

Crystal Reports XI Release 2

Deploying Visual Studio .NET Applications

Overview

This document discusses the options for deploying Crystal Reports XI Release 2 .NET applications for use in Visual Studio .NET 2002 and Visual Studio .NET 2003. Specifically, merge modules and interactive install packages are discussed.

NOTE	<p>If you are using Visual Studio .NET 2005, use the help that is installed with Crystal Reports XI Release 2 to deploy your applications. To access the help, in Visual Studio .NET 2005, complete these steps:</p> <ol style="list-style-type: none"> 1. On the Help menu, click Contents. 2. Expand Crystal Reports XI Release 2 and then click Deployment. <p>Refer to this link for more information about the Visual Studio .NET 2005 deployment options:</p> <p>http://support.businessobjects.com/documentation/product_guides/cr_net/vs_2005/</p>
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Introduction

Crystal Reports XI Release 2 extends the powerful reporting capability of Crystal Reports on the Microsoft .NET platform. You can use the Crystal Reports Designer in Visual Studio .NET (VS .NET) to create or modify Crystal reports.

You have the option of storing the report locally or publishing it as a report web service on a web server. Depending on whether you have a Windows or web application, you can host the report using the Windows Form Viewer or the Web Forms Viewer, respectively.

Distributing report files

Embedding reports

When reports are added to a VS .NET 2002 or 2003 application that contains embedded reports, they are added as embedded resources. That is, the report will be compiled into the assembly's manifest and will not be loaded from a separate report (.rpt) file.

NOTE	Reports are not added as embedded resources in VS .NET 2005 web applications.
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Having reports as embedded resources allows .NET applications to be distributed and deployed without having to distribute report files separately. As a result, you are not required to deploy external report files with your applications, and end users cannot modify them.

Manually adding reports

When deploying applications that do not embed report files, the report files must be manually added to the setup projects. As a result, reports can be easily modified and redeployed without having to recompile and redeploy the entire assembly. However, strongly-typed report objects cannot be used in the application and the reports must be loaded from disk.

To manually add a report to your application, complete these steps:

1. After adding a report to a project, click the report in the .NET **Solution Explorer** window.
2. In the **Properties** dialog box, change the **Build Action** property from **Embedded Resource** to **None**.
3. Load reports from disk by specifying a file path using the **Load** method of the **ReportDocument** object.

Overview of deployment methods

There are two options for deploying Crystal Reports XI runtime files:

- Using merge modules
- Using an interactive install (also known as a redistributable or server install)

While both options install the same files, the method of deployment differs. If you wish to include Crystal Reports runtime files with the application install package, then use the merge modules option. If you wish to deploy the Crystal Reports runtime files to a server computer as a standalone task, then use the interactive install option.

Deploying applications using merge modules

Adding required components

The components to add to setup projects for distributing and deploying Crystal Reports XI Release 2 applications include the following:

- Crystal report files (.rpt)
- Crystal Reports XI Release 2 merge modules

Crystal Reports files (.rpt)

Crystal Reports files (.rpt) also need to be distributed when a .NET application is deployed. How the report files are deployed depends on the need and architecture of the application. Refer to the previous section - [Including Reports in .NET Applications](#) - for details on deploying report files.

Crystal Reports XI Release 2 merge modules

The merge modules that need to be added to the setup project are installed with Crystal Reports XI Release 2 in the ... \Program Files \Common Files \Merge Modules folder. Updated versions can also be downloaded from the Business Objects support site from the following location:

http://support.businessobjects.com/fix/merge_modules.asp

Earlier versions of Crystal Reports required three or more merge modules to be included in a setup project in order to deploy reports. For Crystal Reports XI Release 2, only one merge module is required to be included, while another merge module is optional.

CrystalReports11_5_NET.msm (required)

The CrystalReports11_5_NET.msm merge module contains viewer controls, .NET SDK assemblies, Report Application Server (RAS) SDK assemblies, report processing engine, and database and export components. This merge module is always required for deploying Crystal Reports XI Release 2 .NET applications.

When you add CrystalReports11_5_NET.msm to a setup project, it exposes a **Keycode** property that must be set to a 23-digit alphanumeric license key. The license key is emailed to you after you register your product. After the key code has been added to your VS .NET system, you can find it on the **Help** menu by clicking **About Microsoft Development Environment**. The keycode is listed in the **Installed Products** list box.

NOTE

If the license key is not set for the CrystalReports11_5_NET.msm merge module, an error will occur when building the project. Also, if the setup project is installed on a target computer without specifying the correct license key for the merge module, various error messages will appear. Refer to the section [Additional Resources](#) for related knowledge base articles.

CrystalReports11_5_maps.msm (optional)

You would use this merge module if you are including geographic maps in your reports. This merge module installs the files required to display them.

Customizing your installation

With Crystal Reports XI Release 2 and Visual Studio .NET, the CrystalReports11_5_NET.msm merge module allows you to set the property values to install or not install certain database drivers, export drivers, as well as the crystalreportviewers115 IIS virtual directory.

Database drivers

1. Click **CrystalReports11_5_NET.msm** in your deployment project and expand **MergeModuleProperties**. Table 1 displays the list of properties that are used to install database drivers.
2. Since by default, all database drivers are installed with CrystalReports11_5_NET.msm, set the property value of a specific driver to 0 to exclude it.

Property Name	Description
InstallACT	Crystal Reports database driver for ACT databases.
InstallBTRIEVE	Crystal Reports database driver for Pervasive database.
InstallCDO32	Crystal Data Object database driver.
InstallCRDB_ADO	Crystal Reports database driver for Microsoft ActiveX Data Objects/OLE DB.
InstallCRDB_ADOPLUS	Crystal Reports database driver for Microsoft ADO.NET.
InstallCRDB_CDO	Crystal Reports database driver for Crystal Data Object.
InstallCRDB_COM	Crystal Reports database driver for COM data provider.
InstallCRDB_DATASET	Crystal Reports database driver for DataSet provider.
InstallCRDB_ODBC	Crystal Reports database driver for ODBC.
InstallCRDB_ORACLE	Crystal Reports database driver for Oracle.
InstallCRDB_QUERY	Crystal Reports database driver for Query Data.
InstallDAO	Crystal Reports database driver for Microsoft Data Access Objects.
InstallFIELDDEF	Crystal Reports database driver for Field Definitions.
InstallFILESYSTEM	Crystal Reports database driver for File System data.
InstallIBM_DB2	Crystal Reports database driver for DB2 Server.
InstallINFORMIX	Crystal Reports database driver for Informix Online Server.
InstallP2BBDE	Crystal Reports database driver for IDAPI.
InstallP2BxBSE	Crystal Reports database driver for xBase.
InstallP2IXBSE_DLL	Crystal Reports physical database DLL for xBase.
InstallP2SACL	Crystal Reports database driver for Public Folder ACL.
InstallP2SEVT	Crystal Reports database driver for NT Event log.
InstallP2SEXSR	Crystal Reports database driver for Exchange Server Admin.
InstallP2SMAPI	Crystal Reports database driver for Exchange Folders and Address Book.
InstallP2SMSIIS	Crystal Reports database driver for IIS

	Log Files.
InstallP2SOUTLK	Crystal Reports database driver for Outlook Data.
InstallP2SREPL	Crystal Reports database driver for Exchange Public Folder Replica.
InstallP2STRACK	Crystal Reports database driver for Exchange Server Message Tracking Logs.
InstallP2SWBLG	Crystal Reports database driver for Web Log Files.
InstallSYBASE	Crystal Reports database driver for Sybase.

Table 1 - Properties Used to Install Database Drivers

Export drivers

1. Click **CrystalReports11_5_NET.msm** in your deployment project and expand **MergeModuleProperties**. Table 2 displays the list of properties that are used to install export drivers.
2. Since by default, all export drivers are installed with **CrystalReports11_5_NET.msm**, set the property value of a specific driver to 0 to exclude it.

Property Name	Description
InstallU2DMAPI	Property to determine whether to install the export driver for MAPI Export Format.
InstallU2DNOTES	Property to determine whether to install the export driver for Lotus Notes Database Destination Export Format.
InstallU2DVIM	Property to determine whether to install the export driver for Lotus Notes Mail Export Format.
InstallU2FCR	Property to determine whether to install the export driver for Report Export Format.
InstallU2FHTML	Property to determine whether to install the export driver for HTML 4.0 Export Format.
InstallU2ODBC	Property to determine whether to install the export driver for ODBC Export Format.
InstallU2FPDF	Property to determine whether to install the export driver for PDF Export Format.
InstallU2FREC	Property to determine whether to install the export driver for Records Export Format.

InstallU2FRTF	Property to determine whether to install the export driver for Rich Text (rtf) Export Format.
InstallU2SEPV	Property to determine whether to install the export driver for Separated Export Values Format.
InstallU2FTEXT	Property to determine whether to install the export driver for Text Export Format.
InstallU2FXLS	Property to determine whether to install the export driver for Excel Export Format.
InstallU2FXML	Property to determine whether to install the export driver for XML Export Format.

Table 2 - Properties Used to Install Export Drivers

crystalreportviewers115 IIS virtual directory

1. Click **CrystalReports11_5_NET.msm** in your deployment project and expand **MergeModuleProperties** property. The **InstallViewerVirtualDir** property is used to control whether the crystalreportviewers115 virtual directory is installed.
2. Since by default the crystalreportviewers115 IIS virtual directory is installed with CrystalReports11_5_Net.msm, set the property value to 0 to not install it.

Distributing and/or installing runtime files

.NET framework

Since VS .NET projects rely on the .NET framework, the framework must also be distributed and/or installed on the target computer. Typically, when a setup project is created, the framework is excluded. Different merge modules are used depending on the version of the .NET framework to which you are deploying. For more information on the different ways in which to distribute the framework, refer to the following information:

<http://msdn.microsoft.com/netframework/downloads/updates/default.aspx>

ADO.NET

If any of your report files are based on ADO.NET dataset objects, you will need to include certain merge modules, depending on the version of VS .NET you are using (see Table 3).

VS .NET Version	Merge Modules	Relevant Files
VS .NET 2002	VC_CRT.msm VC_User_CRT71_RTL_X86_---.msm	Msvcr70.dll Msvcp70.dll
VS .NET 2003	VC_STL.msm VC_User_STL71_RTL_X86_---.msm	Msvcr71.dll Msvcp71.dll

Table 3 - Merge Modules for ADO.NET

The files from these merge modules must be available to the application by either placing them in the application folder (recommended) or in the system path.

Creating deployment packages for web applications

Before deploying your ASP.NET web application, ensure that you have a web application or web services application ready for deployment. To create a deployment package for your ASP.NET web application, complete these steps:

1. Open your web application in VS .NET and on the **View** menu, click **Solution Explorer**.
2. Right-click your web application, click **Add**, and then click **New Project**. The **Add New Project** dialog box appears.
3. Click **Setup and Deployment Projects**, click **Web Setup Project**, and then click **OK**.
4. In the Solution Explorer, right-click the web setup project, click **Add**, and then click **Project Output**. The **Add Project Output Group** dialog box appears.
5. Choose the primary output and content files to add to your web setup project, and then click **OK**. When the **Primary Output** is added to the project, some detected dependencies are added. Ensure that the **dotnetfxredist_x86_enu.msm** and **dotnetcrystalreports.msm** dependencies are **excluded**.
6. In the Solution Explorer, right-click the web setup project, click **Add**, and then click **Merge Module**. The **Add Modules** dialog box appears.
7. Click the **CrystalReports11_5_NET.msm** merge module, add it to your project, and then click **OK**.

NOTE

If you deploy a web application that uses an ADO.NET Dataset, you also need to include the two additional Microsoft merge modules listed in the [Runtime](#) files section.

8. In your web setup project, click the CrystalReports11_5_NET.msm merge module to display the properties.
9. Expand **MergeModuleProperties** and type a valid license key in the **Keycode Properties** dialog box. The license key is the 23-digit alphanumeric string that is located on your Crystal Reports CD.
10. Customize your install by excluding unneeded database and export DLL files. For more information, refer to the section [Customizing your installation](#).
11. To build your web setup project, right-click your deployment package (websetup1) in the Solution Explorer and then click **Build**.

You are now ready to deploy your ASP.NET web application.

Creating deployment packages for Windows applications

Before deploying your ASP.NET Windows application, ensure that you have a Windows application ready for deployment. To deploy a Windows application, complete these steps:

1. Open your Windows application in VS .NET and on the **View** menu, click **Solution Explorer**.
2. Right-click your Windows application, click **Add**, and then click **New Project**. The **Add New Project** dialog box appears.
3. Click **Setup and Deployment Projects**, click **Web Setup Project**, and then click **OK**.
4. In the Solution Explorer, right-click the Windows application, click **Add**, and then click **Project Output**. The **Add Project Output Group** dialog box appears.
5. Choose the primary output and content files to add to your web setup project, and then click **OK**. When the **Primary Output** is added to the project, some detected dependencies are added. Ensure that the **dotnetfxredist_x86_enu.msm** and **dotnetcrystalreports.msm** dependencies are **excluded**.
6. In the Solution Explorer, right-click the Windows Setup project, click **Add**, and then click **Merge Module**. The **Add Modules** dialog box appears.
7. Click the CrystalReports11_5_NET.msm merge module, add it to your project, and then click **OK**.

NOTE

If you deploy a Windows application that uses an ADO.NET Dataset, you also need to include the two additional Microsoft merge modules listed in the [Runtime](#) section above.

8. In your setup project, click the CrystalReports11_5_NET.msm merge module to display the properties.
9. Expand **MergeModuleProperties** and type a valid license key in the **Keycode Properties** dialog box. The license key is the 23-digit alphanumeric string that is located on your Crystal Reports CD.
10. To build your Setup project, right-click your deployment package (setup1) in the Solution Explorer and then click **Build**.

You are now ready to deploy your ASP.NET Windows application.

Deploying applications using interactive install

You must have Crystal Reports XI Release 2 Developer Edition or Crystal Reports Server XI Release 2 in order to use the interactive install. When deploying a web application or deploying multiple Windows applications to the same computer, it is recommended that you install the dependency files separately.

This Windows installer package, CrystalRedist115_x86.msi, is located in the ... \Program Files\Microsoft Visual Studio 8\SDK\v2.0\BootStrapper\Packages\CrystalReports folder. You may find the updated versions of the Crystal Reports XI Release 2 install package at this location:

http://support.businessobjects.com/fix/merge_modules.asp

To perform an interactive install, complete these steps:

1. Run the install (.msi) file on the deployment computer.
2. Type your Crystal Reports XI Release 2 license key code when prompted. The license key code may be found by clicking **About Microsoft Development Environment** on the **Help** menu of Visual Studio .NET.

Additional Resources

Knowledge Base Articles

c2010681 - "Invalid or Missing KeycodeV2.dll"

c2012716 - "Job Failed Because a Free License Could not be Obtained"

c2011205 - "Err Msg: "Cannot find keycodev2.dll or invalid keycode"

Whitepapers

Crystal Reports XI .NET Application Deployment

http://support.businessobjects.com/communityCS/TechnicalPapers/cr_xi_net_deployment.pdf.asp

Troubleshooting Error Messages Related to the Keycodev2.dll Error Message

http://support.businessobjects.com/communityCS/TechnicalPapers/cr_net_keycodev2.pdf.asp

.NET Product site

<http://www.businessobjects.com/products/reporting/crystalreports/net/default.asp>

Developer Zone

http://www.businessobjects.com/products/dev_zone/default.asp

Support Site

<http://support.businessobjects.com/search/>

Sample Applications

<http://support.businessobjects.com/fix/samplecr.asp>

Contacting Technical Support

<http://support.businessobjects.com/fix/contact.asp>