty Objects from the Collection. Examples How to change the data source Syntax Sub DeleteAll () Remarks Use this method to remove all existing connection properties when connecting to a new data source. For example changing the report's database driver through the DLLName property in the "DatabaseTable Object", or connecting a report created off an OLEDB (ADO) data source to a different provider (Microsoft.Jet.OLEDB.4.0 to SQLOLEDB). Use the "Add Method (ConnectionProperties Collection)" to add any new connection properties. CrossTabGroup Object The CrossTabGroup Object contains information related to CrossTabGroups in a report.



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Crystal Reports Technical Reference Guide 43 CrossTabGroup Object CrossTabGroup Properties Examples How to add, delete and format groups in a crosstab Table 17: Property BackColor Description OLE\_COLOR. Gets or sets the crosstab group background color. "CRGroupCondition". Gets or sets the crosstab group condition. Boolean. Gets or sets the crosstab group enable suppress label option. Boolean. Gets or sets the crosstab group enable suppress subtotal option. A field definition object. Gets or sets the crosstab group's field.

See Remarks. "CrossTabObject Object". Gets reference to the crosstab group parent object. "CRSortDirection". Gets or sets the crosstab group sort direction.

Read/Write Read/Write Restriction in event handler Idle Condition Read/Write Idle EnableSuppress Label EnableSuppress Subtotal Field Read/Write Idle Read/Write Idle Read/Write Idle Parent Read only None SortDirection Read/Write Idle Remarks After getting the field definition object from the Field property, you can use the Kind property to determine what type of field definition object it is. All field definition objects have the Kind property. 44 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model CrossTabGroups Collection The CrossTabGroups Collection contains CrossTabGroup Objects associated with a report. CrossTabGroups Collection Properties Table 18: Property Count Item (index As Long) Parent Description Long. Gets the CrossTabGroup count.

"CrossTabGroup Object". Gets an item from the Collection. "CrossTabObject Object". Gets reference to the parent object. Read/Write Read only Read only Read only Restriction in event handler None None None CrossTabGroups Collection Methods The following methods are discussed in this section: · "Add Method (CrossTabGroups Collection)" on page 46 · "Delete Method (CrossTabGroups Collection)" on page 47 Add Method (CrossTabGroups Collection) Examples How to add, delete and format groups in a crosstab Use the Add method to add a field as a CrossTabGroup to the CrossTabGroups Collection.

Syntax Function Add (Field) As CrossTabGroup Crystal Reports Technical Reference Guide 45 CrossTabObject Object Parameter Table 19: Parameter Field Description Specifies the field that you want to add as a CrossTabGroup to the Collection. Returns Returns a CrossTabGroup Object member of the Collection. Delete Method (CrossTabGroups Collection) Examples How to add, delete and format groups in a crosstab Use the Delete method to remove a CrossTabGroup Object from the Collection. Syntax Sub Delete (index As Long) Parameter Table 20: Parameter index Description Specifies the index of the CrossTabGroup Object that you want to delete from the Collection. CrossTabObject Object The CrossTabObject Object allows you to get and set information for cross-tab objects in a report.

46 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model CrossTabObject Object Properties Table 21: Property BackColor BorderColor BottomLineStyle CloseAtPageBreak Description OLE\_COLOR. Gets or sets the object background color. OLE\_COLOR. Gets or sets the object border color. "CRLLineStyle". Gets or sets the bottom line style. Boolean. Gets or sets the close border on page break option. String. Gets or sets the condition formula.

The condition formula can be based on recurring records or on summary fields, but it cannot be based on printtime fields, such as running totals or print-time formulas. Condition formulas cannot have shared variables. OLE\_COLOR. Gets or sets the column grand total color. "Remarks".

Gets the column groups Collection. String. Gets or sets the cascading style sheet Class. Boolean. Gets or sets the enable keep columns together option. Boolean. Gets or sets the enable repeat row labels option. Read/Write Read/ Write Read/ Write Read/ Write Read/ Write Read/ Write Restriction in event handler Can be written only when formatting idle or active. Can be written only when formatting idle or active. Can be written only when formatting idle or active. Can be written only when formatting idle or active. Can be written only when formatting idle. ConditionFormula ColumnGrandTotalColor ColumnGroups CssClass EnableKeepColumnsTogether EnableRepeatRowLabels Read/ Write Read only Read/ Write Read/ Write Read/ Write Idle None Can be written only when formatting idle. Idle Idle Crystal Reports Technical Reference Guide 47 CrossTabObject Object Table 21: Property EnableShowCellMargins EnableShowGrid EnableSuppressColumnGrandTotals EnableSuppressEmptyColumns EnableSuppressEmptyRows EnableSuppressRowGrandTotals HasDropShadow Height KeepTogether Kind Description Boolean. Gets or sets the enable show cell margins option.

Boolean. Gets or sets the enable show grid option. Boolean. Gets or sets the enable suppress column grand totals option. Boolean. Gets or sets the enable suppress empty columns option. Boolean. Gets or sets the enable suppress empty rows option. Boolean. Gets or sets the enable suppress row grand totals option.

Boolean. Gets or sets the border drop shadow option. Long. Gets the object height, in twips. Boolean.

Gets or sets the keep object together option. "CROBJECTKind". Gets which kind of object (for example, box, cross-tab, field, etc.). Long.

Gets or sets the upper left position, in twips. "CRLLineStyle". Gets or sets the left line style. String. Gets or sets the object name. Read/Write Read/ Write Read/ Write Read/ Write Read/ Write Read/ Write Read only Read/ Write Read only Restriction in event handler Idle Idle Idle Idle Idle Can be written only when formatting idle or active. Can be written only when formatting idle or active. Can be written only when formatting idle or active. None Left LeftLineStyle Name Read/ Write Read/ Write Read/ Write Can be written only when formatting idle or active. Can be written only when formatting idle or active.

Can be written only when formatting idle. 48 Crystal Reports Technical Reference Guide 2 Report Designer Component Object Model Table 21: Property Parent RightLineStyle RowGrandTotalColor RowGroups SummaryFields Description "Section Object". Gets reference to the parent object. "CRLLineStyle". Gets or sets the right line style. OLE\_COLOR. Gets or sets the row grand total color. "Remarks". Gets the row groups Collection. "ObjectSummaryFieldDefinitions Collection".

Gets the summary fields. Gets or sets the specified groups from a row or column in the crosstab. Boolean. Gets or sets the object visibility option. Long.

Gets or sets the object upper top position, in twips. "CRLLineStyle". Gets or sets top line style. Long. Gets the object width, in twips.

Read/Write Read only Read/ Write Read/ Write Read Only Read Only Restriction in event handler None Can be written only when formatting idle or active.



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