

Crystal Enterprise

Using the Crystal Repository with Crystal Enterprise

Overview

The Crystal Repository is a feature of Crystal Reports 9 that is supported by Crystal Enterprise 9. If reports managed by Crystal Enterprise (CE) use elements from the Crystal Repository, these reports can be refreshed as needed to acquire the latest element updates from the Crystal Repository.

This document is intended for readers who already have an understanding of the Crystal Repository in the context of Crystal Reports. For detailed information on the Crystal Repository itself, go to <http://support.crystaldecisions.com/docs> and search for the file name repository.pdf.

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Introduction

The document contains information on the following topics:

- interaction of CE with the Crystal Repository
- the configuration of CE components to work with the Crystal Repository
- best practices for managing the Crystal Repository.

What is the Crystal Repository?

The Crystal Repository is a central location where you can store and maintain specific report elements that are shared across multiple reports. Report elements in the Crystal Repository can be accessed, updated, reused, and shared among multiple report designers. Reuse of report elements makes a more efficient report creation team as duplication of work is reduced. Elements such as text objects, bitmaps, custom functions, and custom SQL commands can be shared with the Crystal Repository.

For detailed information on the functionality of the Crystal Repository specifically, go to <http://support.crystaldecisions.com/docs> and search for the file name repository.pdf

Crystal Enterprise and the Crystal Repository

CE communicates with the Crystal Repository when asked to acquire updated elements from the Crystal Repository for a report. The action of getting updated elements for a report is called **report refreshing**. A user through the Crystal Management Console (CMC) or through a custom application using the Crystal Enterprise Software Developer's Kit (CE SDK) can initiate a report refresh.

NOTE	Only Report Objects can be refreshed. Report Instances cannot be refreshed. Repository Refresh will only affect future instances after the object is updated. Previous instances are not updated with new Repository information.
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The components of CE that are able to communicate with the Crystal Repository are:

- the Web Component Server
- the Report Application Server
- the Software Developers Kit
- the Publishing Wizard

Before these components can provide the service of updating report elements from the Crystal Repository, they must be configured to communicate with the Crystal Repository used in your environment.

The Crystal Repository database

The Crystal Repository consists of tables in a database and report elements that have been added to the Crystal Repository are stored in these tables.

A default Crystal Repository containing some report elements is installed with CR 9. This is an Access database called Repository_xx.mdb where the 'xx' refers to the language of the product installation. For example, for an English installation the Crystal Repository is called Repository_en.mdb. The default location of the Crystal Repository is C:\Program Files\Common Files\Crystal Decisions\2.0\bin.

In CE environments, it is common for multiple report designers and backend servers to require access to the Crystal Repository. With this in mind, the benefits of client-server databases become apparent. Things like database security, data backup features, and transaction management are extremely useful when multiple users are accessing the Crystal Repository.

NOTE	The Standard Edition of CR 9 does not include the Crystal Repository.
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It is possible to change the Crystal Repository from Access to one of the following client-server databases:

- Microsoft SQL Server
- IBM DB2
- Oracle

Whichever database you choose, it must be configured to support Unicode.

The following conditions must be met when using DB2 or Oracle as the repository database:

IBM DB2

- The database client must be version 7.2 or higher
- The server-side database must be configured for UTF-8 encoding

Oracle

- The server-side database must be version 9i.
- Database client can be DataDirect Wire Protocol ODBC driver version 4 or newer only for Oracle Server running on Solaris.
- Database client can be ORACLE version 8 or 9 ODBC drivers for Oracle Server running on both Solaris and NT.

If a single repository is being shared by a number of users and it is decided to move the repository to a different database server, use data migration tools supplied by the database vendor to import the tables from the old database server to the new database server. Neither CE nor CR provides tools to migrate a Crystal Repository from database server to another.

Report designers who use the Crystal Repository need to access its tables in order to see available report elements. When using CR, the report designer is

prompted for a user name and password to connect to the Crystal Repository. Their database logon determines what actions they can take with regard to the Crystal Repository. To add, modify, or delete elements in the Crystal Repository, the report designer's database logon must have rights to add, modify, or delete rows in the tables that make up the Crystal Repository. The tables used by the Crystal Repository are:

- OR_OBJECTDETAILS_30
- OR_OBJECTDETAILS_31
- OR_OBJECTDETAILS_32
- OR_OBJECTDETAILS_33
- OR_OBJECTS
- OR_TYPE_SCHEMA

CAUTION

The default Crystal Repository does not require username and password. You will not see the database logon prompt until you begin using a Crystal Repository in a client-server database that requires security or add security to the Microsoft Access file.

Configuring Crystal Enterprise for the Crystal Repository

The steps to configure a CE server to communicate with the Crystal Repository are identical to those required to configure CR to communicate with the Crystal Repository. The steps consist of configuring an ODBC DSN for the Crystal Repository and then modifying the orMap.ini file.

NOTE

These steps assume that the database client has been installed and appropriately configured for communication with the database server that stores the tables for the repository. Database client installation is not required if using a Wire Protocol ODBC driver.

The name of the Crystal Repository is stored within the report file. The name of the Repository in the orMap.ini file must be the same as the name that the report file is expecting. It is important to ensure all report designers who share a repository refer to that repository by the same name.

To configure connectivity to the Crystal Repository, complete the following steps:

1. Open the **ODBC Data Source Administrator**.
2. Click the **System DSN** tab, and then click **Add** to add a new ODBC data source.
3. In the **Create New Data Source** dialog box, choose the ODBC driver appropriate for your data source type from this list and click **Finish**.
4. Configure your ODBC connection as appropriate to the driver you chose.
5. Click **OK**.

6. Edit the orMap.ini file, installed by default at \Program Files\Common Files\Crystal Decisions\2.0\bin, and change the existing data source mapping as follows:

<the name you want to call your repository>=<the name of the ODBC DSN you created>

NOTE	<p>Spaces are not allowed between the <repository name> and <odbc data source> segments when configuring the orMap.ini file.</p> <p>You cannot use these characters in your repository's name: - # " { } ; /</p>
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There can only be one repository/ODBC DSN named pair in the orMap.ini file so only one Crystal Repository may be used in the environment.

Merging Report Elements into the Crystal Repository

CR can be used to merge report elements from individual default repositories to the environment's Crystal Repository.

For example:

Two report designers have each added elements to the default Access Crystal Repository on their individual computers. However, an Oracle database is being used for the environment's Crystal Repository. These report elements must be added to the general Crystal Repository.

To merge these elements into the general repository, complete the following steps:

1. While configured to use the individual default repository, create a new report in CR.
2. Add all elements to this report from the default repository that are to be merged.
3. Disconnect all elements from the default repository.
4. Save the report and close CR.
5. Configure the orMap.ini file and ODBC DSN as necessary to connect to the general Crystal Repository.
6. Launch CR and open the report you just saved.
7. Add each report element to the general Crystal Repository through CR.

For detailed instructions on adding elements to the Crystal Repository, refer to the Crystal Reports User's Guide or press the F1 key in CR to refer to the Online Help.

Setting the Username and Password for the Crystal Repository

A database Username and Password is required for CE components to connect to the Crystal Repository. When a CE component accesses the Crystal Repository, the Username and Password stored by CE is used for database validation. The Username and Password to be used are defined in the Crystal Management Console (CMC).

To define a database Username and Password for the Crystal Repository, complete the following steps:

8. Log on to the CMC using an account in the CE Administrator's Group.
9. Click **Manage Objects**.
10. Click the **Repository Settings...** button in the upper right corner of the frame.
11. Fill in the **Repository User Name** and **Repository Password** fields and then click **OK**.

Crystal Enterprise Components and the Crystal Repository

CE communicates with the Crystal Repository when a report is refreshed. A report refresh can be initiated by a user through the CMC or through custom applications using the Crystal Enterprise Software Developer's Kit (CE SDK).

The following CE components may need to communication with the Crystal Repository and must be configured correctly to do so.

- Web Component Server
- Software Developers Kit
- Report Application Server
- Crystal Publishing Wizard

This section discusses these CE servers and components in relation to the Crystal Repository.

Web Component Server

Clicking the **Refresh** button in the CMC is a common scenario in which CE accesses the Crystal Repository. Clicking this button causes the Web Component Server (WCS) to get a copy of the physical report file from the Input File Repository Server (FRS), open the report, and re-read its properties to the InfoStore.

If the **Enable repository refresh** option is selected, the report refresh acquires the newest versions of all elements from the Crystal Repository. After the report is updated with the new elements, it is placed back into the Input FRS. Future scheduled instances of the report or on demand viewings of the report will show the updated elements as of this latest refresh.

Report Title:	<input type="text" value="Consolidated Balance Sheet"/>	<input type="button" value="Preview"/>
File Name:	frs://Input/a_147/000/000/147/4fc2c7ef936c314.rpt	<input type="button" value="Refresh"/>
Description:	<input type="text" value="Consolidated Balance Statement shown in two cross-tabs: Assets and Total Liabilities and Shareholders' Equity"/>	
Folder Path:	Report Samples > general business	
Created:	1/21/2003 4:47:02 PM	
Last Modified:	1/29/2003 10:06:15 AM	
Last Run On:		
	<input checked="" type="checkbox"/> Show report thumbnail	
	<input checked="" type="checkbox"/> Enable repository refresh	
		<input type="button" value="Update"/> <input type="button" value="Reset"/>

Figure 1 – The **Enable repository refresh** option is selected

All report elements are stored within the physical report file, whether they are connected to a repository or not. When a Page Server or Job Server processes a report, it uses the copy of the report element as it exists in the report. If a report element is updated in the Crystal Repository, the Page Server and Job Server are not aware that an updated element exists in the repository because they do not connect to the repository to acquire the most updated repository elements. You must refresh a report to update the report elements in the report before scheduled instances or viewing on demand reflects the updated report elements.

Because report instances cannot be refreshed and are intended to be historical views of the report, there is no functionality to update report elements in report instances.

If you are using the Crystal Repository with CE, ensure that all WCS can connect to the Crystal Repository.

Crystal Enterprise Software Developers Kit

The Software Developers Kit (SDK) contains tools for building scalable web applications. These tools can be divided into two categories:

- applications that allow users to perform client tasks such as viewing, scheduling, and exporting reports
- applications that enable administrators to perform administrative tasks such as managing servers, creating user and groups, gathering metrics, and handling security.

The SDK tools that enable administrators to perform administrative tasks include functionality to refresh a report, including getting new elements from the Crystal Repository. Any computers with applications that use the SDK to refresh report objects with the **EnableRepository** property turned must be configured to connect to the Crystal Repository.

For further information on how to refresh a report's elements using the CE SDK, please refer to the Crystal Enterprise Developer Documentation.

In environments where Web Application Servers like IBM Websphere or BEA Weblogic are used, the Web Application Server is the computer that is using the SDK. Therefore, the Web Application Server must be configured to connect to the Crystal Repository.

Report Application Server

The Report Application Server (RAS) SDK gives you the ability to develop a tool that creates new reports or modifies existing ones. It provides added features that let users design basic reports using only a web browser.

Within the RAS SDK, there is an option, which specifies whether or not repository objects must be updated when a report is opened. If this option is used when developing applications, any computers with RAS must be configured to connect to the Crystal Repository.

NOTE	RAS cannot be used to update repository objects. It can only read them. CR is the only tool capable of updating repository objects.
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For detailed information on how to refresh a report's elements using the RAS SDK, please refer to the Crystal Enterprise Developer Documentation.

Publishing Wizard

When reports are published with the Crystal Publishing Wizard, there is an option to refresh each report's repository objects immediately. The Crystal Publishing Wizard connects to the Crystal Repository from the local computer so you must ensure that the orMap.ini file and ODBC System DSN are configured correctly. The Publishing Wizard acquires the repository user name and password from the InfoStore service. Before the Publishing Wizard's option to refresh each report's repository objects can be used, the repository's user name and password must be set in the CMC. For instructions on setting the user name and password, see the [Setting the Username and Password for the Crystal Repository](#) section of this document.

Contacting Crystal Decisions for Technical Support

We recommend that you refer to the product documentation and that you visit our Technical Support web site for more resources.

Self-serve Support:

<http://support.crystaldecisions.com/>

Email Support:

<http://support.crystaldecisions.com/support/answers.asp>

Telephone Support:

<http://www.crystaldecisions.com/contact/support.asp>