Crystal Report Viewers in Visual Studio .NET Dynamic Images

Applies to:

Crystal Reports 9.1 to Crystal Reports 2008 (12.x) when used in applicable versions of Visual Studio .NET.

Summary

A common issue when deploying Web based applications built in Microsoft Visual Studio .NET and using Crystal Reports assemblies, is the appearance of a red X in place of dynamic images.

This can be caused by incorrect installation of the Crystal Reports Viewer's virtual directory or missing permissions to required folders for the Process Model Attributes resulting in a failure to load and execute the CrystalImageHandler.aspx file. The dynamic images may appear as a red "X", an empty place holder or an of the error message when viewing the report in the browser.

Error messages discussed in this Article include:

- Failed to render page
- Access Denied
- Failed to render the report
- Load Report Failed

Often the report can be printed and exported successfully. The report will also display the image in a Windows application. This is because the CrystalImageHandler.aspx file is only used when viewing the report in the Crystal Reports web viewer.

Author: Ludek Uher

Company: SAP

Created on: 21 January 2009

Author Bio

I'm a Senior Engineer with Technical Customer Assurance, SAP Business Objects. I specialize in the SDKs supplied with Crystal Reports and BusinessObjects Enterprise.

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Introduction

This Article describes troubleshooting techniques for the appearance of a red X in place of the dynamic images in a Crystal Report. . Basic deployment and server configuration is not discussed as that information can be found in existing Articles and Notes.

With Crystal Reports for Visual Studio .NET 2002, images are placed in the "DynamicImages" folder under the root of the viewers folder. With Visual Studio .NET 2003, Crystal Reports 10.0, Crystal Reports XI Release 1 and Crystal Reports XI Release 2 (with the 1.1.4322 version of the .NET framework only) images are managed by a file in the viewer's directory called CrystalImageHandler.aspx. With the release of Visual Studio 2005 handling of dynamic images in Crystal Reports for VS2005, (CR 10.2) and Crystal Reports XI release 2 (CR 11.5), has changed to use an internal mechanism. This internal mechanism is persisted in Crystal Reports for Visual Studio .NET 2008 (CR 10.5) and Crystal Reports 2008 (CR 12.0.x).

Remove: Moved to Summary

Using Crystal Reports 9.1 (assemblies version 9.1.3300) with Microsoft Visual Studio .NET 2002

Graphs and pictures contained on a report are written to temporary image files in the "C:\Program Files\Microsoft Visual Studio .Net\Crystal Reports\Viewers\DynamicImages" folder when the report is processed. Typically the first page produces the error message; "Failed to render page", or the images are rendered as a red "X". Successive pages without images preview correctly.

In order to resolve this error:
- Grant the System and ASPNET account full rights to the "C:\Program Files\Microsoft Visual Studio .Net\Crystal Reports\Viewers\" folder.
- Alternatively though not recommended;
    - Using IIS 5, the machine.config file can be modified to allow Local System full access rights (userName="System").
    - Using IIS 6 the process permissions would be changed in the Identity tab of the Application Pool configured for the web application.
- For more details, see the "Permissions" section of this Article.

Using Crystal Reports 9.1 (assemblies version 9.1.500) with Visual Studio .NET 2003

This is the first version of Crystal Reports to use the CrystalImageHandler.aspx. The file is in the Viewers folder (C:\Program Files\Microsoft Visual Studio .NET 2003\Crystal Reports\Viewers). Graphs and pictures contained in a report are written as temporary images (PNG files) to the ASPNET worker process's temporary directory. Typically the first page produces the error message; "Failed to render page", or the images are rendered as a red "X". Successive pages without images preview correctly.

To resolve this error,
- Grant the ASPNET account full rights to the ASPNET worker process's temporary directory.
- Alternatively though not recommended;
    - For IIS5, the machine.config file can be modified to allow Local System full access rights (username="System").
    - For IIS 6 the process permissions would be changed in the Identity tab of the Application Pool.
- See the "Permissions" section of this Article for more details.

Using Crystal Reports 9.2 (assemblies version 9.2.3300) with Microsoft Visual Studio .NET 2002 or Microsoft Visual Studio .NET 2003

Crystal Reports version 9.2.x is a stand-alone upgrade to Crystal Reports version 9.1.x bundled with Microsoft Visual Studio .NET 2002 and 2003.

This is the first version of Crystal Reports to use the CrystalInageHandler.aspx. The file is in the Viewers folder (C:\Program Files\Common files\Crystal Decisions\2.0\CrystalReportViewers). Graphs and pictures contained on a report are written as temporary images (PNG files) to the ASPNET worker process's temporary directory. Typically the first page produces the error message; "Failed to render page", or the images are rendered as a red "X". Successive pages without images preview correctly.

To resolve this error,
- Grant the System and ASPNET account full rights to the ASPNET worker process's temporary directory. Alternatively though not recommended,
  - For IIS 5, the machine.config file can be modified to allow Local System full access rights (username="System").
  - For IIS 6 the process permissions must be changed in the Identity tab of the Application Pool.
- See the "Permissions" section of this Article for more details.

Using Crystal Reports 10.0 (assemblies version 10.0.3300, NOT Crystal Reports 10.2.x) with Microsoft Visual Studio .NET 2002 or Microsoft Visual Studio .NET 2003

Crystal Reports 10.0 uses the file crystalimagehandler.aspx. The file is located in the folder "C:\Program Files\Common Files\Crystal Decisions\2.5\crystalreportviewers10".

In order to resolve issues with dynamic images, grant the System and ASPNET account full rights to the ASP Net temporary folder; typically "C:\Windows\Temp". This folder will be used for IIS 6 regardless of the user the aspnet process is running under, unless it is an account that is not in IIS_WPG by default. The folder will be used with IIS 5 if the machine.config is set up for the local System account. Also, if the default Machine account is specified in the <processModel…./> tag of machine.config, then the temp images will be written to C:\Documents and Settings\machinename\ASPNET\temp. To determine which folder is being used, right click on an image (red "X"), go to properties and check the path. For more information regarding permissions, see page 6 of this Article.

To create correct application settings in Internet Information Services:
1) Go to Start | Run and type in inetmgr
2) Right click on the crystalreportviewer10 folder
3) Right click on the folder
4) From the pop up menu select "Properties
5) On the "Virtual Directory" tab find the "Update" button and click the button

If custom web sites are used, a copy of the crystalreportviewer10 directory must be created manually under the custom website.

Using Crystal Reports XI (CR 11.0.x) or Crystal Reports XI release 2 (CR 11.5.x) with Microsoft Visual Studio .NET 2002 or Microsoft Visual Studio .NET 2003

Crystal Reports 11.0 and 11.5 also uses the file crystalimagehandler.aspx. The file is located in the folder "C:\Program Files\Common Files\Business Objects\3.0\crystalreportviewers11" for Crystal Reports 11.0 and "C:\Program Files\Business Objects\Common\3.5\crystalreportviewer115" for Crystal Reports 11.5. To resolve issues with dynamic images, grant the System and ASPNET account full rights to the ASP Net temporary folder; typically "C:\Windows\Temp". This folder will be used for IIS 6 regardless of the user the aspnet process is running under unless it is an account that is not in IIS_WPG by default. The temp folder will be used with IIS 5 if the machine.config is set up for the local System account. If the default Machine account is specified in the <processModel…./> tag of machine.config, then the temp images will be written to C:\Documents and Settings\machinename\ASPNET\temp. Confirm that you have created the correct application settings in the Internet Information Services. To create the application settings:

1) Go to Start | Run and type in inetmgr
2) Right click on the crystalreportviewer11 folder (crystalreportviewer115)
3) Right click on the folder and from the pop up menu select "Properties
4) On the "Virtual Directory" tab find the "Update" button and lick the button

If custom web sites are used, the crystalreportviewer11 or the crystalreportviewers115 must be created manually.

If the Crystal Reports runtime was installed from the Business Objects Enterprise install CD directly on to the web server, the web.config in the Crystal Reports viewers directory will need to be modified.

Find the web.config in c:\program files\business objects\3.5\crystalreportviewers115 folder. Comment out the following:

```
<httpHandlers>

    <add verb="*" path="*.csp"
    type="BusinessObjects.Enterprise.WebComponentAdapter.WCAHandler,BusinessObjects.Enter
    prise.WCA, Version=11.5.3300.0, Culture=neutral, PublicKeyToken=692FBEA5521E1304" />
      <add verb="*" path="*.cwr"
    type="BusinessObjects.Enterprise.WebComponentAdapter.WCAHandler,BusinessObjects.Enter
    prise.WCA, Version=11.5.3300.0, Culture=neutral, PublicKeyToken=692FBEA5521E1304" />


<httpHandlers>
```

Using Crystal Reports 10.2 (VS.NET 2005 bundle) or Crystal Reports XI release 2 with Microsoft Visual Studio .NET 2005

With Visual Studio .NET 2005, CrystalImageHandler.aspx does not physically exist on the file system, but appears as a filename in the URL for an image. This is accomplished using <httpHandlers> tags in the application's web.config file. Using HttpHandlers provides functionality similar to ISAPI mappings. In Business Objects Enterprise XI .NET, for example, HttpHandlers are used to handle *.CSP and *.CWR file extensions to use the Web Component Adapter (WCA) for processing.

When a CrystalReportViewer control or CrystalReportPartsViewer control is added to a web form in Visual Studio 2005, the <appSettings/> and <httpHandlers/> tags are added to the project's Web.Config file as follows:

```
<appSettings>

    <add key="CrystalImageCleaner-AutoStart" value="true" />

    <add key="CrystalImageCleaner-Sleep" value="60000" />

    <add key="CrystalImageCleaner-Age" value="120000" />
</appSettings>
```

These settings ensure the clean-up of temporary images created when viewing a report.

```
<httpHandlers>
    <add verb="GET" path="CrystalImageHandler.aspx"
    type="CrystalDecisions.Web.CrystalImageHandler, CrystalDecisions.Web,
    Version=10.2.3600.0, Culture=neutral, PublicKeyToken=692fbea5521e1304"/>
</httpHandlers>
```

NOTE: The version number of the CrystalDecisions.Web .dll must be changed to 11.5.3700.0 if Crystal Reports XI release 2 is used. Thus the line:

CrystalDecisions.Web, Version=10.2.3600.0,

Must be changed to:

CrystalDecisions.Web, Version=11.5.3700.0,

The <httpHandlers/> tag in this case is used to create a human readable URL that will contain a query string created for the dynamic image.

The CrystalImageHandler.aspx page does not actually exist, but rather implements the IHttpHandler interface (which is used for low level Request and Response APIs in ASP.NET) with the CrystalDecisions.Web.CrystalImageHandler class. The resulting URL will place the CrystalImageHandler.aspx as part of the application's URL rather than accessing a physical file in the viewer's directory as with previous versions. For example, the url to a report image displayed in the webform viewer would be similar to:

http://localhost/myWebApp/CrystalImageHandler.aspx?dynamicimage=abc123.png

but the CrystalImageHandler.aspx page does not exist in the "myWebApp" folder. These tags should be automatically added to the project's web.config file when adding a viewer control to a web page or when migrating from an existing application built with VS2002 or VS2003.

To troubleshoot issues with dynamic images with versions 10.2 and 11.5 of Crystal Reports, check the Web.config file to ensure that the above tags exist and the assembly version is correct. Do not try searching for the physical file (CrystalImageHandler.aspx) itself or assume there are problems because the file does not exist. One specific case where these tags may need to be manually be added to the Web.config file is if the viewer control is being dynamically added to the webform at runtime.

Apart from the above directions, if the dynamic images still do not appear on a webform the most likely cause will be related to permissions and file system access to temporary folders.

Using Business Objects Enterprise XI release 2 (11.5) with Microsoft Visual Studio .NET 2005

If Business Objects Enterprise is installed as a client installation, the BusinessObjects.Enterprise.WCA.dll does not get installed. As the httphandlers section in the web.config in the crystalreportviewers115 directory makes reference to BusinessObjects.Enterprise.WCA.dll, a red X will be displayed instead of dynamic images. To resolve the issue, either copy this dll from another machine that has the same version in

"C:\Program Files\Business Objects\common\3.5\managed\BusinessObjects.Enterprise.WCA.dll"

and register it in the GAC. Or comment out the following section from the web.config:

```
 <httpHandlers>
  <add verb="*" path="*.csp"
type="BusinessObjects.Enterprise.WebComponentAdapter.WCAHandler,BusinessObjects.Enter
prise.WCA, Version=11.5.3300.0, Culture=neutral, PublicKeyToken=692FBEA5521E1304" />
  <add verb="*" path="*.cwr"
type="BusinessObjects.Enterprise.WebComponentAdapter.WCAHandler,BusinessObjects.Enter
prise.WCA, Version=11.5.3300.0, Culture=neutral, PublicKeyToken=692FBEA5521E1304" />
    </httpHandlers>
```

Using Crystal Reports Basic (version 10.5 bundled with Microsoft Visual Studio .NET 2008)

As with Crystal Reports 10.2 and VS .NET 2005, CrystalImageHandler.aspx does not physically exist on the file system, but appears as a filename in the URL for an image. This is accomplished using <httpHandlers> tags in the application's web.config file. Using HttpHandlers provides functionality similar to ISAPI mappings. In Business Objects Enterprise XI .NET, for example, HttpHandlers are used to handle *.CSP and *.CWR file extensions to use the Web Component Adapter (WCA) for processing.

When a CrystalReportViewer control or CrystalReportPartsViewer control is added to a web form in Visual Studio 2005, the <appSettings/> and <httpHandlers/> tags are added to the project's Web.Config file as follows:

```
<appSettings>
      <add key="CrystalImageCleaner-AutoStart" value="true" />
      <add key="CrystalImageCleaner-Sleep" value="60000" />
      <add key="CrystalImageCleaner-Age" value="120000" />
</appSettings>
```

These settings ensure the clean-up of temporary images created when viewing a report.

```
<httpHandlers>
    <add verb="GET" path="CrystalImageHandler.aspx"
    type="CrystalDecisions.Web.CrystalImageHandler, CrystalDecisions.Web, Version=
    10.5.3700.0, Culture=neutral, PublicKeyToken=692fbea5521e1304"/>
</httpHandlers>
```

The <httpHandlers/> tag in this case is used to create a human readable URL that will contain a query string created for the dynamic image.

The CrystalImageHandler.aspx page does not actually exist, but rather implements the IHttpHandler interface (which is used for low level Request and Response APIs in ASP.NET) with the CrystalDecisions.Web.CrystalImageHandler class. The resulting URL will place the CrystalImageHandler.aspx as part of the application's URL rather than accessing a physical file in the viewer's directory as with previous versions. For example, the url to a report image displayed in the webform viewer would have a url similar to:

http://localhost/myWebApp/CrystalImageHandler.aspx?dynamicimage=abc123.png

but the CrystalImageHandler.aspx page does not exist in the "myWebApp" folder. These tags should be automatically added to the project's web.config file when adding a viewer control to a web page or when migrating from an existing application built with VS2002 or VS2003.

To troubleshoot issues with dynamic images with versions 10.5 of Crystal Reports, check the Web.config file to ensure that the above tags exist and the assembly version is correct. Do not try searching for the physical file (CrystalImageHandler.aspx) itself or assume there are problems because the file does not exist. One specific case where these tags may need to be manually be added to the Web.config file is if the viewer control is being dynamically added to the webform at runtime.

Apart from the above directions, if the dynamic images still do not appear on a webform the most likely cause will be related to permissions and file system access to temporary folders.

Using Crystal Reports 2008 (CR 12.x) with Microsoft Visual Studio .NET 2002 or Microsoft Visual Studio .NET 2003

Crystal Reports 2008 (12.0.x) also uses the file crystalimagehandler.aspx. The file is located in the folder "C:\Program Files\Common Files\Business Objects\4.0\crystalreportviewers12". In order to resolve issues with dynamic images, grant the System and ASPNET account full rights to the ASP Net temporary folder; typically "C:\Windows\Temp". This folder will be used for IIS 6 regardless of the user the aspnet process is running under unless it is an account that is not in IIS_WPG by default. The folder will get used with IIS 5 if the machine.config is set up for the local System account. Also, if the default Machine account is specified in the <processModel…./> tag of machine.config, then the temp images will be written to C:\Documents and Settings\machinename\ASPNET\temp. Finally ensure that you have created the correct application settings in the Internet Information Services. To create correct application settings:

1. Go to Start | Run and type in inetmgr
2. Right click on the crystalreportviewer12 folder
3. Right click on the folder and from the pop up menu select "Properties
4. On the "Virtual Directory" tab find the "Update" button and lick the button

If custom web sites are used, the crystalreportviewer12 directory must be created manually.

Using Crystal Reports 2008 (CR 12.x) with Microsoft Visual Studio .NET 2005 or Microsoft Visual Studio .NET 2008

With Crystal Reports 2008 (CR 12.0.x), the CrystalImageHandler.aspx does not physically exist on the file system, but appears as a filename in the URL for an image. This is accomplished using <httpHandlers> tags in the application's web.config file. Using HttpHandlers provides functionality similar to ISAPI mappings. In Business Objects Enterprise XI .NET, for example, HttpHandlers are used to handle *.CSP and *.CWR file extensions to use the Web Component Adapter (WCA) for processing.

When a CrystalReportViewer control or CrystalReportPartsViewer control is added to a web form in Visual Studio 2008, the <appSettings/> and <httpHandlers/> tags are added to the project's Web.Config file as follows:

```
<appSettings>
            <add key="CrystalImageCleaner-AutoStart" value="true" />
            <add key="CrystalImageCleaner-Sleep" value="60000" />
            <add key="CrystalImageCleaner-Age" value="120000" />
</appSettings>
```

These settings ensure the clean-up of temporary images created when viewing a report.

```
<httpHandlers>

            <add verb="GET" path="CrystalImageHandler.aspx"
            type="CrystalDecisions.Web.CrystalImageHandler, CrystalDecisions.Web, Version=
            12.0.2000.0, Culture=neutral, PublicKeyToken=692fbea5521e1304"/>

</httpHandlers>
```

The <httpHandlers/> tag in this case is used to create a human readable URL that will contain a query string created for the dynamic image. The CrystalImageHandler.aspx page does not actually exist, but rather implements the IHttpHandler interface (which is used for low level Request and Response APIs in ASP.NET) with the CrystalDecisions.Web.CrystalImageHandler class. The resulting URL will place the CrystalImageHandler.aspx as part of the application's URL rather than accessing a physical file in the viewer's directory as with previous versions. For example, the url to a report image displayed in the webform viewer would have a url similar to:

http://localhost/myWebApp/CrystalImageHandler.aspx?dynamicimage=abc123.png

but the CrystalImageHandler.aspx page does not exist in the "myWebApp" folder. These tags should be automatically added to the project's web.config file when adding a viewer control to a web page or when migrating from an existing application built with VS2002 or VS2003.

To troubleshoot issues with dynamic images with version 12.0.x, check the Web.config file to ensure that the above tags exist and the assembly version is correct. Do not try searching for the physical file (CrystalImageHandler.aspx) itself or assume there are problems because the file does not exist. One specific case where these tags may need to be manually be added to the Web.config file is if the viewer control is being dynamically added to the webform at runtime.

Apart from the above directions, if the dynamic images still do not appear on a webform the most likely cause will be related to permissions and file system access to temporary folders.

Crystal Reports 2008 (CR 12.x) and Microsoft Windows 2008 Server

The issue of red X in the .NET webform DHTML viewer is due to the application pool being run in the Integrated Pipeline mode. IIS 7 supports two modes, Classic and Integrated. In Classic mode, images and charts are managed using <httpHandlers> which are placed in the <system.web> section in the applications web.config file. In Integrated mode on IIS 7, the <system.webServer> section is used to define <handlers> for the crystalImageHandler. This section may be missing if the application is being migrated from an earlier version of IIS.

To resolve the issue of a missing crystalImageHandler section, run the application pool in the "Classic" pipeline mode and ensure the crystalImageHandler is defined in the <system.web> section of the application's web.config file (in Classic mode the <system.webServer> section is ignored). Below is an example for a Crystal Reports 2008 web application:

```
<system.web>
<httpHandlers>
      <add verb="GET"
      path="CrystalImageHandler.aspx"
      type="CrystalDecisions.Web.CrystalImageHandler, CrystalDecisions.Web,
   Version=12.0.2000.0, Culture=neutral, PublicKeyToken=692fbea5521e1304"/>
</httpHandlers>
</system.web>
```

If it is necessary to use the "Integrated" pipeline mode for your application pool, then ensure that handlers are defined in the <system.webServer> section of your application's web.config file. Below is an example for a Crystal Reports 2008 web application:

<system.webServer>

<handlers>

```
      <add name="CrystalImageHandler.aspx_GET"
      verb="GET" path="CrystalImageHandler.aspx"
      type="CrystalDecisions.Web.CrystalImageHandler, CrystalDecisions.Web,
   Version=12.0.2000.0, Culture=neutral, PublicKeyToken=692fbea5521e1304"

      preCondition="integratedMode"/>
</handlers>
<validation validateIntegratedModeConfiguration="false"/>
</system.webServer>
```

Related Content

Crystal Reports 9.1 (bundled with Visual Studio .NET 2003 and Visual Studio .NET 2002):

https://www.sdn.sap.com/irj/scn/go/portal/prtroot/docs/library/uuid/10ae17a6-a41d-2b10-eb9f-8dfb2a88dc7e

Crystal Reports 10.x (Stand-alone version of Crystal Reports only, not Crystal Reports 10.2 which bundles with Visual Studio .NET 2005):

https://www.sdn.sap.com/irj/scn/go/portal/prtroot/docs/library/uuid/f04e17ce-f91f-2b10-2eae-82617f81f0d6

Crystal Reports XI (11.0.x):

https://www.sdn.sap.com/irj/scn/go/portal/prtroot/docs/library/uuid/20289012-bd1d-2b10-198d-d6cc62db91be

Crystal Reports XI release 2 (11.5.x):

https://www.sdn.sap.com/irj/scn/go/portal/prtroot/docs/library/uuid/904d5d22-be1d-2b10-a19e-bceecfb3bd68

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