

Crystal Reports XI

Accessibility Recommendations and Best Practices

Overview

This document provides best practice recommendations on how to author reports that can be consumed by users that rely on assistive reading technology, such as screen readers.

This document applies to Crystal Reports XI and 10, Crystal Reports Server XI, BusinessObjects Enterprise XI and Crystal Enterprise 10.

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Introduction

This document will explain the components of Crystal Reports that are available to enhance accessibility, and how to best present reporting content for consumption by screen readers and similar assistive technologies.

This document focuses on using the Crystal Reports Designer to author accessible reports that can be consumed in the **Crystal Reports Java and COM DHTML Viewers**.

Supported Crystal Reports Components

The **Crystal Reports Java and COM DHTML Viewers** are compliant with accessibility standards such as the US Government's section 508, as long as a few best practices are followed.

The Crystal Reports Designer itself is not tested for accessibility compliance; therefore this document is unable to state its compliance status. However, Business Objects is aware of some sight impaired customers who are successfully using it to author reports.

Ordering of Report Objects

This section improves upon and supersedes the techniques described in the "Placing Objects in Order" subsection of Appendix G within the *BusinessObjects Enterprise Administrators Guide* for versions 10 and XI.

Report objects are discussed throughout this document. A report object is any report element, like a field object, text object, or cross tab.

Screen readers read report objects in the order that they are encountered on the DHTML page.

The **Crystal Report Viewer** generates DHTML in the order that report objects are placed in the report section.

Therefore to control the order that a screen reader will read objects to a user, the report designer needs to control the order of report objects within a given report section.

There are two ways to control the order in which report objects are read: the order in which the objects are added, and manipulation of the objects order with the **Move** command.

Setting Report Object Order with Order of Addition

By default, the order of objects within a section is set by the order in which these objects were added to the report. The first object added to the section is the first read back by the report viewer.

For example, perform the following steps:

1. Add the Customer Name field to the details section.
2. Add the Customer ID field to the details section.
3. Add the Country field to the details section.

The screen reader will read back the data to the end user for Customer Name, Customer ID, and Country – in that order, no matter where these fields are located within the details section.

By tracking the order in which you add fields to a section, you can ensure that the screen reader will present the data to the end user correctly.

NOTE	Alternatively, you can create a new section (for example, a new 'Details' section) below your existing section and then cut and paste all the fields into the new details section. Cut and paste each field back into the original section in the order that you want the fields to be read by the screen reader.
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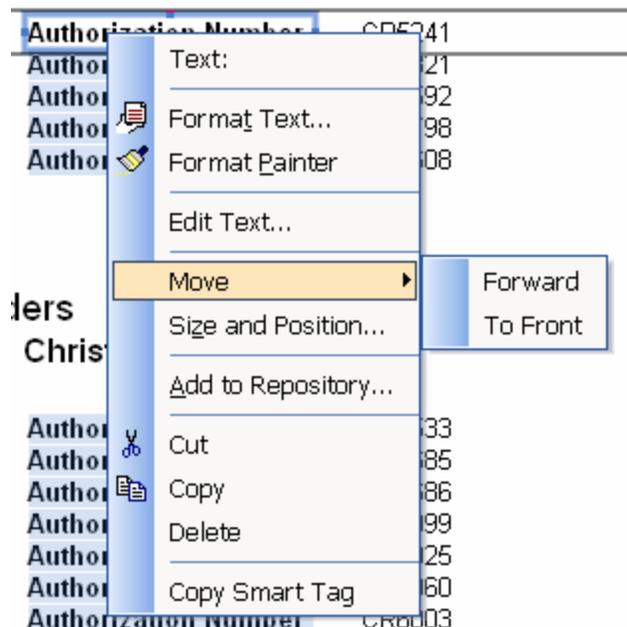
Changing Report Object Order with the Move command

Within the Crystal Reports Designer, you can use the **Move** command to adjust the placement order of an object within a section.

The **Move** command is intended to adjust the 'Z order' of an object. This is used to control how an object overlaps another object.

To use the **Move** command, right-click the object to be moved, and then click **Move > Forward** or **Move > To Front**.

Figure 1: Accessing the Move Command



Likewise, you can set an object to be behind another object by right-clicking the object, and then clicking **Move > Backward** or **Move > To Back**.

This action is actually controlling the order in which objects appear in the section – which, in turn, controls how the screen reader reads each object back to the user.

Objects that are moved to the back of all other objects in the report section will be read first by the screen reader. Objects that are moved to the front of all other objects in the report section will be read last by the screen reader.

By using the **Move** command, you can modify the order that existing report objects appear in the DHTML Viewer, which, in turn, modifies the order that the screen reader reads the report to the end user.

Confirming Reading Order Modifications

After adjusting the report reading order, you can confirm the changes are successful by tabbing through the elements in the report section.

1. In the Design or Preview tab, use the Tab key to cycle through the objects on the report
2. The order that the tab key moves through the objects is the order they will be presented to the screen reader.

Tabular Data

This section describes techniques for presenting tabular data in Crystal Reports. These techniques are similar to those documented in Appendix G of the *BusinessObjects Enterprise Administrators Guide*, subheading “Improving data table accessibility”.

Making Tables Accessible

Sighted report users can glance at the row and column heading to determine the meaning of a table cell. However, a person listening to a report through a screen reader can quickly get lost in a large table, as they hear “500” instead of “Sales for January is 500”.

The standard way to solve this problem in HTML is to use HTML table tags. However the Java and COM DHTML Viewers in Crystal Reports do not generate table tags. For the most flexibility in report design, each individual element is output as a standalone element that can be independently positioned using a <DIV> tag.

A future release of Crystal Reports will introduce a table object that will render in DHTML as a table tag. Until that functionality is available, follow the recommendations in this section and in Appendix G of the *BusinessObjects Enterprise Administration Guide*.

Accessible Tables

To design accessible tables, we recommend introducing an ‘accessible’ mode to your reports that will prefix table cells with their row and column information. Therefore, each cell in the table will include three pieces of information – the row header, column header, and cell data value.

Since this is visually unappealing, and consumes a lot of space, it is recommended that this approach be controlled by a parameter, and then the report consumer can choose if they want the accessible version with the cell labels, or the regular version that does not have cell labels.

Accessibility Sample Report Tutorial

Crystal Reports XI and later ships with a sample report called *Accessibility.rpt* that demonstrates how to suppress either an accessible report section or a regular report section.

In this report, a parameter called ‘Accessible’ controls which of two report sections will be visible. If this parameter is true, then the accessible report section of the report is shown. If this parameter is false, then the normal report section of the report is displayed.

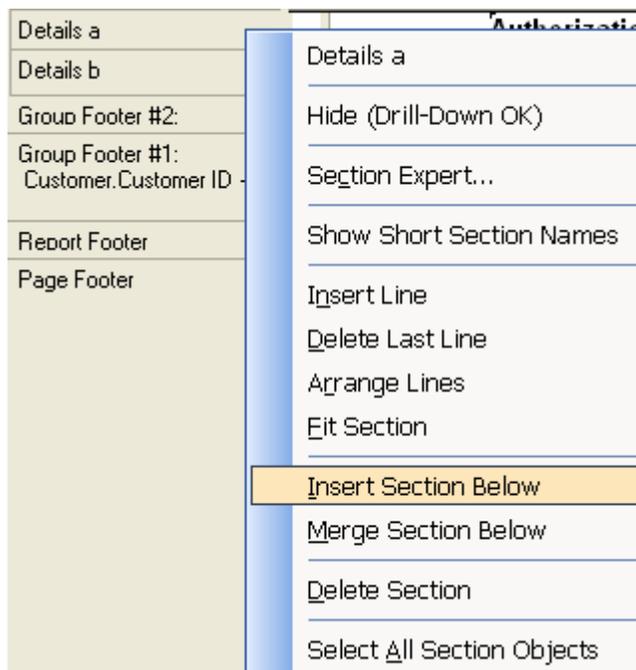
This is achieved with the following steps

1. Create a Boolean, static parameter to select the accessibility mode for the report. Give this parameter the name ‘AccessibilityMode’. This

will be referred to in the formula language syntax as {?AccessibilityMode}.

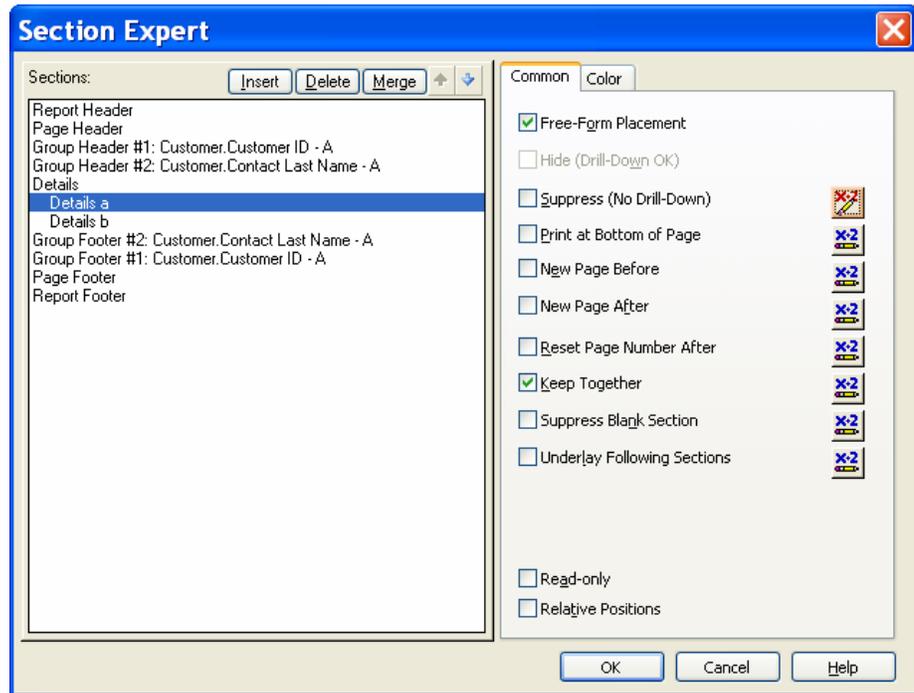
2. Create an additional section for the accessibility section by right-clicking on the grey part of an existing section and choosing **Insert Section Below**. The *Accessibility.rpt* sample report has two Details sections that are selectively enabled or suppressed by using the parameter created in step 1.

Figure 2: Accessing the Insert Section Below Command



3. Add a conditional suppression formula to each of the sections by right-clicking the grey part of the existing section and choosing **Section Expert**. Click the formula button to add a conditional formula that will suppress the regular section when the {?AccessibilityMode} parameter is true:

Figure 3: Crystal Reports XI Section Expert



4. In the formula workshop, enter the following code:

```
{?AccessibilityMode} = True
```

This will suppress the regular section when the report is run in accessibility mode.

5. Repeat steps 3 and 4 for the accessible section, but use the formula code:

```
{?AccessibilityMode} = True
```

This will suppress the accessible section when the report is run in normal mode.

6. Finally, you can modify the accessible section to add the column and row heading to each cell value.

Finding more information

For more information and resources, refer to the product documentation and visit the support area of the web site at:

<http://www.businessobjects.com/>

The BusinessObjects XI Enterprise Administration Guide referenced in this whitepaper can be accessed here:

http://support.businessobjects.com/library/docfiles/cps10/downloads/en/boexi_Admin_en.pdf

► www.businessobjects.com

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