OpenSpan Core Training

OpenSpan Runtime and Project Deployment:

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- **CHAPTER 2:** Distributing Project Deployment Files
- **CHAPTER 3:** Configuring and Using OpenSpan Runtime
- **CHAPTER 4:** OpenSpan Configuration Project Items
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INTRODUCTION

This course describes how to promote OpenSpan projects from the design environment, OpenSpan Studio, to the runtime environment OpenSpan Runtime. OpenSpan Runtime is a desktop application specifically created for running compiled OpenSpan projects.

Key topics covered in this course:

- Project Properties used in building and deploying projects
- Project Deployment Process and Deployment Package Files
- Distributing Project Deployment Package Files
- Loading Projects in OpenSpan Runtime
- Configuration Project items and Deployment
- Diagnostics and Troubleshooting Runtime Projects

See the Chapter Overviews section for details on the topics covered in this course.

Note: While many of the concepts in this course are useful when deploying projects that reference other OpenSpan projects, please see the extended training module: *OpenSpan Project to Project References*. Also, the topics covered in this course do not include working with non-OpenSpan projects (such as C# or VB) that reference OpenSpan projects. See the Knowledge Base for more information on these types of solutions.

Prerequisites

This course requires successful completion of the **OpenSpan Studio Basics** training module. You will need a working knowledge of OpenSpan Studio and the ability to create basic Windows and Web-based projects.

The course requires the following:

- OpenSpan Studio 4.5
- OpenSpan Runtime 4.5 installed as part of OpenSpan Studio
  - For OpenSpan Studio stand-alone, OpenSpan.Runtime.exe is in the C:\Program Files\OpenSpan\OpenSpan Studio for Visual Studio 2008\PackagesToLoad folder by default.
  - For the OpenSpan Studio plug-in, OpenSpan.Runtime.exe is in the C:\Program Files\OpenSpan\OpenSpan Plug-in for Microsoft Visual Studio 2008 by default)
- Sample CRM application (installation file provided in OpenSpan Studio Extras folder)
- Training project files available for download from the OpenSpan Community website Learning and Certification page (download and then extract Zip file to a folder location of your choice)
  Note: If you are using the OpenSpan Studio plug-in, change the extensions of the sample solution files from .ossln to .sln.
- Internet Explorer versions 6, 7 or 8

Conventions

This document uses the following typographical rules and conventions:

Text Appearance	Meaning
Black bold characters	**Names of program elements that require emphasis, such as command buttons, menus, and dialog boxes, are shown in black bold text.**
Blue Bold Characters	**Text that you are supposed to type or data selections, such as from drop-lists, appear in blue boldface characters.**
Remember	**Definitions of terms and important concepts that bear remembering.**
	Next to the Tip icon, you can find best practices and shortcuts to use OpenSpan Studio more effectively.

Chapter Overviews

Chapter 1: Building and Deploying OpenSpan Projects

Describes setting the project properties used in creating runtime versions of OpenSpan projects. Includes descriptions of how the solution configurations and project property pages work together.

Chapter 2: Distributing Project Deployment Files

Covers how distribute OpenSpan deployment package files to OpenSpan Runtime desktops.

Chapter 3: Configuring and Using OpenSpan Runtime

Provides descriptions of the special configuration settings for OpenSpan Runtime and how to launch the OpenSpan Runtime application. Also includes a description of the project load and run processes.

Chapter 4: OpenSpan Configuration Project Items

Describes the OpenSpan Configuration project item which enables customizing projects and creating deployment packages for specific project configurations. Note that the OpenSpan Configuration project item is not related to the solution configuration (Debug, Runtime) which is a standard part of Visual Studio.

Chapter 5: Diagnostics and Troubleshooting

Describes how to setup diagnostic output publishing for OpenSpan Runtime and how to solve some common issues that arise when running newly deployed projects.

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CHAPTER 1: BUILDING AND DEPLOYING OPENSPAN PROJECTS

This chapter describes the steps for creating deployment versions of OpenSpan projects for use with the OpenSpan Runtime application. The chapter provides details on the OpenSpan project properties used in creating a runtime version of the project. The chapter includes suggested steps for testing a deployed project prior to promoting the project to production.

Objectives

By the end of this chapter, you will be able to:

- Set project properties for building and deploying projects
- Set project properties for specific solution configurations
- Create OpenSpan project deployment packages
- Understand the types of files which comprise a deployment package
- Understand how OpenSpan Runtime loads projects

Project Properties

OpenSpan projects have design properties that display key information about the project and enable you to specify project behavior at runtime. Project properties are located in the Properties window (Project Design properties) and the Project Property Pages:

- Application
- Build
- Deployment

The Project Property pages apply whenever you Build, Run, and Deploy a project. The Build and Deployment project properties are set for a specific **Solution Configuration**. For example, the Build properties can differ between the Debug Solution Configuration and the Release Solution Configuration.

Solution Configurations

When you select **Build** in OpenSpan Studio, the following actions occur:

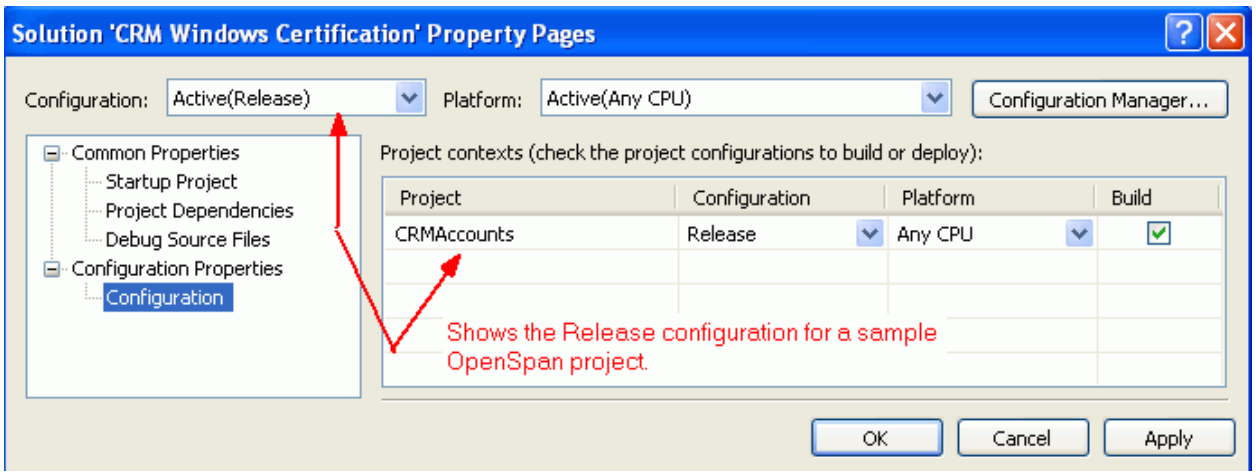
- Project files are compiled.
- Project assembly files (along with associated files) are created.

Selecting **Start** in OpenSpan Studio compiles and builds the project and then:

- Launches the locally installed version of the OpenSpan Runtime application
- Loads the project assembly in OpenSpan Runtime
- Runs the project

Running a project through OpenSpan Studio enables you to test and debug the project. See the *"OpenSpan Studio Diagnostics and Debugging"* training module for more information on debugging projects during design time.

Visual Studio, the framework for OpenSpan Studio, contains Solution Configurations. Define Solution Configurations through the **Solution Property Pages** (**View | Property Pages**). An example of the **Solution Property Pages** dialog follows:



By default, there are two Solution Configurations:

- **Debug**
- **Release**

For OpenSpan projects, building an OpenSpan project using the either the **Debug** or **Release** configuration **does not** create a project deployment package which can be run on stand-alone OpenSpan Runtime installations. These builds are suitable only for use within the design environment.

Use the OpenSpan Studio Deployment functions to create the files required by stand-alone OpenSpan Runtime installations:

- **Deploy Project with Current Configuration**
- **Deploy Project with All Configurations**

OpenSpan includes the translators in the runtime project file when the Deployment functions are used. The translators are required when running the project using a stand-alone OpenSpan Runtime installation. The translator files are not included when a runtime project file is created through the Start and/or Build functions in OpenSpan Studio as these translators not required by the OpenSpan Runtime version installed as part of OpenSpan Studio.

Release and Debug Files

By default, the following files are created during the build process for the Debug and Release configurations:

Release:
Creates the following files in the bin\release folder:

- *Projectname*.dll
- *Projectname*.xml
- *Projectname*_Release.manifest
- *Projectname*_Release.OpenSpan

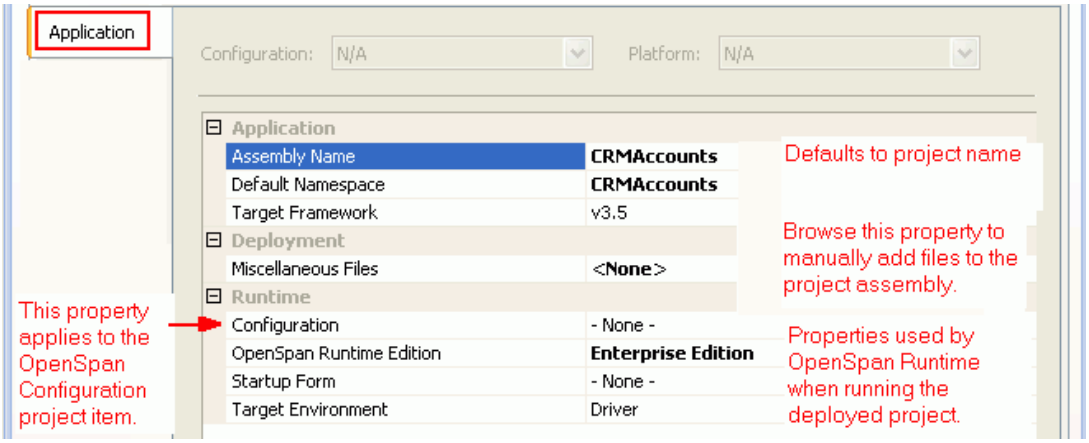
Debug:
Creates the following files in the bin\debug folder:

- *Projectname*.dll
- *Projectname*.pdb
- *Projectname*.xml
- *Projectname*_Debug.manifest
- *Projectname*_Debug.OpenSpan

Note: Additional files are created depending on the **Build References** property setting (described in the Project Property – Build Page section).

Project Property – Application Page

The **Application** properties apply to all Solution Configurations. OpenSpan Studio uses these properties when creating OpenSpan deployment files. The properties define fundamental aspects of the compiled project, such as the name of the resulting project assembly, inclusion of additional files, and assembly file security. An example of a completed Project Property – Application Page follows:



Key properties on the project Application page are:

Configuration – specifies the OpenSpan Configuration project item for the resulting deployment. Configuration project items are detailed in Chapter 4: OpenSpan Configuration Project Item.

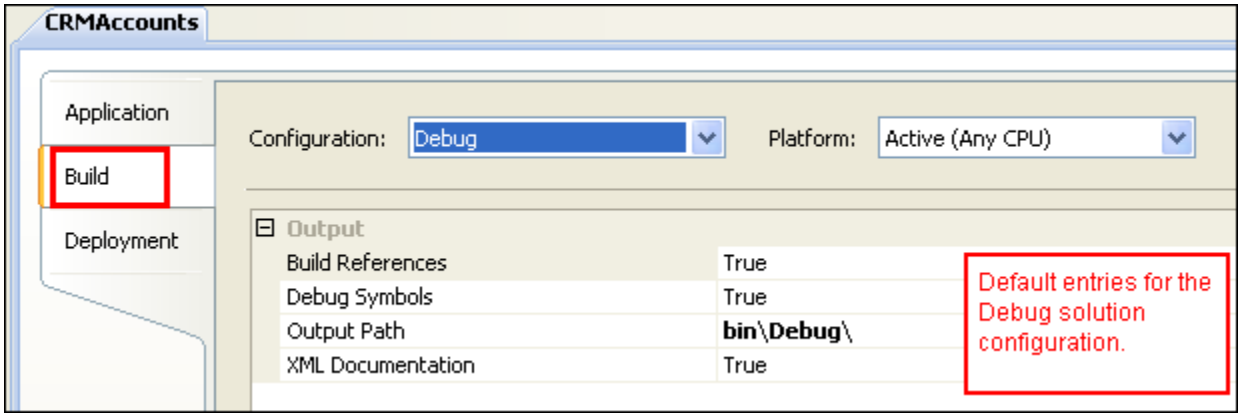
OpenSpan Runtime Edition – specifies the target version of OpenSpan Runtime for use with the deployment. The functions and capabilities differ between OpenSpan Runtime editions. See the following table for an overview of the differences:

Features	OpenSpan Runtime Enterprise	OpenSpan Runtime Events
Windows and Web Application Integration	✓	✓* Cannot change state of interrogated controls
Terminal Emulator / Mainframe / DOS Application Integration	✓	✓* Cannot change state of interrogated controls
Java Application and Applet Application Integration	✓	✓* Cannot change state of interrogated controls
Windows Forms and Application Bars Project Items	✓	✗
Automation Project Items	✓	✓
Custom and Generic Event monitoring Win/Web applications	✓	✓
Web Service Enablement (SOA)	✓	✗
Web Service Consumption (Service Client)	✓	✓

Project Property – Build Page

OpenSpan applies the Build properties when you build and/or deploy a project. These properties depend on the Solution Configuration selected (Release, Debug, etc.). For example, you can set the Build property **Debug Symbols** to False for the Release Solution Configuration and True for the Debug Solution Configuration.

An example of a completed **Project Property – Build Page** follows:



Consult the OpenSpan Studio on-line documentation for details on the Build page properties. For most projects, the default values of the properties can be used. The Build References property depends on how the OpenSpan project is used as follows:

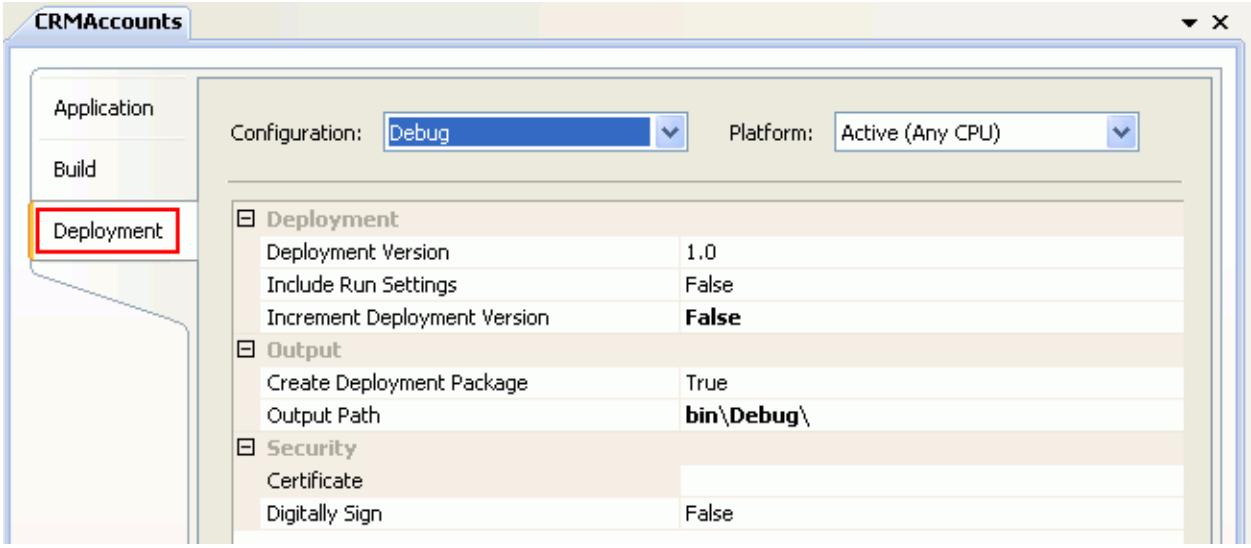
Build References –specifies whether OpenSpan reference files are copied to the Output folder during the build. Set this to True to copy the files. The reference files include assemblies required to use OpenSpan projects on systems that do not have OpenSpan Studio or OpenSpan Runtime installed (e.g., when a C# project references an OpenSpan project).

For single OpenSpan projects that are targeted for deployment to OpenSpan Runtime installations, set the **Build References** property to **False** for both the Debug and Release Solution Configurations.

Project Property – Deployment Page

The **Deployment** project properties apply to project deployment files – the files used by OpenSpan Runtime both on the designer system (Studio) and on end-user systems (Runtime). OpenSpan uses these properties whenever you build and/or deploy a project. These properties depend on the Solution Configuration selected (Release, Debug, etc.). For example, you can set the **Digitally Sign** property to True for the Release Solution Configuration and False for the Debug Solution Configuration.

An example of a completed **Project Property – Deployment Page** follows:



Consult the OpenSpan Studio on-line documentation for details on the Deployment page properties. Basic definitions of the key Deployment properties are:

Include Run Settings –specifies whether the **Run Actions** set for project items in the Solution Explorer apply to the deployed version of the project. If set to True, the project items set to "Not Run" do not execute in OpenSpan Runtime. Otherwise, all project items are loaded and run when the project executes in OpenSpan Runtime.

Create Deployment Package– specifies whether project deployment files are created for use with OpenSpan Runtime. If this property is set to False, the project cannot be loaded in either the version of OpenSpan Runtime installed as part of OpenSpan Studio or the stand-alone OpenSpan Runtime installations.

Digitally Sign– specifies whether additional security is applied to the deployment files. OpenSpan uses certificates to sign deployment files. If you set this to True, you must select a **Certificate** on this page. The certificate binary is added to the project assembly and must be available on the OpenSpan Runtime system in order to load the project.

Exercise: Setting Project Properties for Debug Configuration

Use the steps below to set the Project Properties commonly used with the Debug solution configuration. This exercise requires the following setup:

- OpenSpan Extras - Training solutions and CRM.msi setup application must be installed.
- CRM.exe must be installed on your computer to the following location: C:\Program Files\OpenSpan\CRM Setup (the installation file CRM.msi is included in the Extras folder for OpenSpan Studio).
- Internet Explorer versions 6 ,7 or 8 installed and you must be able to access the OpenSpan training website (http://training.openspan.com/index.html)

1. Extract the Basic - Chapter 4 - CRM Information.zip solution to your OpenSpan Studio Projects folder. You should see the following files:

   \Training Solutions\Basic - Chapter 4 - CRM Information\CRM Information:

   - CRM Information.ossln

   \Training Solutions\Basic - Chapter 4 - CRM Information\CRM Information\CRMAccounts

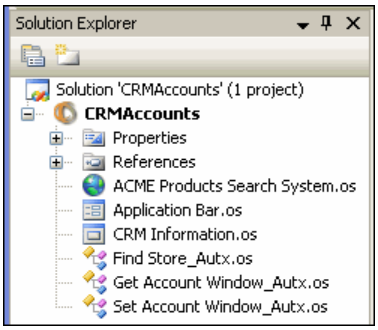
   - ACME Products Search System.os
   - Application Bar.os
   - CRM Information.os
   - CRMAccounts.osproj
   - CRMAccounts.user
   - Find Store_Autx.os
   - Get Account Window_Autx.os

   \Training Solutions\Basic - Chapter 4 - CRM Information\CRM Information\CRMAccounts\Properties:

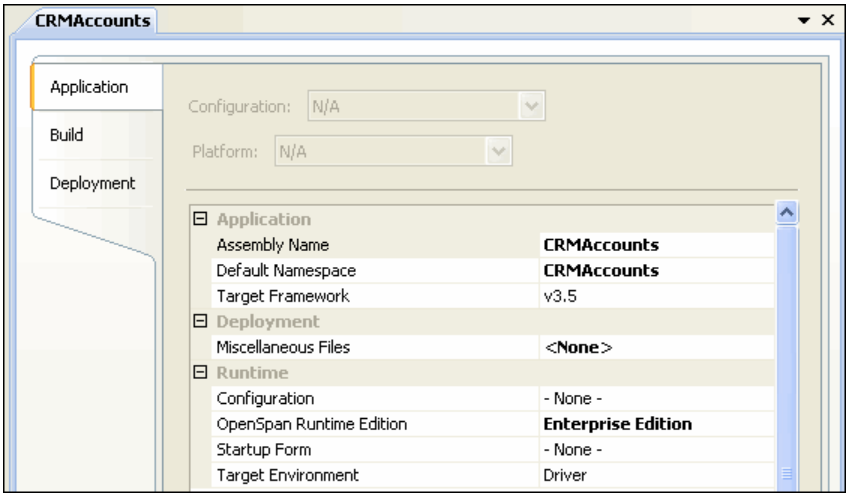
   - ImportTypeMap.resx
   - Resources.resx

2. If you are using the OpenSpan plug-in, rename the solution file: CRM Information.sln.
3. In OpenSpan Studio, open the CRMAccounts.osproj project file (located under the solution folder: \Basic - Chapter 4 - CRM Information\CRM Information). If the project is out of date, the Visual Studio Conversion Wizard displays.

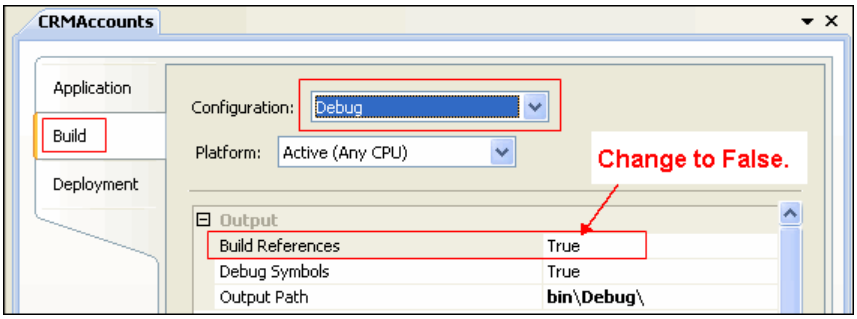
4. Complete the Visual Studio Conversion Wizard to update the project (if necessary). The CRMAccounts project displays in the **Solution Explorer** as follows:



5. Right-click on the CRMAccounts project and select **Properties** from the local menu. The **Project Property** pages display in the designer:

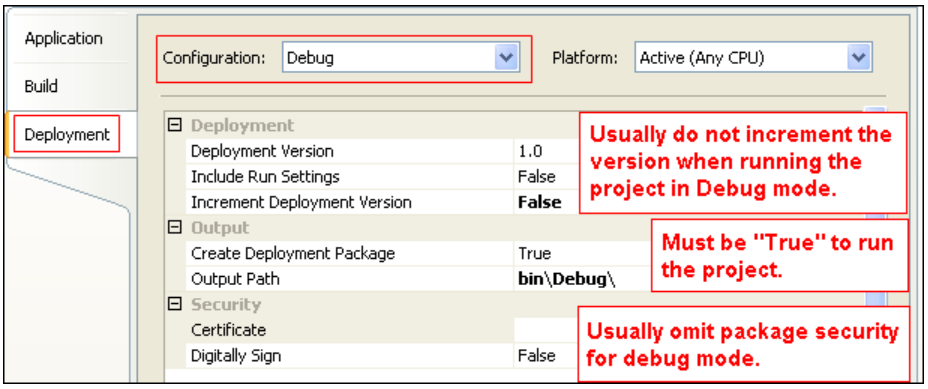


6. Open the **Build** page and select **Debug** for the Configuration. The default Build properties for the debug solution configuration display:



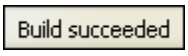
7. Set the **Build References** property to False. The Build References property applies when using an OpenSpan project as a reference from a C# or other non-OpenSpan project. When building and running single OpenSpan projects, it is not necessary to copy the build references for the project to the Debug output folder since these files are included with the OpenSpan Studio and OpenSpan Runtime installations.

8. Open the **Deployment** page and verify that the properties are set as shown below:

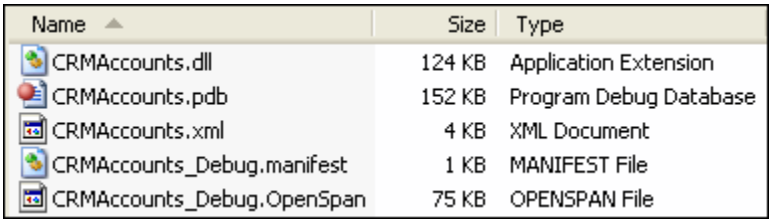


9. Save the solution.

10. With **Debug** selected in the Solution Configuration toolbar option, select **Build | CRMAccounts** from the main menu. OpenSpan Studio compiles and builds the project. The text "Build Succeeded" displays in the information bar at the bottom of the window:



11. Explore the project bin\Debug folder (…\Basic - Chapter 4 - CRM Information\CRM Information\CRMAccounts\bin\Debug) to view the files created as a result of the build process:

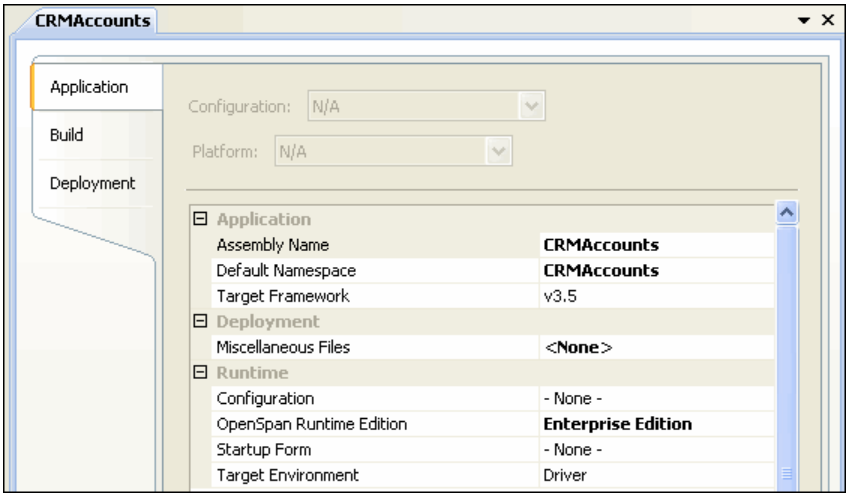


Exercise: Setting Project Properties for Release Configuration

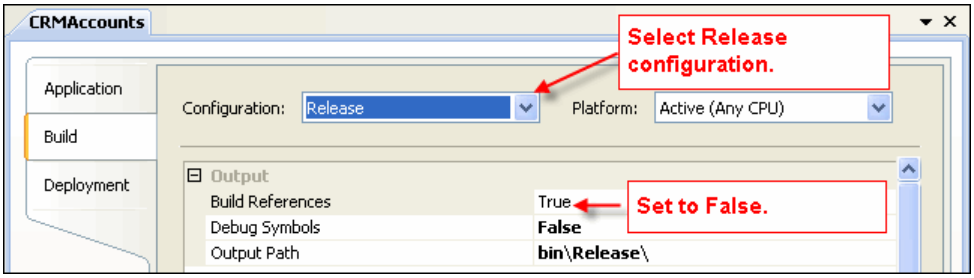
Use the steps below to set the Project Properties commonly used with the Release solution configuration. This exercise requires the following:

- OpenSpan Extras - Training solutions and CRM.msi setup application must be installed.
- CRM.exe must be installed on your computer in the following folder: C:\Program Files\OpenSpan\CRM Setup (the installation file CRM.msi is included in the Extras folder for OpenSpan Studio).
- Internet Explorer versions 6,7 or 8 and you must be able to access the OpenSpan training website (http://training.openspan.com/index.html)

1. Return to the CRMAccounts project in OpenSpan Studio. (If you have not completed the previous exercise, you must extract the Basic - Chapter 4 - CRM Information.zip solution from the Extras folder to your OpenSpan Studio projects folder).
2. Right-click on the CRMAccounts project and select **Properties** from the local menu. The **Project Property** pages display in the designer:

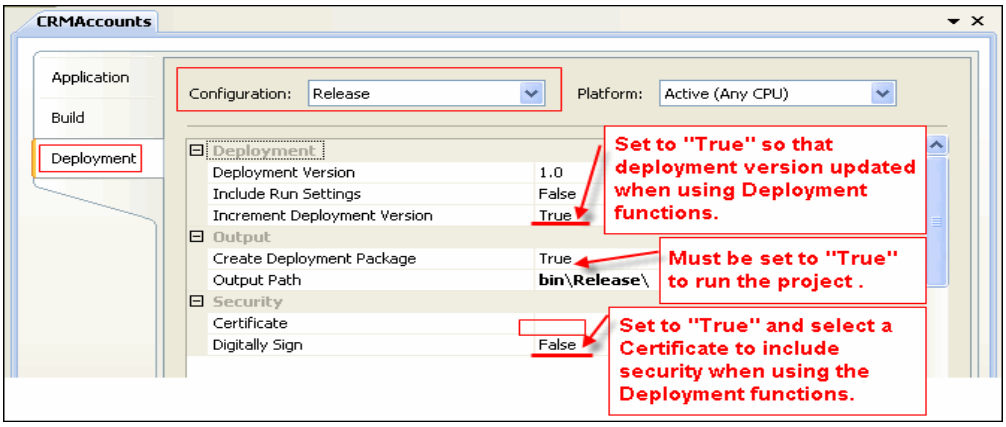


3. Open the Build page and select **Release** for the Configuration. The default Build properties for the release solution configuration display:



4. Set the **Build References** property to False. (See the Project Property – Build Page section for more information on this property.)

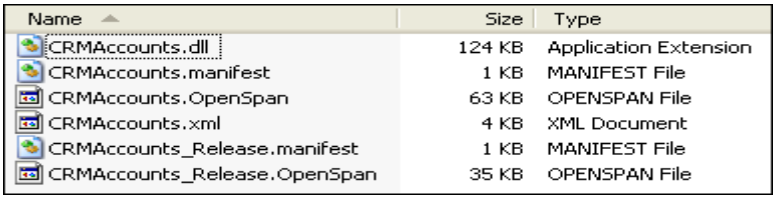
5. On the **Deployment** page, verify that the properties are set as shown below:



6. Save the solution.

7. With **Release** selected in the Solution Configuration toolbar option, select **Build | CRMAccounts** from the main menu. OpenSpan Studio compiles and builds the project. The text "Build Succeeded" displays in the information bar at the bottom of the window:

8. Explore the project bin\Release folder (…\Basic - Chapter 4 - CRM Information\CRM Information\CRMAccounts\bin\Release) to view the files created as a result of the build process:



Note that the program database (PDB) file is not created for the Release configuration since the Debug Symbols property on the Build page is False.

Project Deployment

Once you have created a project and set the Project Property pages, you are ready to begin the process of deploying the project to the end-user environment, OpenSpan Runtime. The suggested preparation for creating runtime projects includes:

- Testing project by running in OpenSpan Studio
- Creating Project Deployment Package for the project
- Installing and Configuring OpenSpan Runtime on pilot systems for testing the project
- Running and testing the project in pilot OpenSpan Runtime environment
- Establishing a file deployment strategy

A prerequisite to running a project in OpenSpan Runtime is ensuring that the OpenSpan Runtime systems have access to all of the applications required by the project and that the paths to the applications are the same as those used in the project. Any drivers or supporting files used by OpenSpan and by the applications must be installed on these computers as well. In general, the computers running OpenSpan Runtime must be able to run the project applications the same way that the OpenSpan Studio designer workstation does.

Testing in OpenSpan Studio

Before preparing a deployment package for use with OpenSpan Runtime, you should thoroughly test the solution in OpenSpan Studio. Some suggested test areas include:

- Login Authentication (if required)
- Application Navigation and Target Matching
- Data Entry Validation
- Error Trapping
- Application Shutdown and Restart

Deployment Package Files

OpenSpan Runtime loads and runs OpenSpan project deployment packages. These packages are created in OpenSpan Studio by either the **Project | Deploy Project with Current Configuration** or **Project | Deploy Project with All Configurations** functions.

A deployment package consists of two files:

- **.openspan file** – contains the compiled project file along with all referenced assemblies and translators.
- **.manifest file** – provides a list of the .openspan file contents along with project version information.

For example, the project **CRMAccount** when deployed results in two files: CRMAccount.manifest and CRMAccount.openspan.

The .manifest file for the **CRMAccount** project looks like the following:

```
<DeploymentManifest version="4.0">
  <CompositeStudioProject name="CRMAccounts" fileName="CRMAccounts.dll"
assemblyName="CRMAccounts.dll" id="Project-8CC77B2D311553B" version="4.5.
323.0" deploymentVersion="1.0" configuration="" deploymentSecurity="None"
digest="29F88A3C4A8F77E78DA92368DA8D43">
    <Assemblies>
      <Assembly value="CRMAccounts.dll"
digest="3216E257BDDB7044C7EC3BEA25E71A" />
    </Assemblies>
    <TranslatorFiles>
      <File value="OpenSpan.Translators.DotNet.v20.WindowsForms.dll"
digest="720EBF18B320688DE53DB58F805B85" />
    </TranslatorFiles>
  </CompositeStudioProject>
</DeploymentManifest>
```

Note that the manifest lists the following information about the project assembly:

Manifest Item	Description
Compiled Project File Name	Based on the Project Name.
Deployed Project File Name	Based on the Project Properties - Application page, Assembly Name property setting.
Project ID	Created when the project is created (this property displays in the OpenSpan Properties window for the project). The ID is used to name the folder the solution is extracted to when the deployment package is opened in Runtime.
OpenSpan Studio version	Version used to create deployment files.
Deployment Version	The version of the deployment package from the Project Properties – Deployment page, Deployment Version property.
Configuration project item used (if any)	The Configuration project item used when deploying the project as set on the Project Properties – Application page, Configuration property.
Deployment Package Security options (if any)	Indicates security settings, certificates, for the deployment package.

Manifest Item	Description
Runtime Project Assemblies	Name of deployed project assembly file (Based on the Project Properties - Application page, Assembly Name property setting.)
Runtime Project Translators	List of OpenSpan translators required by the project.

OpenSpan Runtime Project Load Process

OpenSpan Runtime uses the project manifest file when loading the runtime project as follows:

1. Deployment package files (.openspan and .manifest) copied to a designated location based on the method used to distribute projects to OpenSpan Runtime systems (file share, Web site, local folder).
2. OpenSpan Runtime is launched and loads the project configured in the RuntimeConfig.xml file **StartupProject** setting. If the StartupProject is not set, a project can be manually selected by using the **Load Local Project** or **Load Web Project** options in OpenSpan Runtime.
3. When the OpenSpan Runtime application runs a project for the first time, the **DeploymentExtractDirectory** folder is created. The default location for the folder is: "%LocalApplicationData%" - user's profile, local Application data folder.
4. For the initial load of the project, OpenSpan Runtime extracts the project files from the .openspan file into the Extract Directory (specified by the RuntimeConfig.xml file "DeploymentExtractDirectory"). A sub-folder is created for the project. The name of the folder is specified by the project ID (as listed in the .manifest).
5. OpenSpan Runtime runs the project from the Extract Directory/Project folder.
6. For subsequent runs of the project, OpenSpan Runtime compares the source .manifest file to the existing .manifest files in the Extract Directory for the project. If the Deployment Versions in the .manifest files are not exactly the same, OpenSpan Runtime downloads the new deployment package and re-extracts the files from the deployment file, overwriting the contents of the Extract Directory.

See the image in Appendix: Project Load Process for an illustration of these steps.

Creating Deployment Package with Default Configuration Project Item

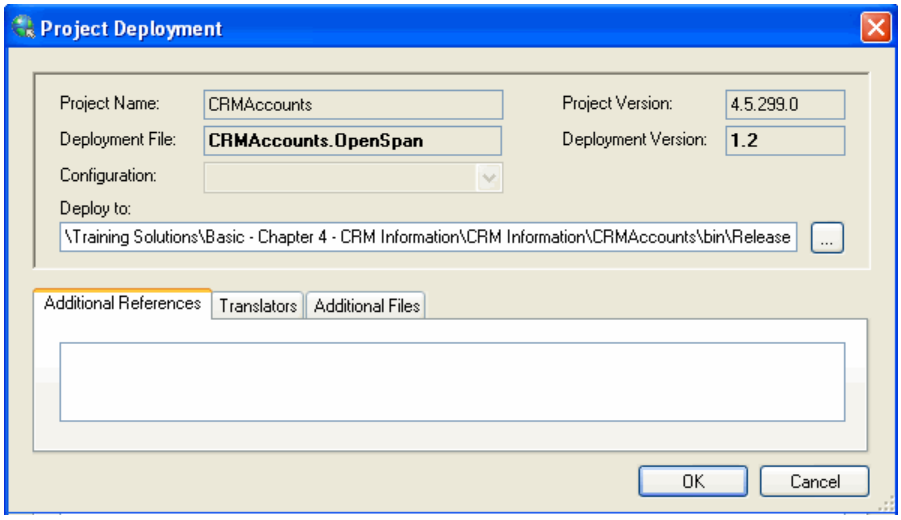
The following steps outline how to create a deployment package for a project. In this case, there are no OpenSpan Configuration project items associated with the project (the Configuration property on the Property Page – Application is "None").

1. With the CRMAccounts project open in OpenSpan Studio, select the **Release** solution configuration option.

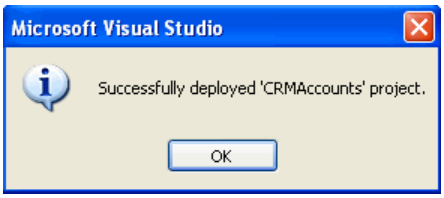
2. Select **Project | Deploy Project with Current Configuration** from the main menu (or click the corresponding toolbar button:

   - 

   The **Project Deployment** dialog displays:



3. See the Project Deployment Dialog Table for details dialog information.
4. In the **Deploy To** edit box, click the browse button and navigate to a location on your local computer to save the deployment package files.
5. Click **OK** to generate the deployment package. A progress bar displays as OpenSpan is creating the deployment files. When complete, a message displays indicating that the process has completed successfully:

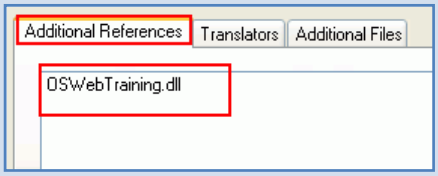


6. Click **OK** to continue and dismiss the deployment message.
7. Navigate to the deployment location chosen in the **Deploy To:** field. The following files are listed:
   - CRMAccounts.OpenSpan
   - CRMAccounts.Manifest

The next part of the procedure is copying the .OpenSpan and .Manifest files to the deployment distribution location for the pilot OpenSpan Runtime workstations. This step is covered in Chapter 2: Distributing Project Deployment Files.

Project Deployment Dialog

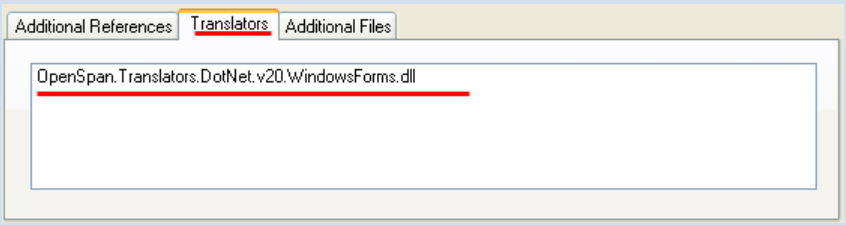
Field	Description
Project Name:	Shows the Name of project as it appears in the Solution Explorer.
Project Version:	Shows the Version of OpenSpan Studio under which the project was last saved/deployed.
Deployment File:	Shows the Name of Project Deployment file (with .OpenSpan extension) which will be created upon successful completion of the deployment.
Deployment Version:	Shows the current deployed version from the Project Properties – Deployment page, Deployment Version property.
Configuration	Lists all profiles created for this project. This field is active only if the Deploy the Project with all Configurations option is selected. In this case, you can select all project Configurations to deploy or select individual Configurations to be deployed to selected locations. If the Deploy the Project with the Current Configuration is selected, this field is inactive. The Configuration project item used for this deployment is set on the Project Properties – Application page, Configuration property.
Deploy to:	Full path where OpenSpan Studio saves the deployment files for the project.

Additional References Tab	
	Lists the assembly files for any references added to the deployed project. For example, if you are deploying an OpenSpan project that references another OpenSpan project, the name of the referenced project's assembly file displays here. In the following example, the deployed project references OSWebTraining.dll. 

Translators Tab

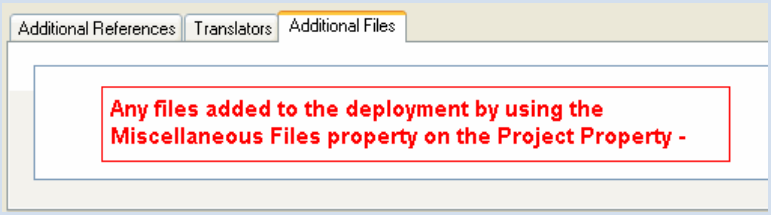
Lists all Translator assembly files associated with the project. Translators are used by OpenSpan to integrate with specific technologies, such as .NET.

The image below shows an example of Translators tab for an OpenSpan project that contains a .NET Windows Form:



Additional Files Tab

Displays the names (including paths) of files added to the deployment package, such as text documents, PDF files, and custom built components. To add files to the deployment package, use the Miscellaneous Files property on the Project Property - Application page.

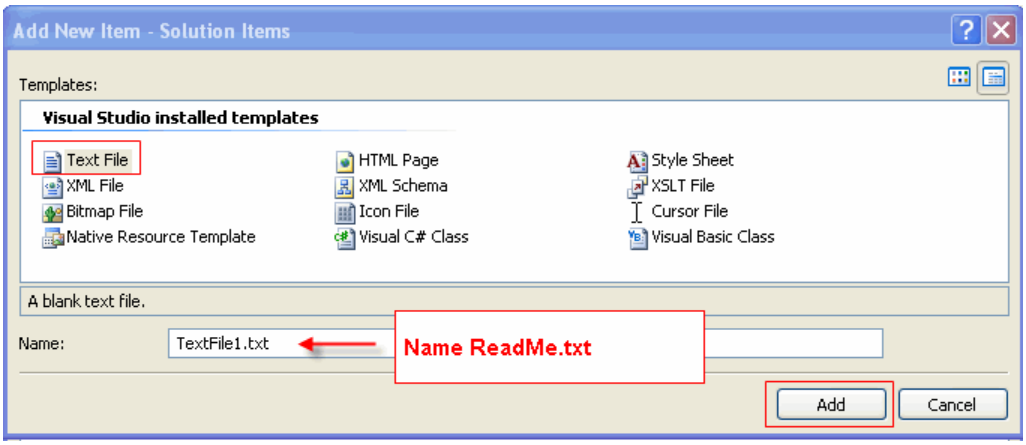


Exercise: Deploy Project with Readme.txt file

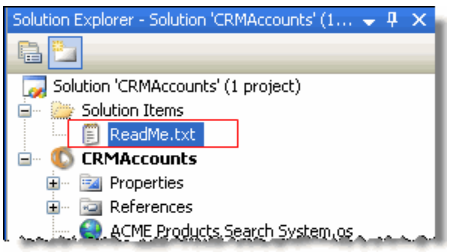
Use the following steps to create an OpenSpan project deployment that includes a text file.
This exercise requires the following setup:

- OpenSpan Extras - Training solutions and CRM.msi setup application must be installed.
- CRM.exe must be installed on your computer to the following location: C:\Program Files\OpenSpan\CRM Setup (the installation file CRM.msi is included in the Extras folder for OpenSpan Studio).
- Internet Explorer versions 6,7 or 8 and you must be able to access the OpenSpan training website (http://training.openspan.com/index.html)

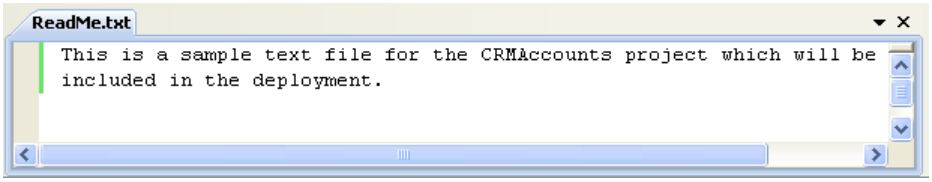
1. Return to the CRMAccounts project in OpenSpan Studio used in the Setting Project Properties for Release Configuration exercise. (If you have not completed this exercise, extract the Basic - Chapter 4 - CRM Information.zip solution to your OpenSpan Studio projects folder.)
2. Select **Release** in the Solution Configuration drop-down toolbox item (if not already selected).
3. Right-click on the solution in the Solution Explorer and select **Add | New Item** from the local menu. The **Add New Item – Solution Items** dialog displays.



4. Select the **Text File** template and enter **ReadMe** for the item name. Click **Add** to continue. The text file is added under the solution in the Solution Explorer and opens in the designer.

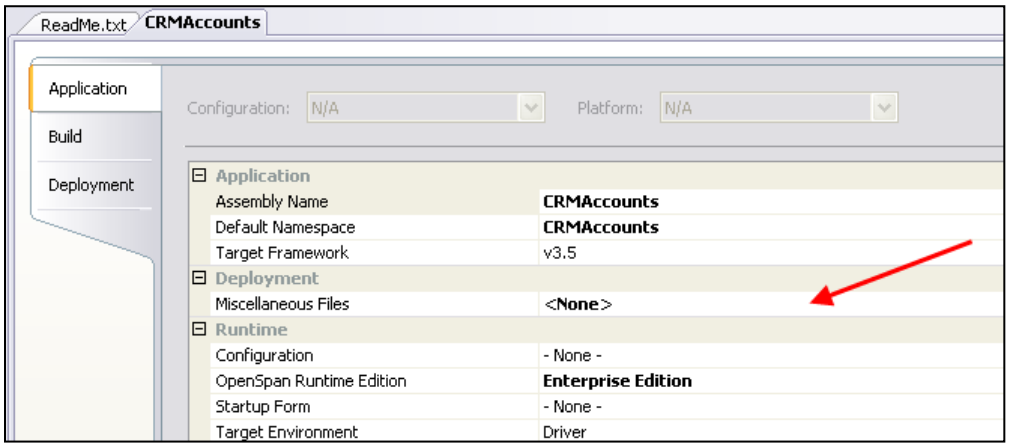


5. In the designer, type sample text for the ReadMe.txt file. For example:

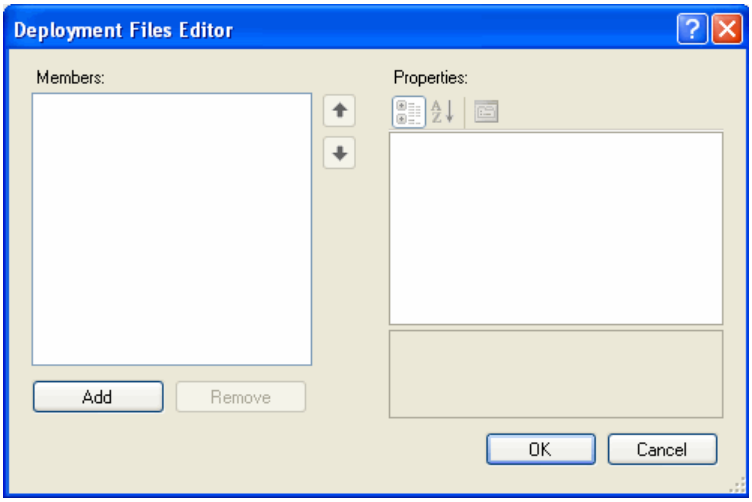


6. Save the solution.

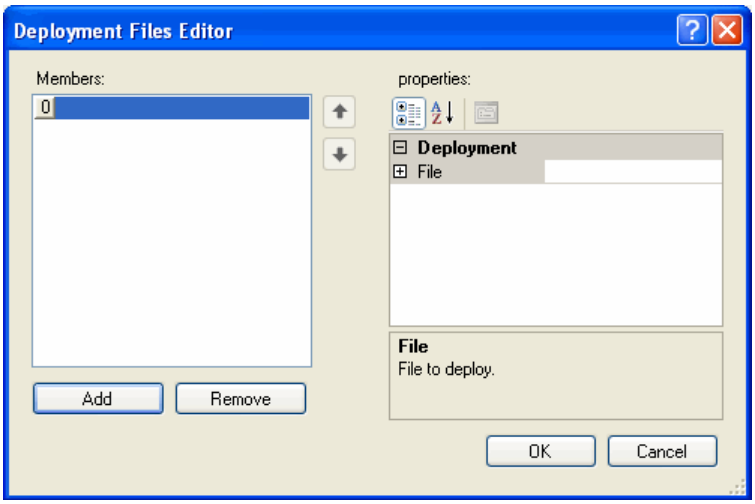
7. Right-click on the **CRMAccounts** project in the Solution Explorer and select **Properties** from the local menu. The **Project Property – Application** page displays.



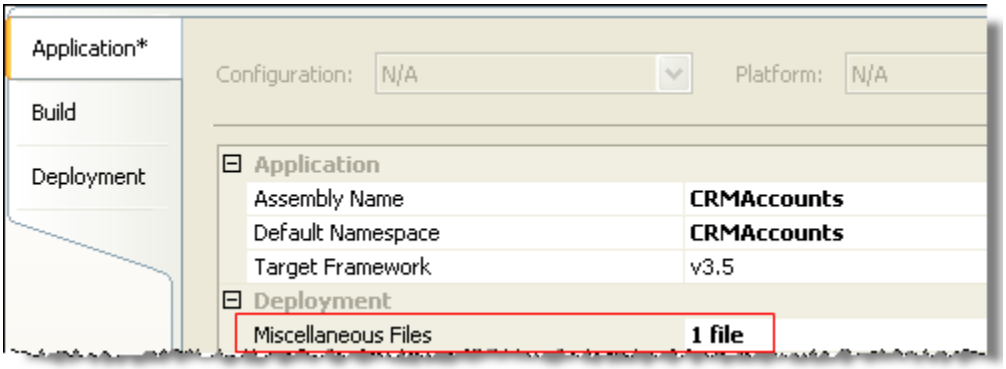
8. Click the browse button in the **Miscellaneous Files** property. The **Deployment Files Editor** displays.



9. Click the **Add** button to add a **Member** for specifying a file to add to the project:



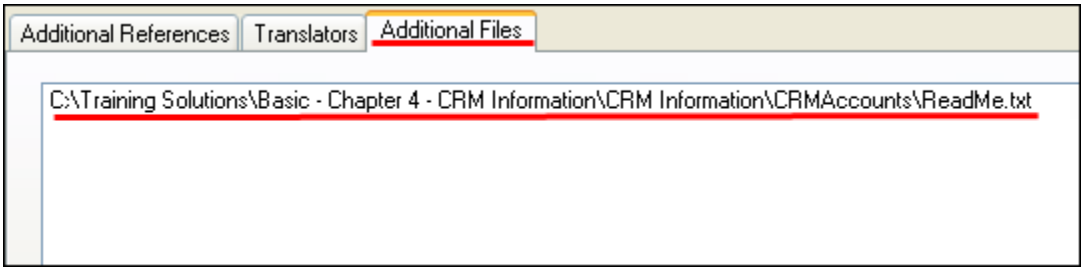
10. Browse the **File** property and navigate to the ReadMe.txt file located in the solution folder. The **Filename** for the new Member displays the full path to the ReadMe.txt file. Click **OK** to save the settings and return to the **Application** page. The **Miscellaneous Files** property now displays: 1 File.



11. Save the solution.
12. Click the **Deploy Project with Current Configuration** button on the toolbar:

The **Project Deployment** dialog displays.

13. Use the **Deploy To:** field to specify a location for the deployment files. Use the default location, the project bin\Release folder.
14. Open the **Additional Files** tab to view the ReadMe.txt file added to the project:



15. Click OK to continue with the deployment. When the deployment files are successfully created, a message displays the status. Click **OK** to continue.
16. Navigate to the **Deploy To:** location and open the .manifest file in Notepad.exe. The MiscFiles section lists the ReadMe.txt file.
17. Close Notepad.exe without modifying the .manifest file.

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CHAPTER 2: DISTRIBUTING PROJECT DEPLOYMENT FILES

After creating the deployment package locally on your OpenSpan Studio computer, you copy the files to a location from which the OpenSpan Runtime pilot or production installations will retrieve the project.

Remember: Whenever a user runs a project using OpenSpan Runtime, the deployment package files are used. Every user must have access to these files and the versioning of these files must be maintained.

Objectives

By the end of this chapter, you will be able to:

- Distribute deployment packages using a network share
- Distribute deployment packages using a Web server
- Distribute deployment packages locally

Project Distribution Options

You have several options for distributing the OpenSpan projects deployment files:

- **Network Share distribution**

  Deployment files are saved to a network share that can be accessed by the OpenSpan Runtime desktops/users.

- **Web Server distribution**

  Deployment files are saved to a Web server that can be accessed by the OpenSpan Runtime desktops/users.

- **Local System distribution**

  Deployment files are copied to each OpenSpan Runtime user's workstation.

Distributing OpenSpan Project Deployment Files from a Network Share Location

When using a network share to deploy OpenSpan projects, you copy or deploy the deployment package to a network share that can be accessed by OpenSpan Runtime users. Basic steps for distributing OpenSpan projects using a file share are:

1. Copy the deployment package files to a folder on the network server.
2. Enabling sharing for the folder and set appropriate user access permissions to the file share.
3. Publish the network address of the file share to the OpenSpan Runtime users, or set the RuntimeConfig.xml configuration files to autoload the project from the share.
4. Maintain version control of the deployment package files.

Distributing OpenSpan Project Deployment Files from a Web Server
To use a web server to distribute OpenSpan projects, copy the deployment package to a website location that can be accessed by OpenSpan Runtime users. Basic steps for distributing OpenSpan projects using a web server are:

1. Verify that the "OpenSpan" extension is enabled on the web server.
2. Upload the deployment package files to the appropriate location on the web server.
3. Grant the appropriate users access to the web server.
4. Publish the URL of the deployment package website location to the OpenSpan Runtime users, or set the RuntimeConfig.xml configuration files to autoload the project from the website.
5. Maintain version control of the deployment package.

Distributing OpenSpan Project Deployment Files using a Local Folder

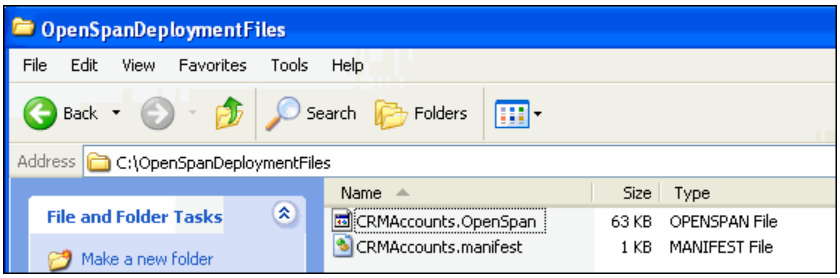
Another deployment method is to copy the package directly to OpenSpan Runtime workstations. This method is commonly used during the QA and UAT process for new projects. In this case, you copy the deployment package to one or a small number of OpenSpan Runtime installations. (The examples and exercises in this course use this method for project deployment.)

OpenSpan Runtime users can either load the project manually or the RuntimeConfig.xml file can be modified to autoload the project from the local folder.

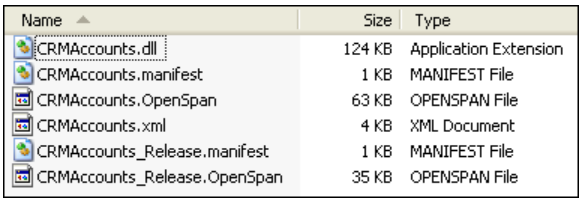
Exercise: Using Local Folder Distribution

Use the following steps to create a folder for OpenSpan deployment package files for use with OpenSpan Runtime on your computer. This file distribution location will be used in subsequent exercises in this course.

1. Using Windows Explorer, create the following folder: **C:\OpenSpanDeploymentFiles**.
2. Locate the **CRMAccounts.OpenSpan** and **CRMAccounts.Manifest** files created in the Deploy Project with readme.txt File exercise.
3. Copy these files to the C:\OpenSpanDeploymentFiles folder. Your Windows Explorer window should look similar to the following:



Note that there are several files .openspan and .manifest files in the \bin\Release folder:



The files with _Release appended to the filename can only be use when running the project through OpenSpan Studio. The project assembly _Release.OpenSpan does not include all of the files required by a stand-alone installation of OpenSpan Runtime (note the file size differences).

For this exercise, make sure to copy the **CRMAccounts.manifest** and **CRMAccounts.OpenSpan** files to the C:\OpenSpanDeploymentFiles folder.

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CHAPTER 3: CONFIGURING AND USING OPENSPAN RUNTIME

The *OpenSpan Installation Instructions* document provides detailed information for installing and configuring OpenSpan Runtime. This chapter describes some of the common tasks related to installation and configuration which apply when testing new projects and promoting projects ready for production.

Objectives

By the end of this chapter, you will be able to:

- Prepare systems to run OpenSpan projects
- Set commonly customized RuntimeConfig.xml keys
- Run OpenSpan Runtime and load projects both manually and automatically
- Run OpenSpan Runtime and load project from command line

Preparing System to Run OpenSpan Projects

OpenSpan Runtime has specific system requirements for general application use. Refer to the OpenSpan Installation documentation for details on the system requirements and installation instructions. Beyond the general application requirements, deployed OpenSpan projects have system requirements as well. These requirements depend on the nature of the project. Before deploying a projects to a specific OpenSpan Runtime desktop, consider the following:

- Does the system and logged-in user(s) have access to the distribution location of project deployment files?
- Does the system and logged-in user(s) have access to all of the applications used in your project? Are the application versions the same?
- What is the best location of the extracted deployment files on the local computer?
- Should the project load automatically when OpenSpan Runtime is launched or should the user manually load the project?

Distribution Location Access

In order for OpenSpan Runtime to open a new deployment package, the application must be able to access the distribution location when run under the logged-in user's credentials. Test accessing the distribution location outside of OpenSpan Runtime to confirm that the deployment files are accessible.

Application Access

Any application used in a deployed project must be accessible from the end-user's system. In environments where the installation locations of applications differ among end-user desktops, you must adapt your OpenSpan projects so that the executable, starter application, or web site is accessible to any user running the project.

For example, OpenSpan projects that contain Windows applications use the Path property to executable or starter application used in the project. If the path to the application differs on the OpenSpan Runtime systems from the path used in the development environment, the project will not be able to load the target application.

OpenSpan Runtime Configuration Files and Settings

When installing and using OpenSpan Runtime for testing new projects, it is common to use different application configuration settings than those used for the production environment. For example, while testing projects you could change the diagnostic publishing settings to enable more verbose error reporting. (See Chapter 5: Diagnostics & Troubleshooting for more information.)

The main configuration files for OpenSpan Runtime are:

- Openspan.ini – modify the settings in this file only when using SuperTrace or Control Regions.
- OpenSpan.Runtime.exe.config – this file contains settings for customizing the OpenSpan Runtime splash screen, selecting the local directory to use for the OpenSpan Runtime configuration files, and enabling remote debugging.
- RuntimeConfig.xml – this file contains settings for OpenSpan Runtime diagnostics, setting a Startup Project, defining the Deployment Extract Directory, and enabling the use of the Last Good Local Package.

See the OpenSpan Studio on-line documentation and Knowledgebase for detailed information on the configuration files. For this course, two settings in the RuntimeConfig.xml file are described -- Deployment Extract Directory and the Startup Project --as these settings commonly require customization.

Setting the Local Project File Extract Directory

By default, OpenSpan Runtime is configured such that the Extract Directory is under each OpenSpan Runtime user's Application Data folder. It is strongly recommended that you change this setting so that all OpenSpan Runtime project files are extracted to a common directory location. To change the directory location, do the following:

1. Locate the RuntimeConfig.xml file in the installation folder on the OpenSpan Runtime workstation.
2. Make a backup copy of the file (RuntimeConfig.bak).
3. Open the RuntimeConfig.xml file using NotePad.exe. Locate the *Deployment* section as follows:

```
<!-- Deployment -->
<add key="DeploymentPackageExtension" value=".openSpan" />
<add key="DeploymentManifestExtension" value=".manifest" />
<add key="DeploymentSaveToDisk" value="true" />
<!-- 'DeploymentExtractDirectory' value format:
<!-- "" or "%LocalApplicationData%" - user's profile local application data folder
<!-- "%TEMP%" - user's profile local temporary folder
<!-- "<Path>" - where <Path> is actual extraction folder path
<add key="DeploymentExtractDirectory" value="" />
<add key="DeploymentLastGoodLocalPackage" value="false" />
```

4. Note that the **DeploymentExtractDirectory** key is blank. By leaving this setting blank, the Local Application Data path is used. Change this path to a common folder which is used for all users of this computer when running OpenSpan Runtime projects. This avoids having to search the system files for the extracted projects for each OpenSpan Runtime user and limits the project copies on the system to one.
5. Once you make changes to the DeploymentExtractDirectory setting (or any of the RuntimeConfig.xml settings), save the RuntimeConfig.xml file and restart OpenSpan Runtime for the changes to take effect.

Setting the Project Load Method

You have the option of enabling OpenSpan Runtime to automatically load a project when the Runtime is launched rather than having the end-user manually load an OpenSpan project. Any time OpenSpan Runtime is started, the application applies the **StartupProject** setting. If the setting is blank, then end-users must manually select a project to load and run. If a project is specified in the StartupProject setting, OpenSpan Runtime automatically loads the project. Note that the project must be identified by the fully delimited file name.

Whether projects are loaded manually or automatically loaded using the StartupProject setting, OpenSpan Runtime compares manifest files and re-extracting deployment files if required.

For testing new projects, the StartupProject is usually left blank and the project is manually loaded. This chapter describes both manually loading projects and modifying the configuration to automatically load projects.

Launching OpenSpan Runtime

When OpenSpan Runtime is installed alone, you can launch the application by selecting OpenSpan Runtime from the Start menu. When running in the design environment, OpenSpan Studio, start OpenSpan Runtime by double-clicking on the executable: OpenSpan.Runtime.exe located in:

- For OpenSpan Studio stand-alone, OpenSpan.Runtime.exe is in the C:\Program Files\OpenSpan\OpenSpan Studio for Visual Studio 2008\PackagesToLoad folder by default.
- For the OpenSpan Studio plug-in, OpenSpan.Runtime.exe is in the C:\Program Files\OpenSpan\OpenSpan Plug-in for Microsoft Visual Studio 2008 by default)

A small OpenSpan icon displays in the application tray when OpenSpan Runtime is running:

Right-click on the icon to view the OpenSpan Runtime menu:

Note: The menu differs between the stand-alone OpenSpan Runtime version (as shown above) and the version installed with OpenSpan Studio.

Exercise: Loading Local Project

This exercise provides detailed steps for loading a deployed project created earlier in this training module. This exercise requires the following setup:

- CRMAccounts.manifest and CRMAccounts.OpenSpan files must be in the C:\OpenSpanDeploymentFiles folder. These files are created in Chapter 1 Exercise: Deploy Project with readme.txt File.
- CRM.exe must be installed on your computer to the following location: C:\Program Files\OpenSpan\CRM Setup (the installation file CRM.msi is included in the Extras folder for OpenSpan Studio.
- Internet Explorer versions 6, 7 or 8 and you must be able to access the OpenSpan training website (http://training.openspan.com/index.html)
- OpenSpan Runtime stand-alone installation.

Begin this exercise by launching OpenSpan Runtime from the Start menu.

1. Once the OpenSpan Runtime icon displays in the application tray, right-click on the icon to open the OpenSpan Runtime menu.
2. Select the **Load Local Project** option. The **Open Project** dialog displays for you to navigate to the project file.
3. Navigate to the C:\OpenSpanDeployment folder.
4. Select the CRMAccounts.OpenSpan file and click **Open** to continue. The **Open Project** dialog closes, the OpenSpan Runtime splash screen displays and then the project is loaded in OpenSpan Runtime.
5. Verify that as the project loads the following open:
   - Application Bar (top of screen) containing Current Account textbox (among other controls)
   - Internet Explorer showing the OpenSpan Web Adapter Certification Course login page (http://training.openspan.com/index.html)
   - CRM application showing the New Call 1 window

   Right-click on the OpenSpan Runtime icon and Exit to unload the project and close Runtime. **Remember:** Closing the individual project applications and windows does not unload or stop the project.
6. Navigate to the ExtractDirectory. This directory is in your local application data folder unless you changed the ExtractDirectory setting in the RuntimeConfig.xml file. For example:

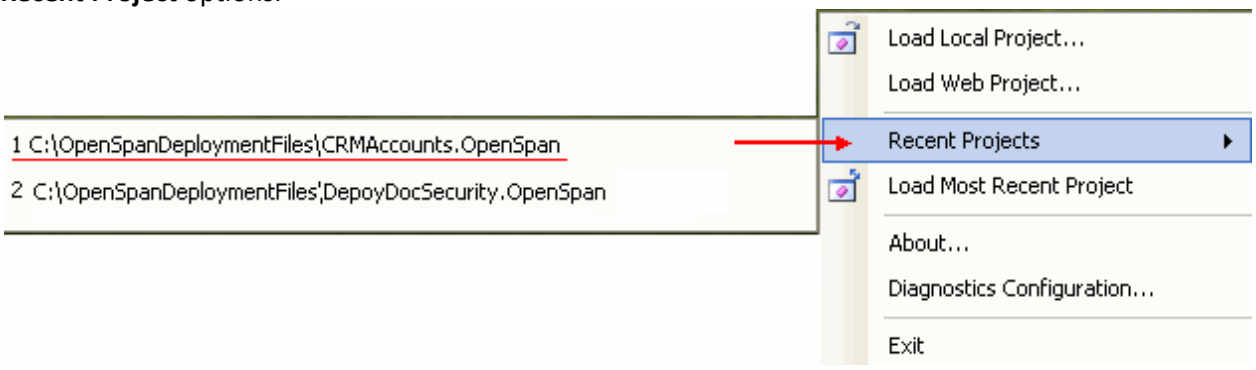
   C:\Documents and Settings\myname\Local Settings\Application Data\OpenSpan\4.5\Projects

7. Open the most recently created folder under the Projects folder (the folder name starts with Project- followed by the project ID). The project folder contains the deployment package files and the extracted project files:
   - CRMAccounts.dll
   - CRMAccounts.OpenSpan
   - Deployment.manifest
   - OpenSpan.Translators.DotNet.v20.WindowsForms.dll
   - ReadMe.txt

The next time you load this project in OpenSpan Runtime, OpenSpan will check the manifest to see if it differs from the manifest in the ExtractDirectory folder. If the manifest files do not differ, the CRMAccounts.dll will be loaded and the extracted project files will remain unchanged. If the manifest files differ, then OpenSpan will re-extract the project files from the deployment package and overwrite the files in the ExtractDirectory folder.

Load Local vs. Load Recent

Loading a project saves the project name in a "recent" list. The next time you want to load the project through OpenSpan Runtime, you can quickly do so by selecting it from the **Recent Projects** or **Load Most Recent Project** options:



When you select a project from either of these options, OpenSpan Runtime goes through the process of comparing the deployment package manifest with the manifest in the local Extract Directory. If the versions differ, or if one or both of the manifest files are missing, the deployment package is re-extracted. Otherwise, the currently extracted version of the project is immediately loaded.

If a new version of the product has been deployed, changes will not take effect until the old project is manually unloaded and the new project is loaded.

Loading Project from Command Line

You can start OpenSpan Runtime and load a project from the command line. To do so, enter enclosed in double quotes the full path to the Runtime program executable file, followed by a space, the command *Project=* and finally in double quotes the full path to the project deployment file. That is, "*program executable path*" Project="*data path*".

For example, to load the CRMAccounts.openspan project deployed as part of this course's exercises:

C:*{install location}*\OpenSpan.Runtime.exe Project "C:\OpenSpanDeploymentFiles\CRMAccounts.OpenSpan"

Exercise: Load Project from Command Line

Use the following steps to load the CRMAccounts project in OpenSpan Runtime from the command line: This exercise requires the following setup:

- CRMAccounts.manifest and CRMAccounts.OpenSpan files must be in the C:\OpenSpanDeploymentFiles folder. These files are created in Chapter 1 Exercise: Deploy Project with readme.txt File (if you have not completed this exercise, use the files attached to this document).
- CRM.exe must be installed on your computer to the following location: C:\Program Files\OpenSpan\CRM Setup (the installation file CRM.msi is included in the Extras folder for OpenSpan Studio.
- Internet Explorer versions 6, 7 or 8 and you must be able to access the OpenSpan training website (http://training.openspan.com/index.html)
- OpenSpan Runtime stand-alone installation.

1. If OpenSpan Runtime is open, right-click on the icon and select Exit to shut the application down.
2. From the Start Menu select Run. The Run dialog opens.
3. Type cmd in the Run dialog and click OK. A command window opens.
4. Navigate to the OpenSpan Runtime installation folder (usually this is C:\Program Files\OpenSpan\OpenSpan Studio for Visual Studio 2008\PackagesToLoad)
5. Type the following:

   ```
   OpenSpan.Runtime.exe Project="C:\OpenSpanDeploymentFiles\CRMAccounts.OpenSpan"
   ```

6. OpenSpan Runtime launches and the project loads.
7. If OpenSpan Runtime is open, right-click on the icon and select Exit to shut the application down.
8. The project is unloaded and OpenSpan Runtime shuts down.

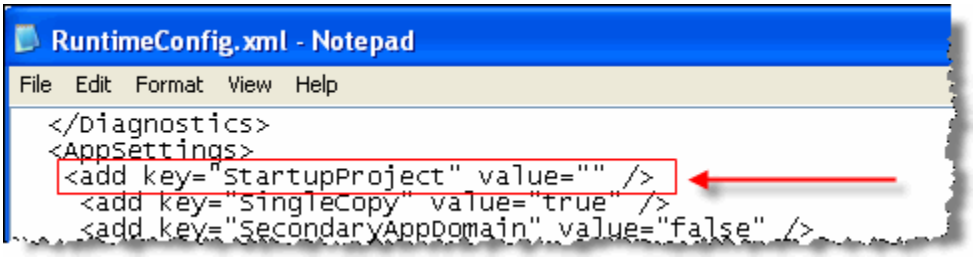
Exercise: Automatically Load Project on OpenSpan Runtime Start

Using the CRMAccounts.openspan project, use the following steps to configure OpenSpan Runtime to automatically open the project when the application starts.

This exercise requires the following setup:

- CRMAccounts.manifest and CRMAccounts.OpenSpan files must be in the C:\OpenSpanDeploymentFiles folder. These files are created in Chapter 1 Exercise: Deploy Project with readme.txt File (if you have not completed this exercise, download the ? file from the OpenSpan Community website).
- CRM.exe must be installed on your computer to the following location: C:\Program Files\OpenSpan\CRM Setup (the installation file CRM.msi is included in the Extras folder for OpenSpan Studio.
- Internet Explorer versions 6, 7 or 8 must be installed on your computer and you must be able to access the OpenSpan training website (http://training.openspan.com/index.html)
- OpenSpan Runtime stand-alone installation.

1. Open the RuntimeConfig.xml file in Notepad.exe and locate the *AppSettings* section of the file as follows:



2. Locate the **StartupProject** key. Note that the setting is blank, which is the default.

3. Change the setting to the following:

```
< ="StartupProject" value=" C:\OpenSpanDeploymentFiles\CRMAccounts.OpenSpan" />
```

4. Save and close the RuntimeConfig.xml file.
5. Restart OpenSpan Runtime. Note that now the project automatically loads.
6. Unload the project and Exit OpenSpan Runtime.
7. Return to the RuntimeConfig.xml file in Notepad.exe and clear the "StartupProject" entry. The setting should be: <add key="StartupProject" value=" " />

Save the RuntimeConfig.xml file and exit Notepad.exe

CHAPTER 4: OPENSPAN CONFIGURATION PROJECT ITEMS

Use Configuration project items to set control properties to several different values and then run/deploy a single project using each of the property-value configurations. This enables you to use a single project to create multiple deployment versions.

Objectives

By the end of this chapter, you will be able to:

- Add Configuration items to a project
- Define Configuration property-value profiles for controls
- Set the Configuration property for the project
- Deploy projects with selected Configurations

Configuration Project Item Overview

The OpenSpan Studio **Configuration** project item enables you to set control-property-value profiles which you can use to customize a project without creating additional versions of the project. You can use multiple Configuration project items in a project.

For example, using a single project you can set the Path property for a Windows application to several different values and then deploy the project using the Path which is applicable to the end-user OpenSpan Runtime installations.

Adding and Defining Configuration Project Items

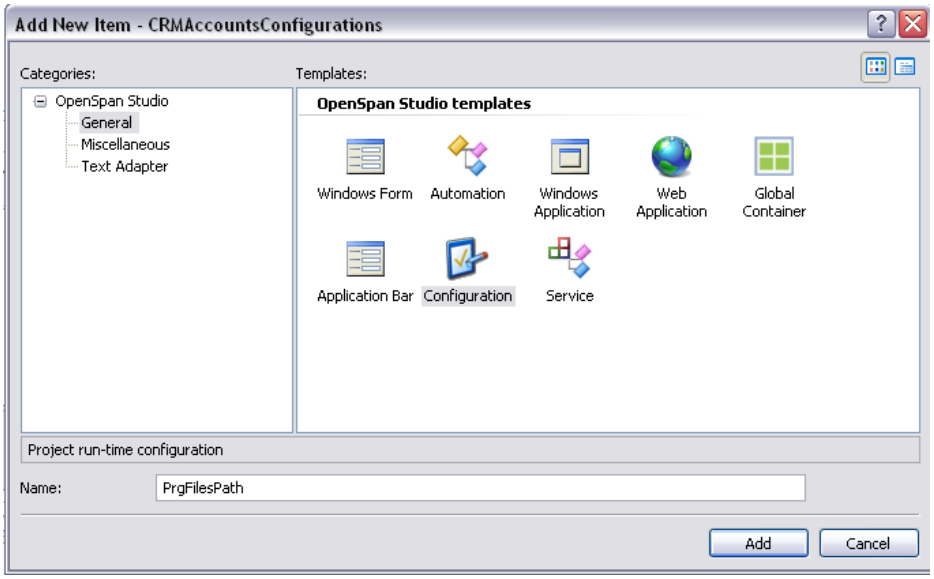
The following steps illustrate adding and defining Configuration project items to deploy multiple versions of a project which use different Path property values for the CRM.exe sample Windows application:

- Configuration 1: CRM application path = C:\Program Files\CRM\CRM.exe (this is the path for the CRM executable for a pilot group OpenSpan Runtime installations).
- Configuration 2: CRM application path = C:\Program Files\OpenSpan\CRM Setup\CRM.exe (this is the path for the CRM executable for the designer OpenSpan Studio installation).

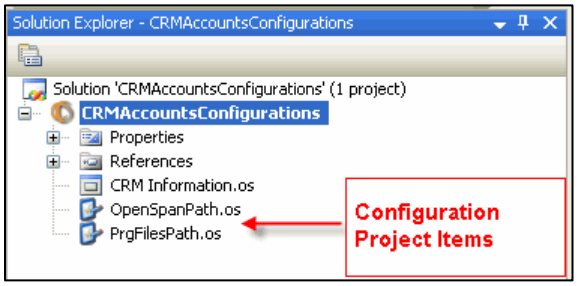
Note: You may follow along with the steps in this section even if you do not have the CRM application installed.

1. Create a new OpenSpan project: CRMAccountsConfigurations.
2. In the Solution Explorer, right-click on the CRMAccountsConfigurations project Add | New Windows Application. The Add New Item dialog displays.
3. Select the Windows Application template and name the item: **CRM Information**. Click Add to continue. The dialog closes and the new project item is added to the Solution Explorer.

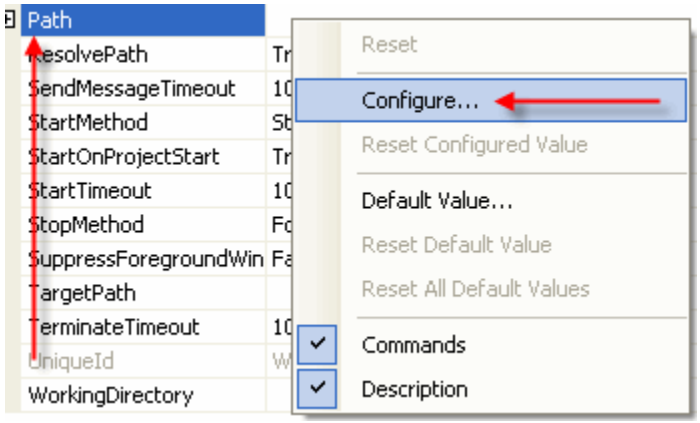
4. Right-click on the CRMAccountsConfigurations project in the Solution Explorer and select Add | New Item. The Add New Item dialog displays.
5. Select the Configuration template and name the item: **PrgFilesPath.** Click Add to continue. The dialog closes and the project item is added to the Solution Explorer and opens in the designer.



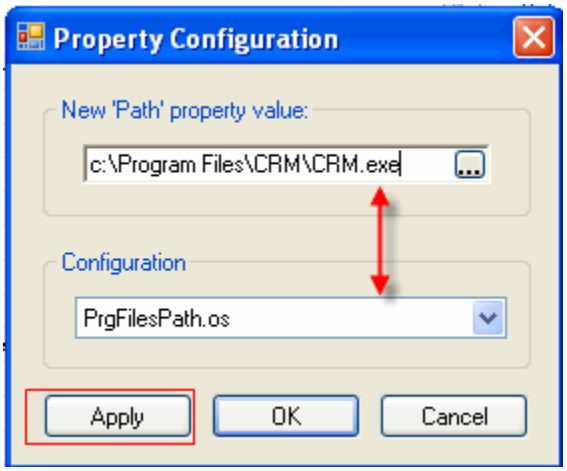
6. Repeat the previous step to add another Configuration project item. Name the item: **OpenSpanPath**. Your Solution Explorer should look like the following:



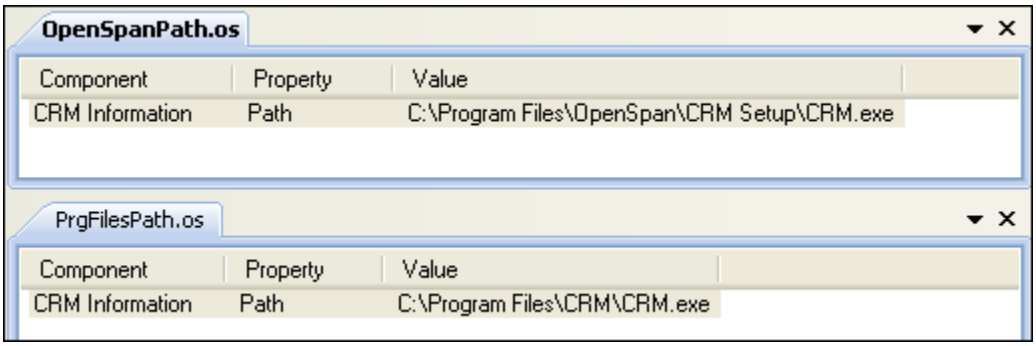
7. Open the CRM Information project item. The **Match Rules Edit**or displays.
8. Right-click in the **Path** property for the CRM Information item to display the local menu:



9. Select the Configure option. The **Property Configuration** dialog displays.
10. Select the PrgFilesPath.os **Configuration** and type the following for the **New 'Path' property value:** C:\Program Files\CRM\CRM.exe. Click Apply to save the configuration assignment.



11. Right-click in the Path property for the CRM Information item to display the local menu. This time select OpenSpanPath.os for the **Configuration** and type the following for the property value: C:\Program Files\OpenSpan\CRM Setup\CRM.exe. Click OK to save the configuration assignment and dismiss the Property Configuration dialog.
12. Opening the Configuration project items in the designer shows the Path property values that have been assigned:



13. Save the solution.

These steps illustrate how to add and define Configuration project items. For definitions of the Configuration project item designer functions, see the OpenSpan Help- Configuration Project Item topic.

Exercise: Creating Configuration Project Item Profiles

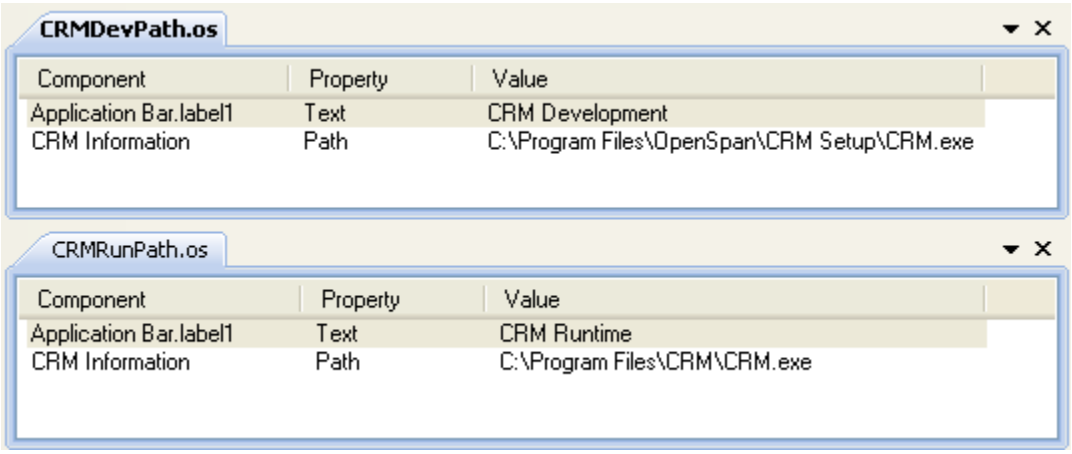
This exercise provides practice in creating Configuration profiles for OpenSpan controls. This exercise requires the following setup:

- OpenSpan Extras - Training solutions and CRM.msi setup application must be installed.
- CRM.exe must be installed on your computer to the following location: C:\Program Files\OpenSpan\CRM Setup (the installation file CRM.msi is included in the Extras folder for OpenSpan Studio.
- The Basic - Chapter 4 - CRM Information.zip solution must be extracted to your OpenSpan Studio projects folder.
- The CRMAccounts.osproj must opened, updated (if necessary), and saved in OpenSpan Studio.
- Internet Explorer versions 6, 7 or 8 must be installed on your computer and you must be able to access the OpenSpan training website (http://training.openspan.com/index.html)

Begin this exercise by opening the CRM Information solution in OpenSpan Studio.

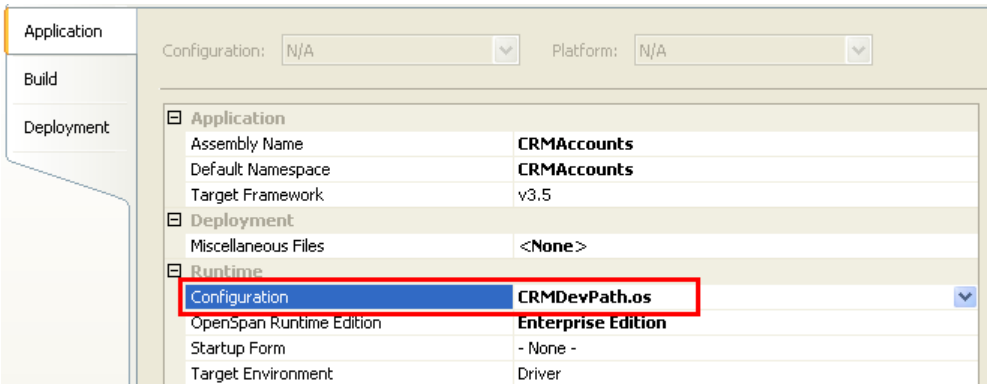
1. Add two Configuration project items to the CRMAccounts project: CRMDevPath.os and CRMRunPath.os.
2. Right click on the **CRM Information** project item in the **Solution Explorer** and select **Open**.
3. From the Properties Window, right-click in the Path property for the **CRM Information** project item and select Configure. The **Property Configuration** dialog displays.
4. Select the CRMDevPath.os Configuration and set the property value to: C:\Program Files\OpenSpan\CRM Setup\CRM.exe. Click Apply to save the definition.
5. Select the CRMRunPath.os Configuration and set the property value to: C:\Program Files\CRM\CRM.exe. Click Ok to save the definition and return to the designer window.
6. Save the solution.
7. Add a Label to the top left corner of the Application bar.
8. Right-click on the Text property for the Label and select Configure. The **Property Configuration** dialog displays.
9. Select the CRMDevPath.os Configuration and set the Text to: CRM Development. Click Apply to save the definition.
10. Select the CRMRunPath.os Configuration and set the Text to: CRM Runtime. Click OK to save the definition and dismiss the Configuration dialog.
11. Save the solution.

12. Open the Configuration project items in the designer to view the property-value definitions:



13. Right-click on the project in the Solution Explorer and select the Properties option from the local menu. The Project Property – Application page displays.

14. Set the Configuration property to CRMDevPath.os (this is the configuration for the development environment).

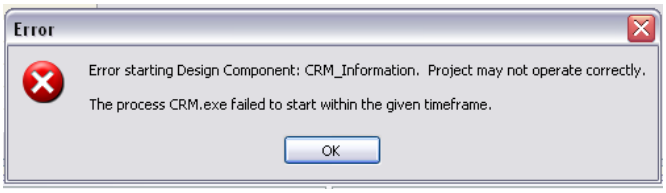


15. Close the Project Properties and save the solution.

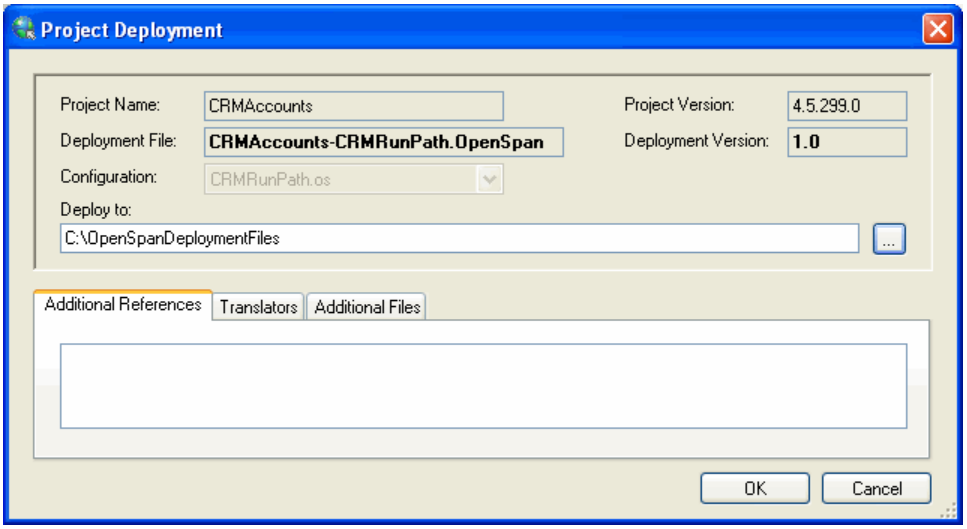
16. With the Debug solution configuration selected, click Start from the main toolbar. The OpenSpan builds and compiles the project. After successfully building the project OpenSpan Runtime is launched. If the Path configuration is set correctly, the CRM.exe application runs showing the Login window. Note that the text: **CRM Development** displays in the Application bar. Stop the project.

17. Return to the Project Properties – Application page and change the Configuration to CRMRunPath.os.

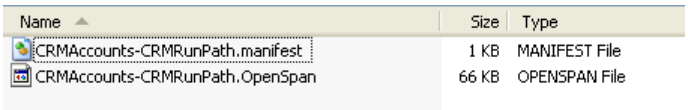
18. Save and run the project. Since the path is not correct for the design environment, an error displays when OpenSpan Runtime attempts to start CRM.exe:



19. Stop the project.
20. Select the Release solution configuration and then click the Deploy Project with Current Configuration button on the main toolbar. The Project Deployment Dialog displays.

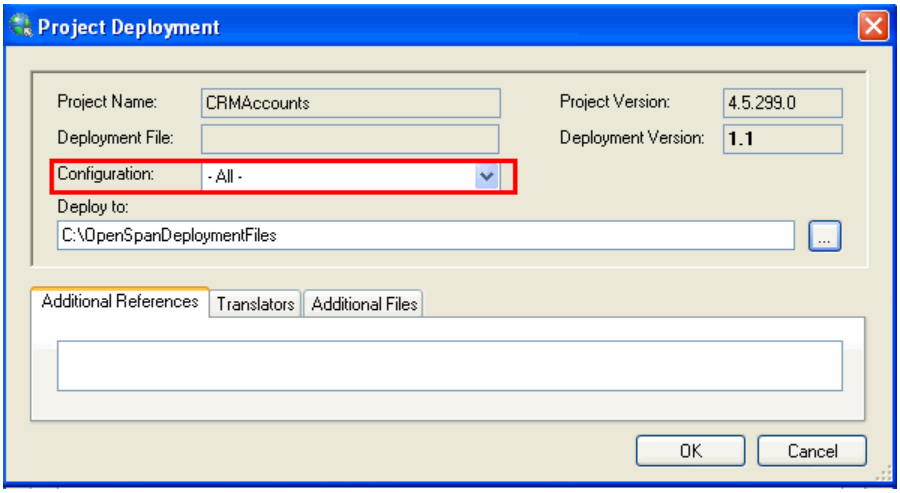


21. Click OK to create the deployment package. When complete, the following files are created in the Deploy To folder:

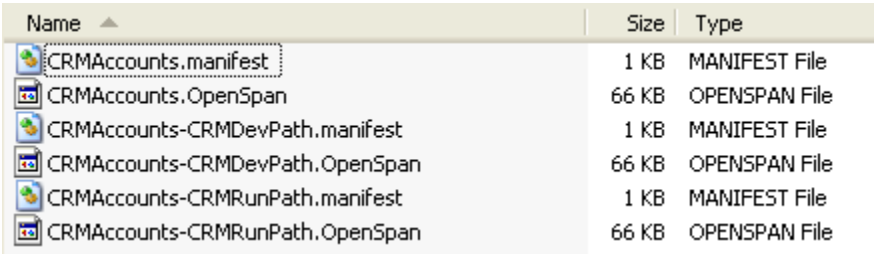


22. Return to OpenSpan Studio and click the Deploy Project with All Configurations button from the main toolbar:

The Project Deployment dialog displays showing the option All in the Configuration field:



23. Click OK to create the deployment package. When complete, the following files are created in the Deploy To folder:



Name	Size	Type
CRMAccounts.manifest	1 KB	MANIFEST File
CRMAccounts.OpenSpan	66 KB	OPENSPAN File
CRMAccounts-CRMDevPath.manifest	1 KB	MANIFEST File
CRMAccounts-CRMDevPath.OpenSpan	66 KB	OPENSPAN File
CRMAccounts-CRMRunPath.manifest	1 KB	MANIFEST File
CRMAccounts-CRMRunPath.OpenSpan	66 KB	OPENSPAN File

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CHAPTER 5: DIAGNOSTICS & TROUBLESHOOTING

OpenSpan Runtime contains diagnostic functions for publishing application messages generated while OpenSpan Runtime is running and while loading and running projects.

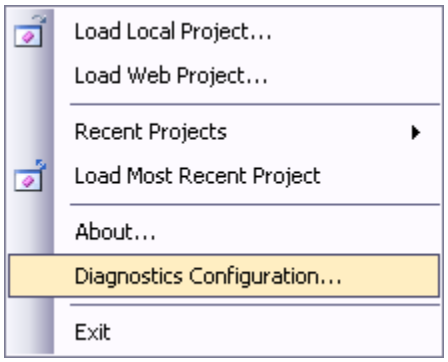
Objectives

By the end of this chapter, you will be able to:

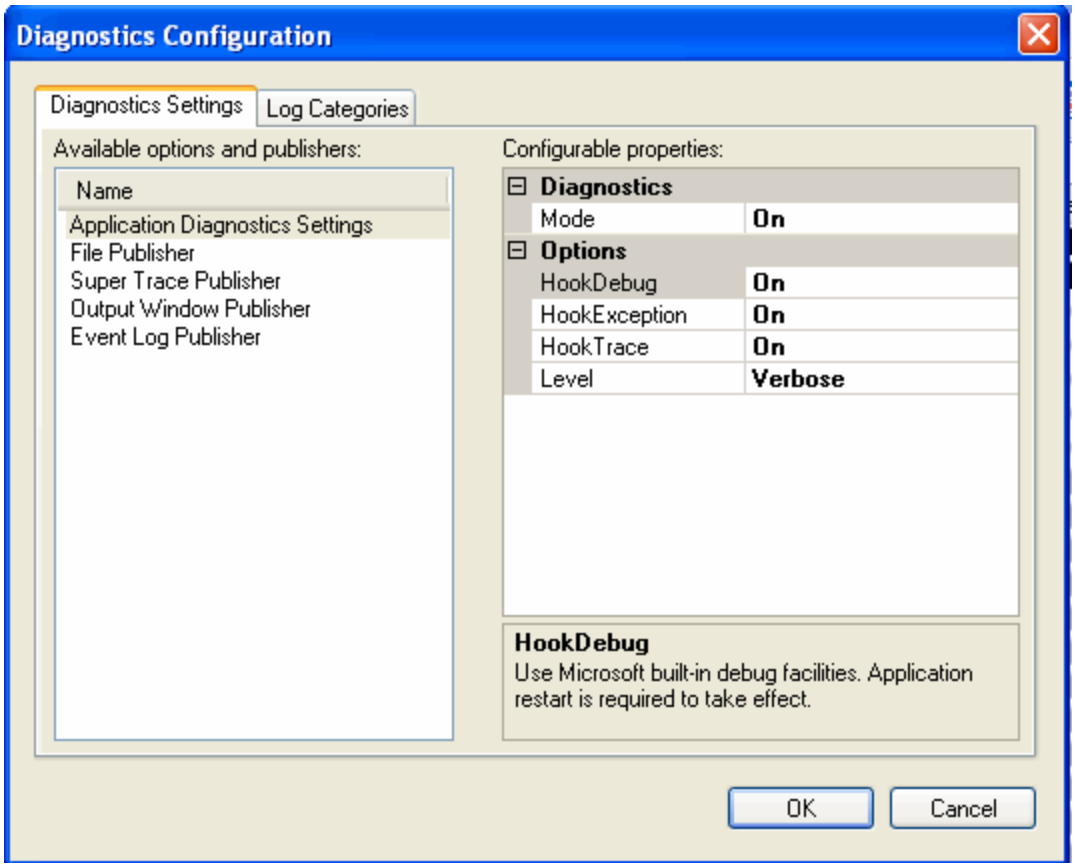
- Access OpenSpan Runtime Diagnostic Configuration functions
- Start the Diagnostic File Publisher
- Locate the Runtime.txt diagnostic message file
- Troubleshoot common issues incurred when testing a new project

Diagnostics

OpenSpan Runtime provides options for publishing diagnostic messages to a file, output window, SuperTrace logs, and the Windows Event Log. The diagnostic configuration settings for the OpenSpan Runtime are selected in the **Diagnostics Configuration** dialog accessed from the **Diagnostics Configuration** menu option.



The Diagnostics Configuration dialog displays:



This **Diagnostics Configuration** dialog is also in OpenSpan Studio. See the *OpenSpan Studio Diagnostics & Debugging training* module for details on diagnostics options.

Enabling Diagnostic Publishing

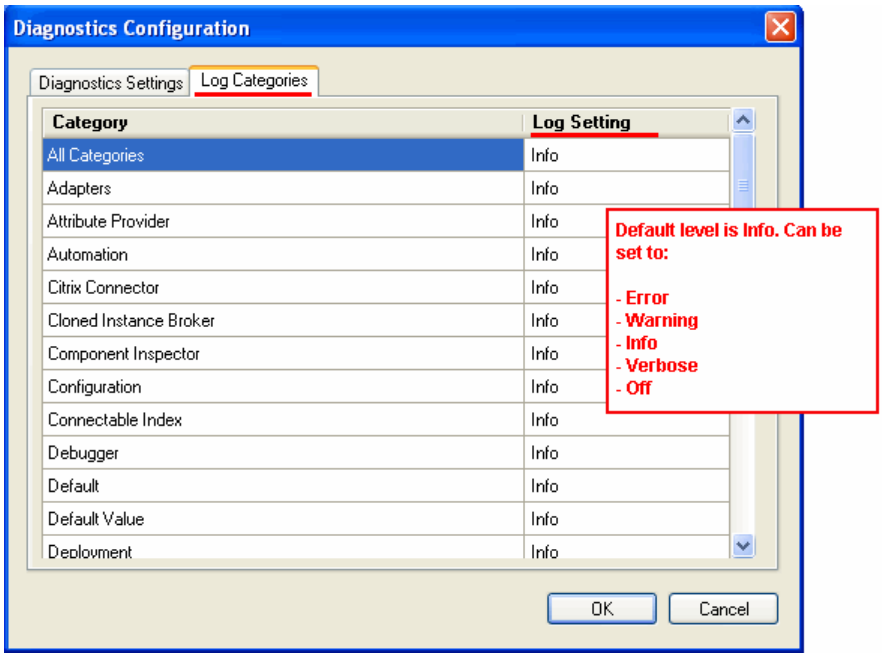
In order to generate diagnostic messages for OpenSpan Runtime:

- Set the Application Mode to On under Application Diagnostics
- Set the Level of errors for which you want the publisher to generate messages. The Levels are:
  - **Error** - Only error messages are published. Sets the Level in the RuntimeConfig.xml file to 1.
  - **Warning** - Both warning and error messages are published. Sets the Level in the RuntimeConfig.xml file to 2.
  - **Info** - Informational messages along with Warning and Error messages are published. Sets the Level in the RuntimeConfig.xml file to 3.
  - **Verbose** -All messages - error, warning, and informational are published. Sets the Level in the RuntimeConfig.xml file to 4. This is the default setting.
  - **Off** -The setting turns off publishing of diagnostic messages. Sets the Level in the RuntimeConfig.xml file to 0.

- Select the Log Categories for which you want to generate messages and set the Level or error messages to be reported for the categories.
- Set the File Publisher Mode to On. The File Publisher creates output files of diagnostic messages. For OpenSpan Runtime, the RuntimeLog.txt file is created.
  - The File Publisher writes the diagnostic messages to the RuntimeLog.txt file in the user's CommonApplicationData location. You can change this location by editing the ConfigurationFileKey in the OpenSpan.Runtime.exe.config file. You can also change the name of the file by editing Publisher -> FilePublisher filename in the RuntimeConfig.xml.
- Enable additional diagnostic publishing as required:
  - Output Window – displays the same information as the File Publisher but shows the information in a live Window.
  - SuperTrace Log - creates diagnostic messages at the application thread level. Use the LogViewer application to see these messages. SuperTrace is usually only enabled under the direction of OpenSpan support for specific troubleshooting requirements.
  - Event Log - writes messages to the Windows Application Log. See the OpenSpan Studio Help for details on using the Windows Event Log with OpenSpan Runtime or OpenSpan Studio.

Log Categories

When Application diagnostics is enabled, OpenSpan generates messages based on the Log Level and the Log Categories. The Log Categories are listed in the Diagnostics Configuration dialog, Log Categories tab:

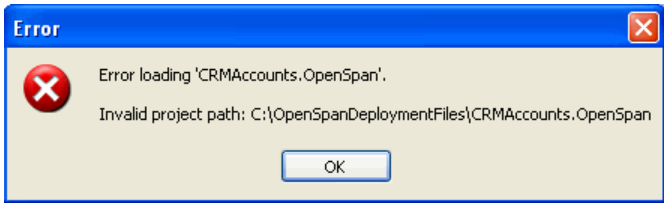


OpenSpan Runtime Tips & Troubleshooting

The following topics cover some common issues that may arise when working with the OpenSpan Runtime.

Recent Project Does Not Load

Attempting to load a project using the **Recent Projects** or **Load Most Recent Project** option and you receive an invalid path error such as the following:



This indicates that the location of the deployment package has changed since the project was last loaded. You must locate the deployment package and load the project using the **Load Local Project** or **Load Web Project** (whichever is applicable) option.

Cannot Access One of the Project Applications

If one of the applications used in your project is not accessible when you run the project on the OpenSpan Runtime workstation, it could be that the path to the application differs for the workstation. Run the application on the OpenSpan Runtime workstation to ensure that it runs properly. Check the path to the application and compare it to the path used in the solution.

Updated Version of Project does not Load

If you have deployed an updated version of a project but notice that it is not getting loaded in OpenSpan Runtime, it means that the wrong manifest files are being used. Make sure the old version of the deployment package is removed from the deployment location and replaced with the new version. Confirm that your OpenSpan Runtime users are loading the updated project or, if autoload is being used, the Runtime.exe.config file is correctly set to the location of the updated deployment package.

Change Extract Directory

By default the Extract Directory is located under the user's local Application folder. To change the location, modify the following line in the RuntimeConfig.xml file:
<add key="DeploymentExtractDirectory" value=" "/>
For example:
<add key="DeploymentExtractDirectory" value="C:\OpenSpan_Runtime" />

Automatically Load Project on OpenSpan Runtime Startup

Set the project in the StartupProject key in the RuntimeConfig.xml file: <add key="StartupProject" value=" " />

For example:
<add key="StartupProject" value="C:\OpenSpan_Runtime\Calc_Google.openspan" />

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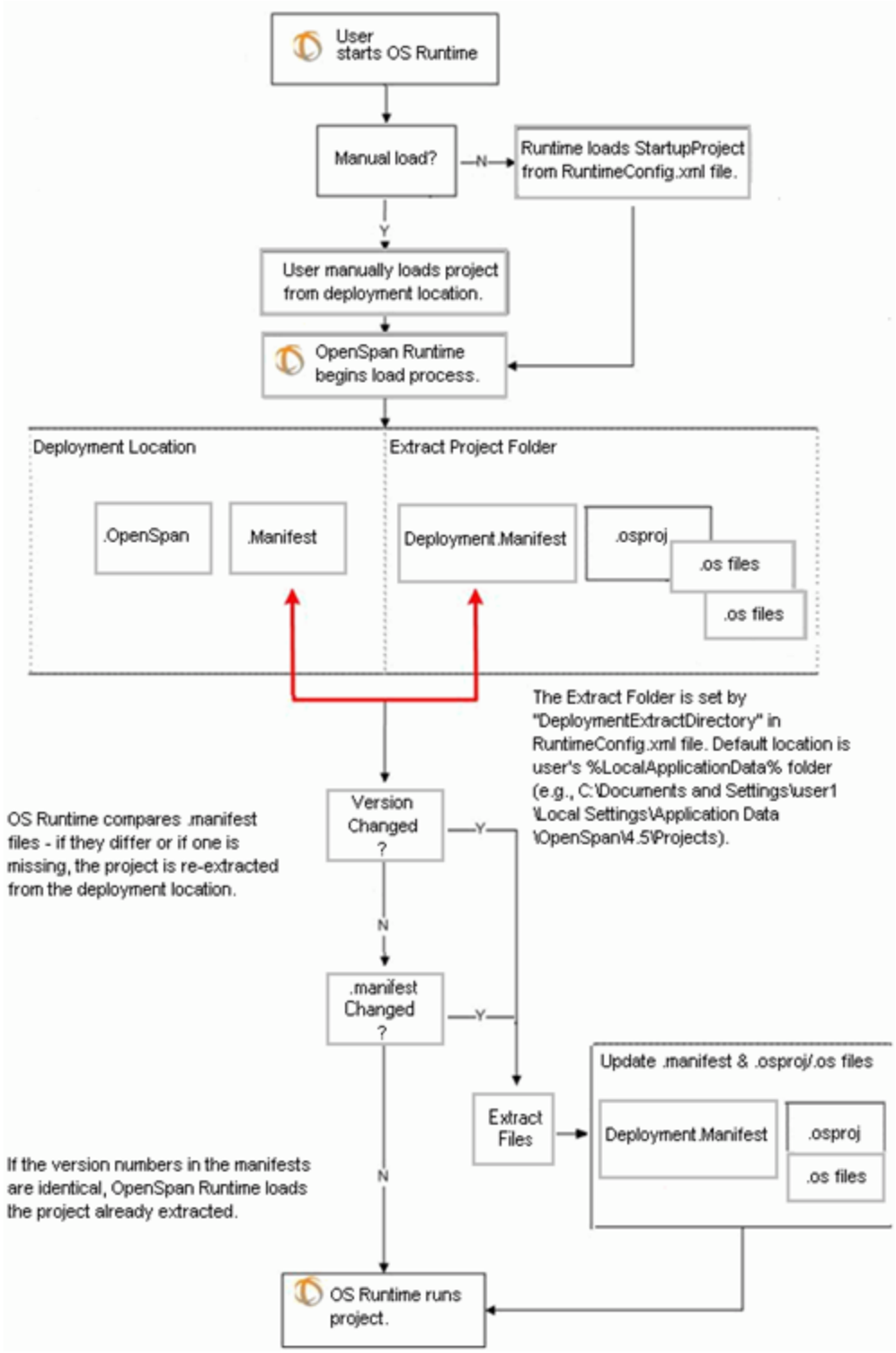
APPENDIX: PROJECT LOAD PROCESS



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