

Configuring and Troubleshooting Crystal Reports Integration with ITSM

Technical Support Document

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1 Overview

ITSM 5.0.4 supports integration with Crystal Reports (CR), using the web service CR .NET Runtime version 9.2.33, 10.0.33, or 11.0.33. During ITSM installation, users can specify which version of CR .NET Runtime to use. CR .NET Runtime is not shipped with ITSM 5.0.4.

Customers need to purchase the appropriate version and edition of Crystal Reports and CR .NET Runtime from their vendor. ITSM 5.0.4 provides more flexibility in integrating CR and using CR .NET Runtime. This document describes the configuration options and provides troubleshooting information for Crystal Reports integration.

2 Crystal Reports and CR .NET Runtime for ITSM

2.1 *CR .NET Runtime*

Crystal Reports is a standalone application. You can use it to design and create reports, and then run the reports on data sources.

Crystal Reports .NET Runtime is a .NET component that is integrated and used with .NET applications. You must install the same version of CR .NET Runtime on both ITSM client and server machines in order to run Crystal reports with the ITSM smart client. You are not required to install Crystal Reports on the ITSM server or client machines for CR integration, as long as you already have access to reports created using Crystal Reports. You must install Crystal Reports in order to design and create reports or .RPT files.

2.2 *Using CR .NET Runtime*

Both ITSM smart client and Web client can use the same IIS Web service of CR .NET Runtime to run reports. However, Crystal reporting is not implemented in ITSM 5.0.4 Web client yet.

2.3 *Choosing the correct version/edition of Crystal Reports and CR .NET Runtime*

Business Objects, the Crystal Reports vendor, currently supports three versions and four editions of Crystal Reports. As shown in Table 1, the vendor also supports three versions of CR .NET Runtime.

The version of CR .NET Runtime for ITSM 5.0.4 integration must be the same or newer than that of Crystal Reports or the reports. Crystal Reports always supports backward compatibility. CR .NET Runtime can run all the reports created by the same or earlier version of Crystal Reports, but not the newer version.

There are two ways to obtain the web service CR .NET Runtime:

- Purchase Crystal Reports developer edition or above, which includes the site license of CR .NET Runtime.
- Purchase MS Visual Studio .NET 2003 or 2005 professional edition or above, which also includes CR .NET Runtime.

If you already own a version of CR .NET Runtime, you can use it with ITSM 5.0.4. If not, you can purchase CR 11 developer edition to obtain a site license for CR .NET Runtime. You can then use CR .NET Runtime to run any reports created on earlier versions of CR. You can also obtain a free upgrade to CR .NET Runtime Release 2 for future support of .NET 2. Future versions of .NET applications, including ITSM, will run on .NET 2.

If your organization owns multiple copies of CR 10 or CR 9 professional edition, and you prefer to run the same version of CR across your organization, it is recommended that you upgrade one copy of CR 10 or CR 9 professional edition to CR 11 developer edition, to obtain the site license for the same cost of \$315. In addition to the site license, you also get an extra copy of Crystal Reports Designer 11 for possible future use.

Table 1. Versions and Editions of Crystal Reports and CR .NET Runtime.

| | | | | | |
|--------------|------------------|--------------------------|--------------------|---------------------------------|--------------|
| Version | 9/10/11 | 9/10/11 | 9/10/11 | 9/10 | 11 |
| Edition | Standard | Professional | Developer | Advanced | Server |
| license | 1 | 1 | 1 | 3 concurrent | 5 concurrent |
| .NET Runtime | 0 | 0 | Site-license | Site-license | Site-license |
| Cost | \$195 | \$495 | \$595 | \$1995 | \$7500 |
| Features | PC data sources. | Enterprise data sources. | Report Integration | Report delivery and management. | |

(Please check with your Crystal Reports vendor for the latest information on purchasing and licensing Crystal Reports and CR .NET Runtime.)

2.4 What's new in CR integration with ITSM

Both ITSM 5.0.4 and 5.0.3 support CR 9/10/11 integration using CR .NET Runtime version 9.2.33, 10.033, or 11.0.33. However, ITSM 5.0.1 and 5.0.2 support only CR 9. You need to upgrade to ITSM 5.0.4/5.0.3 in order to use the reports or .RPT files created by Crystal Reports Designer 10/11.

ITSM 5.0.4 also supports all the tags, functions, and fields as report parameters from the Tag Selector, except the "Adjust date and time" function, which is not fully implemented for quick actions and reports center yet.

3 Configuring and Troubleshooting CR Integration

3.1 Where to download CR .NET Runtime

To download CR 9 .NET Runtime, cr9netredist.zip, go to:

<http://support.businessobjects.com/communityCS/FilesAndUpdates/cr9netredist.zip.asp>

To download CR 10 .NET Runtime, cr10_net_server_install.zip, go to:

http://support.businessobjects.com/communityCS/FilesAndUpdates/cr10_net_server_install.zip.asp

To download CR 11 .NET Runtime, crXI_net_server_install.zip, go to:

http://support.businessobjects.com/communityCS/FilesAndUpdates/crXI_net_server_install.zip.asp

To review the list of related downloads, go to:

http://support.businessobjects.com/fix/merge_modules.asp#02

3.2 *Installing CR .NET Runtime*

You must install the same version of CR .NET Runtime (9.2.33, 10.0.33, or 11.0.33) on the following machines:

- ITSM server.
- Internet Information Server (when hosting Crystal Web Service on a separate IIS server).
- Smart client.
- Auto deployed smart client.

3.3 *Upgrading Crystal Reports*

When you upgrade Crystal Reports to a new version, for example from CR 9/10 to 11, you must ensure that CR .NET Runtime is the same or newer version than that of Crystal Reports. Otherwise, CR .NET Runtime may not work properly with the reports created by the newer versions of Crystal Reports Designer.

When you apply hot fixes and service packs or reinstall the same version of Crystal Reports, you usually do not have to reinstall CR .NET Runtime.

3.4 *Upgrading CR .NET Runtime*

When you upgrade CR .NET Runtime to a new version, for example from 9/10 to 11, you must reinstall both ITSM 5.0.4 and CR .NET Runtime on both server and client machines. During the installation, you can specify the new version of CR .NET Runtime.

When you apply hot fixes and service packs or reinstall the same version of CR .NET Runtime, you do not need to reinstall ITSM 5.0.4. (The hot fixes of CR .NET Runtime have the same .NET assembly version number as before, but the file version is usually different and incremented.)

3.5 *Upgrading ITSM 5.0.4*

When you apply ITSM 5.0.4 SP, reinstall ITSM 5.0.4 server or client, or upgrade ITSM 5.0.3 to 5.0.4, you do not need to reinstall CR .NET Runtime, assuming you intend to use the same version of CR .NET Runtime. You must reinstall CR .NET Runtime if you want to switch to a different version.

3.6 *Verifying the CR .NET Runtime version*

ITSM 5.0.4 supports CR integration with one of the following three versions of CR .NET Runtime: 9.2.33, 10.0.33, and 11.0.33. By default, they are installed in the following folders:

C:\Program Files\Common Files\Crystal Decisions\2.0

C:\Program Files\Common Files\Crystal Decisions\2.5

C:\Program Files\Common Files\Business Objects\3.0

As shown in Figure 1, the “Add or Remove Programs” dialog of Windows Control Panel shows the installed version of CR and CR .NET Runtime. You may have more versions of CR .NET Runtime installed, and the one you specified in the ITSM 5.0.4 installer will be actually used.

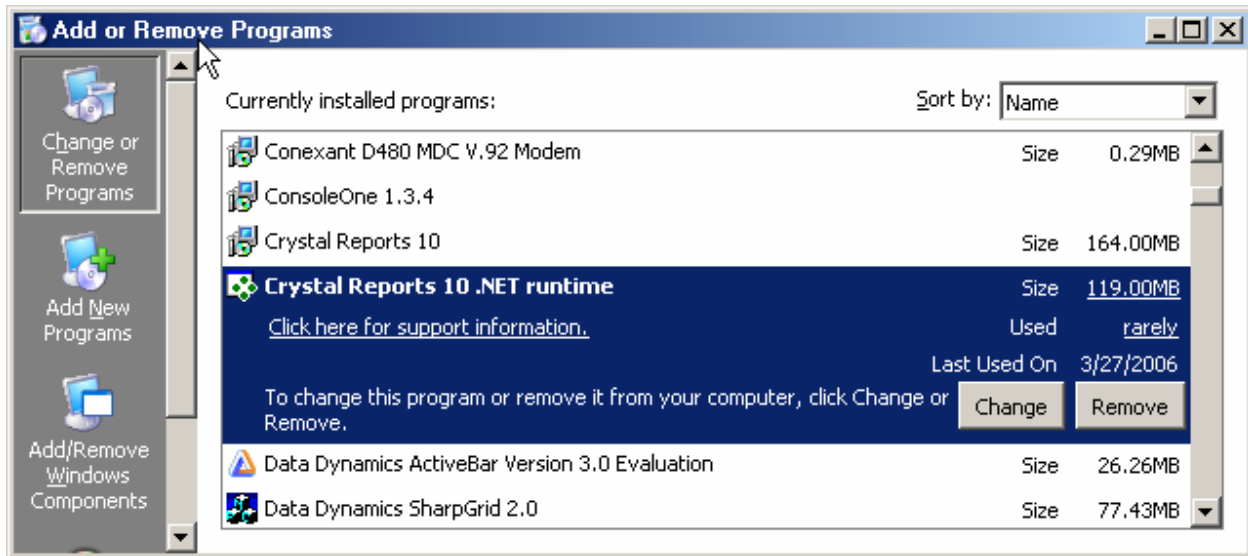


Figure 1. CR 10 .NET Runtime and Crystal Reports 10 in “Add and Remove Programs” dialog

As shown in Figure 2, you can also check the installation and version in .NET Global Assembly Cache (GAC) at c:\Windows\Assembly.

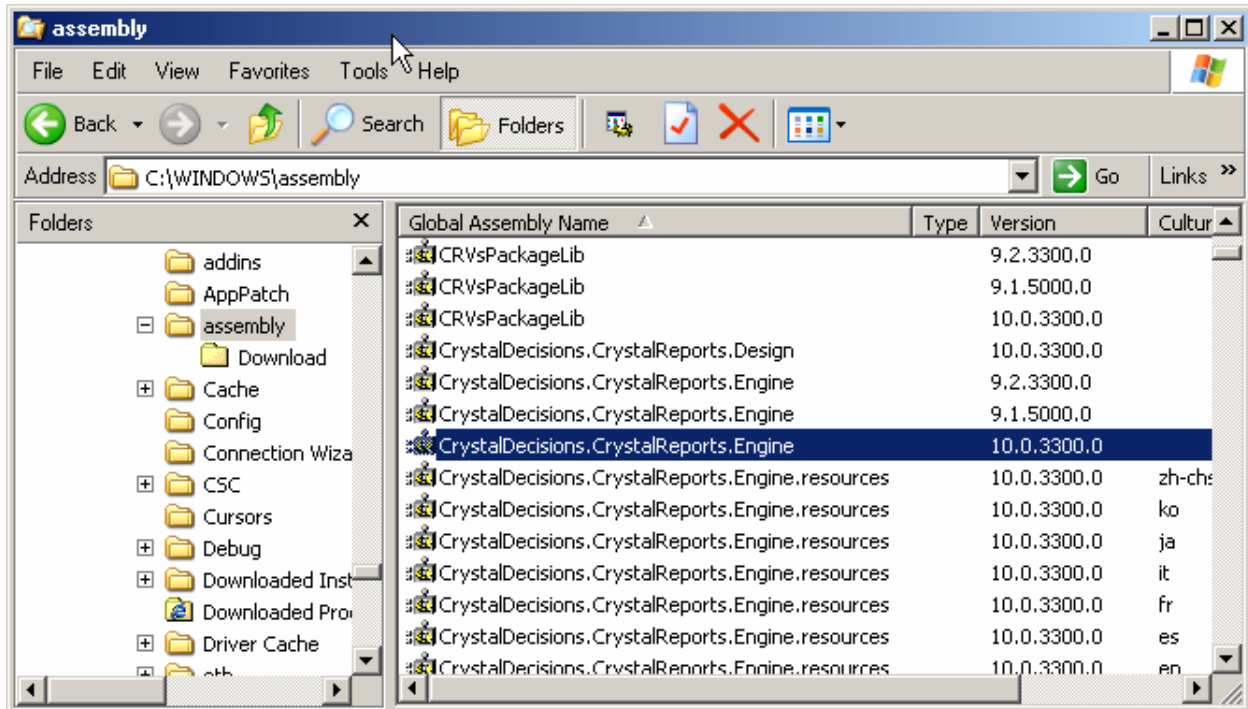


Figure 2. CR 10 .NET Runtime in GAC.

3.7 *Enabling the Reports button and Report Center menu*

The Reports button on the System Settings form in the ITSM Administrator, and the Report Center menu items in smart client are not displayed if the correct version of CR .NET Runtime is not properly installed. Follow the steps described below to verify that the correct version of CR .NET Runtime is properly installed.

3.8 *Verifying the CR .NET Runtime version specified in ITSM installation*

The Web service CR .NET Runtime has a configuration file, and by default, it is located at:

C:\Program Files\FrontRange Solutions\Service Management\ServiceManagementCrystalReportViewers\web.config.

As shown in the sample configuration file below, version 10.0.33 of CR .NET Runtime is used in web service of IIS,

```
<assemblies>
  <add assembly="CrystalDecisions.CrystalReports.Engine, Version=10.0.3300.0, Culture=neutral, PublicKeyToken=692fba5521e1304" />
  <add assembly="CrystalDecisions.Shared, Version=10.0.3300.0, Culture=neutral, PublicKeyToken=692fba5521e1304" />
  <add assembly="CrystalDecisions.ReportSource, Version=10.0.3300.0, Culture=neutral, PublicKeyToken=692fba5521e1304" />
  <add assembly="CrystalDecisions.Web, Version=10.0.3300.0, Culture=neutral, PublicKeyToken=692fba5521e1304" />
</assemblies>
```

Orion.Reporting.dll in ITSM 5.0.4 is the only assembly or component that has references to CR .NET Runtime. By default it is compiled with CR .NET Runtime version 10.0.33. If a non-default version of CR .NET Runtime is specified in the ITSM 5.0.4 installer, a configuration file, Orion.AppLoader.exe.config, is deployed in the same folder as Orion.AppLoader.EXE, and by default, it is located at:

C:\Program Files\FrontRange Solutions\Service Management\Orion.AppLoader.exe.config.

As shown in the sample configuration file below, CR .NET Runtime is redirected from the default version 10.0.33 to 11.0.33.

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <runtime>
    <assemblyBinding xmlns="urn:schemas-microsoft-com:asm.v1">
      <!-- Orion.Reporting is compiled with CR9.2.33. Redirect CR to the installed version. -->
      <dependentAssembly>
        <assemblyIdentity name="CrystalDecisions.CrystalReports.Engine" publicKeyToken="692fba5521e1304" />
        <bindingRedirect oldVersion="10.0.3300.0" newVersion="11.0.3300.0" />
      </dependentAssembly>
      <dependentAssembly>
        <assemblyIdentity name="CrystalDecisions.Shared" publicKeyToken="692fba5521e1304" />
        <bindingRedirect oldVersion="10.0.3300.0" newVersion="11.0.3300.0" />
      </dependentAssembly>
      <dependentAssembly>
        <assemblyIdentity name="CrystalDecisions.Windows.Forms" publicKeyToken="692fba5521e1304" />
        <bindingRedirect oldVersion="10.0.3300.0" newVersion="11.0.3300.0" />
      </dependentAssembly>
    </assemblyBinding>
  </runtime>
</configuration>
```

3.9 How to test the CR .NET Runtime web service

Ensure the Web service is functioning by entering this address in Internet Explorer:

http://<ServerName>/ServiceManagementCrystalReportViewers/CustomServerFileReportService.asmx

Internet Explorer should display a list of the Web service methods. By default, the IIS virtual directory of CR Web service is located at:

C:\Program Files\FrontRange Solutions\Service Management\ServiceManagementCrystalReportViewers

The default document is CustomServerFileReportService.asmx. As shown in Figure 3 of IIS, right-click on ServiceManagementCrystalReportViewers, and then click Browse. The right pane should display the same Service Description page if the web service is functioning properly.

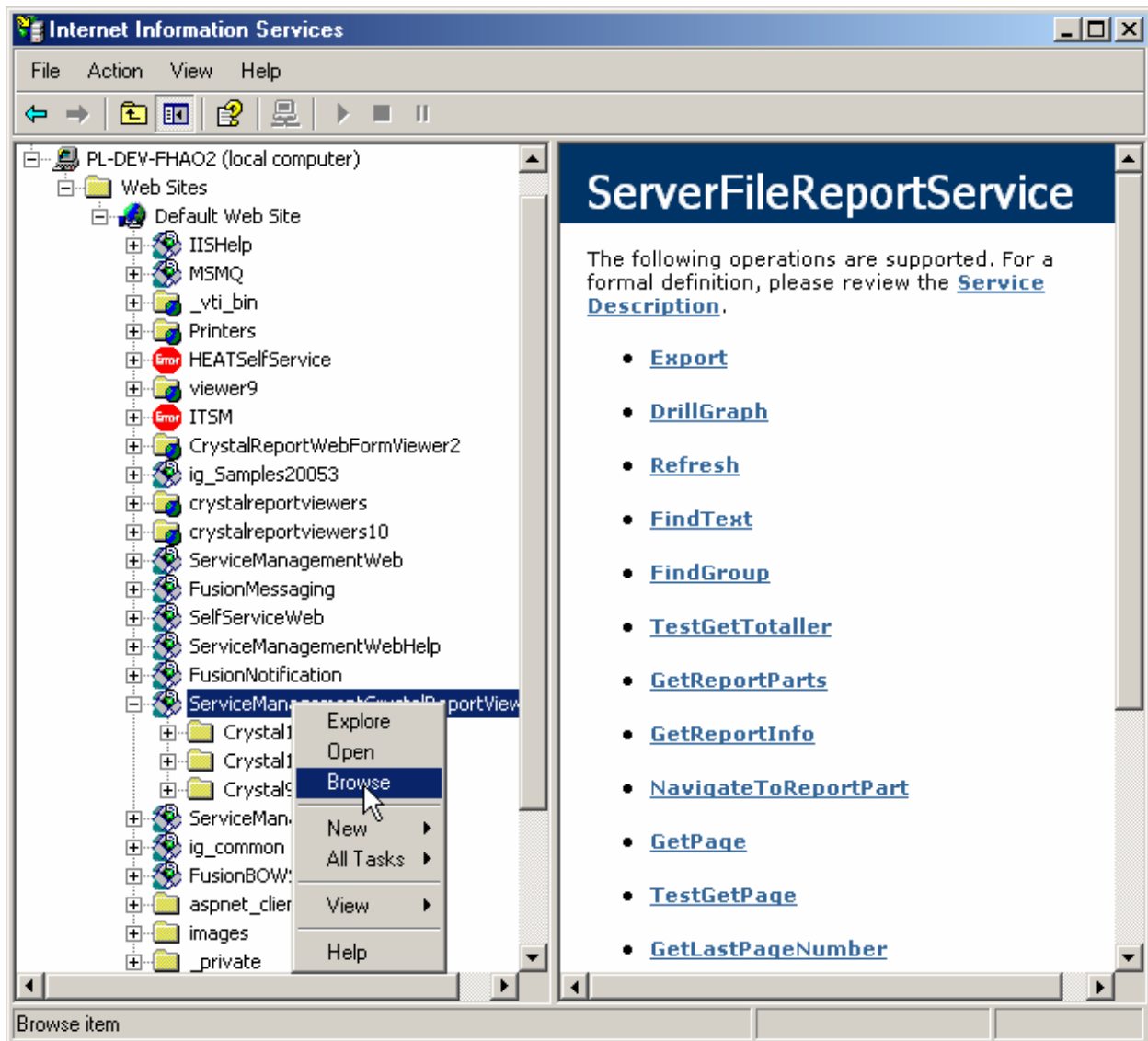


Figure 3. Web Service of CR .NET Runtime.

3.10 How to run a report by pressing a button in a form

You need to add a button in the form using the Admin tool, and then associate this button with the “Run report” action.

3.11 How to handle bugs and bug fixes in CR or CR .NET Runtime

Your CR Vendor should provide periodic fixes and service packs. You can check the following website for the latest critical hot fixes:

http://support.businessobjects.com/fix/hot/critical/default.asp?ref=default.asp_shortcuts

ITSM 5.0.4 offers more flexibility in choosing a version and edition of CR and CR .NET Runtime. You could choose a different version or edition to avoid a critical bug if it occurs only within one particular version or edition.

For instance, the predefined report, ChangeManagement.RPT, has two parameters: one is string type, and the other is date range type. It works fine with CR .NET Runtime version 9/10. It still works fine with CR .NET Runtime version 11, if both parameters are set or none of them are set by ITSM.

A problem occurs only if one parameter is set, but the other is not. An error message is displayed “Missing Parameter Field current Value.” It is most likely a bug in CR .NET Runtime version 11. If this feature is critical for your organization, you can choose CR .NET Runtime version 10/9 instead of version 11. If your organization already uses CR 11 to create reports and you must use CR 11 .NET Runtime, then you can try one of the following optional approaches:

- (1) Avoid such rare usage until it is fixed by your CR vendor
- (2) Use the new “Dynamic Cascading Parameter Prompting” feature of CR11
- (3) Remove one of the two parameters.

3.12 Troubleshooting Checklist

1. Review the Installation and Deployment Guide on CR integration.
2. Ensure the same version of CR .NET Runtime has been installed on all the server and client machines.
3. Check the Report Settings with Admin tool.
4. Check the UserID/Password of the database, and the database connection.
5. Orion.Reporitng.DLL assembly should not be installed in the GAC. Auto deployed smart client may have this assembly deployed at GAC’s download subfolder:
c:\windows\assembly\download
6. Ensure CR .NET Runtime version is correct in web.config file at
C:\Program Files\FrontRange Solutions\Service Management\ServiceManagementCrystalReportViewers
7. Ensure CR .NET Runtime version is correct in Orion.AppLoader.exe.config file, which is deployed for CR 9/11 .NET Runtime at the ITSM root directory,
C:\Program Files\FrontRange Solutions\Service Management
8. Ensure CR Web service is functioning.
9. Restart IIS when you change the configuration.