
http://iringtools.org

# Installation Guide

Version 1.02.00

| Notice |
| --- |
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# Document Release Note

Notice No.: 1.2.0

Customer: iRINGUserGroup

Project: ***iRINGTools***

## Document details

| Name | Version no. | Description |
|---|---|---|
| ***iRINGTools*** Installation Guide | 1.02.00 | ***iRINGTools*** Installation Guide |

## Reviewers

| L | Role | Organization Unit |
|---|---|---|
| Lee Colson | Documentation | ***iRINGTools*** |
| | | |

## Revision details

| Action taken (add/del/change) | Previous page no. | New page no. | Revision description |
|---|---|---|---|
| Change<br>Add | 44, 55, 63, 64<br>84 | 44, 55, 63, 64<br>84 | Clarify screenshot content<br>Additional settings for AdapterService |

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# Document Revision List

Customer: iRINGUserGroup

Project: ***iRINGTools***

Document Name: iRING Installation Guide

## Release Notice Reference (for release)

| Rev. No. | Revision date | Revision description | Page no. | Previous page no. | Action taken | Addenda/ New page | Release notice reference |
|---|---|---|---|---|---|---|---|
| | | | | | | | |

# About this Manual

## Purpose

***iRINGTools*** is a set of free, public domain, open source (BSD 3 license) software applications and utilities that implement ***iRING*** protocols. ***iRINGTools*** provide users with production ready deployable solutions. ***iRINGTools*** also provides technology solution providers with usage patterns for the implementation of ***iRING*** protocols in their respective solutions. This Installation Guide provides step by step detail instructions to setup ***iRINGTools***.

## Intended Audience

Intended audience for this installation guide is ***iRINGUserGroup***, an open online community of users, companies, and organizations that use, are considering using, or are developing or deploying ***iRING*** protocols. The ***iRINGUserGroup*** is also responsible for the management, enhancement, and maintenance of ***iRINGTools*** and ***iRINGSandbox.***

## Organization of the Manual

Information in this manual has been organized as follows:

**Table 1: Organization of this Manual**

| Chapter | Description |
|---|---|
| Chapter 1 | This gives brief overview of ***iRINGTools*** and its components, packages involved, package dependencies, prerequisites and list of software components required for the individual package (the adaptor, the Sandbox or both) installation. |
| Chapter 2 | This section provides detailed instructions for the installation and configuration of each prerequisite i.e. IIS, .Net Framework 3.5 SP1, Silverlight MIME extensions, Java for Windows, MySQL Server, SQL Server and ADO.Net Entity Framework Provider. |
| Chapter 3 | This section describes the ***iRINGTools*** Sandbox components and provide detailed instructions on how to install and configure each component i.e. Sandbox Service, Reference Data Service, Reference Data Editor. |
| Chapter 4 | This section describes the ***iRINGTools*** Adapter components and provide detailed instructions on how to install and configure each component i.e. Interface Service, Adapter Service, Mapping Editor. |
| Chapter 5 | The final step in the installation is updating hostname in certain ***iRINGTools*** services for use with client browsers on the network |

# Contents

The total number of pages in this document, including the cover page, is 99.

# List of Abbreviations

| Acronym | Description |
|---|---|
| iRING | ISO 15926 Realtime Interoperability Network Grid |
| ISO | International Organization for Standardization |
| RDSWIP | Reference Data Service Work in Progress |
| SP | Service Pack |
| GUI | Graphical User Interface |
| IIS | Internet Information Services |
| MIME | Multipurpose Internet Mail Extensions |
| OLTP | Online Transaction Processing |
| API | Application Programming Interface |
| CRUD | Create, Read, Update and Delete |
| LAN | Local Area Network |
| FIPS | Federal Information Processing Standard |

# 1 Overview

***iRING*** is a set of information interoperability and integration protocols and reference data that are compliant with the ISO 15926, Parts 7, 8, and 9 standards, which builds and depends on ISO 15926 Parts 1 through 6.

***iRINGTools*** is a set of free, public domain, open source (BSD 3 license) software applications and utilities that implement ***iRING*** protocols. ***iRINGTools*** provide users with production ready deployable solutions. ***iRINGTools*** also provides technology solution providers with usage patterns for the implementation of ***iRING*** protocols in their respective solutions.

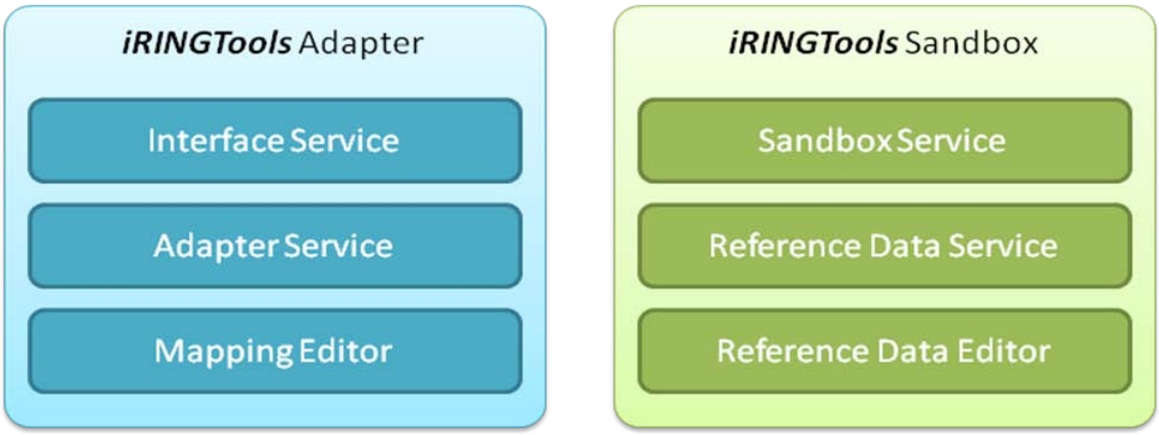
This installation guide provides detailed instructions for the setup of ***iRINGTools***. Once ***iRINGTools*** is setup, it will still need to be configured. Refer to the ***iRINGTools*** Users Guide for configuration.

## 1.1 Packages

***iRINGTools*** is deployed in two packages, ***iRINGTools*** Adapter and ***iRINGTools*** Sandbox. These packages are separated for deployment purposes (e.g., install one on one server and the other on another server).

The ***iRINGTools*** Adapter is used to map and transform legacy data (i.e., data that you have and use) to an ISO 15926 representation. The Adapter uses reference data from configured Sandboxes as well as the RDSWIP.

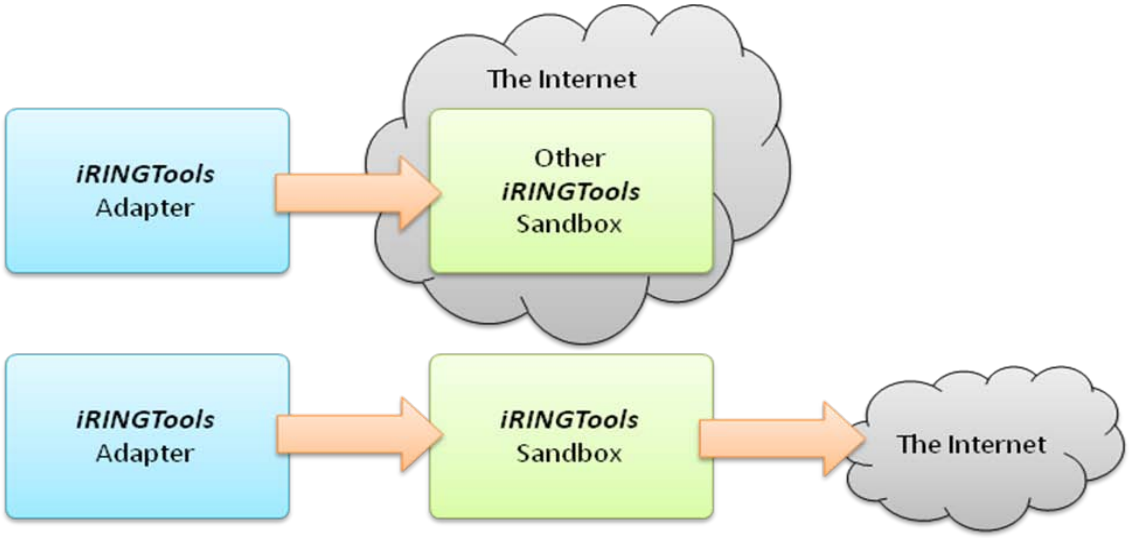
The ***iRINGTools*** Sandbox is used to host local Reference Data or extend the reference data hosted in the RDSWIP (http://rdswip.ids-adi.org/presentation/overview/index.html) for use with the ***iRINGTools*** Adapter.




Neither package requires the other to run. You need to determine which packages will be installed and where. It is recommended that both packages be installed on a single machine, but each can be installed on separate machines. Virtual machines can also be used to host ***iRINGTools***.

## 1.2 Package Dependencies

Though each package is independent of the other, the ***iRINGTools*** Adapter needs access to an ***iRINGTools*** Sandbox.




If only the ***iRINGTools*** Adapter will be deployed, then it will require internet access to connect to an existing ***iRINGTools*** Sandbox (e.g. ***iRING*** community Sandbox). If both packages will be deployed, it is assumed that the ***iRINGTools*** Adapter will use the reference data in the ***iRINGTools*** Sandbox. In this case, the ***iRINGTools*** Adapter will connect directly to the ***iRINGTools*** Sandbox being deployed (e.g. a private Sandbox). The ***iRINGTools*** Sandbox will require internet access to connect to the RDSWIP.

## 1.3 Prerequisites

There are several prerequisites and assumptions that are made in this guide. Some instructions are provided for setting up and configuring the prerequisites, but the instructions may not handle every case. Please see the documentation links provided in the section for each prerequisite for more information.

The base assumptions made are:

- The host server is running Windows Server 2003 SP2.
- You have administrative access to the host server.
- You are able to login to the host server.
- You have basic knowledge of the Windows Operating System and Windows Security.

Older and newer versions of windows are supported, but the installation and configuration may be slightly (and subtly) different for those versions. No instructions will be given on how to properly secure the operating system or the files on the host server. However, instructions will be provided on how to use the specific features of the operating system to properly install ***iRINGTools***.

The following software components are required by ***iRINGTools***:

- .NET Framework 3.5 SP1

- Internet Information Services 6.0

You should understand these components and how they work before attempting to install ***iRINGTools***.

Finally, ***iRINGTools*** is built on top of the Semantic Web technology SemWeb http://razor.occams.info/code/semweb/.

**Note**: ***iRINGTools*** can alternately use Java, Jena and Joseki instead on SemWeb and SQL Server. Go to http://iringug.org for details for this alternate installation.

Although this guide will provide the instructions necessary to install and configure the software components, you need to be aware of the technologies are being used. Below is a summary of the ***iRINGTools*** and prerequisite installations.

| Software Component | Adapter | Sandbox | Remarks |
|---|---|---|---|
| ***iRINGTools*** Components | X | X | Use for both adapter and sandbox |
| ***iRINGTools*** Adapter | X | | Use if installing adapter only |
| ***iRINGTools*** Sandbox | | X | Use if installing sandbox only |
| .NET Framework 3.5 SP 1 | X | X | |
| Internet Information Services | X | X | |
| SQL Server | X | X | Adapter uses only for test |
| Silverlight MIME Extensions | X | X | |
| Silverlight 3.0 | X | X | |

## 1.4 Preparing for Installation

Before beginning the installation, you need to decide which ***iRINGTools*** packages you are installing on the server: the adapter, the sandbox or both. This determines which prerequisites and downloads are needed.

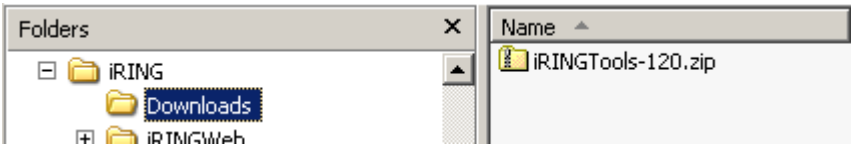
### 1.4.1 Downloads

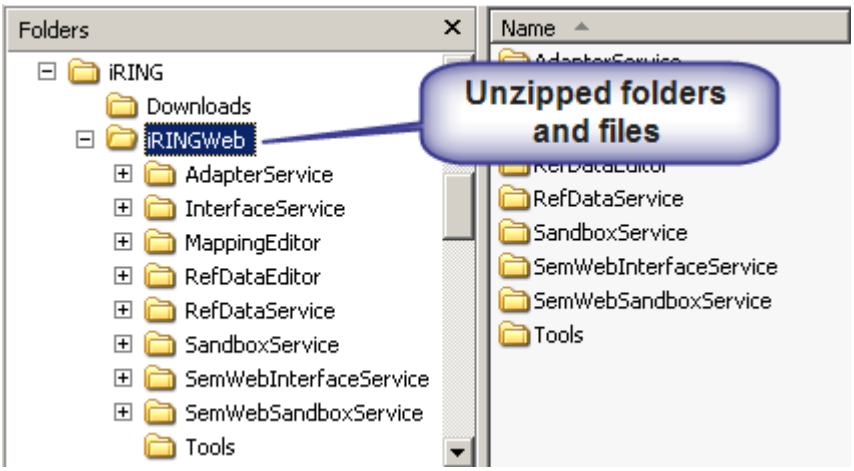
At the **iRINGTools** development web site http://code.google.com/p/iring-tools/downloads/list, download the installation you want:

- ***iRINGTools*** Components (for both adapter and sandbox installations)
- ***iRINGTools*** Adapter (for adapter only installations)
- ***iRINGTools*** Sandbox (for sandbox only installations)

Unzip the downloaded file to a folder on the server called ***iRINGWeb***. (The target folder must be ***iRINGWeb*** to ensure files are properly merged.)

The following are example screenshots of the above steps:



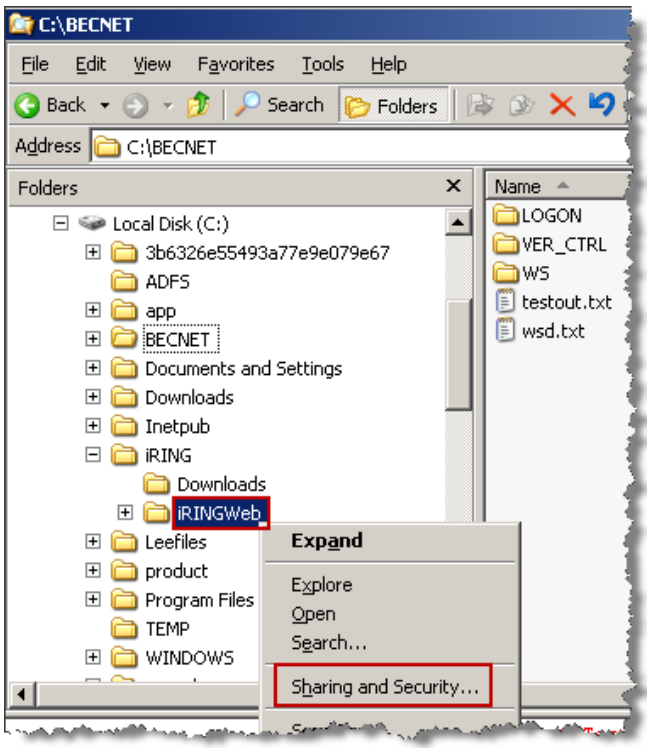



Other software packages may also be required. Installation links and instructions will be provided if and when necessary.

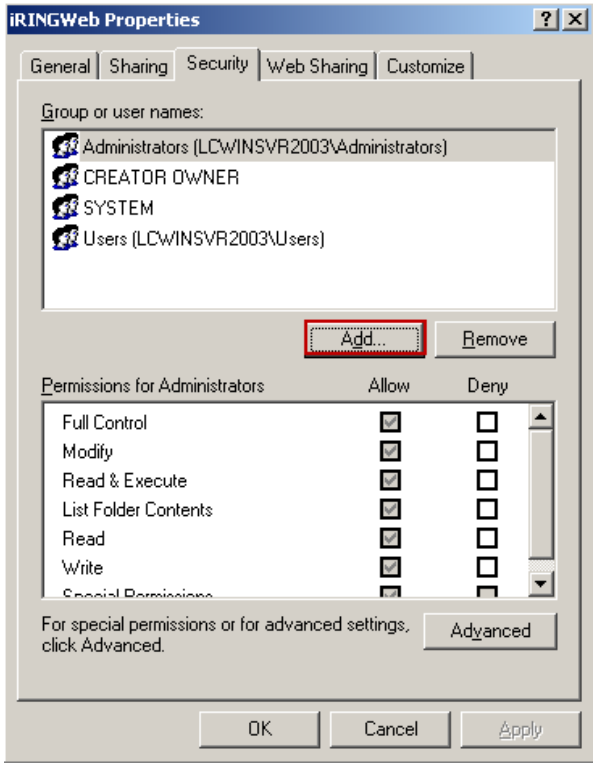
### 1.4.2 iRINGWeb Folder Permissions

File permissions are needed to by web server to open files and execute execute commands. Set folder permissions as follows.

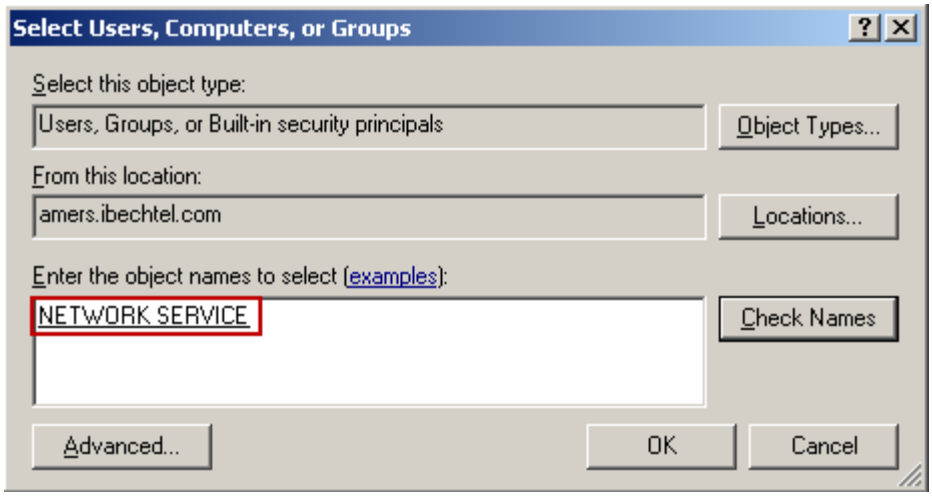
1. In Windows Explorer, locate the iRINGWeb folder, right-click and select Sharing and Security.



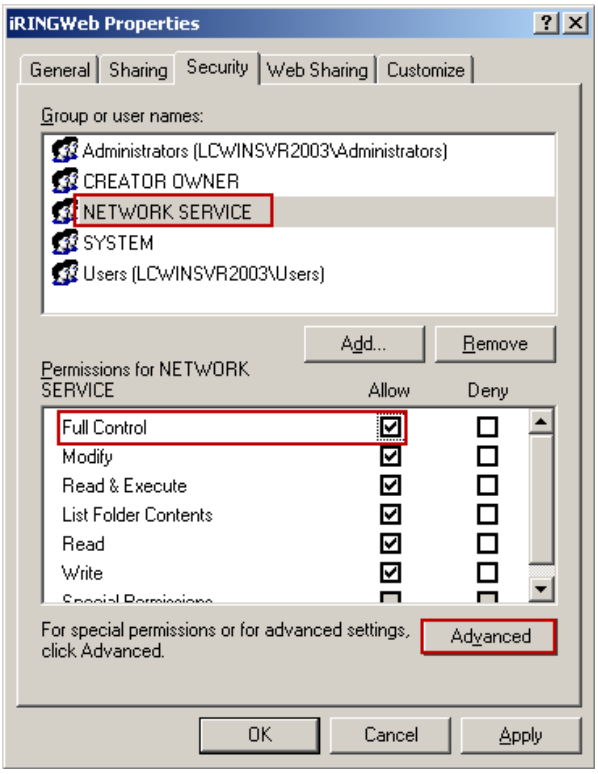
2. Select the Security tab and click Add.



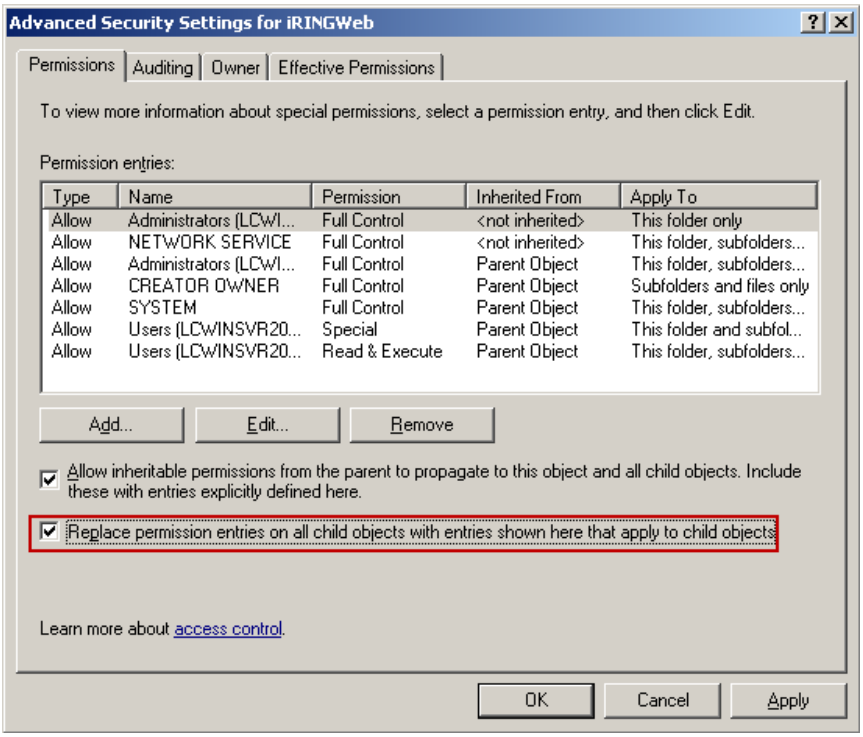

3. Enter the name NETWORK SERVICE and click Okay.



4. Select NETWORK SERVICE and click Full Control. Then click the Advance button.




5. Ensure the “Replace permission entries on all child objects with entries show here that apply to child objects” is checked.



6. Click the OK button to close the dialogs.

### 1.4.3 Internet Access

***iRINGTools*** is a web-enabled system and therefore requires access to the internet to work properly. If the host server is behind a firewall, the proxy server information and valid proxy credentials will be needed later in the setup.

### 1.4.4 RDS-WIP Access

Access to the RDSWIP (http://rdswip.ids-adi.org/presentation/overview/index.html) is required for the ***iRINGTools*** Sandbox to generate new IDs for classes, templates and roles. An identity from ids-adi.org will be needed later in the setup.

### 1.4.5 Sandbox Access

If there are any existing ***iRINGTools*** Sandboxes that will be used by the ***iRINGTools*** Adapter being deployed, then the URLs for those ***iRINGTools*** Sandboxes will need to be entered into the configuration later.

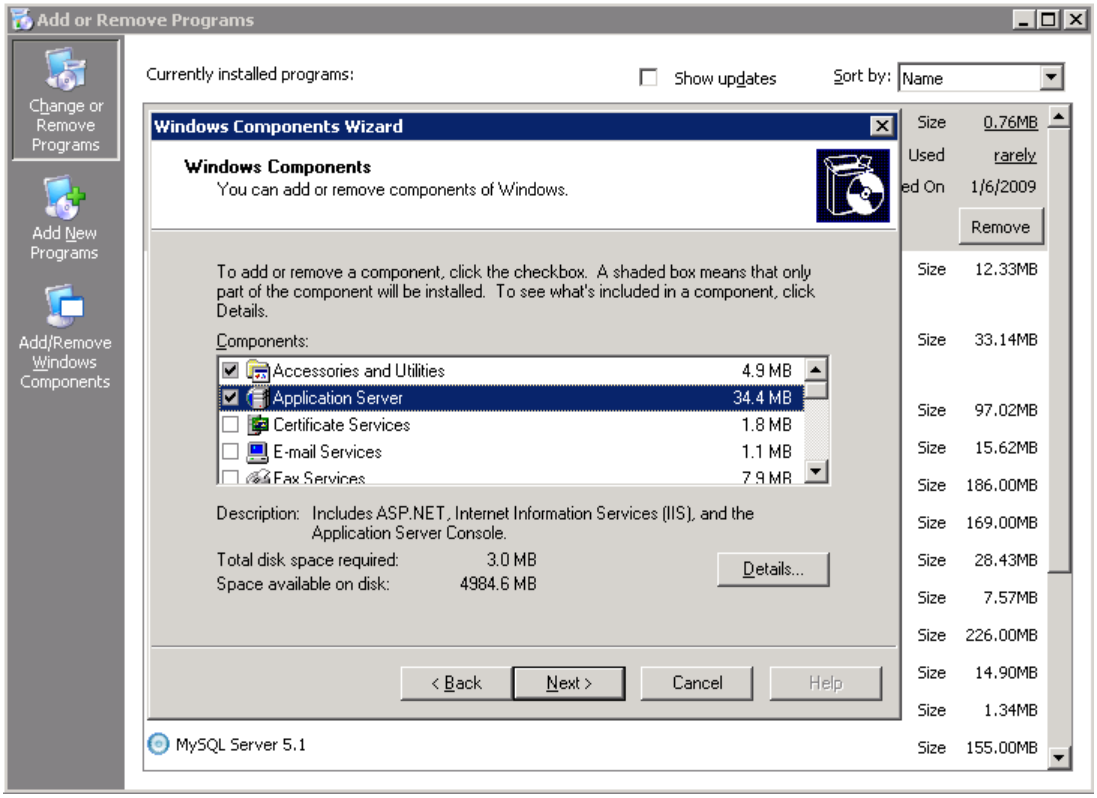
# 2 Installing Prerequisites

The following sections will provide detailed instructions for the installation and configuration of each prerequisite.

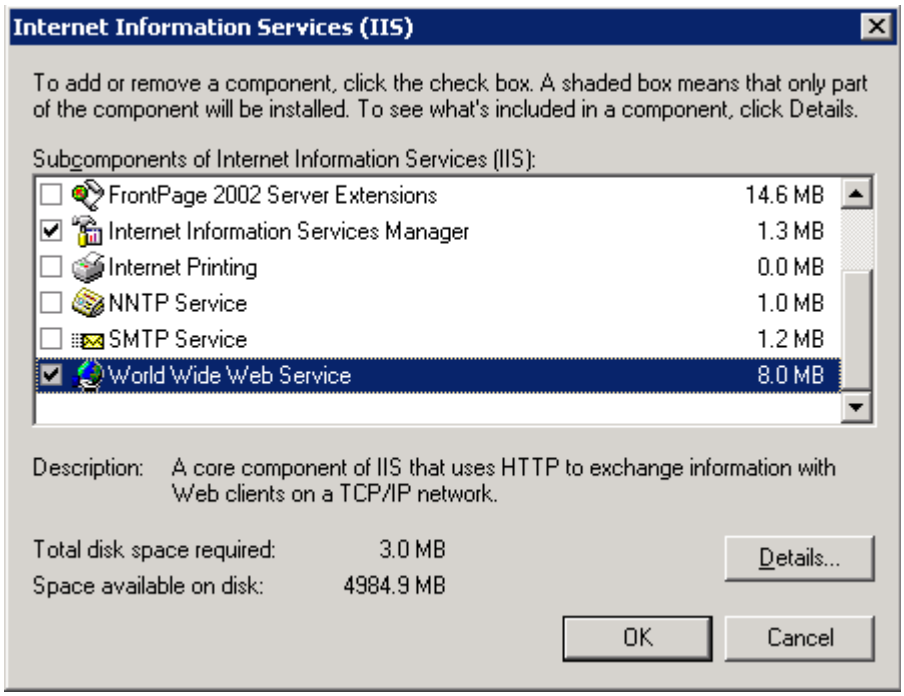
## 2.1 Internet Information Services

IIS (Internet Information Services) is part of the Windows Server 2003 operating system, but it is an optional component and is typically not installed by default. Perform the following steps to install or verify installation of IIS:

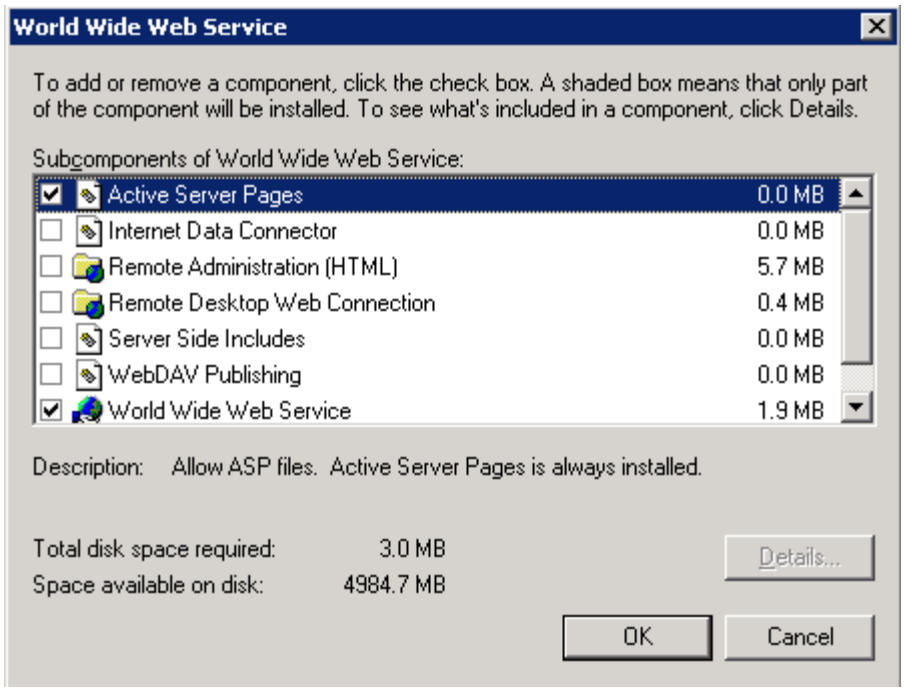
1. From the **Start** menu, click **Control Panel**.
2. Double-click **Add or Remove Programs**.
3. Click **Add/Remove Windows Components**.
4. In the **Components** list box, click **Application Server**.




5. Click **Details**.
6. Click **Internet Information Services (IIS)**.
7. Click **Details** to view the list of IIS Subcomponents.
8. Ensure that the **Common Files** (not shown), **Internet Information Services Manager** and **World Wide Web Service** are checked.




9. Click **World Wide Web Service**.
10. Click **Details**.
11. Ensure that **Active Server Pages** and **World Wide Web Service** are checked.




12. Click **OK** until you are returned to the **Windows Component Wizard**.
13. Click the **Next** button and complete the **Windows Component Wizard**.

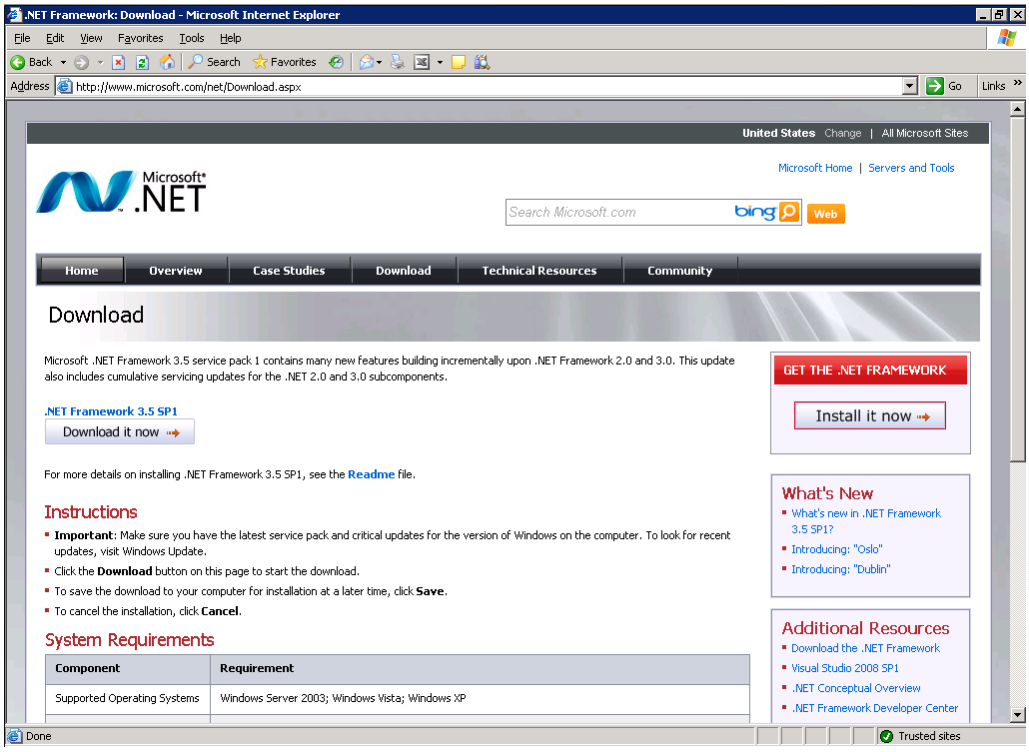
## 2.2 .NET Framework 3.5 SP 1

The .NET Framework is used by most of the ***iRINGTools*** components. The latest .NET Framework is version 3.5 SP1.

**Note**: to determine if .NET Framework 3.5 is already installed, go to the WINDOWS folder and look for the folder Microsoft.NET\Framework\v3.5. If SP1 is installed, there will be a subfolder called Microsoft .NET Framework 3.5 SP1.

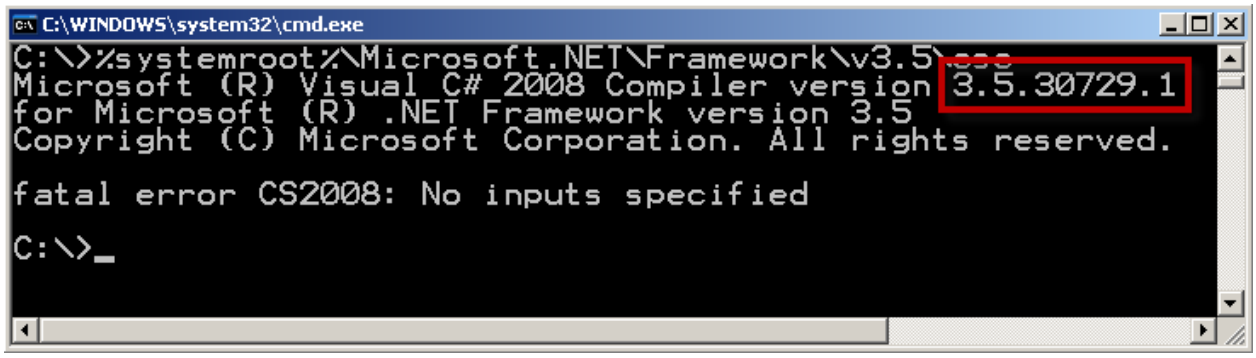
To install the .NET Framework, perform the following:

1. Download and install .NET Framework 3.5 SP1 from http://www.microsoft.com/net/Download.aspx.



2. Verify .NET Framework 3.5 SP1 installed correctly by typing the following in a command prompt:

   %systemroot%\Microsoft.NET\Framework\v3.5\csc

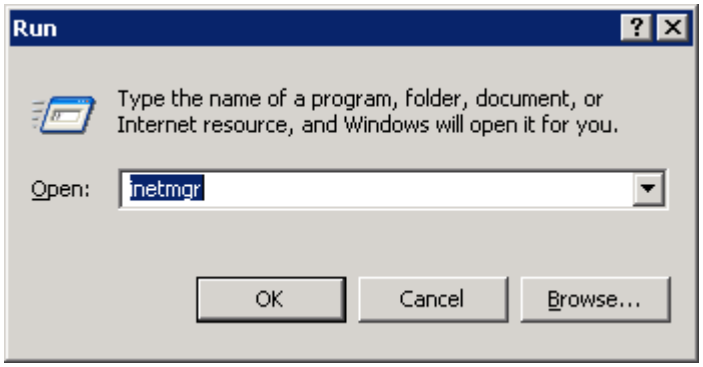



## 2.3 Validate IIS and ASP.NET

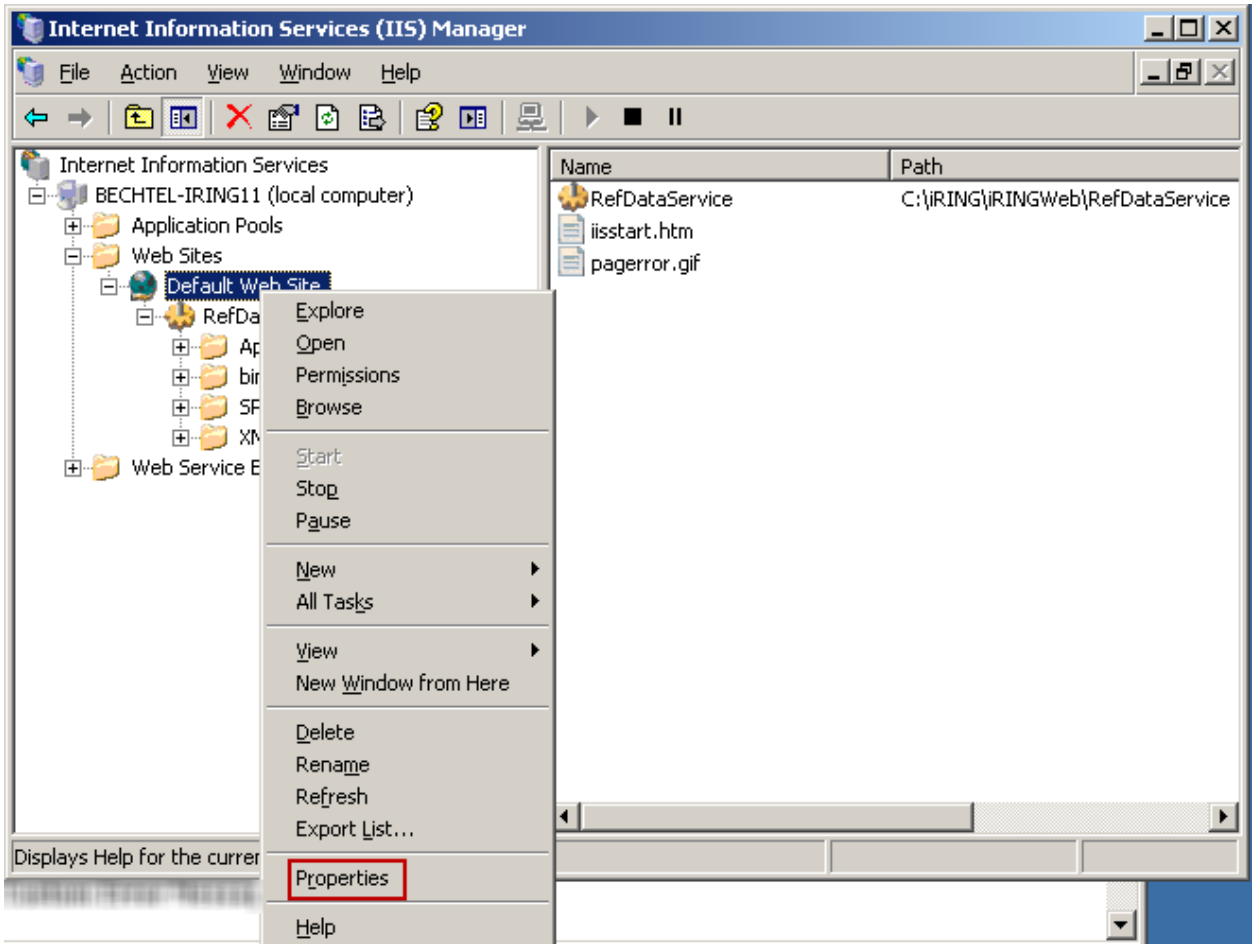
IIS combines and exposes many different technologies, and it can be a challenge to deploy. Certain subcomponents of IIS may not have been installed in the expected order. Furthermore, installing IIS after applying a Service Pack can lead to other subcomponents becoming unregistered. For this reason, the following steps are not always required, but may help if IIS is not functioning properly.

To verify ASP.NET is register and working with IIS, perform the following.

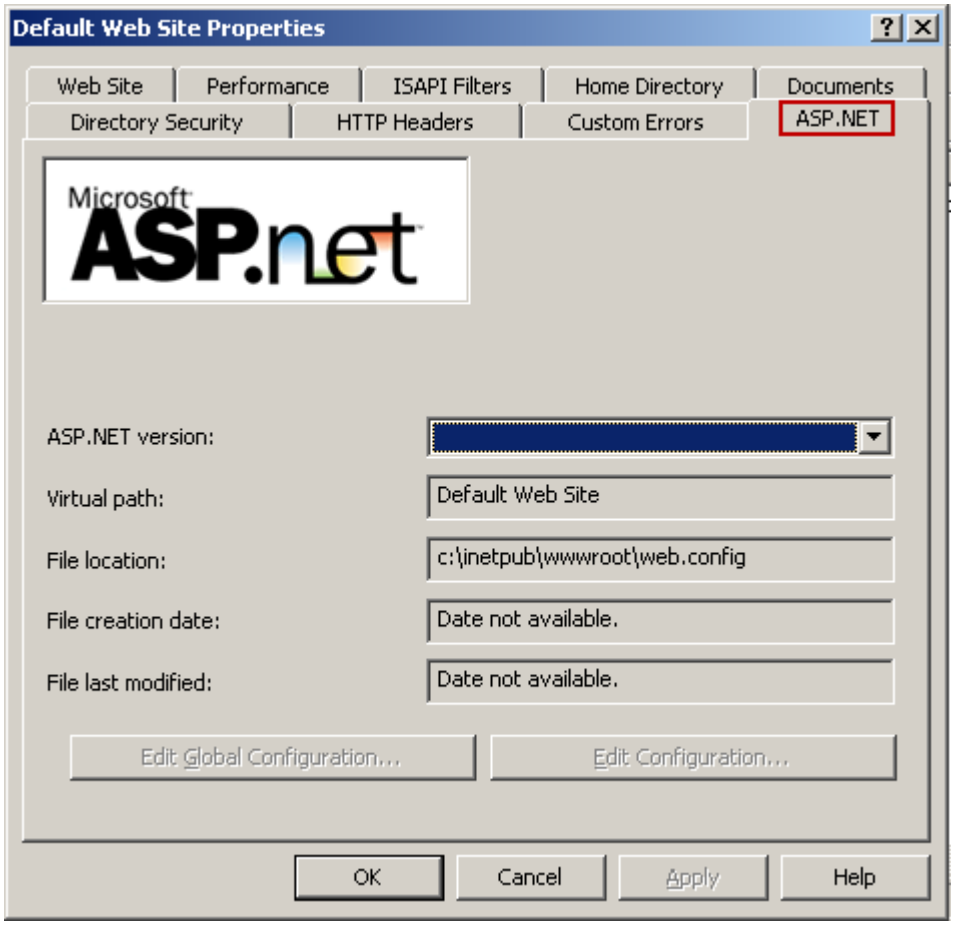
1. Start IIS Manager. One way to do this is to use Run from the Start menu. Type the command inetmgr.



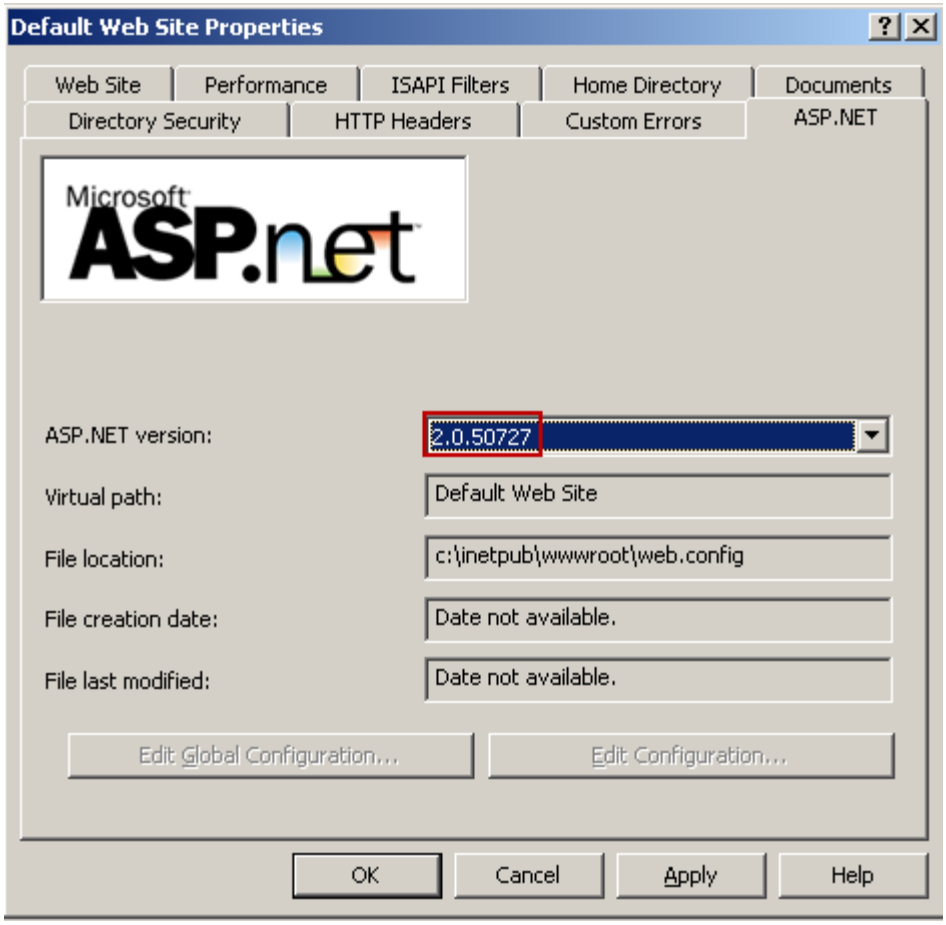
2. From the Web Sites folder, right-click on the target website and select Properties.



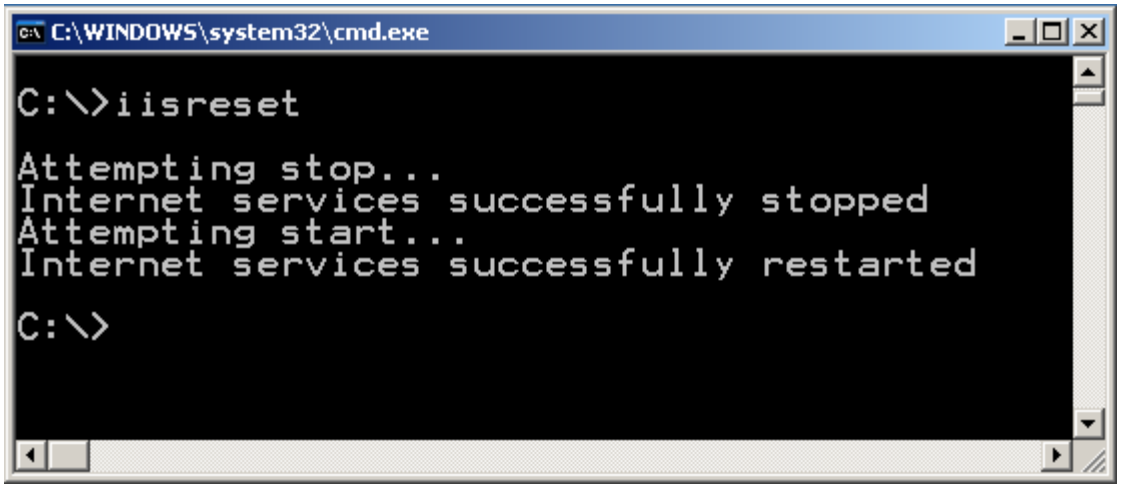
3. Select the ASP.NET tab in the Properties window.



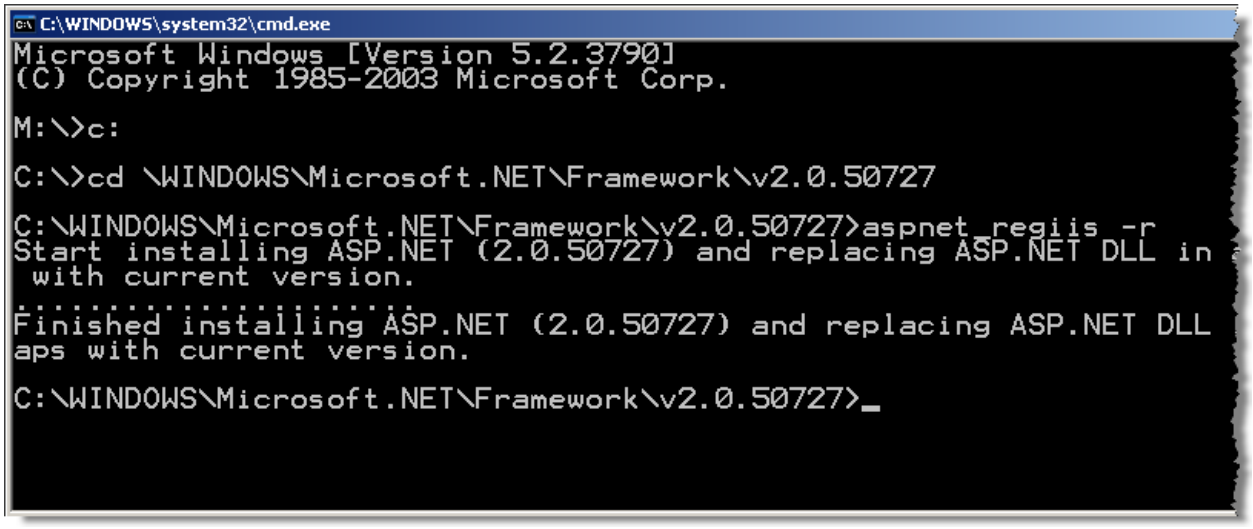
4. If an ASP.NET version is selected, then select it (the version should be 2.0). Click the OK button to complete.



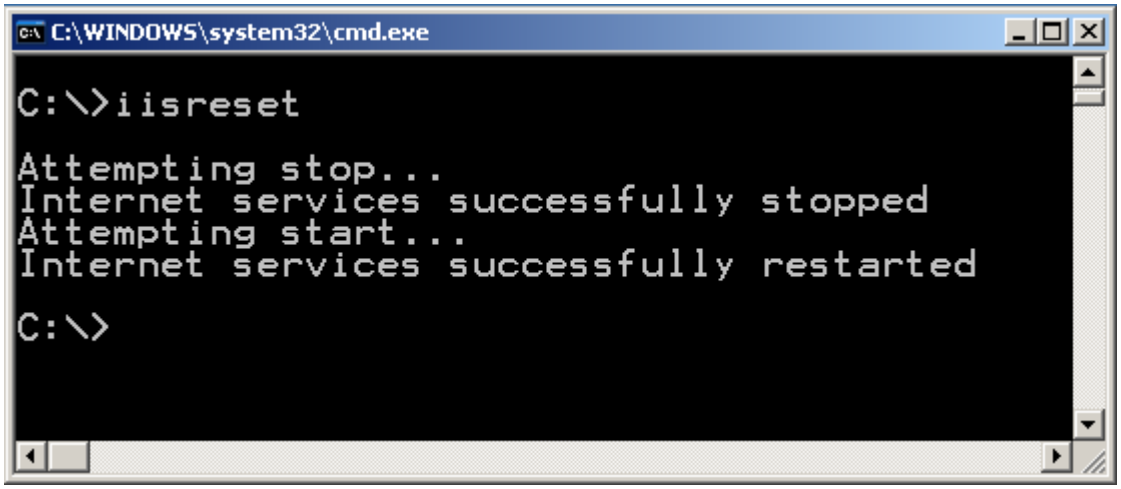

5. If ASP.NET was not selected, then IIS needs reset. Execute iisreset in a command window.



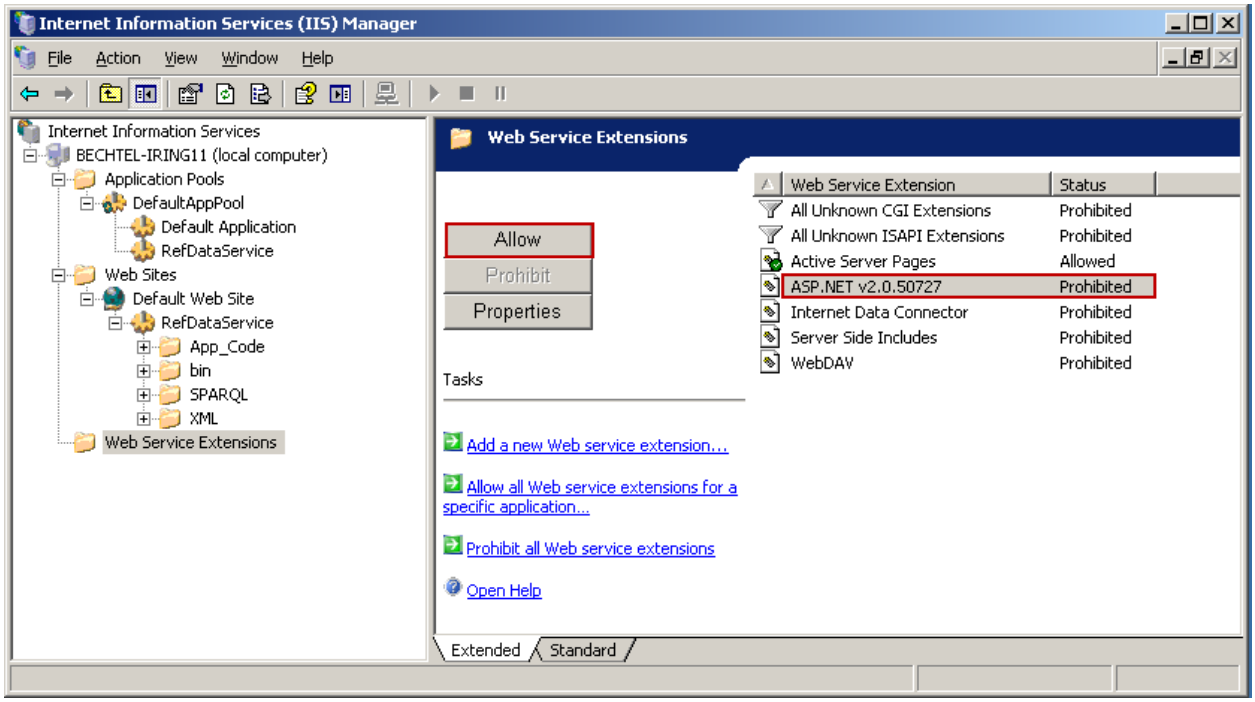
6. Additionally, ASP.NET will also need registering. Open a command window in the Windows folder WINDOWS\Microsoft.NET\Framework\v2.0.50727 and execute the command aspnet_regiis –r.




7. After registering ASP.NET, IIS needs reset again. Execute iisreset in a command window.



8. From the IIS Manger, select the Web Service Extensions folder. ASP.NET needs to be enabled. Select ASP.NET v2.0.50727 in the right pane and click the Allow button.




At this point IIS and ASP.NET should be working and synchronized.

The following Microsoft website links provide detailed instructions on this and other common IIS issues.

- Ensure that ASP.NET is installed: (http://www.microsoft.com/technet/prodtechnol/WindowsServer2003/Library/IIS/01563a60-038c-46d8-9a63-5104f5816767.mspx?mfr=true)
- Ensure that Dynamic Content is enabled: (http://www.microsoft.com/technet/prodtechnol/WindowsServer2003/Library/IIS/a9fc0395-f03b-4213-9c62-1592bcfcf53f.mspx?mfr=true)
- Ensure that ASP.NET 2.0 is registered (only do if necessary): (http://msdn.microsoft.com/en-us/library/k6h9cz8h(VS.80).aspx)

## 2.4 Silverlight MIME Extensions

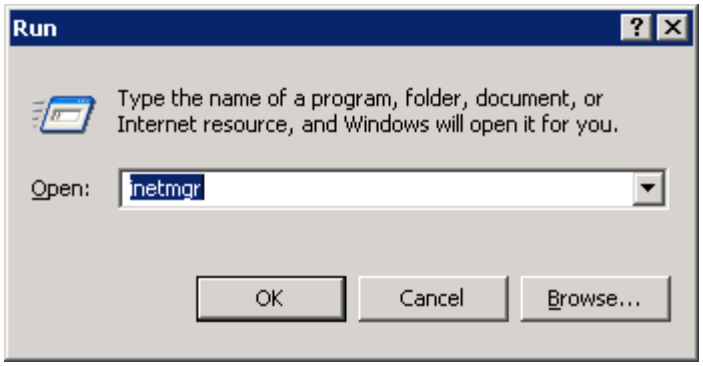
***iRingtools*** use Silverlight for the Mapping Editor and Reference Data Editor. To host Silverlight on a web server that is not IIS version 7 (e.g., IIS version 6), you will need to add the MIME types to support the correct content type interpretation by the browser. In the case of Silverlight this is the XAML content type. IIS version 7 has these MIME types already added but if they're not there this will result in errors. There are three MIME types required:

1. .xaml application/xaml+xml
2. .xap application/x-silverlight-app

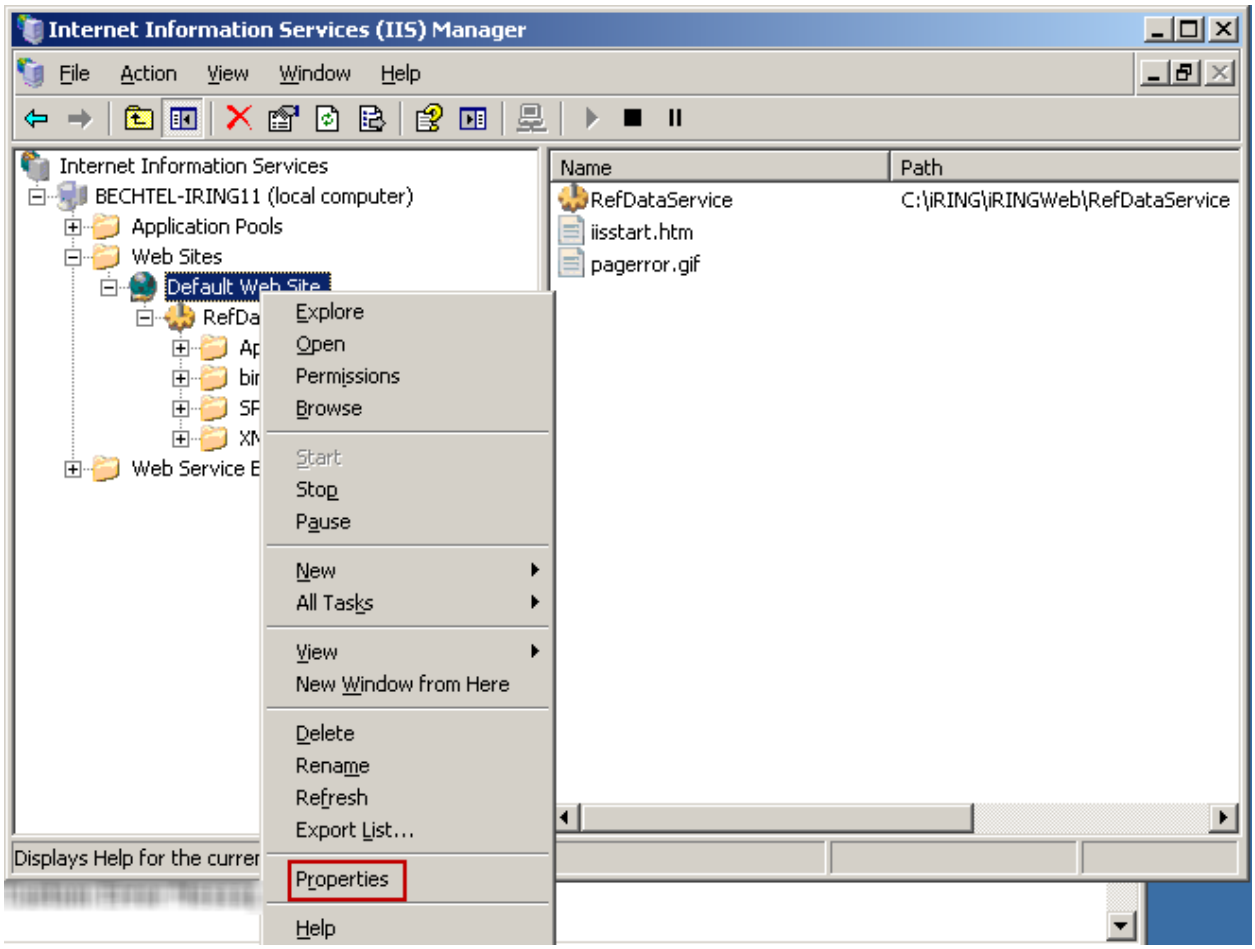
3. .xbap application/x-ms-xbap

To add (or verify) the three MIME types, perform the following steps:

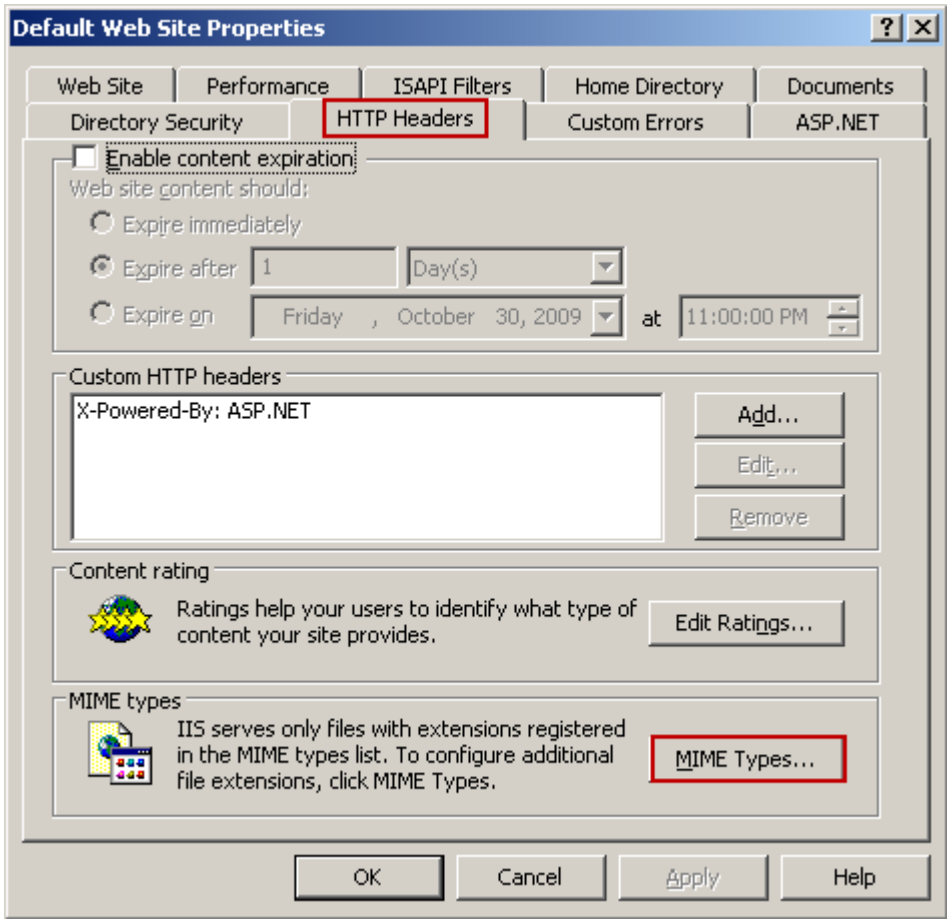
1. Start IIS Manager. One way to do this is to use Run from the Start menu. Type the command inetmgr.



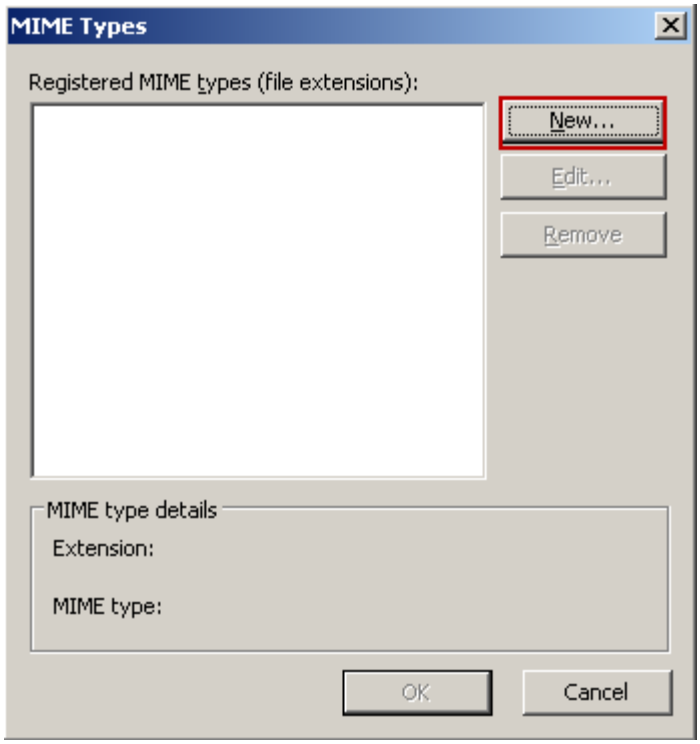

2. From the Web Sites folder, right-click on the target website and select Properties.



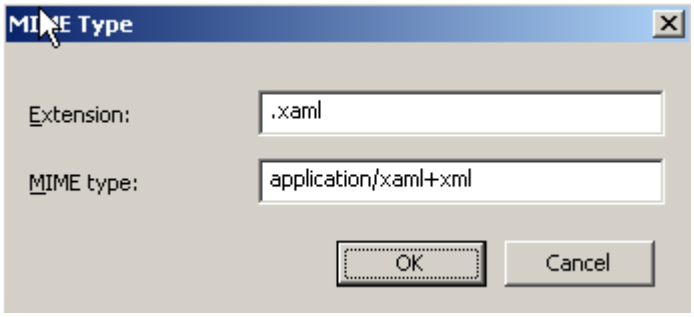
3. Select the HTTP Headers tab in the Properties window and then click on the MIME Types button.

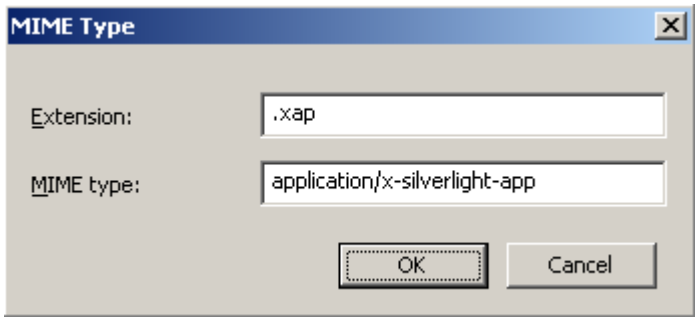


4. If one or more of the three required MIME types are not listed, then click on the New button.

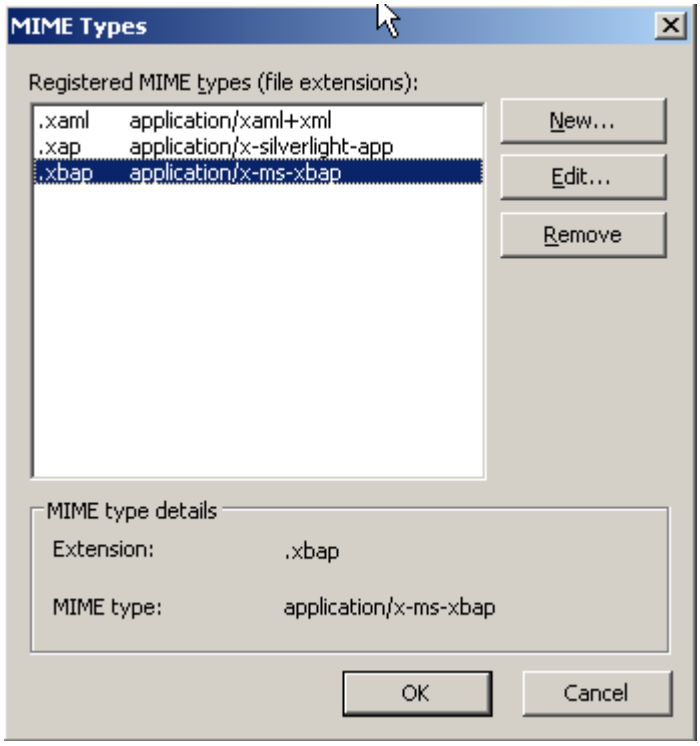



5. If necessary, enter the extension and MIME type for the three types.




6. When finished, verify the MIME types are added and then click the OK button.



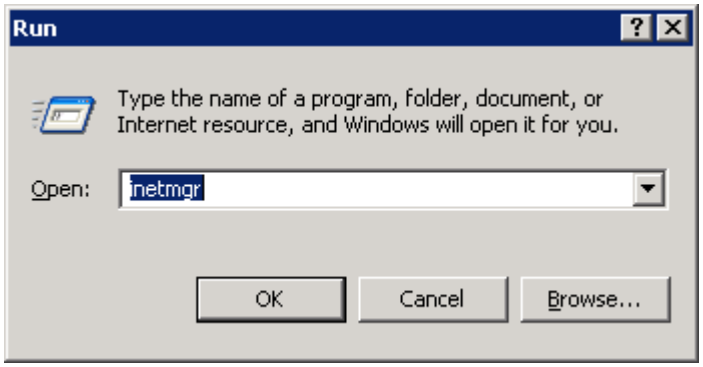

7. Close the Properties window.

## 2.5 Application Extension Mapping for SemWeb

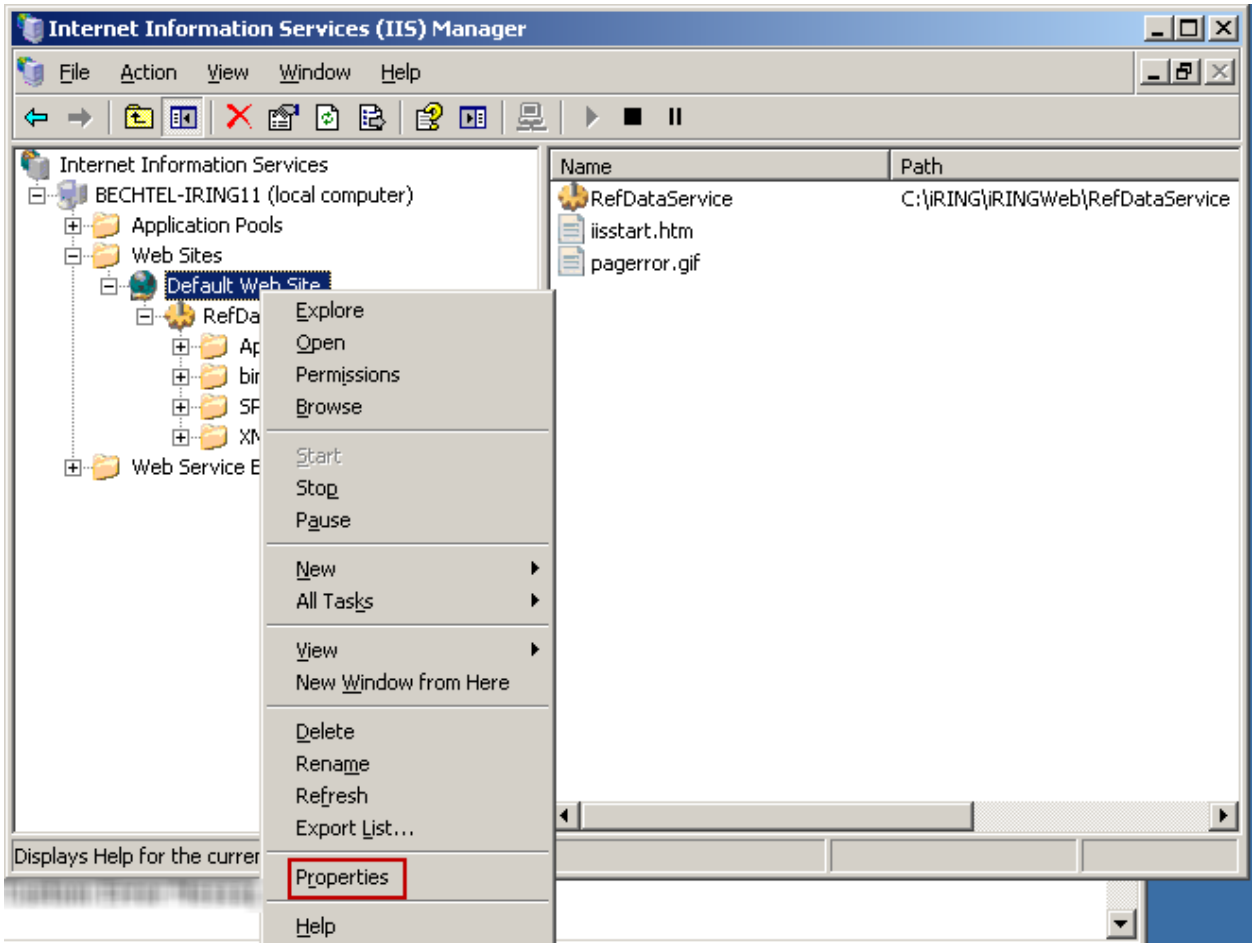
SemWeb is used by the AdapterService and SandboxService.

To configure the application extension mapping for SemWeb, perform the following steps:

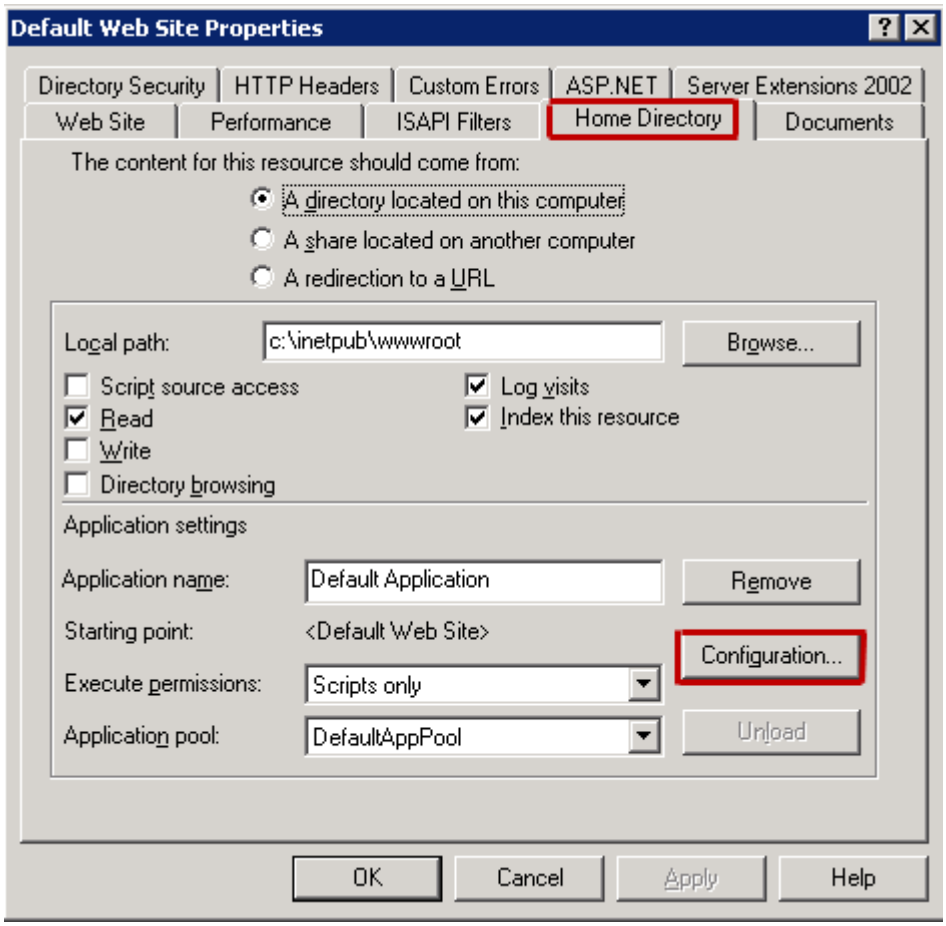
1. Start IIS Manager. One way to do this is to use Run from the Start menu. Type the command inetmgr.



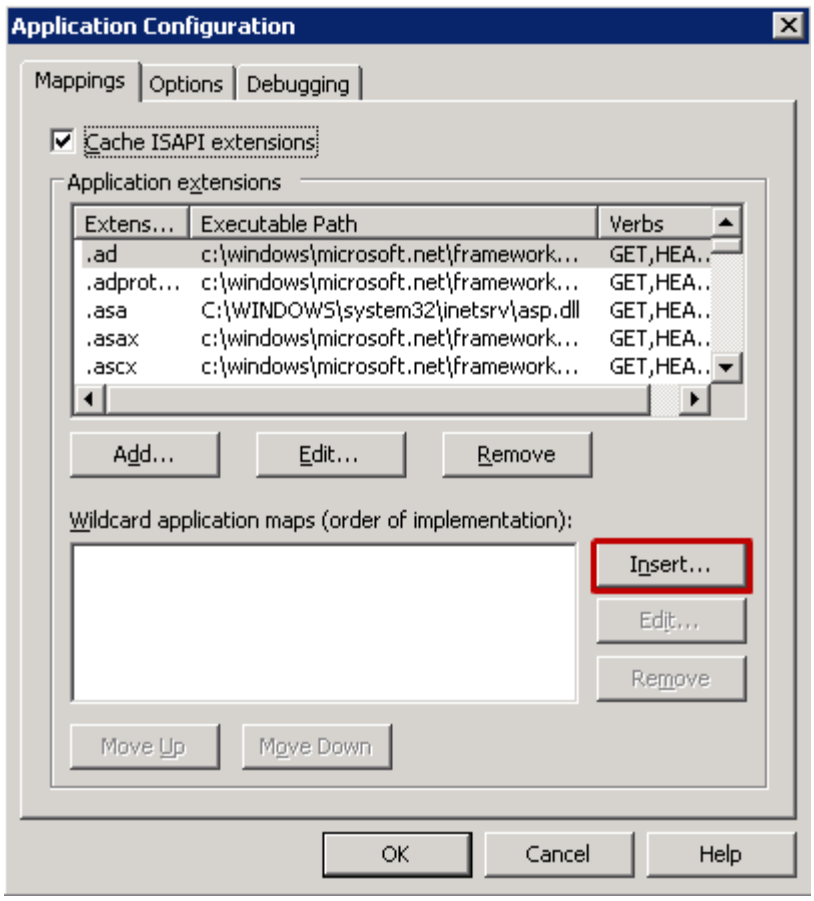

2. From the Web Sites folder, right-click on the target website and select Properties.



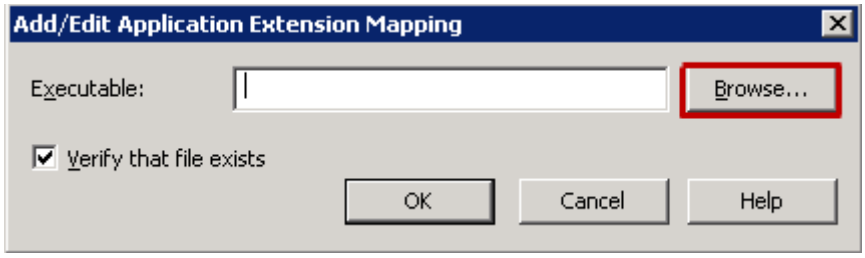

3. Select the Home Directory tab in the Properties window and then click on the Configuration button.



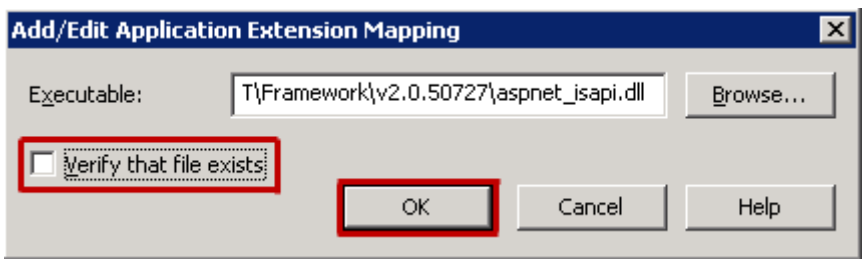

4. Under Wildcard application maps, click on Insert button.



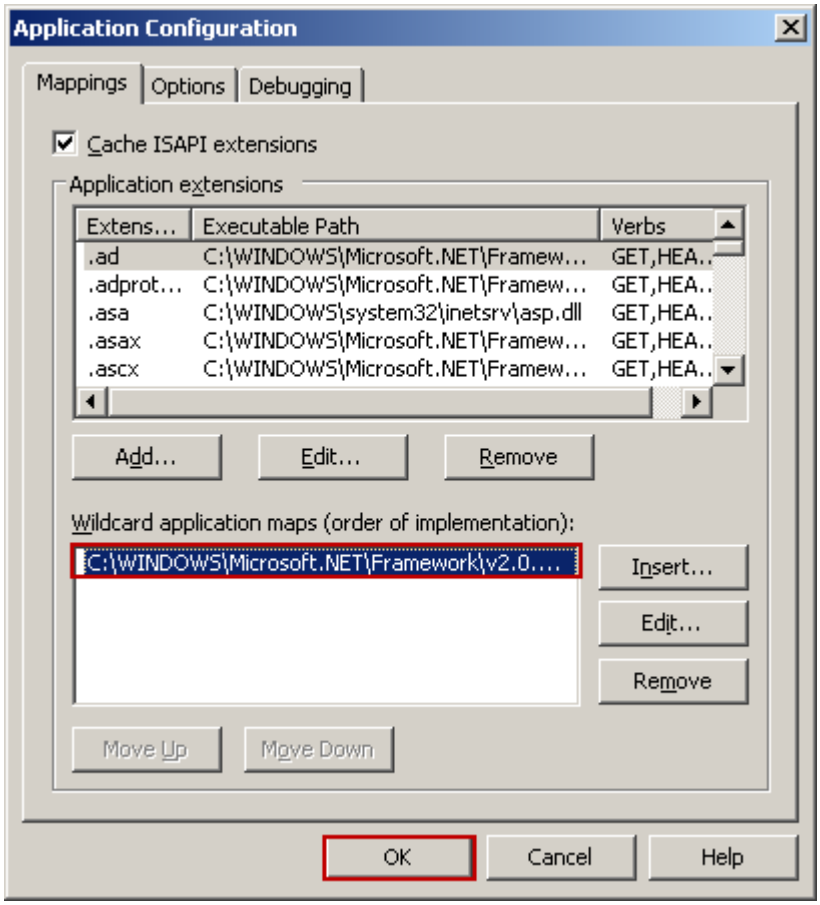

5. Click on Browse button and browse to C:\WINDOWS\Microsoft.NET\Framework\v2.0.50727\aspnet_isapi.dll.




6. Uncheck the Verify that file exists check box and click the OK button.




7. Click the OK button on the Application Configuration dialog.



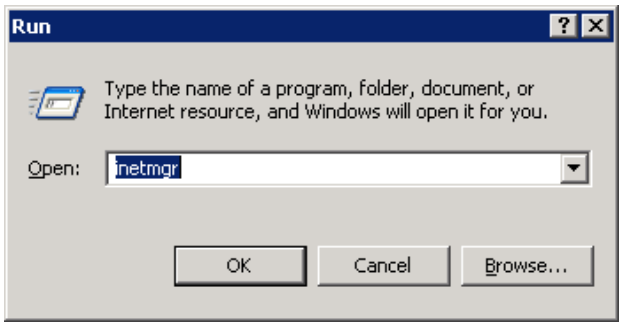

8. Click the OK button on the Properties dialog.

Application extension mapping for SemWeb is complete.

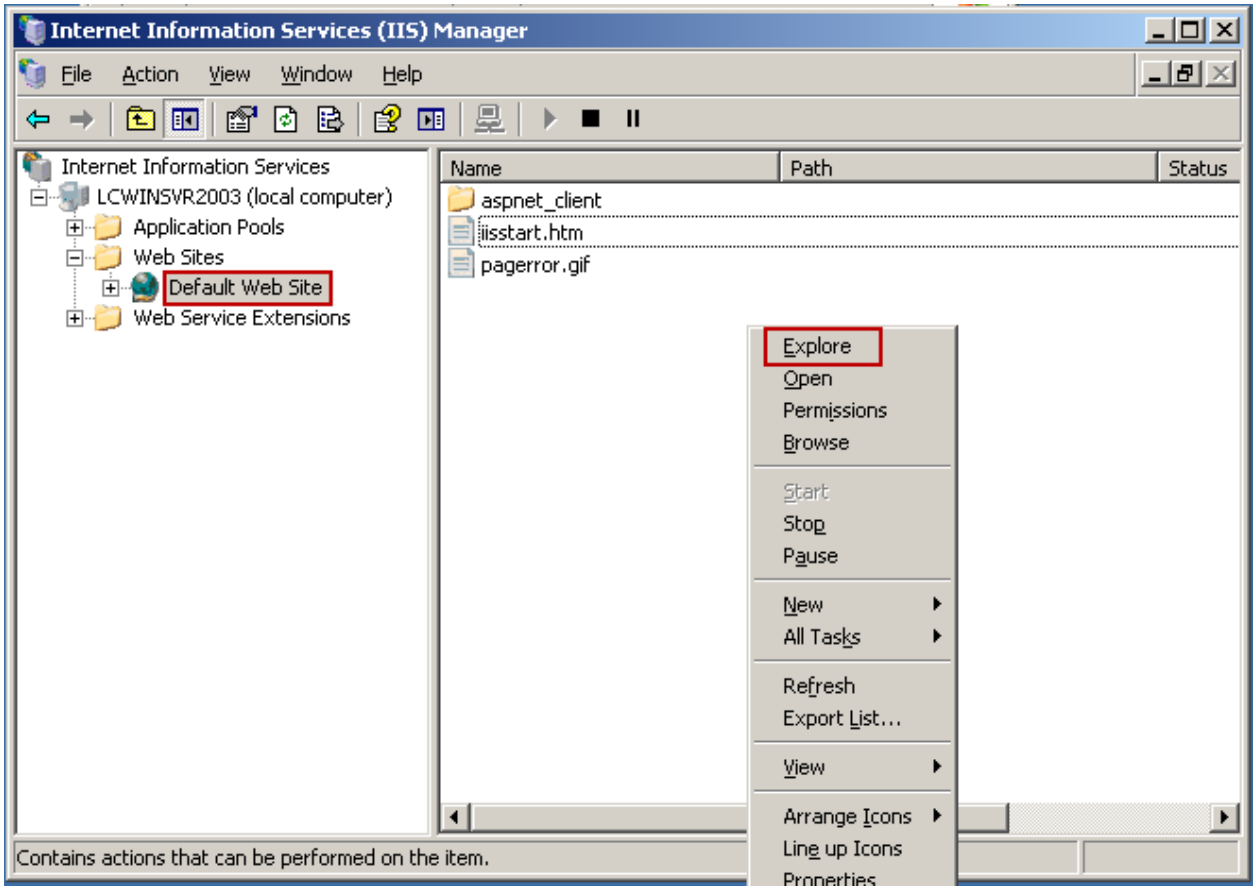
## 2.6 ClientAccessPolicy.xml

ClientAccessPolicy.xml allows Silverlight clients to call web services not located on the same server.

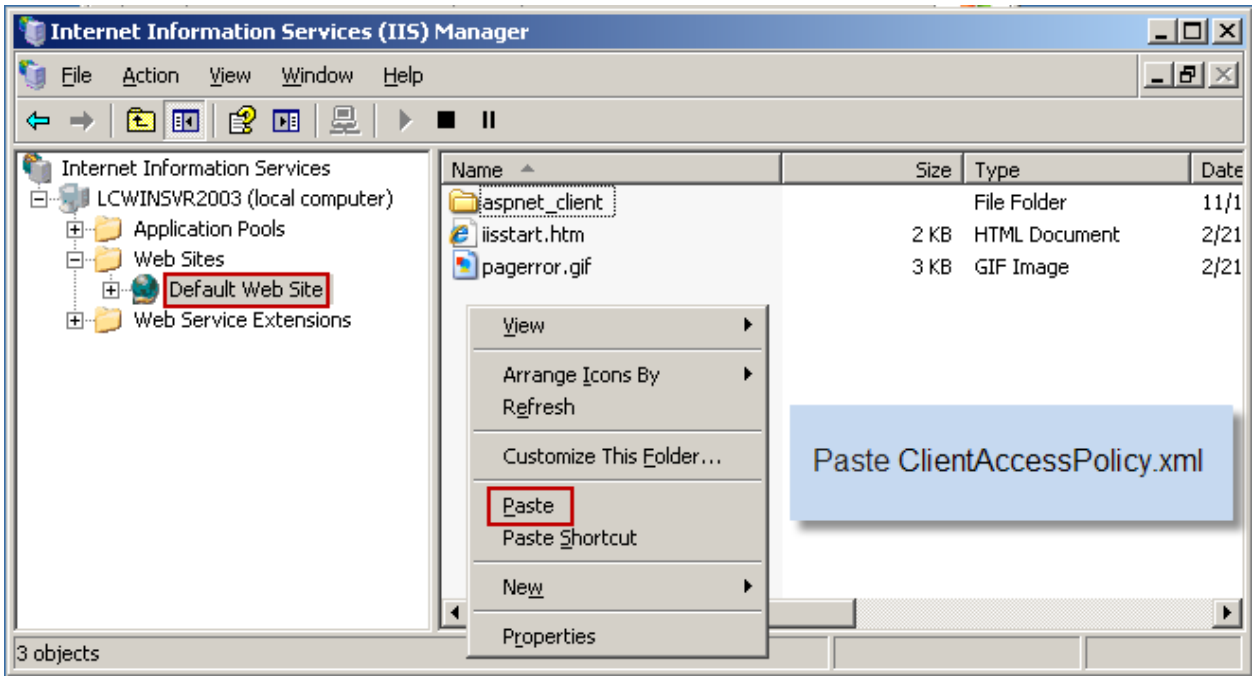
1. In the ***iRINGWeb*** folder, locate the file ClientAccessPolicy.xml.
2. Copy the file ClientAccessPolicy.xml to clipboard by right-clicking and selecting Copy from the popup menu.
3. Start IIS Manager. One way to do this is to use Run from the Start menu. Type the command inetmgr.



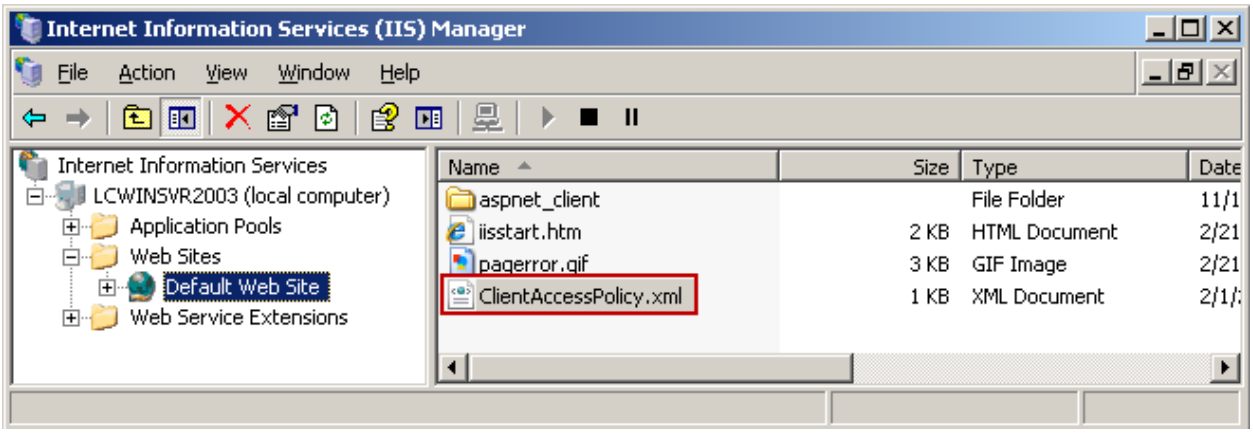
4. From the Web Sites folder, right-click on the target web site and select Explore.




5. Right-click in the blank area of the right pane and select Paste.



6. The file ClientAccessPolicy.xml appears in the list.




## 2.7 SQL Server

A test database is needed to test and verify the ***iRINGTools*** AdapterServer and SandboxService. ***iRINGTools*** supports the following SQL Server database versions.

- SQL Server 2005
- SQL Server 2008
- SQL Server Express 2008

Install these databases in accordance with the database installation instructions. Later in this document, databases will be created (using SQL Server Express 2008) for the AdapterServer (for the adapter triple store and for testing purposes) and the SandboxService (for the sandbox triple store).

# 3 Installation *iRINGTools* Sandbox

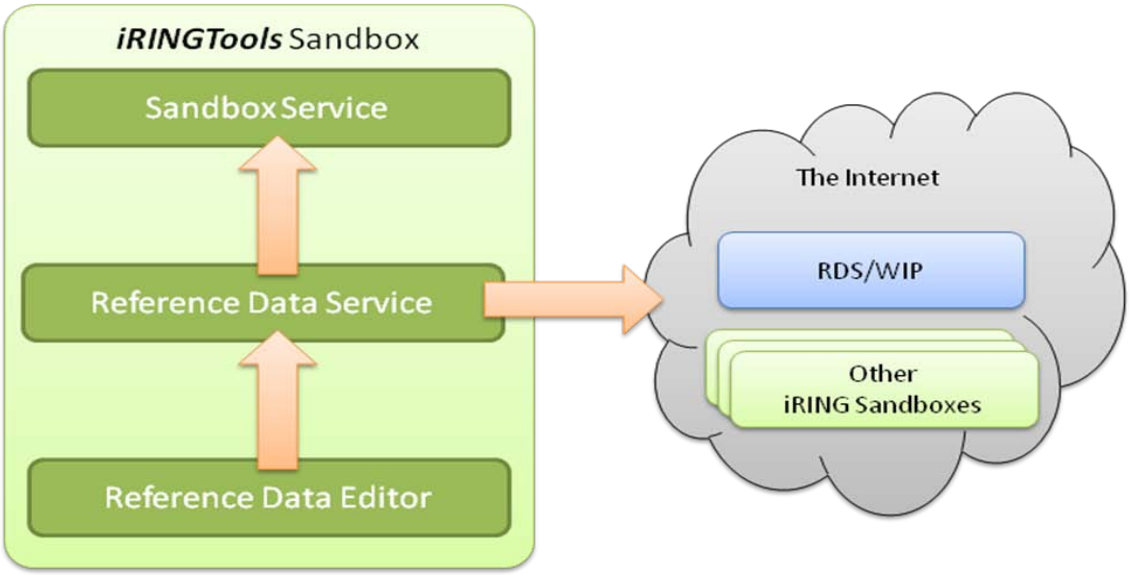
The following sections will describe the ***iRINGTools*** Sandbox components and provide detailed instructions on how to install and configure each component.

## 3.1 iRINGTools Sandbox Components

The ***iRINGTools*** Sandbox is comprised of three components:

1. Sandbox Service
2. Reference Data Service
3. Reference Data Editor

These components interact with each other as well as the internet to manage the Reference Data contained in the ***iRINGTools*** Sandbox and provide federated search functionality.




The Sandbox Service encapsulates the physical triple store and provides functionality for SPARQL Query and Update.

The Reference Data Service forms the core of the ***iRINGTools*** Sandbox and provides a web service API for performing federated searches across RDSWIP and other configured Sandboxes. The web service API also provides CRUD (Create, Read, Update and Delete) operations on the reference data stored within the Sandbox Service. In this way, the Reference Data Service depends on the Sandbox Service as well as access to the internet.

The Reference Data Editor provides a graphical user interface for searching, navigating, and managing (CRUD) reference data. It uses the Reference Data Service for all of its functionality.

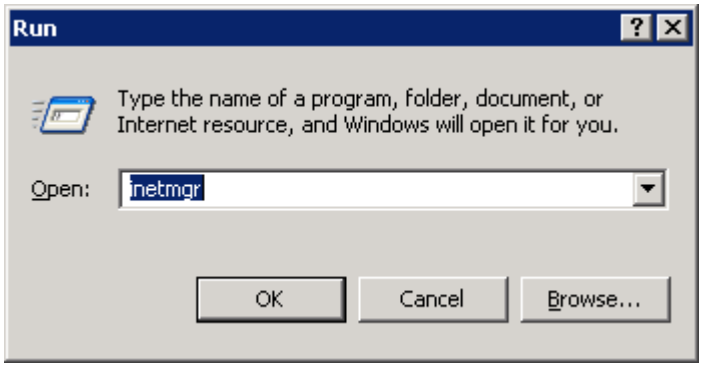
## 3.2 Localhost versus Server Hostname

The ***iRINGTools*** Sandbox webconfig files use localhost as the initial hostname. It is best to keep localhost as the hostname during installation to making testing easier. Instructions will be provided later in this document on where and how to change the hostname.

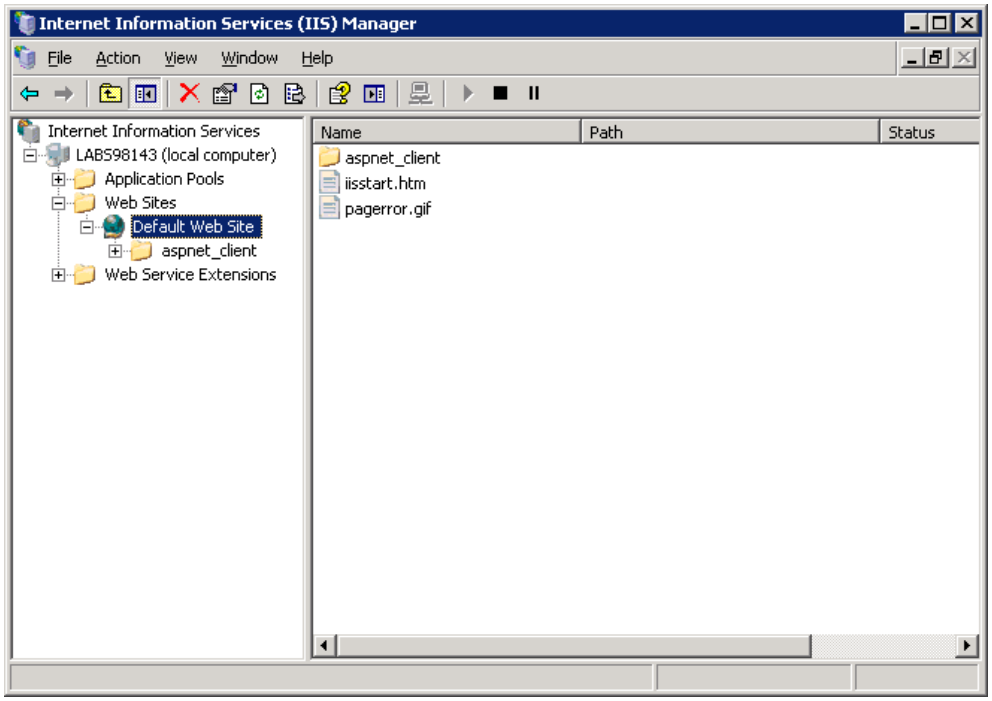
## 3.3 Installing Sandbox Service

Create the SandboxService virtual directory in IIS by performing the following steps.

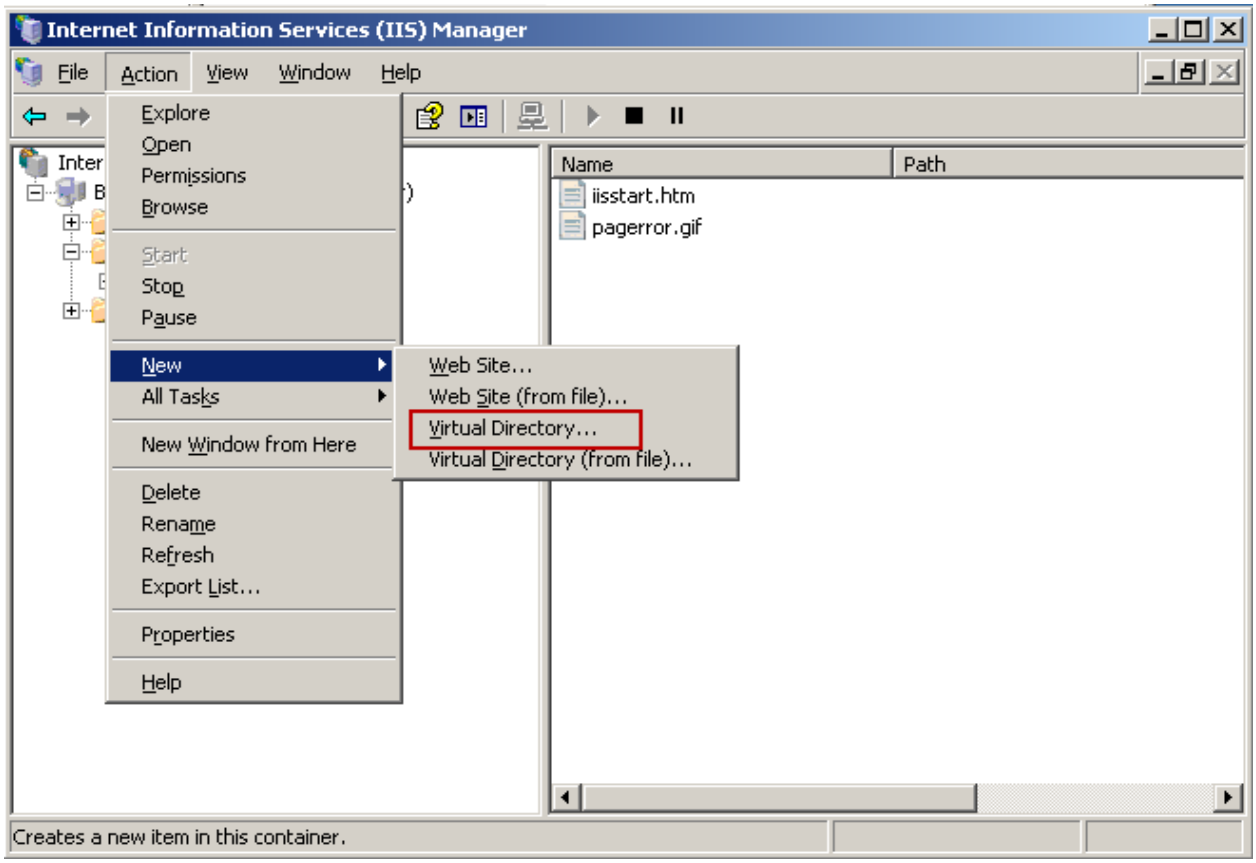
1. Start IIS Manager. One way to do this is to use Run from the Start menu. Type the command inetmgr.




2. In IIS Manager, select the target web site folder in the Web Sites folder.

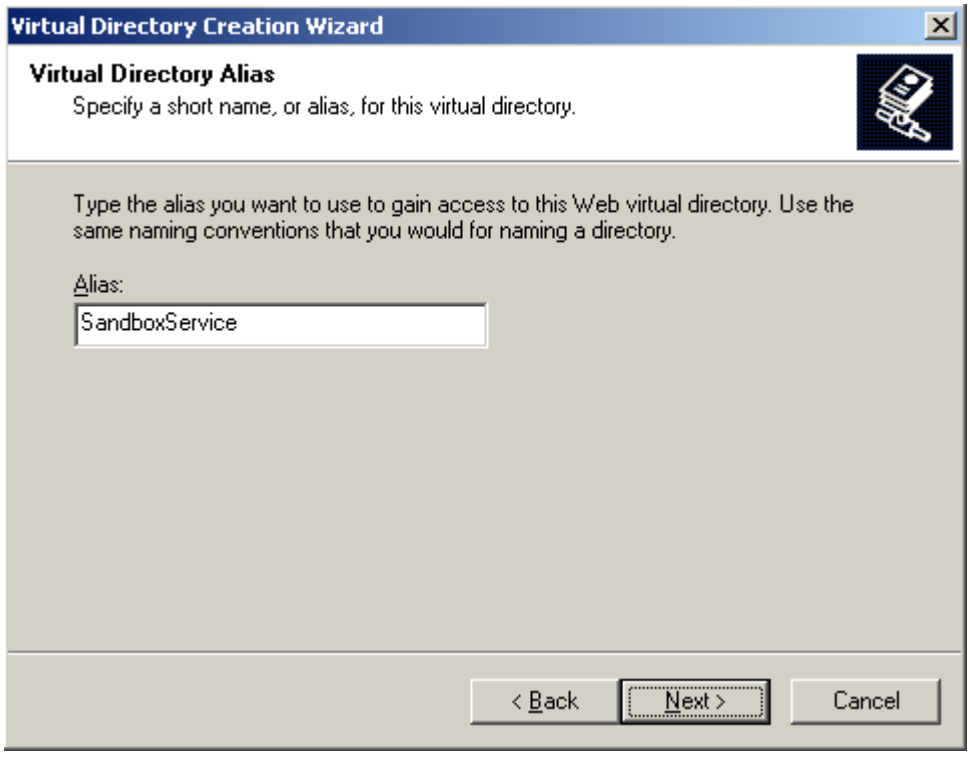


3. From the main menu, select Action > New > Virtual Directory.

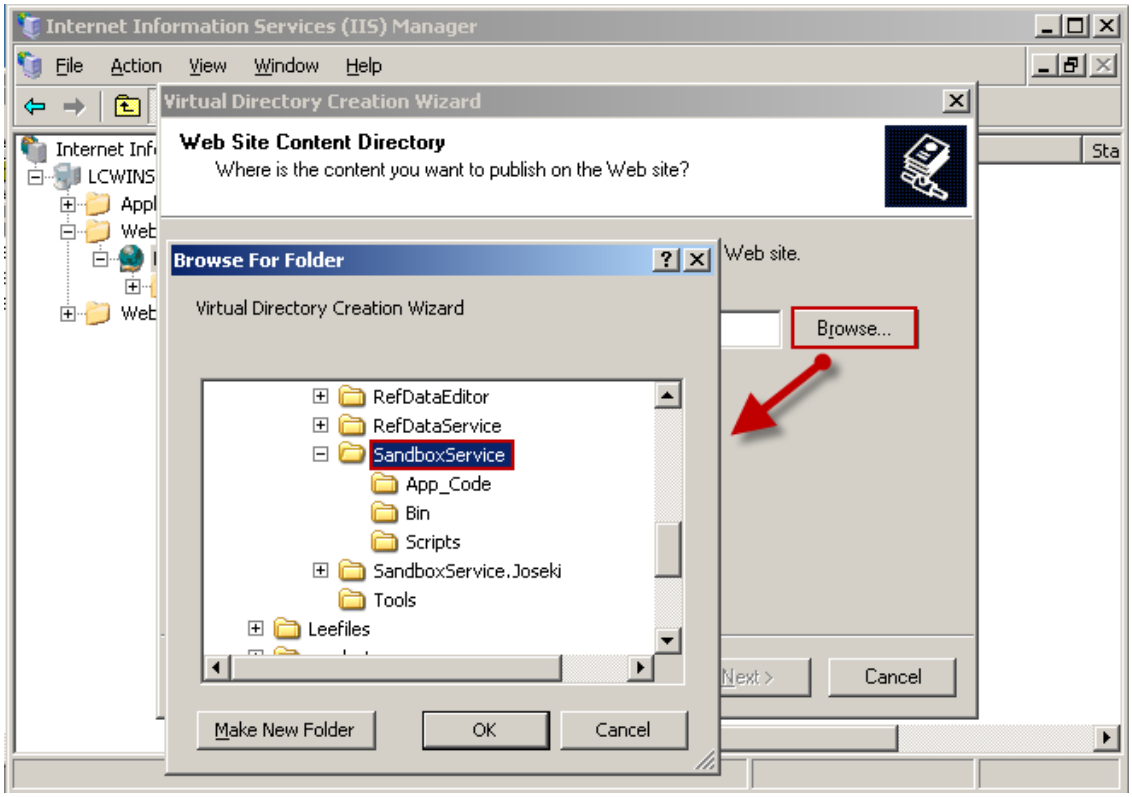



4. The Virtual Directory Creation wizard starts. Click the next button.

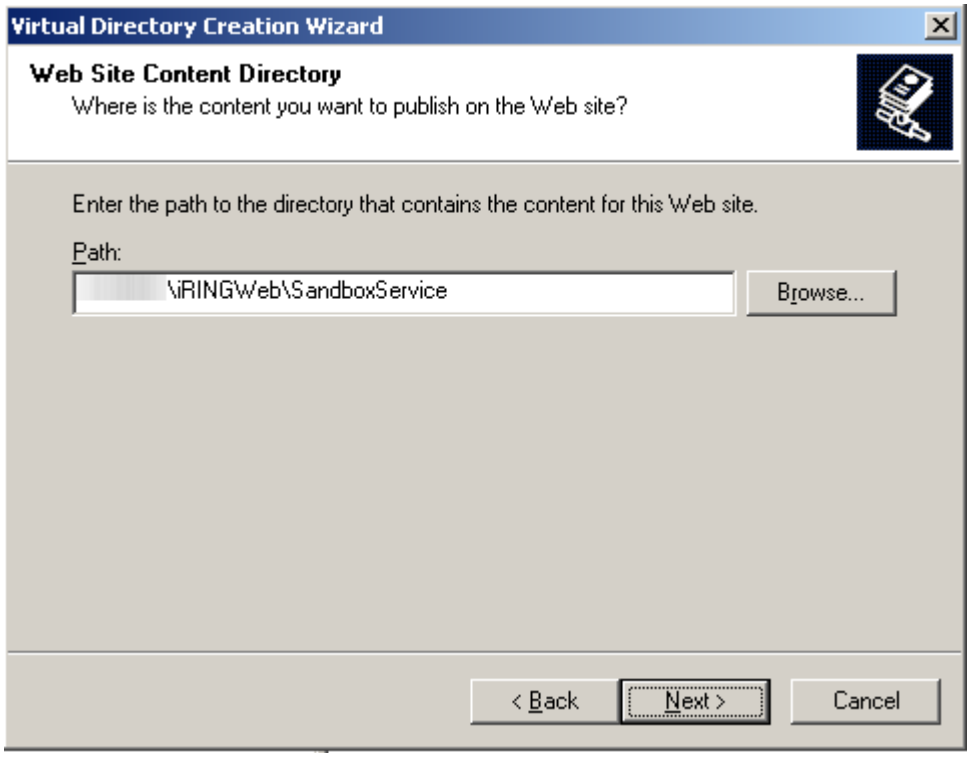
5. Name the virtual directory as SandboxService and then click the Next button.



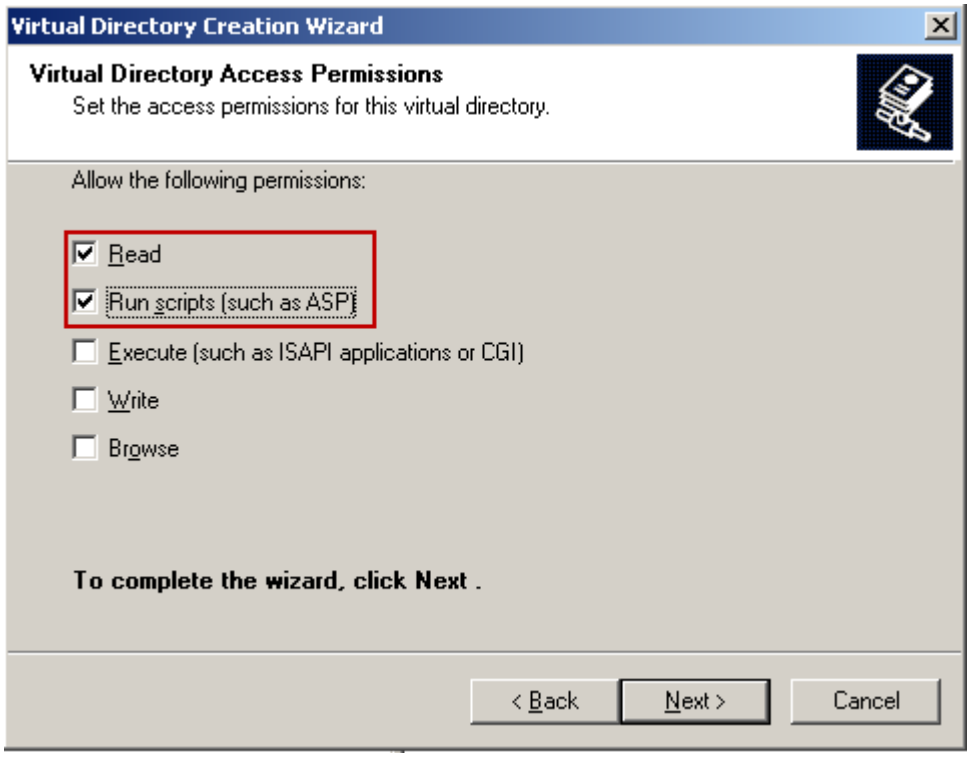

6. Browse to the iRingWeb\SandboxService folder (installed earlier).



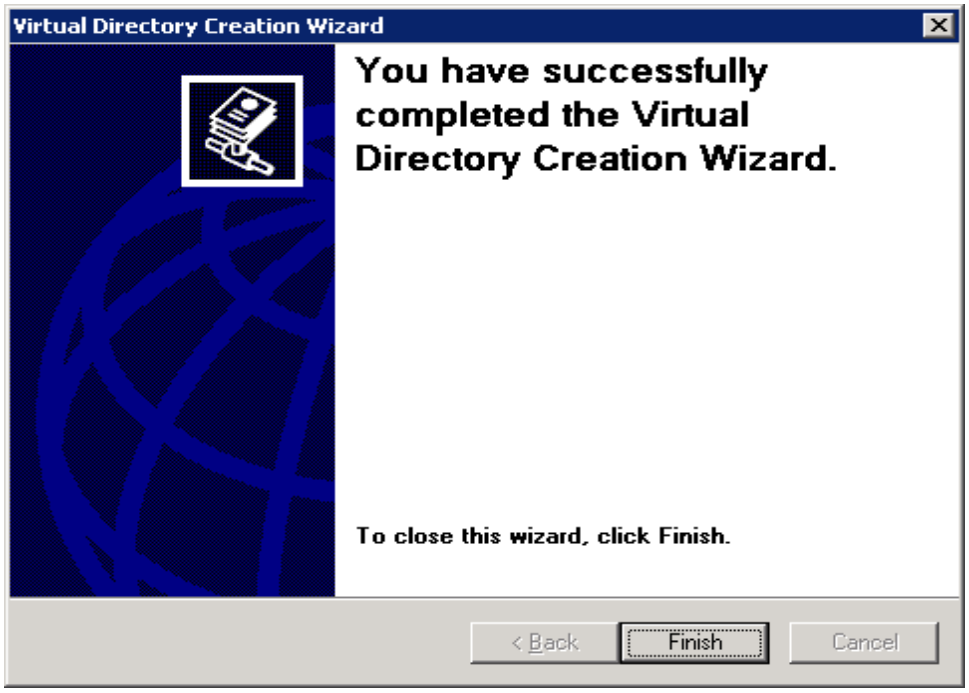
7. Click the Next button.



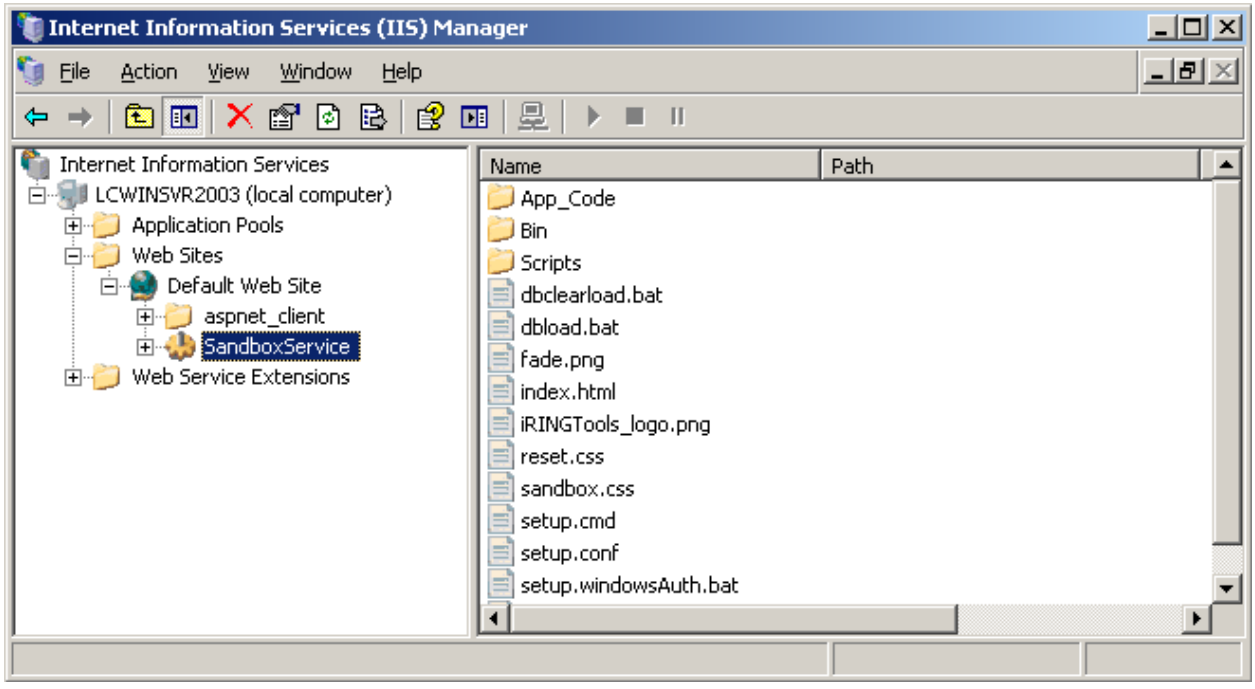

8. Select the permissions Read and Run Scripts and then click the Next button.



9. The virtual directory setup is complete. Click the Finish button to close the wizard.



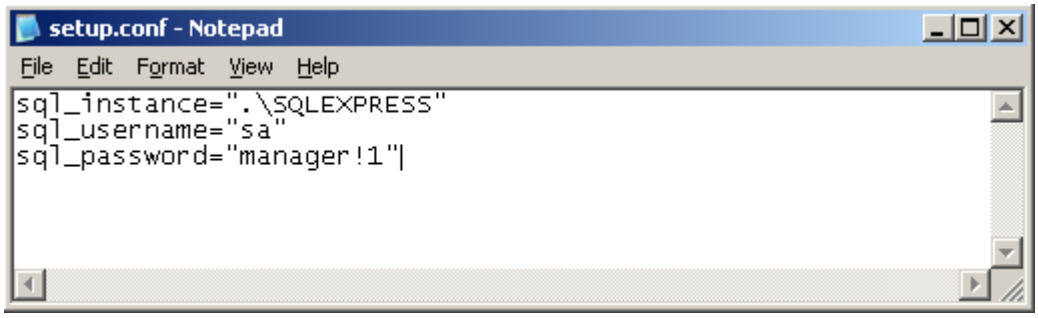

10. The virtual directory appears in the target web site folder.



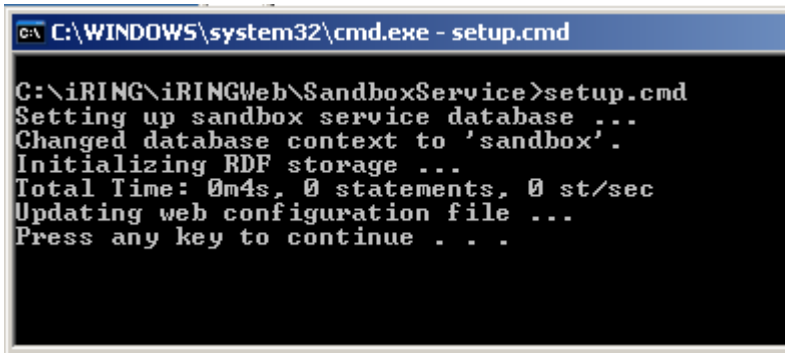
## 3.4 Sandbox Service Setup

To configure the Sandbox Setup service, perform the following:

1. Open the file iRINGWeb\SandboxService\setup.conf in a text editor (e.g., Notepad) and modify the contents to match your installation (i.e., SQL Server instance, admin username and password). Save the file.



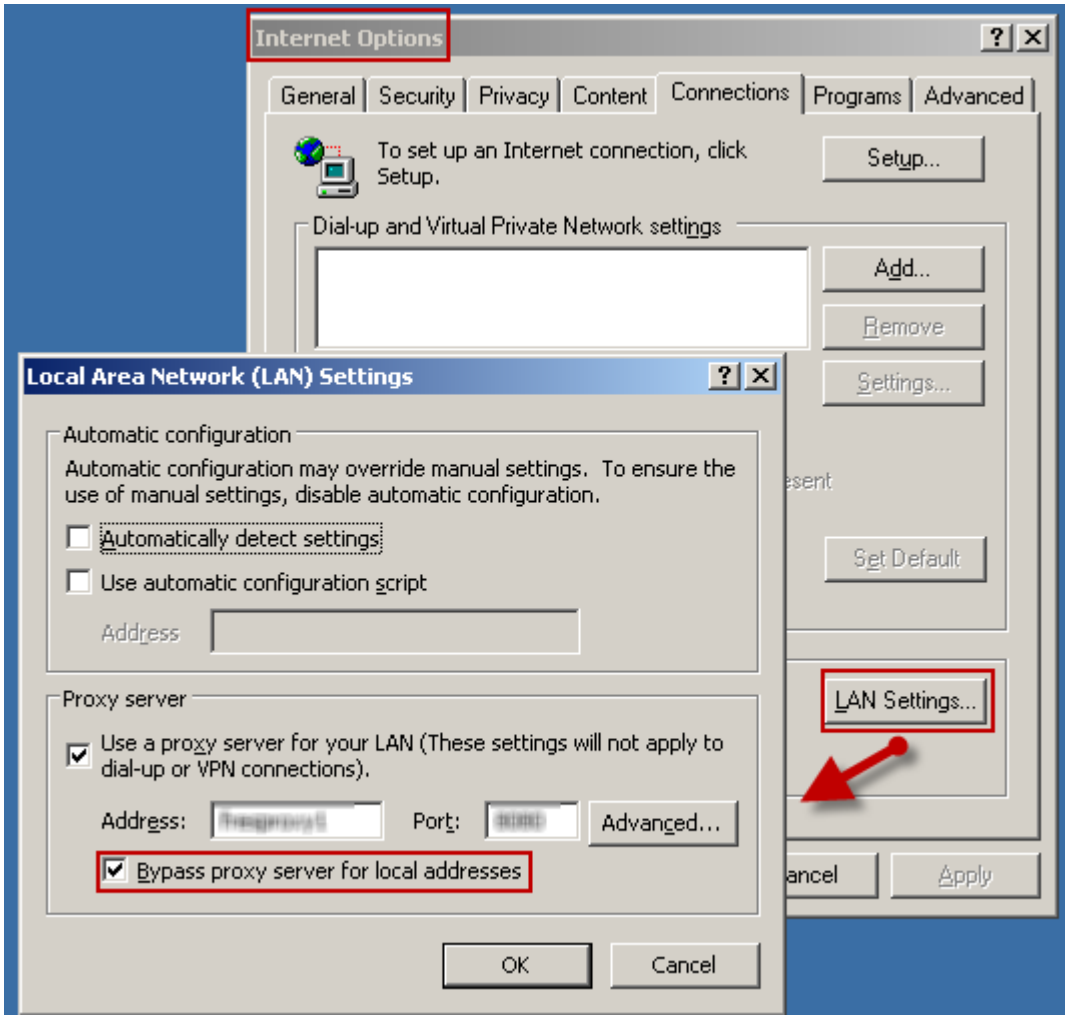

2. Open a command window and execute iRINGWeb\SandboxService\setup.cmd. This will create the SQL Server database and configure the SandboxService Web.config based on the settings in setup.conf.



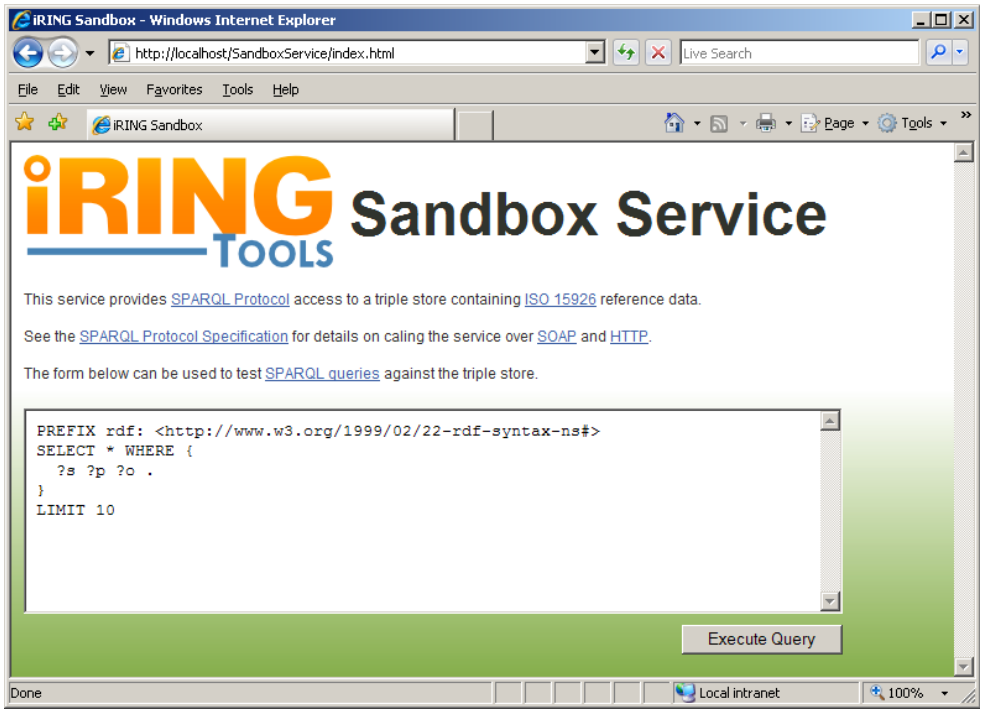

## 3.5 Testing Sandbox Service

To confirm the Sandbox Service installed correctly, perform the following.

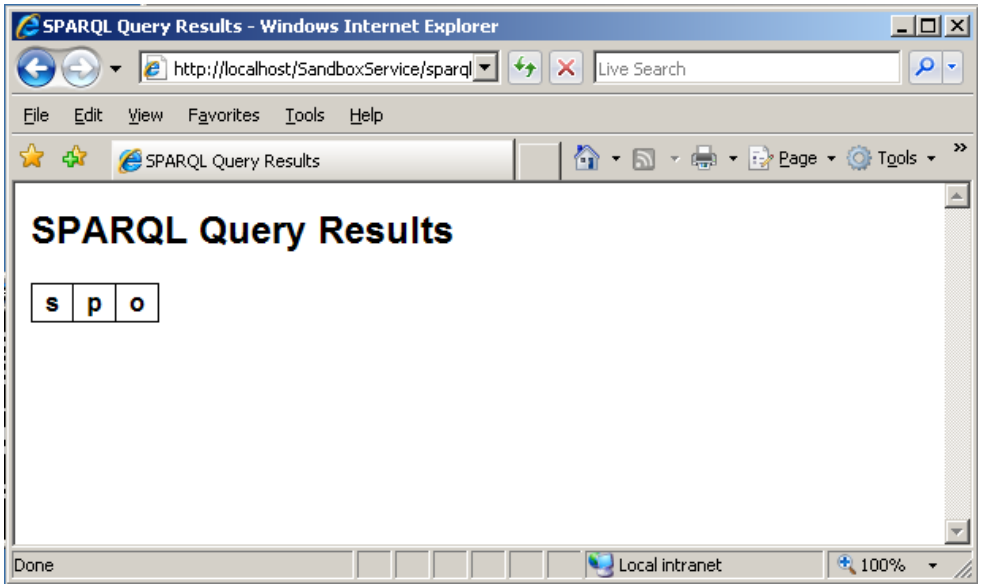
> **Note**: To access the localhost, you may need to configure your Internet Options first. Open Internet Options, select the Connections tab, select LAN Settings and ensure Bypass proxy server for local addresses is checked. Save the settings and close the browser before proceeding.


Internet Options
General
Security
Privacy
Content
Connections
Programs
Advanced
To set up an Internet connection, click Setup.
Setup...
Dial-up and Virtual Private Network settings
Add...
Remove
Settings...
Set Default
LAN Settings...
Apply
Local Area Network (LAN) Settings
Automatic configuration
Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.
Automatically detect settings
Use automatic configuration script
Address
Proxy server
Use a proxy server for your LAN (These settings will not apply to dial-up or VPN connections).
Address:
Port:
Advanced...
Bypass proxy server for local addresses
OK
Cancel

1. In your web browser, open the address http://localhost/SandboxService/index.html. You should see the following (or something very similar).



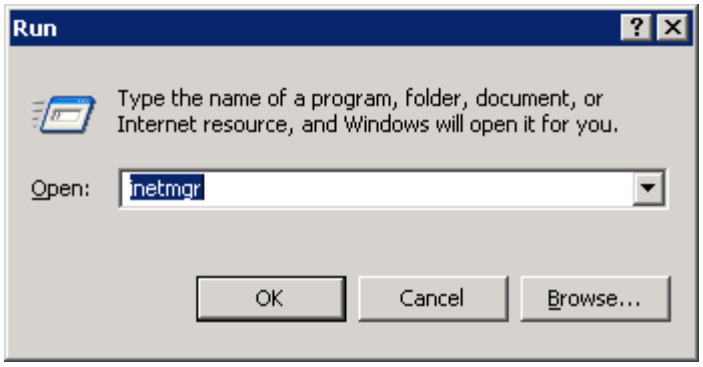

2. Click the Execute Query button. You should see the following result.



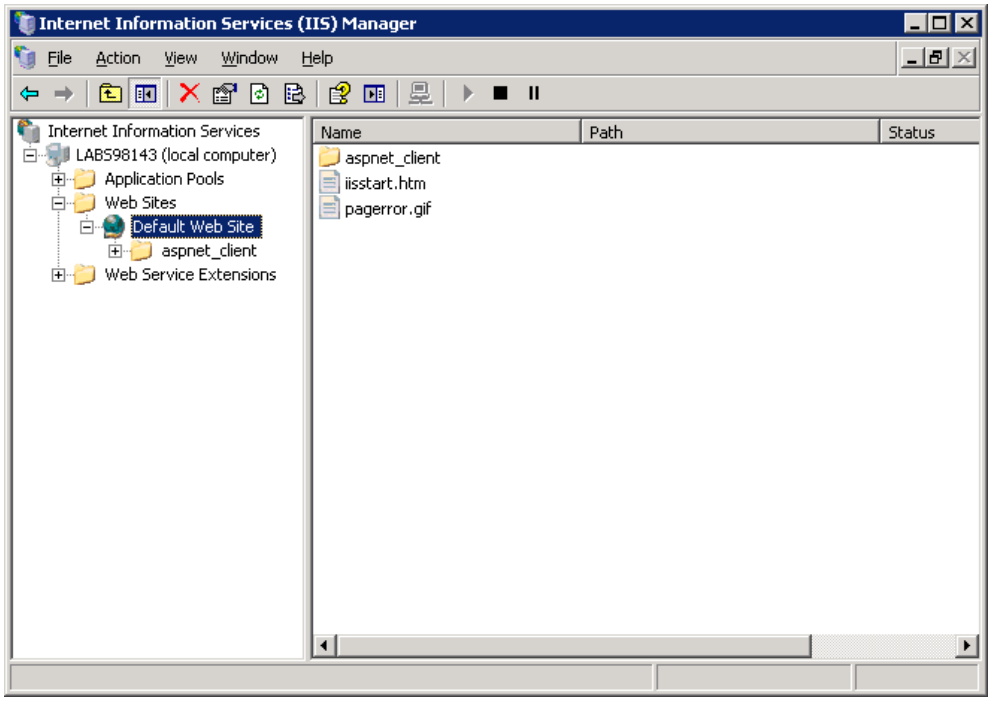

## 3.6 Creating Virtual Directory for RefDataService

Create the RefDataService virtual directory in IIS by performing the following steps.

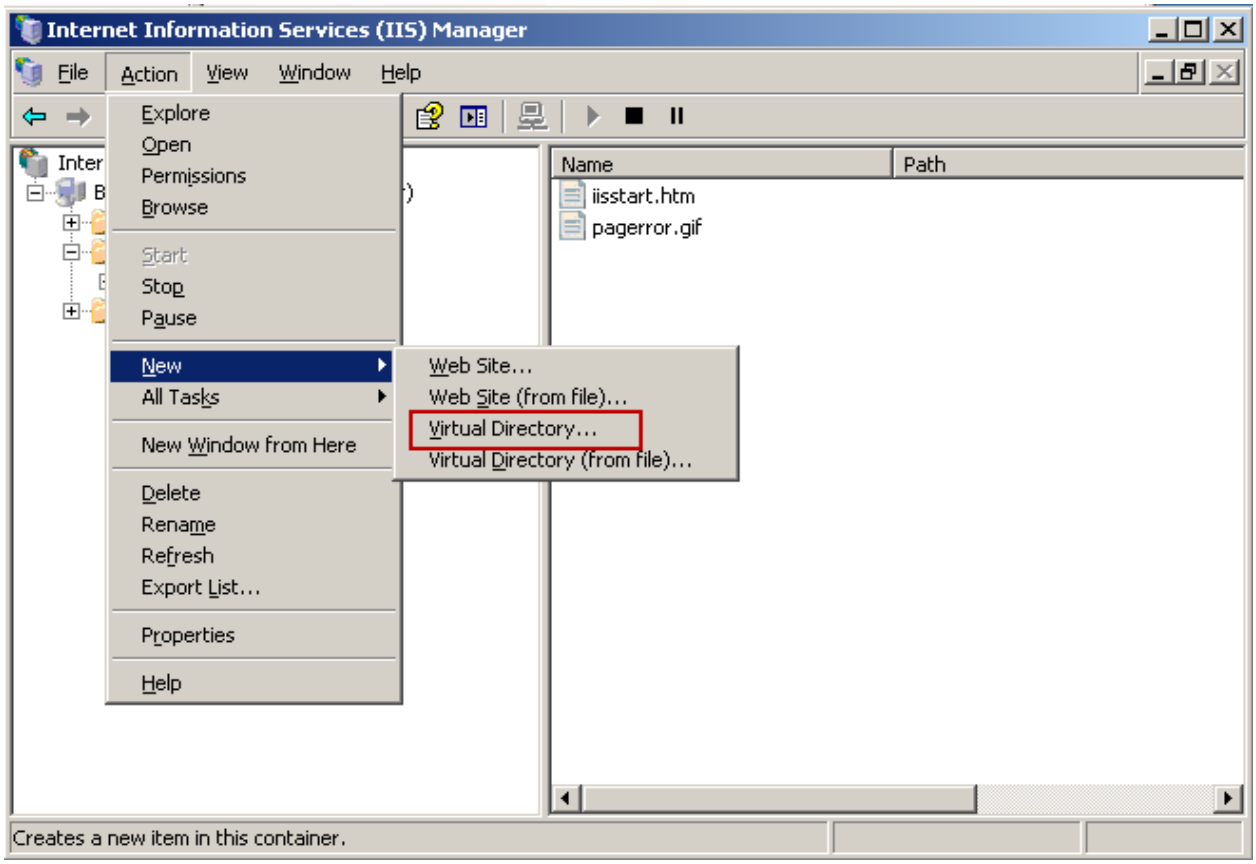
11. Start IIS Manager. One way to do this is to use Run from the Start menu. Type the command inetmgr.




12. In IIS Manager, select the target web site folder in the Web Sites folder.

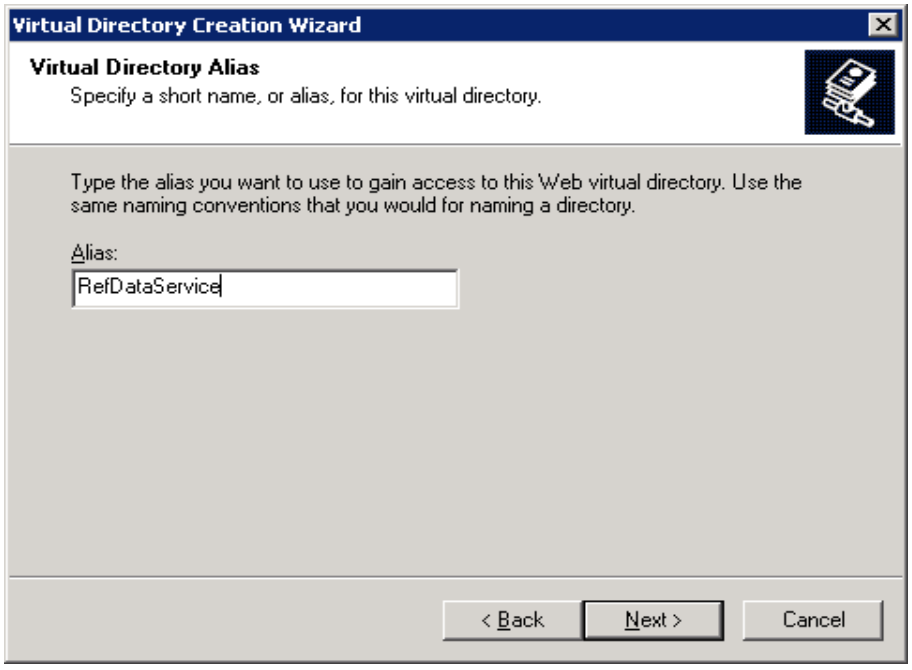



13. From the main menu, select Action > New > Virtual Directory.

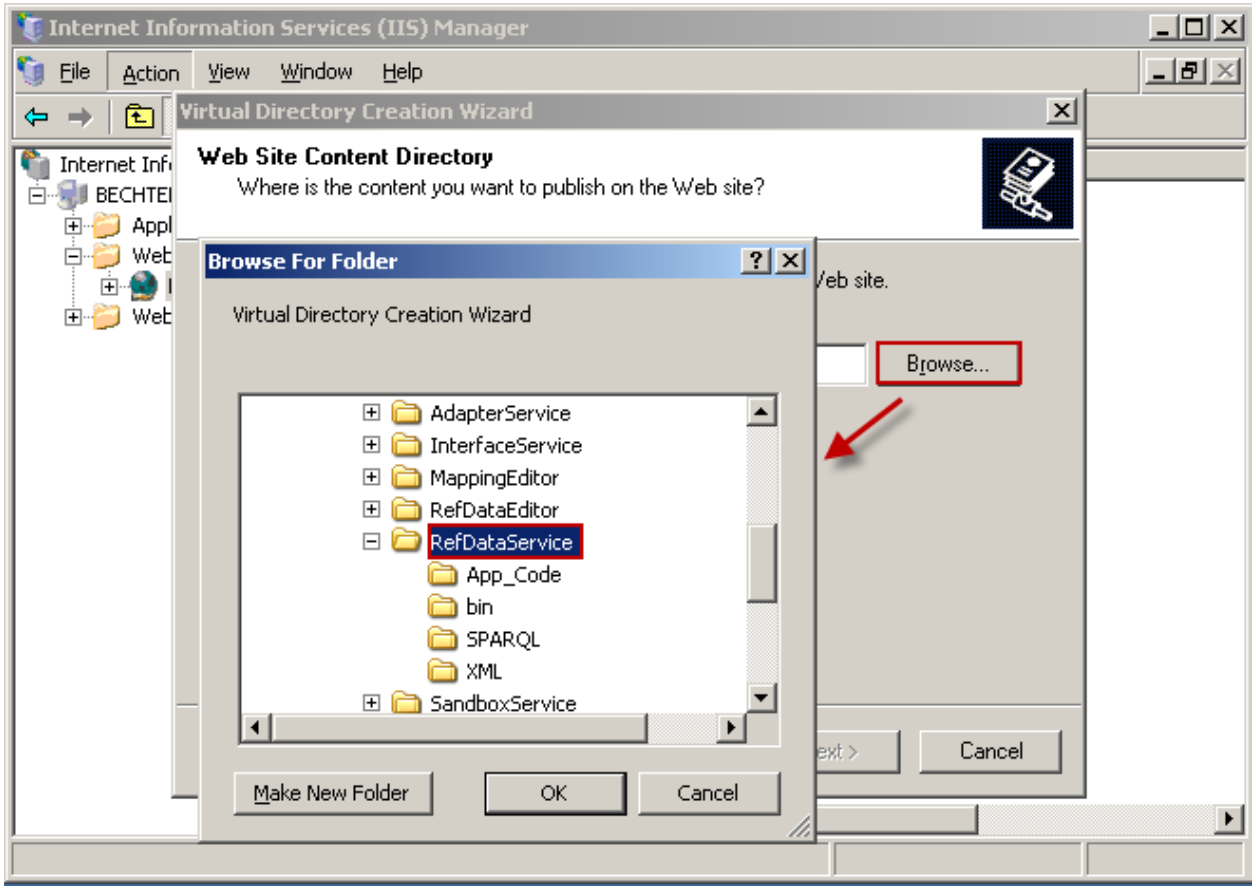



14. The Virtual Directory Creation wizard starts. Click the next button.

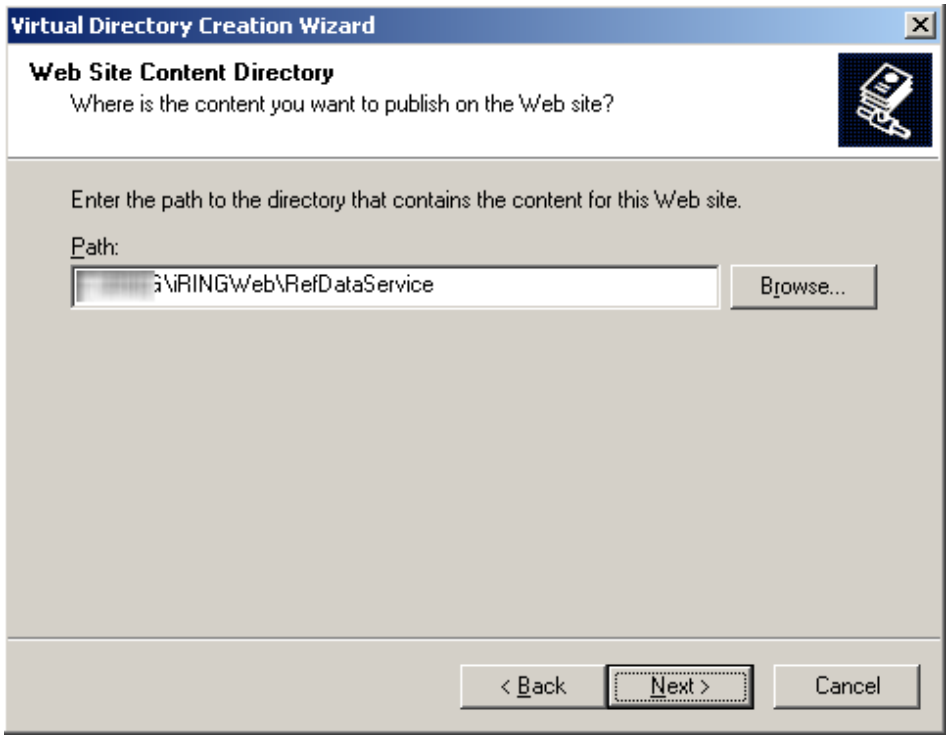
15. Name the virtual directory as RefDataService and then click the Next button.



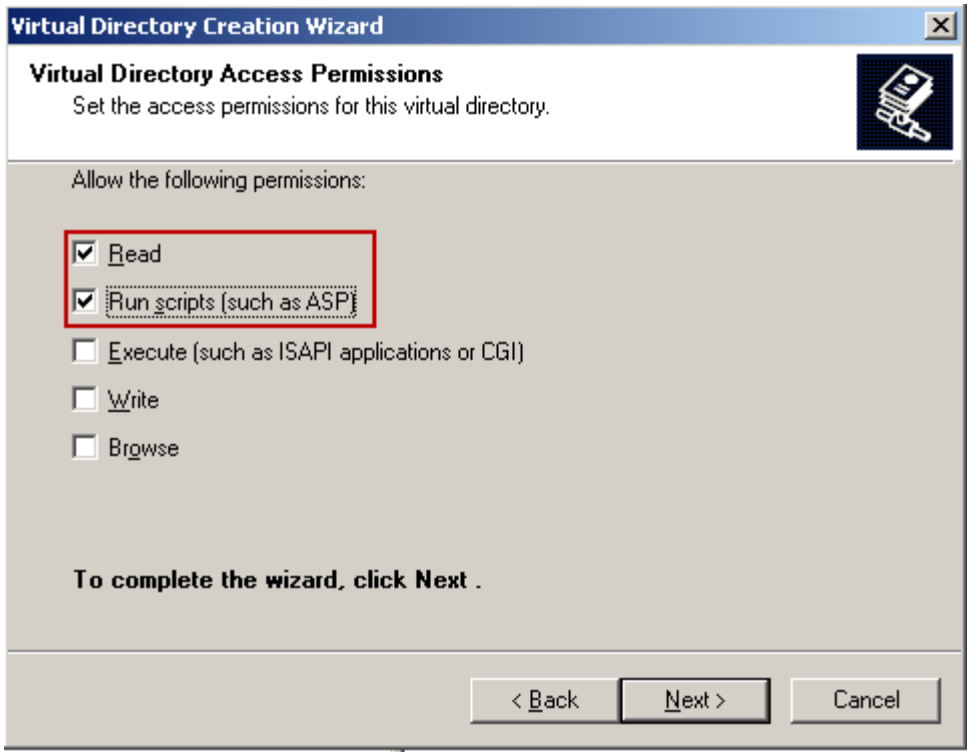

16. Browse to the iRingWeb\RefDataService folder (installed earlier).



17. Click the Next button.

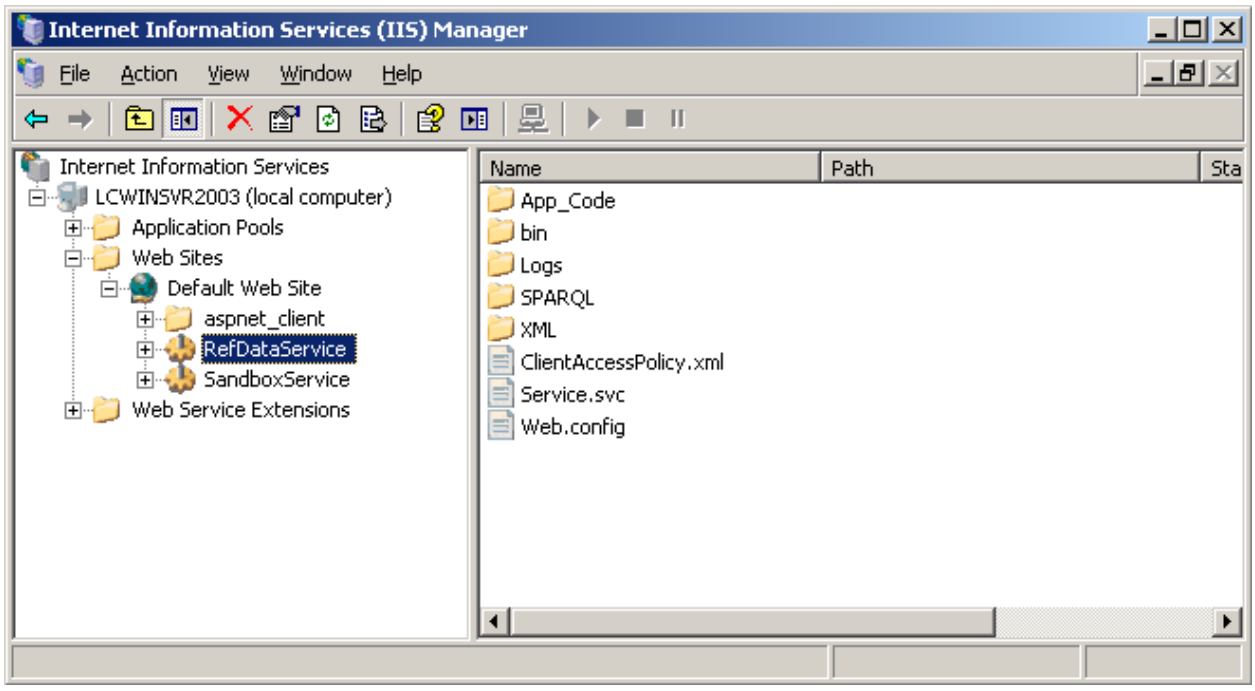



18. Select the permissions Read and Run Scripts and then click the Next button.



19. The virtual directory setup is complete. Click the Finish button to close the wizard.


20. The virtual directory appears in the target web site folder.

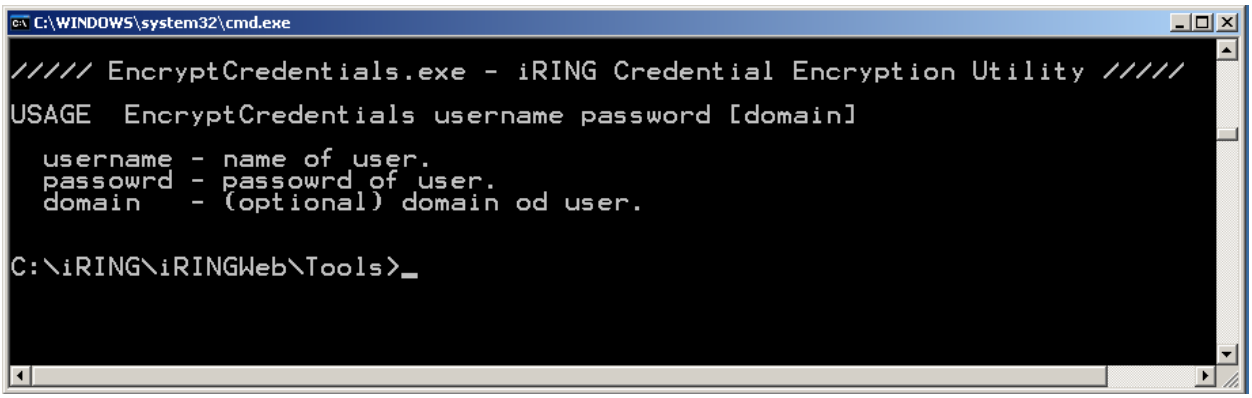



## 3.7 Configuring Reference Data Service

The following sections provide details for configuring the reference data service.

### 3.7.1 Creating Credential Tokens

The parameters RegistryCredentialToken and ProxyCredentialToken in the Web.config provide credentials needed to access the internet (if the server is behind a firewall) and to generate IDs for new ISO 15926 classes. For security purposes, this information is encrypted with a FIPS 140-2 utility. The utility is called EncryptCredentials and it is located in iRingWeb\Tools. The utility generates an encrypted string for the specified data.

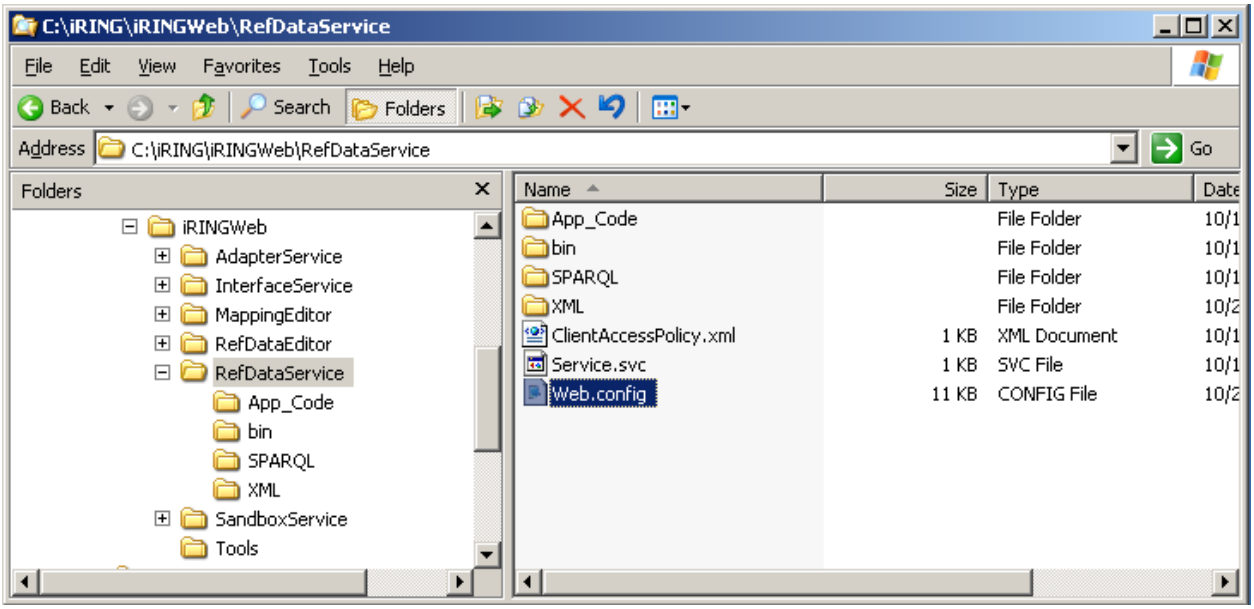



Use this utility when prompted to create encrypted tokens that will be stored in the Web.config file.

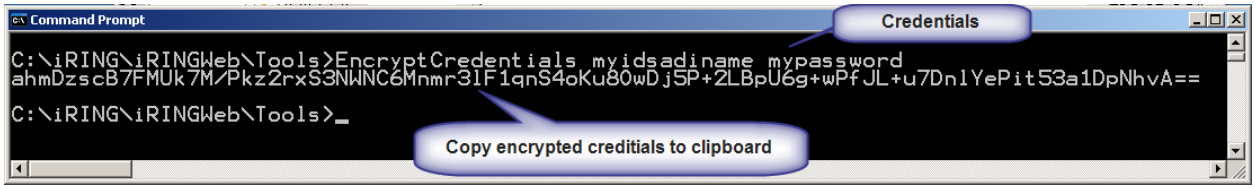
### 3.7.2 Modify RefDataService Web.config

Modify the RefDataService Web.config file as follows.

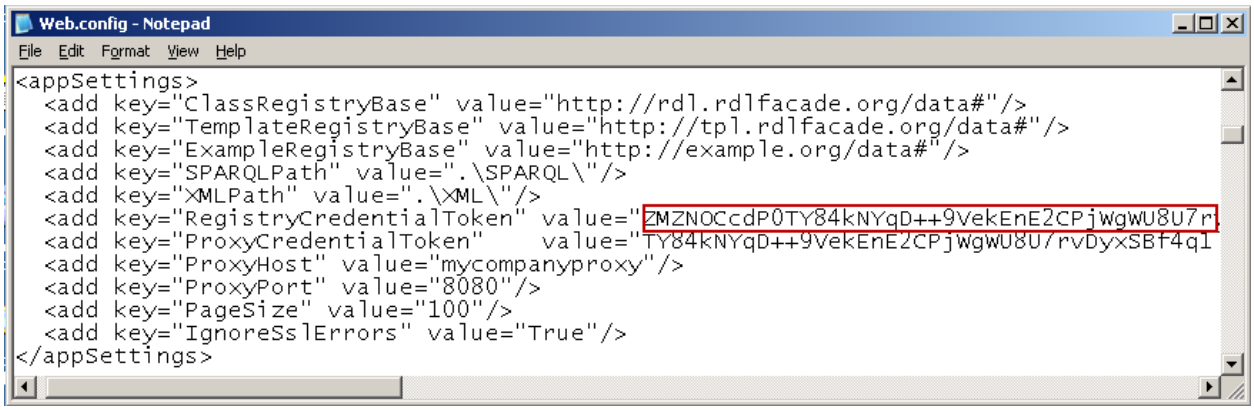
1. Open the file Web.config file located in the iRINGWeb\RefDataService in a text editor.



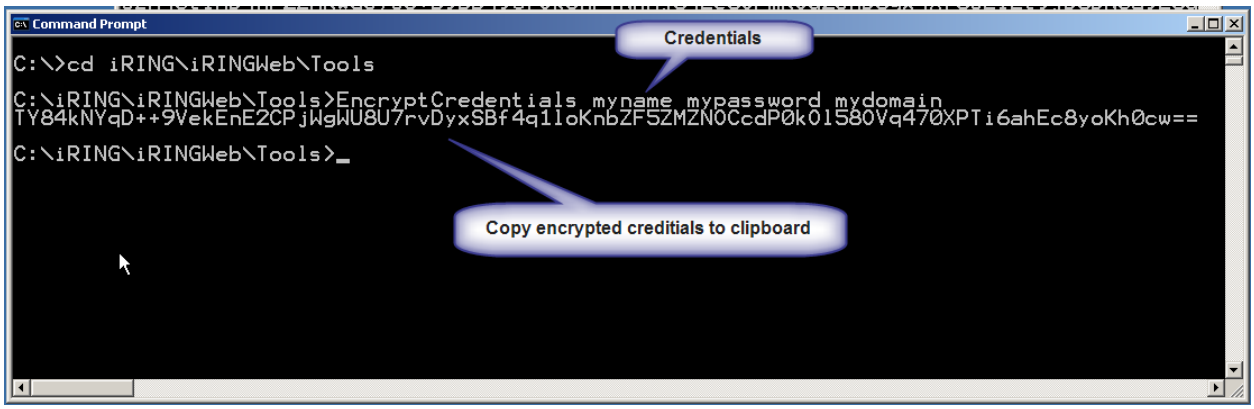

2. Credentials are needed to generate new IDs for classes, templates and roles. This requires a valid ids-adi identity. Create an encrypted token with the EncryptCredentials utility in iRingWeb\Tools. Enter the ids-adi account username and password. Copy the resulting encrypted string to the clipboard.



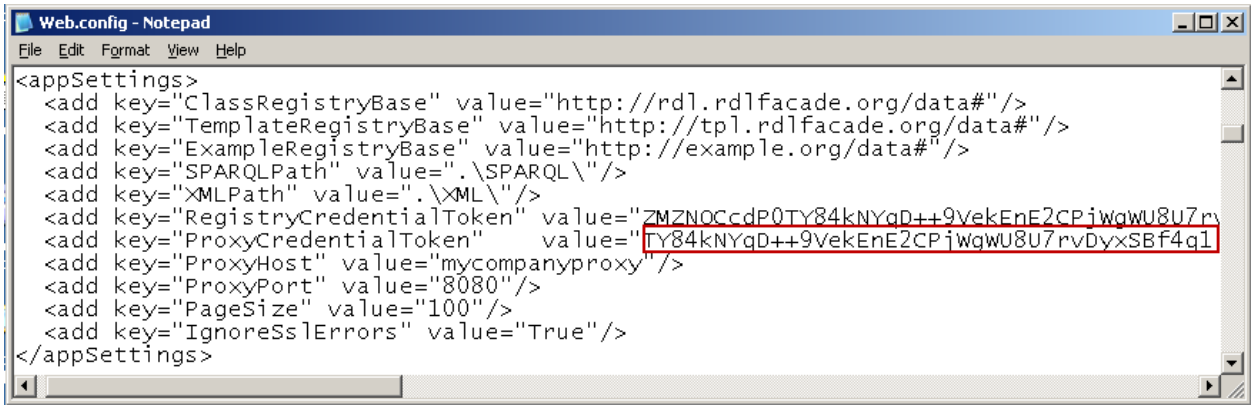

3. In the file Web.config, locate the RegistryCredentialToken key in appSettings. Paste the token in the value between the double quotes. The RegistryCredentialToken value cannot be empty.



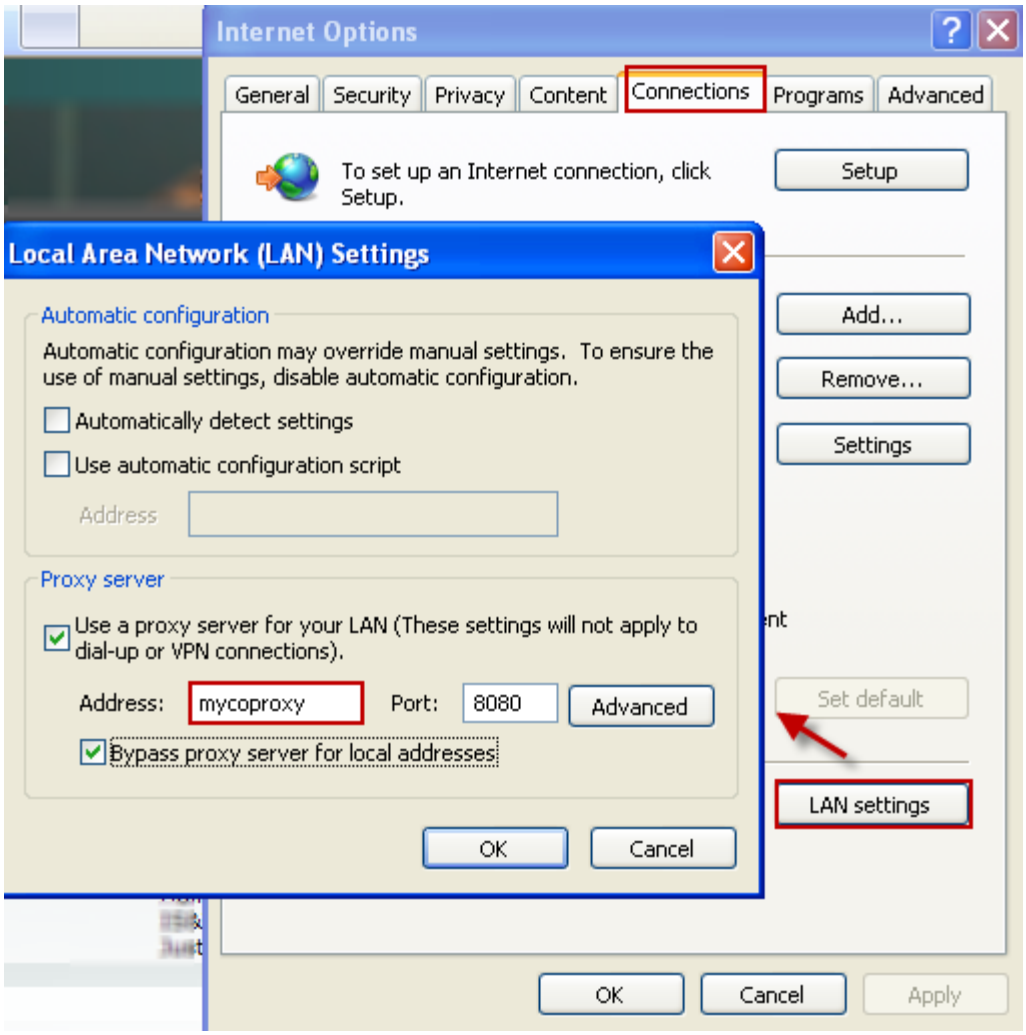

4. If your server is behind a firewall, then credentials are needed to access the internet. Create an encrypted token with the EncryptCredentials utility in iRingWeb\Tools. Enter the username, password and optionally the domain. Copy the resulting encrypted string to the clipboard.



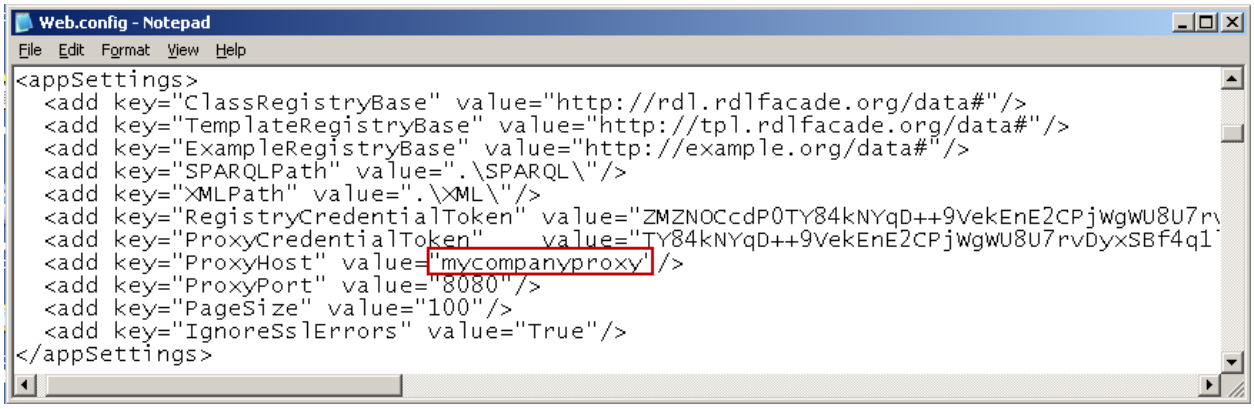

5. In the file Web.config, locate the ProxyCredentialToken key in appSettings. Paste the token in the value between the double quotes. **Note**: If proxy credentials are not required, then leave the value empty.



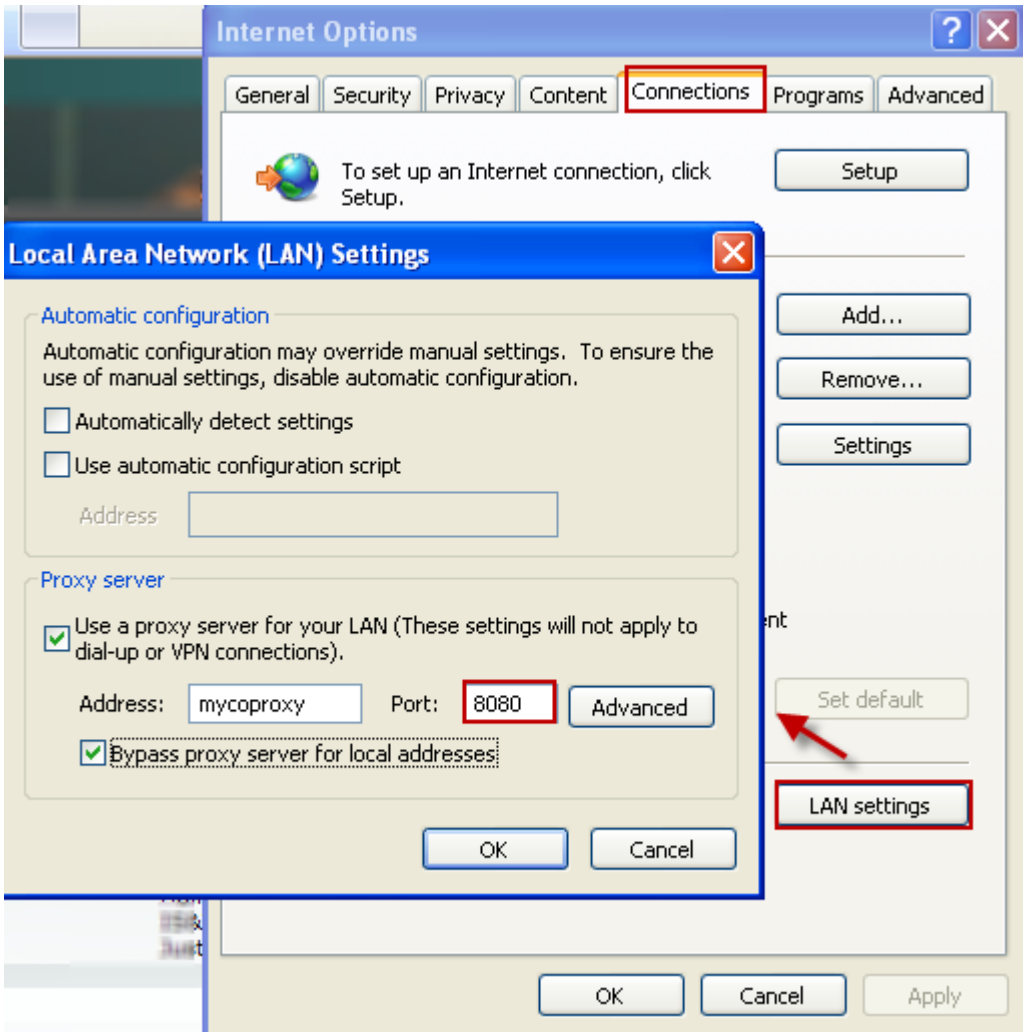

6. In the file Web.config, locate the ProxyHost key in appSettings. Enter the ProxyHost needed to access the internet. This can be found in Internet Options on the Connections tab in the LAN settings.



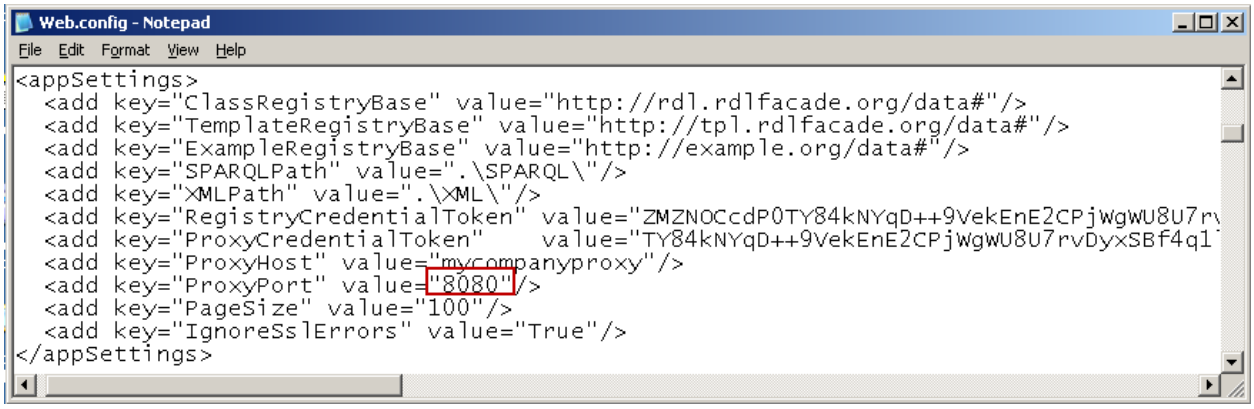
7. Enter the ProxyHost in the value between the double quotes. If there is no ProxyHost, then leave the value empty.




8. In the file Web.config, locate the ProxyPort key in appSettings. Enter the ProxyPort needed to access the internet. This can be found in Internet Options on the Connections tab in the LAN settings.



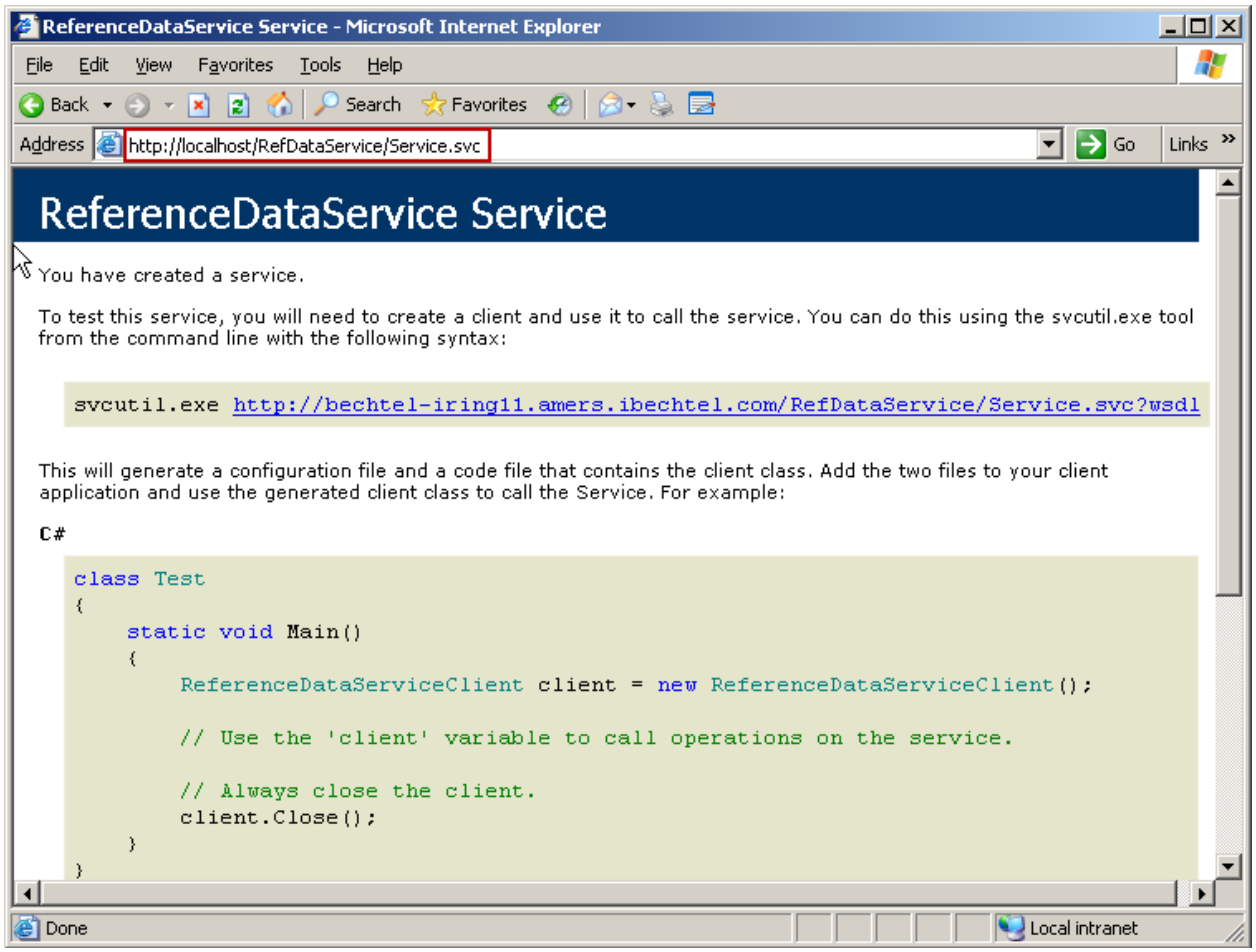
9. Enter the ProxyPort in the value between the double quotes. If there is no ProxyPort, then leave the value empty.



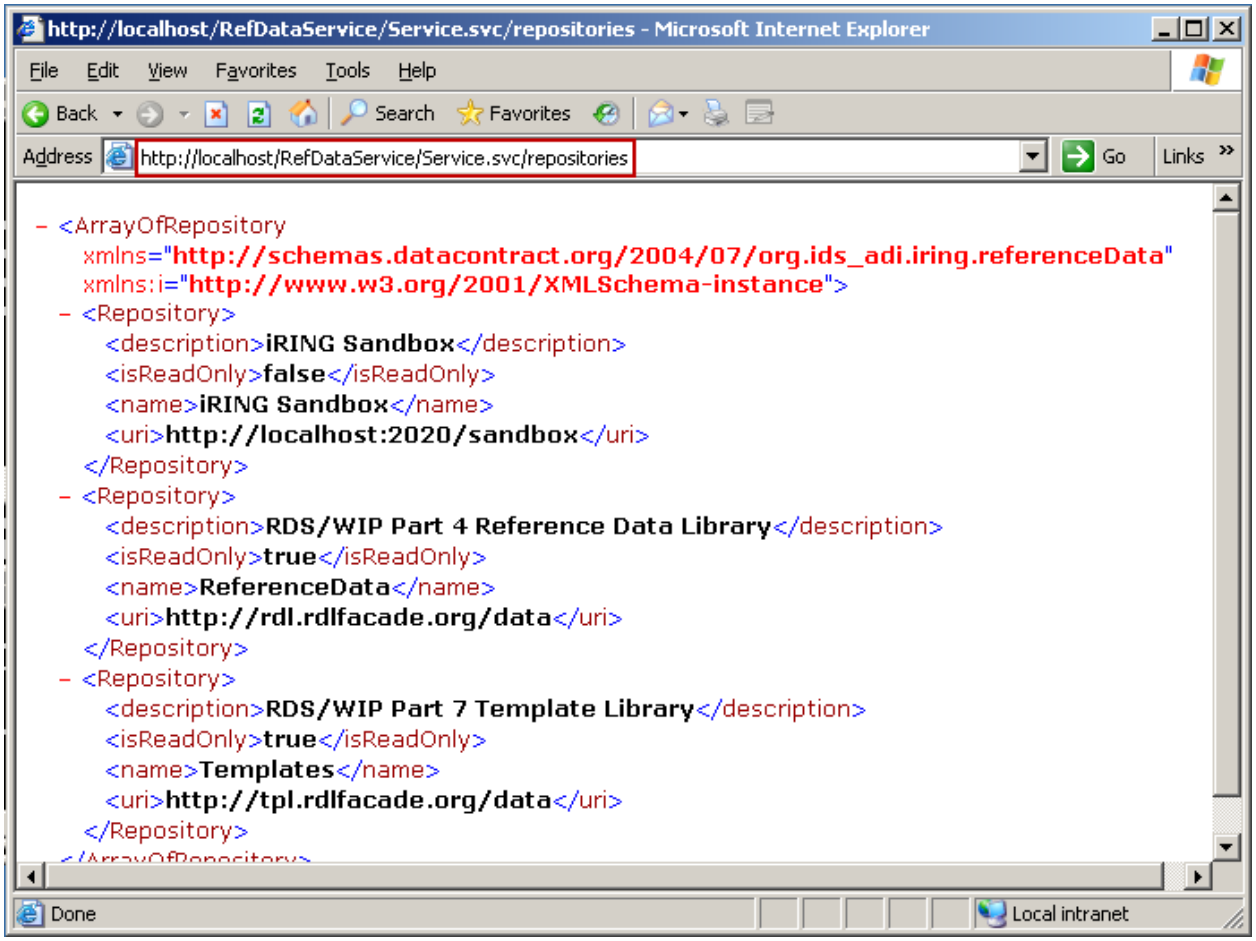

10. Save the changes to the file Web.config and close it.

## 3.8 Testing Reference Data Service

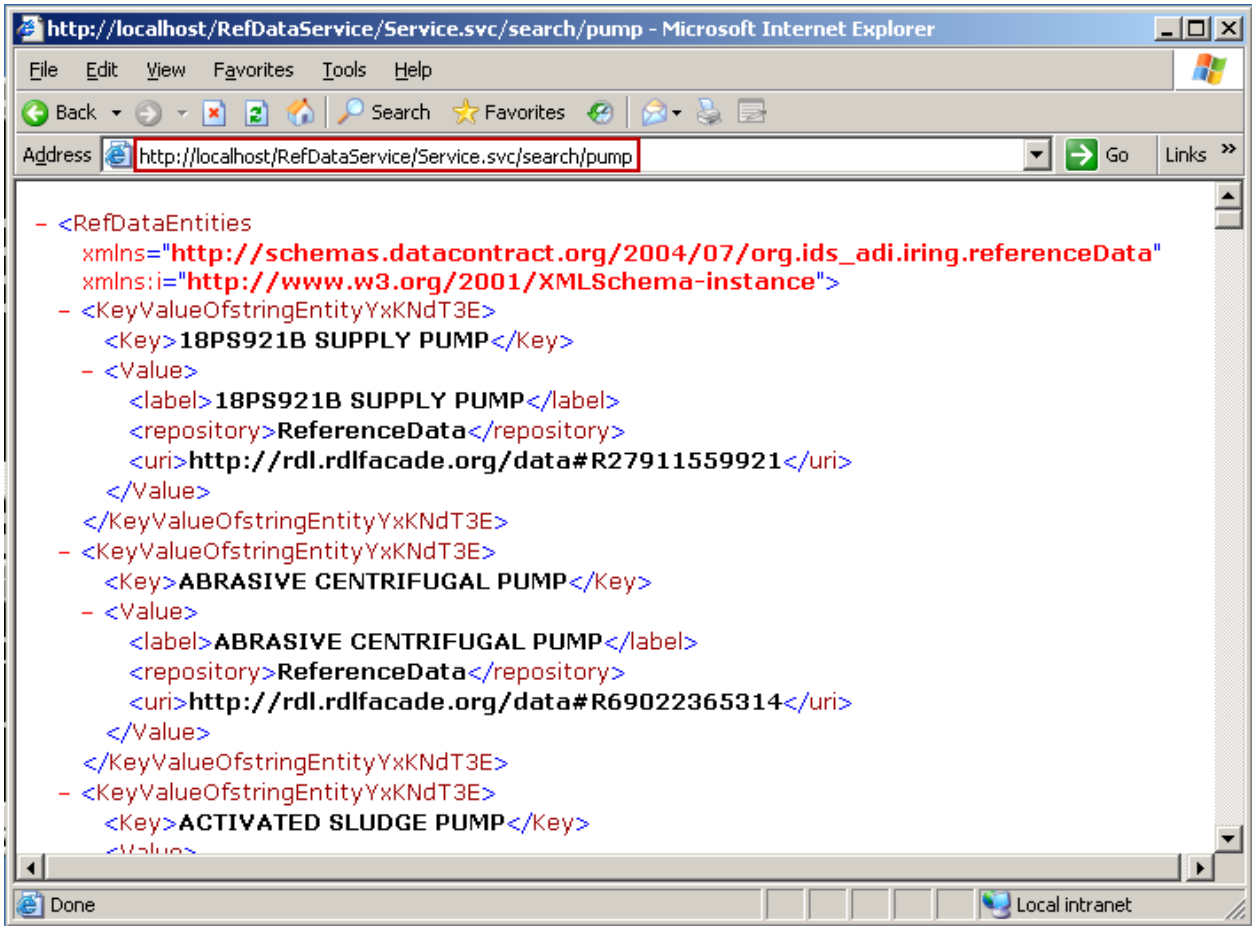
Test the Reference Data Service for IIS and compilation by opening your browser on the server and entering the address http://localhost/RefDataService/Service.svc. You should see the following.




Test the Reference Data Service basic configuration, file paths and identities by opening your browser on the server and entering the address http://localhost/RefDataService/Service.svc/repositories. You should see the following (or some other XML content very similar).



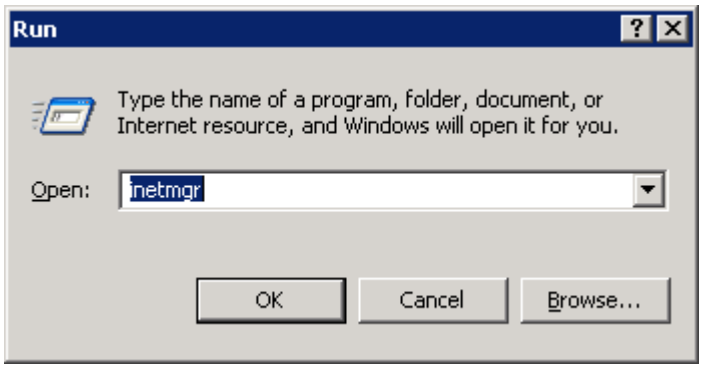

Test the Reference Data Service with each repository and federate the results by opening your browser on the server and entering the address http://localhost/RefDataService/Service.svc/search/pump. You should see the following.



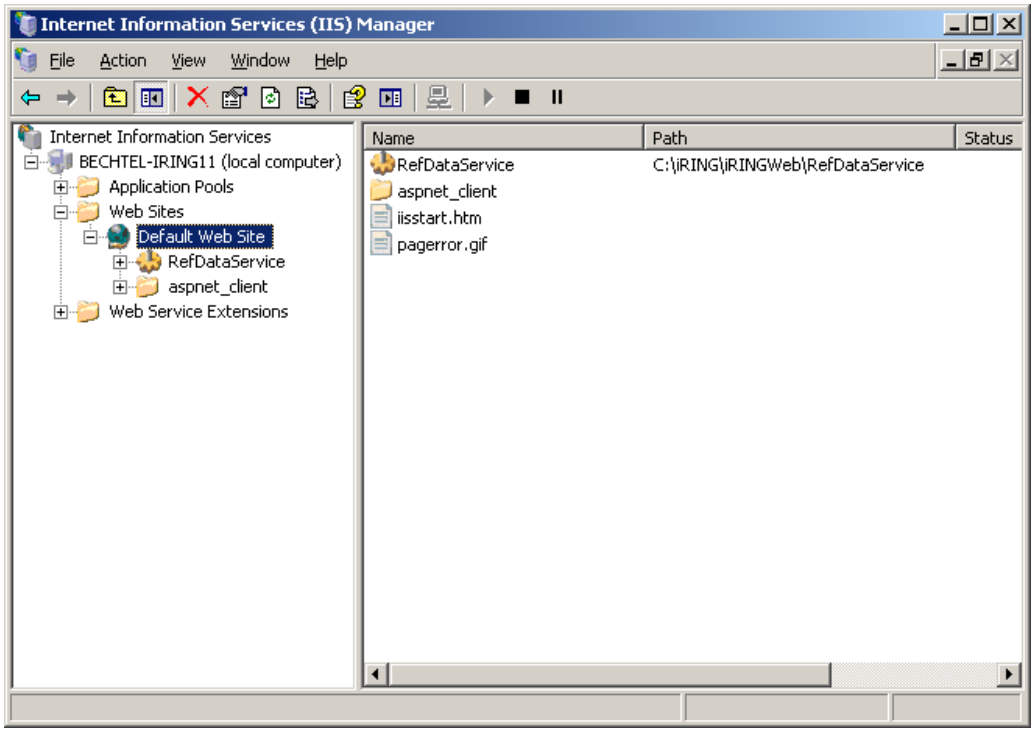

## 3.9 Creating Virtual Directory for Reference Data Editor

Create the RefDataEditor virtual directory in IIS by performing the following steps.

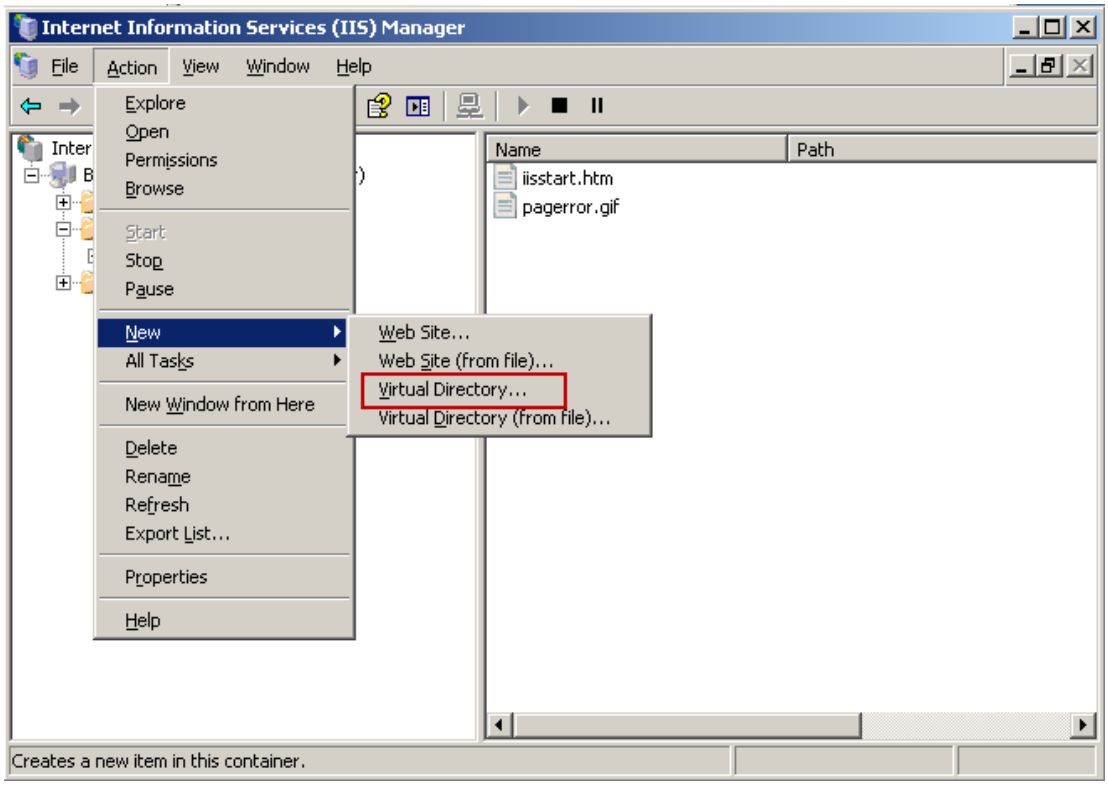
1. Start IIS Manager. One way to do this is to use Run from the Start menu. Type the command inetmgr.



2. In IIS Manager, select the target web site folder in the Web Sites folder.

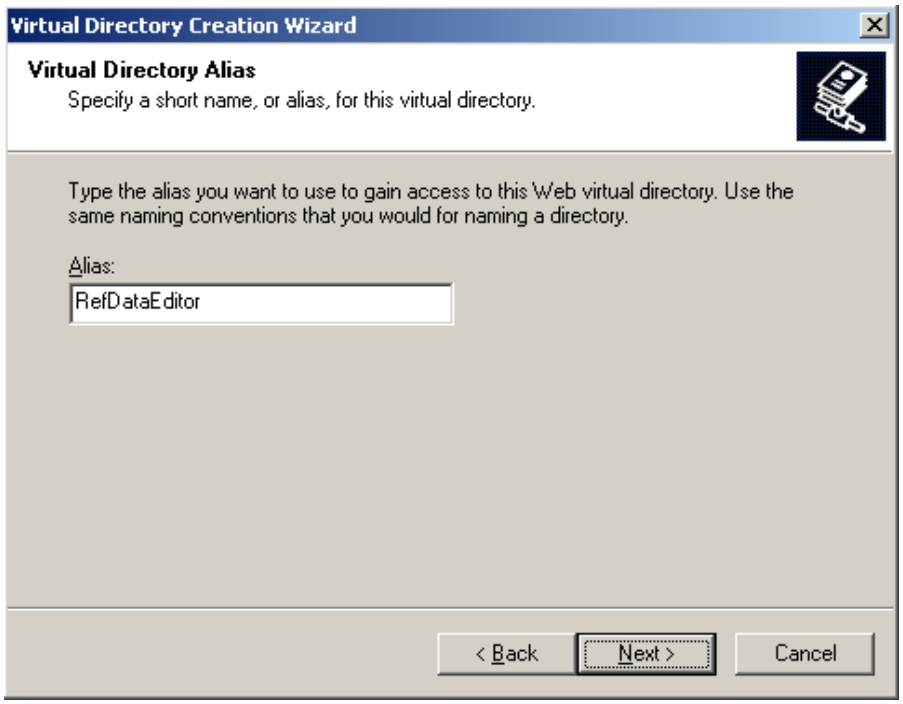



3. From the main menu, select Action > New > Virtual Directory.

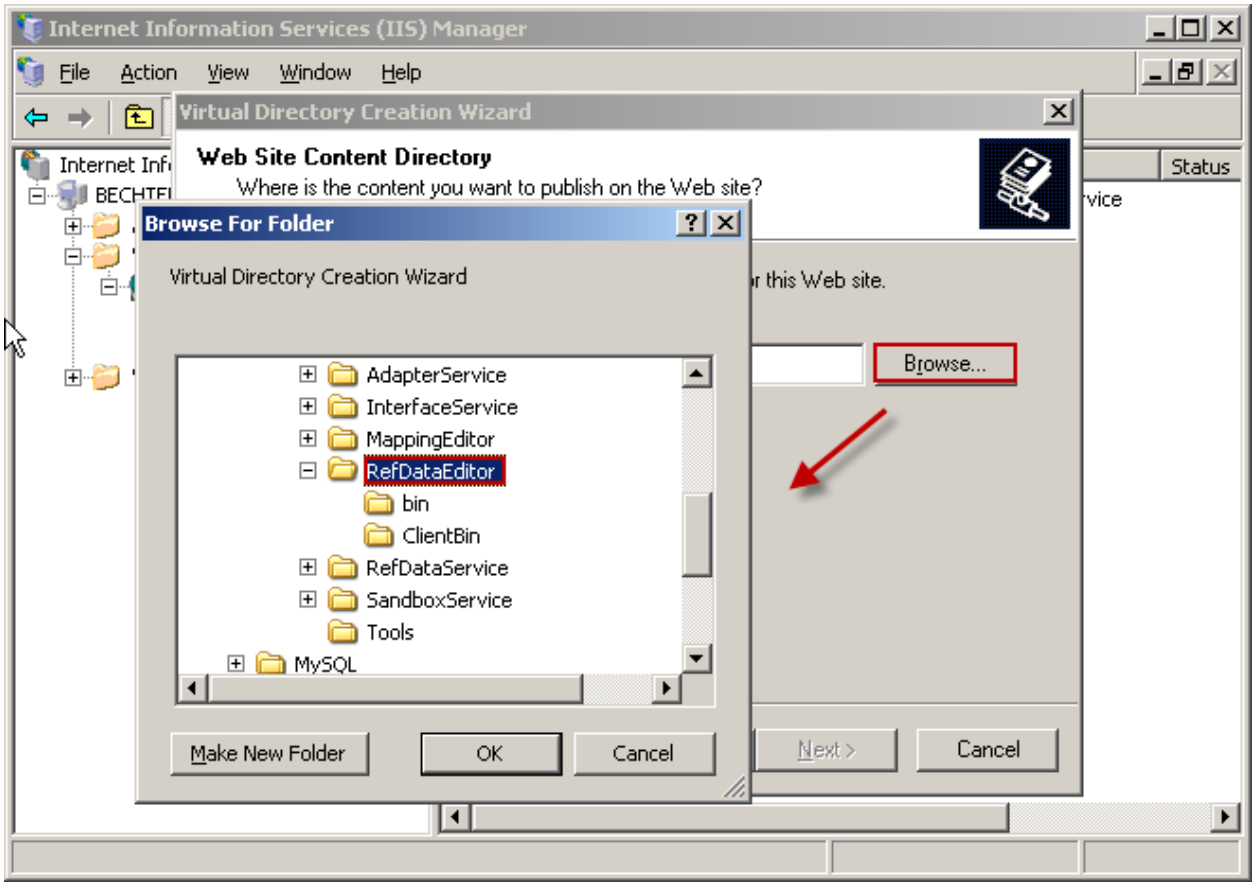


4. The Virtual Directory Creation wizard starts. Click the next button.

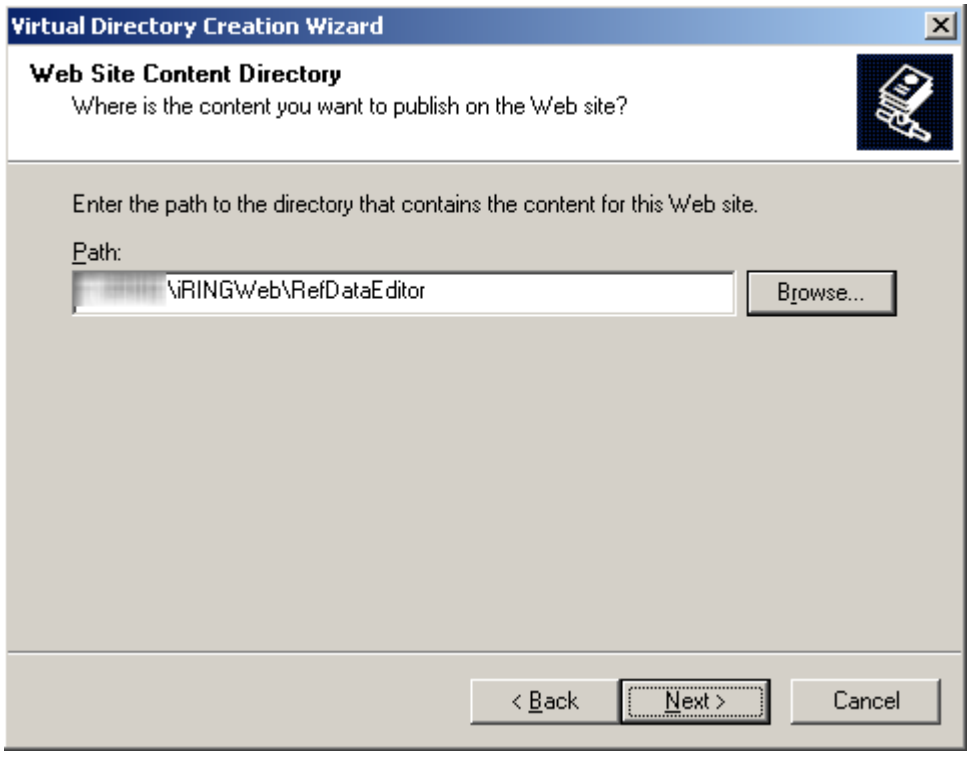

5. Name the virtual directory as RefDataEditor and then click the Next button.



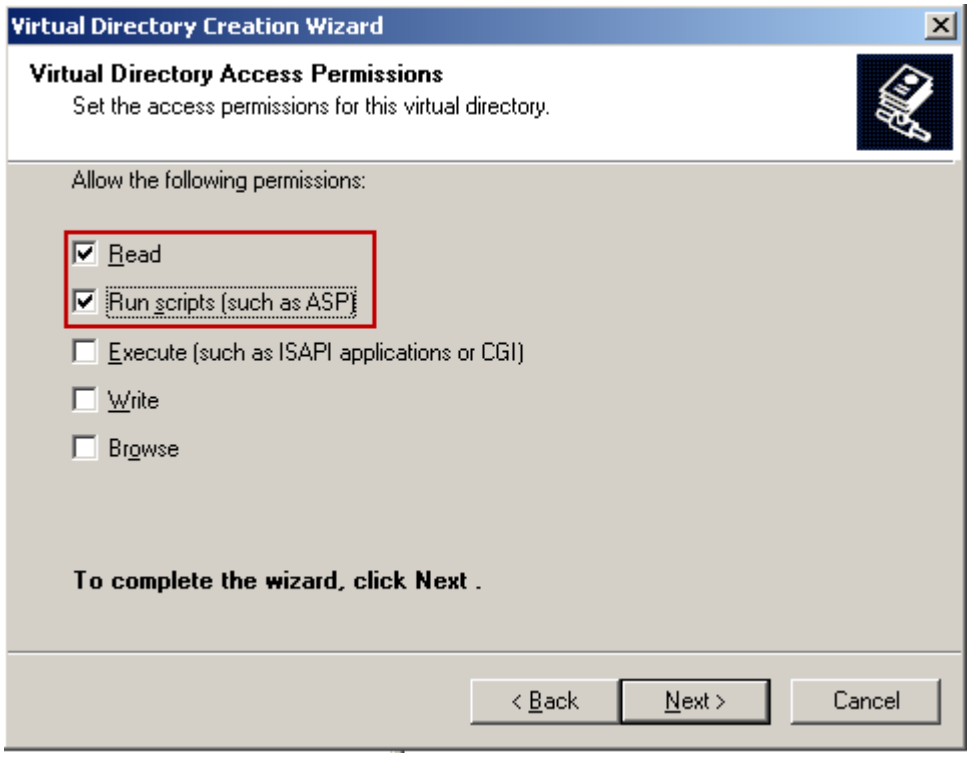
6. Browse to the iRingWeb\ RefDataEditor folder (installed earlier).



7. Click the Next button.

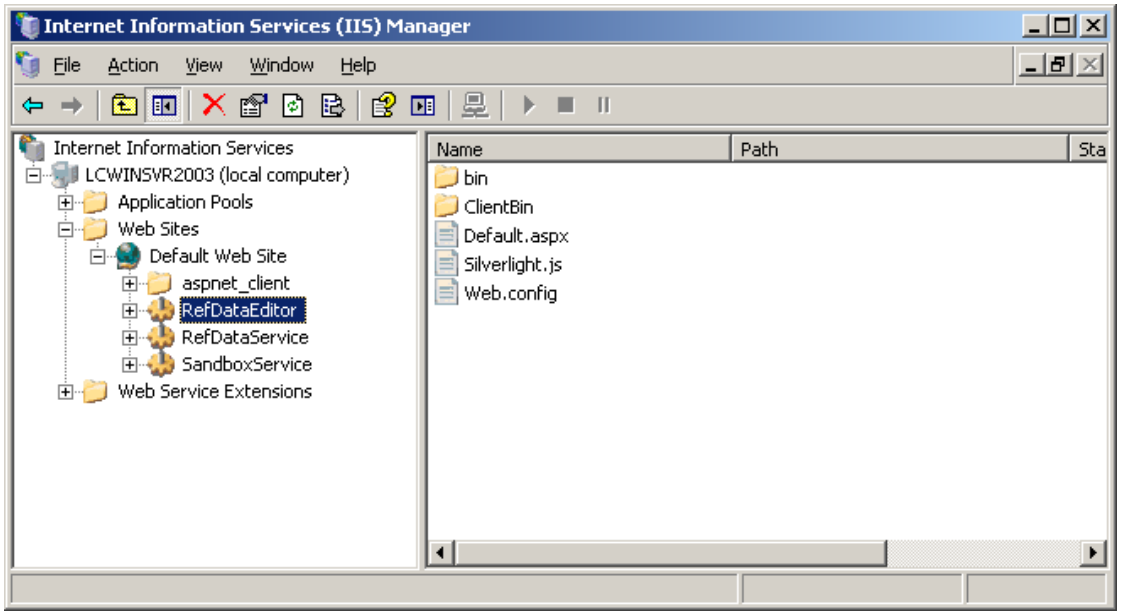



8. Select the permissions Read and Run Scripts and then click the Next button.



9. The virtual directory setup is complete. Click the Finish button to close the wizard.


10. The virtual directory appears in the target web site folder.



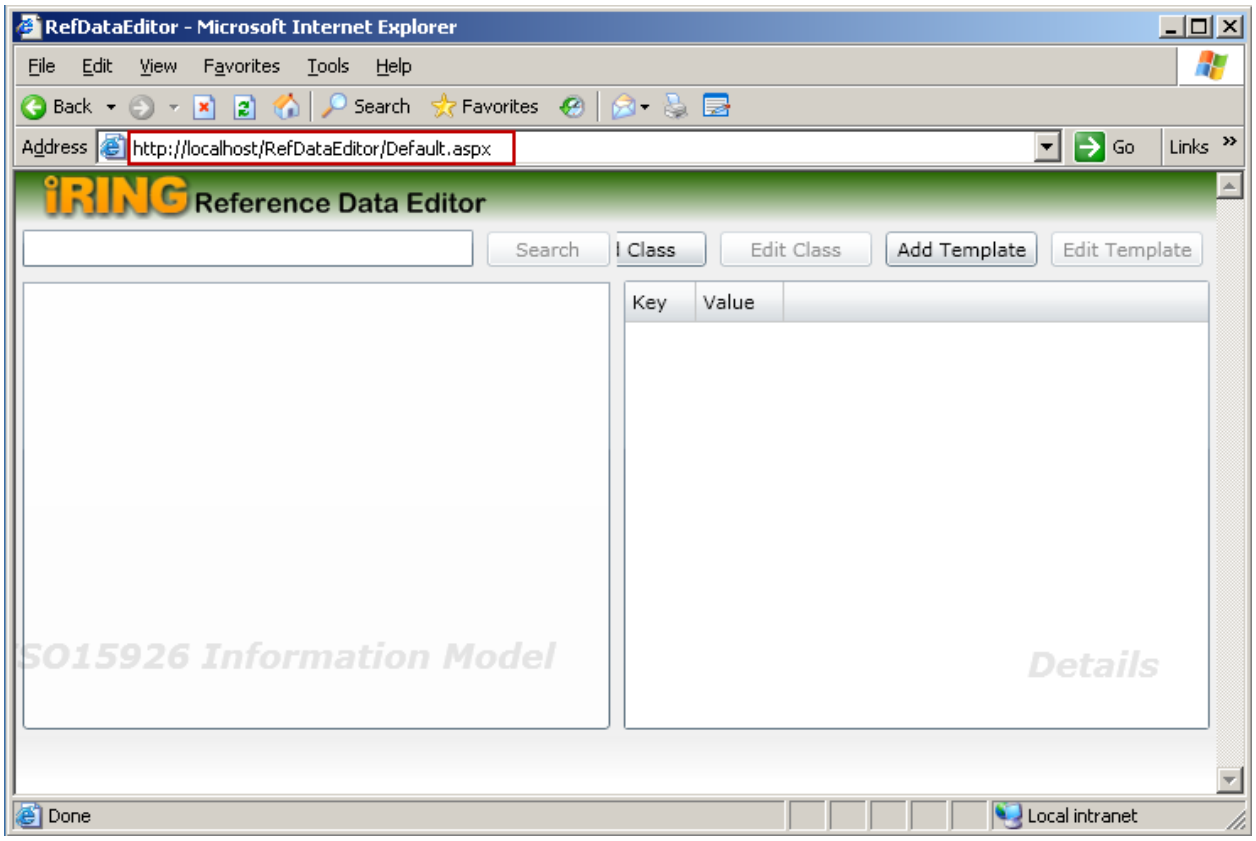

## 3.10 Configuring the Reference Data Editor

As long as the ***iRINGTools*** adapter and sandbox are on the same server, then no additional configuration is required. Otherwise the RefDataEditor Web.config file will need modifying. It is similar to what was done for the RefDataService. Consult the ***iRINGTools*** User Group for details on this advance setup.

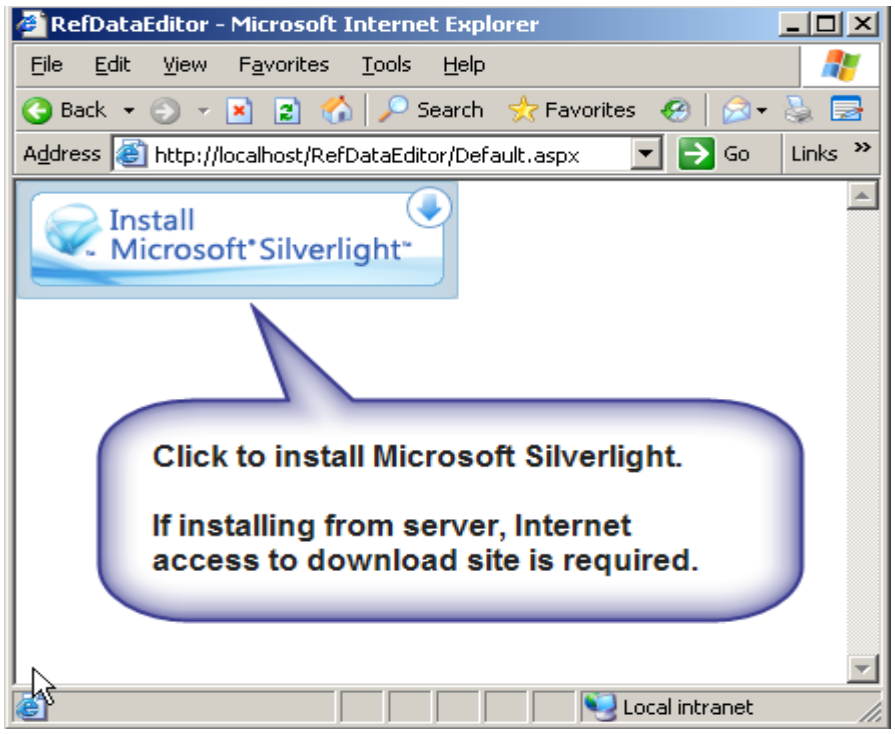
## 3.11 Testing Reference Data Editor

The Reference Data Editor can be tested either from the server or a client computer. Whichever is used will require Microsoft Silverlight. If Microsoft Silverlight is not installed, a prompt will be provided to install it.

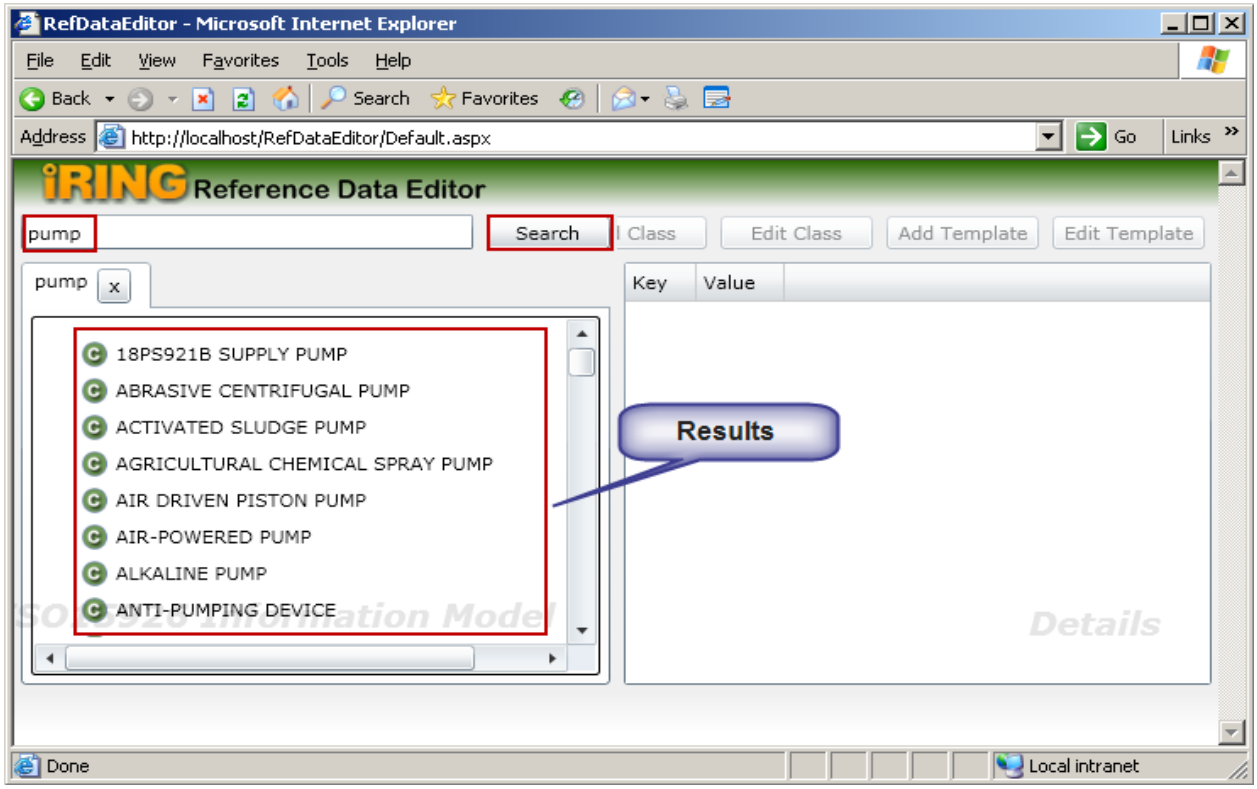
Test the Reference Data Editor by opening your browser and entering the following address http://localhost/RefDataEditor/Default.aspx. You should see the following (or something very similar):




If Microsoft Silverlight is not installed, you should see the following. Install Microsoft Silverlight if necessary.




Finally, to verify the iRingSandBox with connection to the RDS-WIP, enter search criteria in the Reference Data Editor (e.g., Pump) and click on the Search button. You should see the following (or similar):




This completes the installation of iRingSandBox.

# 4 Installing *iRINGTools* Adapter

The following sections will describe the ***iRINGTools*** Adapter components and provide detailed instructions on how to install and configure each component.

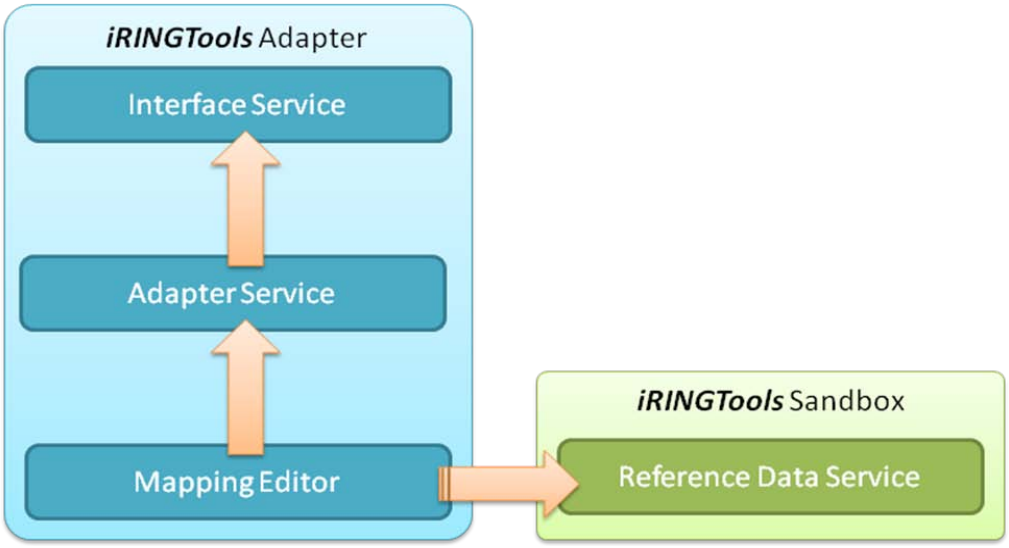
## 4.1 iRINGTools Adapter Components

The remaining components in the ***iRINGTools*** Adapter are all web applications that will need to be setup and configured in IIS.

The ***iRINGTools*** Adapter is comprised of three components:

1. Interface Service
2. Adapter Service
3. Mapping Editor

These components interact with each other as well as the ***iRINGTools*** Sandbox.




The Mapping Editor provides a graphical user interface for mapping your database to reference data.

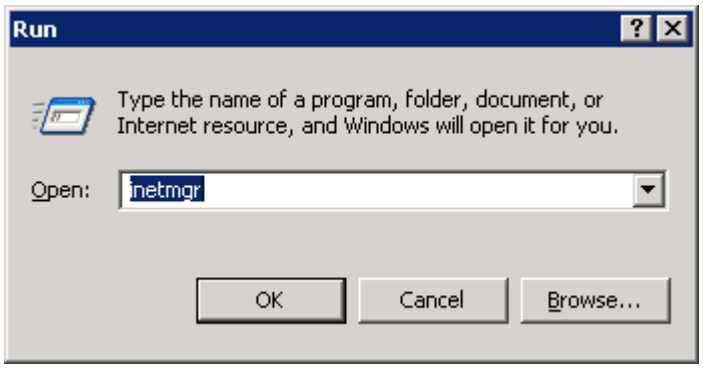
## 4.2 Localhost versus Server Hostname

The ***iRINGTools*** Adapter webconfig files use localhost as the initial hostname. It is best to keep localhost as the hostname during installation to making testing easier. Instructions will be provided later in this document on where and how to change the hostname.

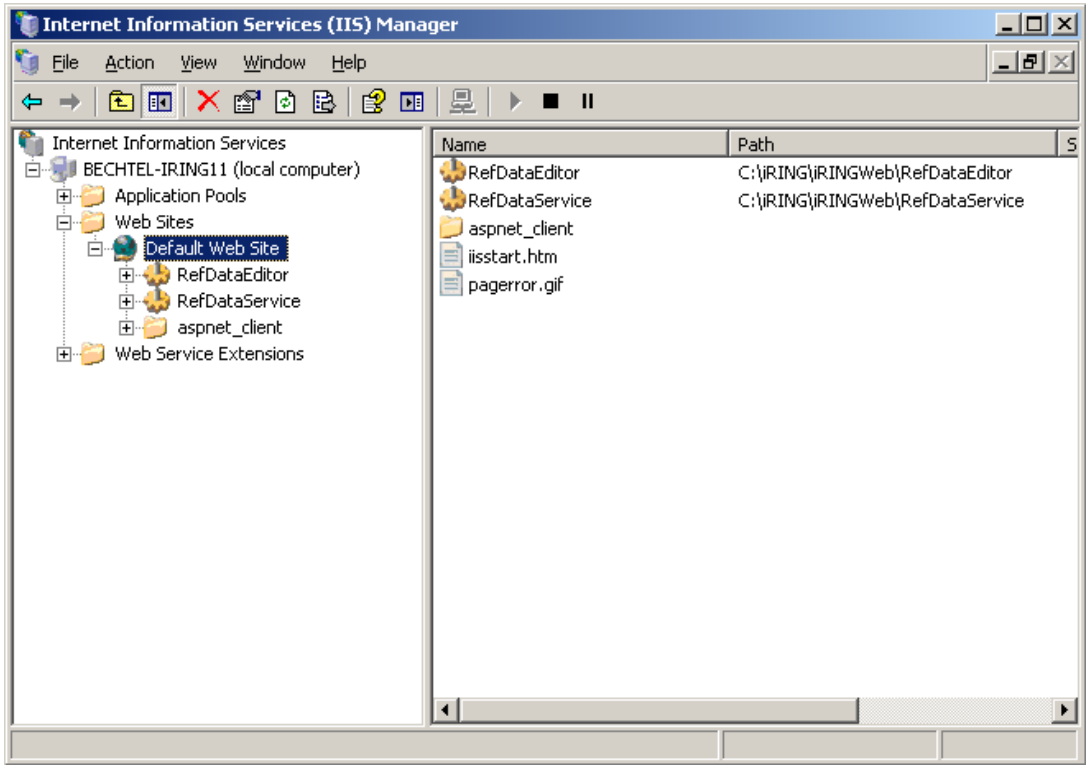
## 4.3 Creating the AdapterService Virtual Directory

Create the AdapterService virtual directory in IIS by performing the following steps.

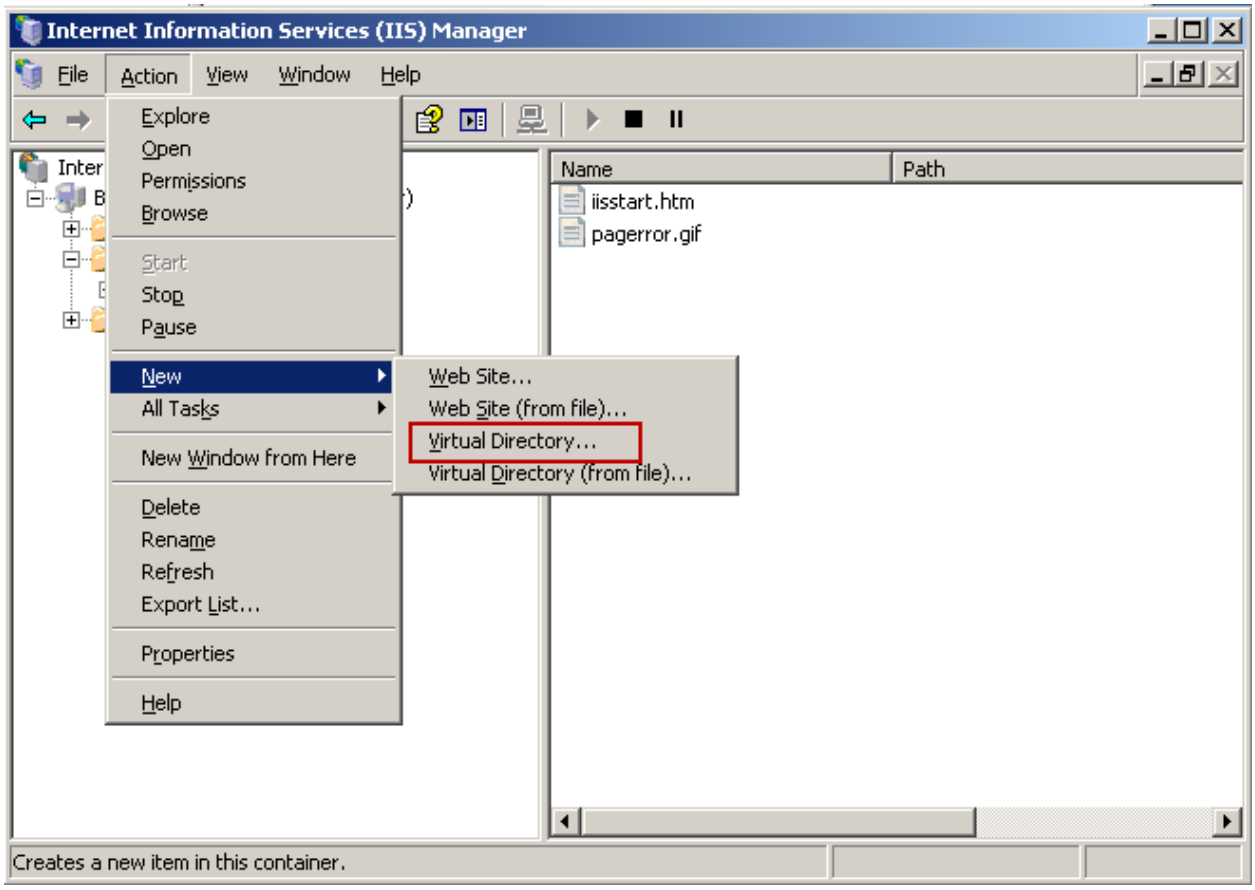
1. Start IIS Manager. One way to do this is to use Run from the Start menu. Type the command inetmgr.




2. In IIS Manager, select the target web site folder in the Web Sites folder.

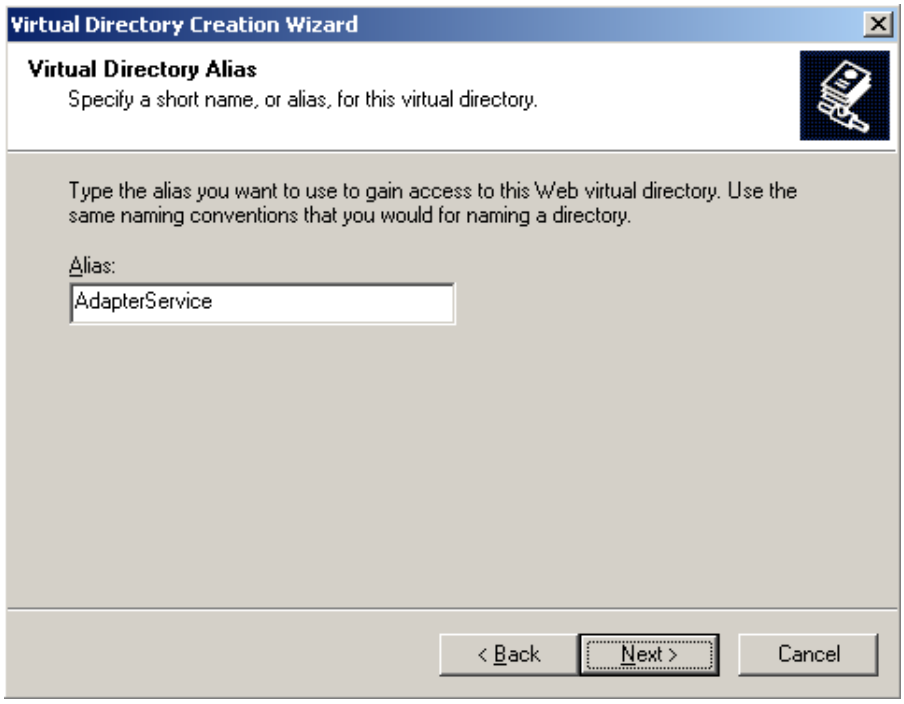


3. From the main menu, select Action > New > Virtual Directory.

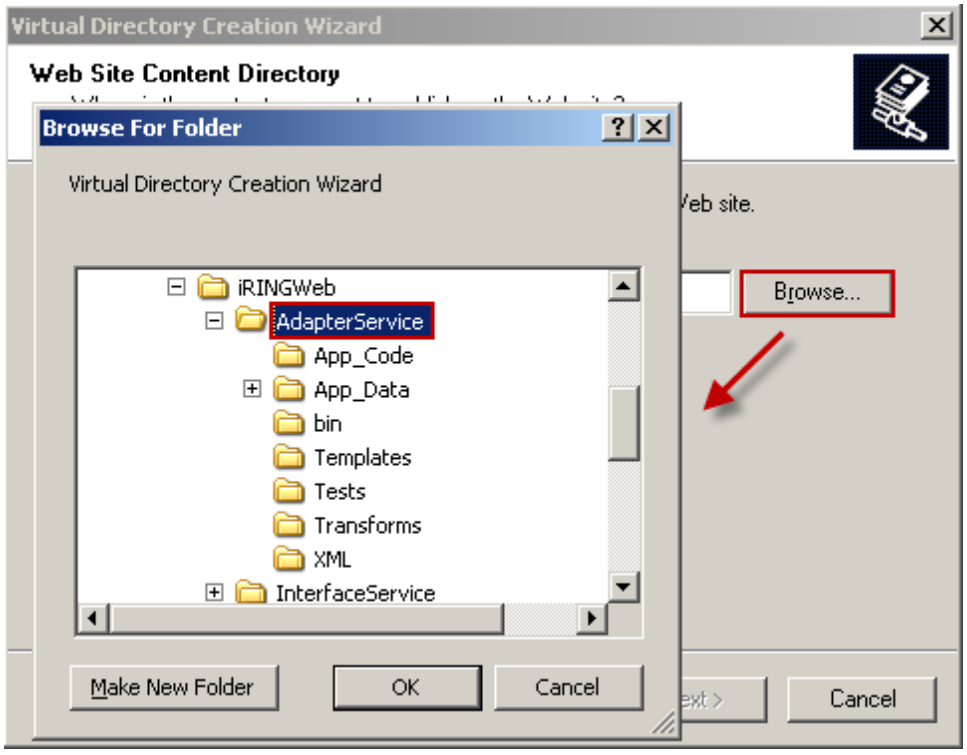



4. The Virtual Directory Creation wizard starts. Click the next button.

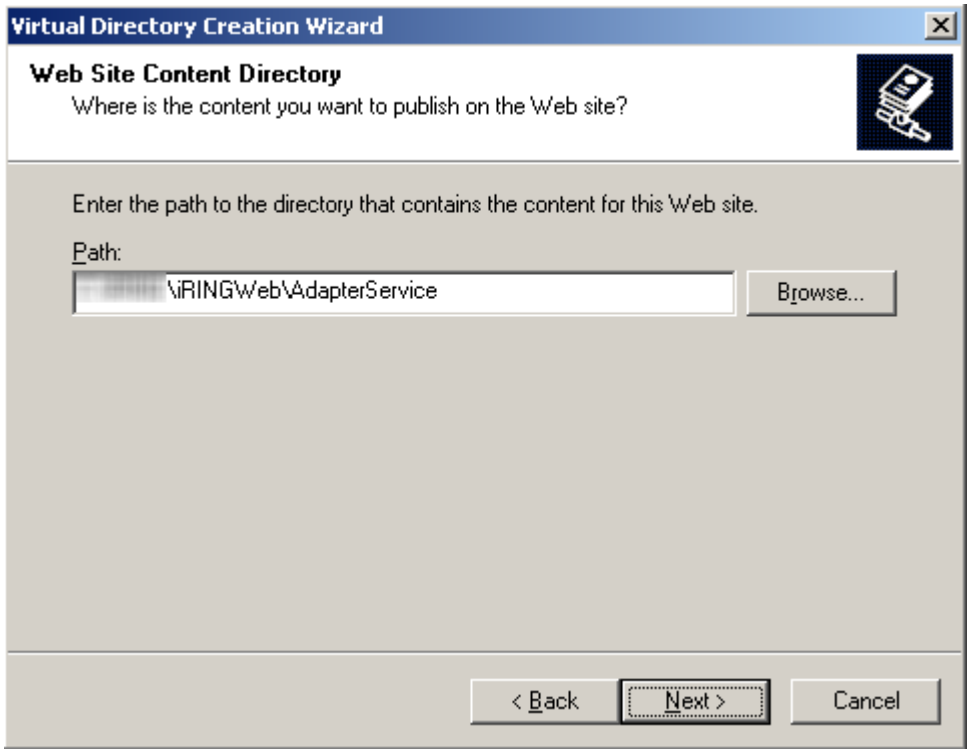
5. Name the virtual directory as AdapterService and then click the Next button.



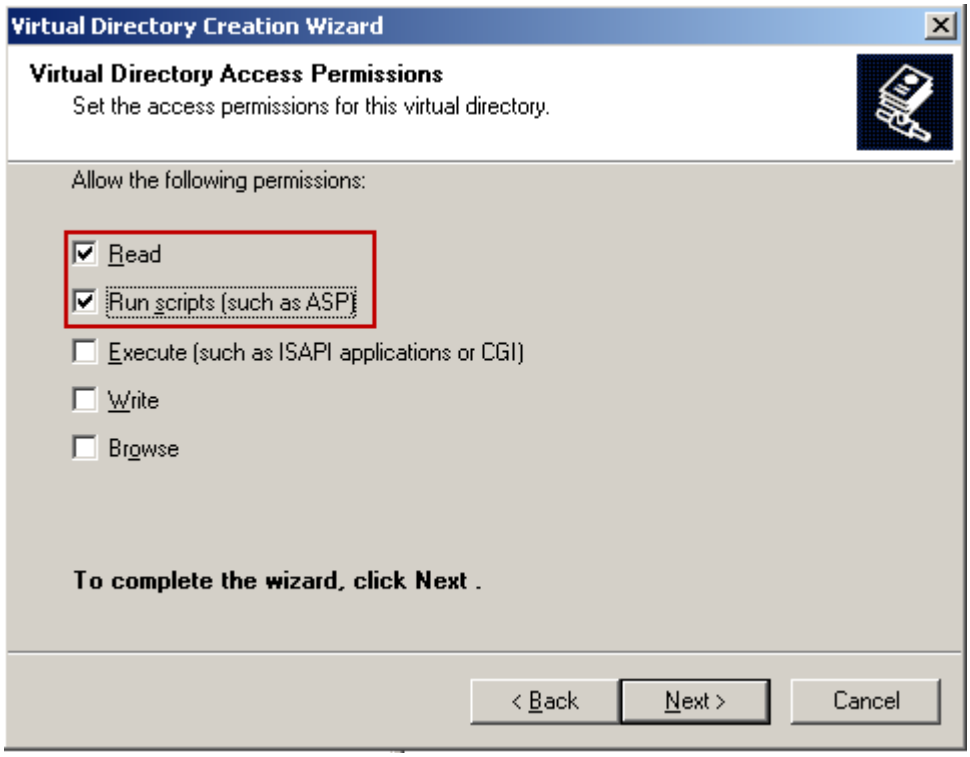

6. Browse to the iRingWeb\AdapterService folder (installed earlier).



7. Click the Next button.

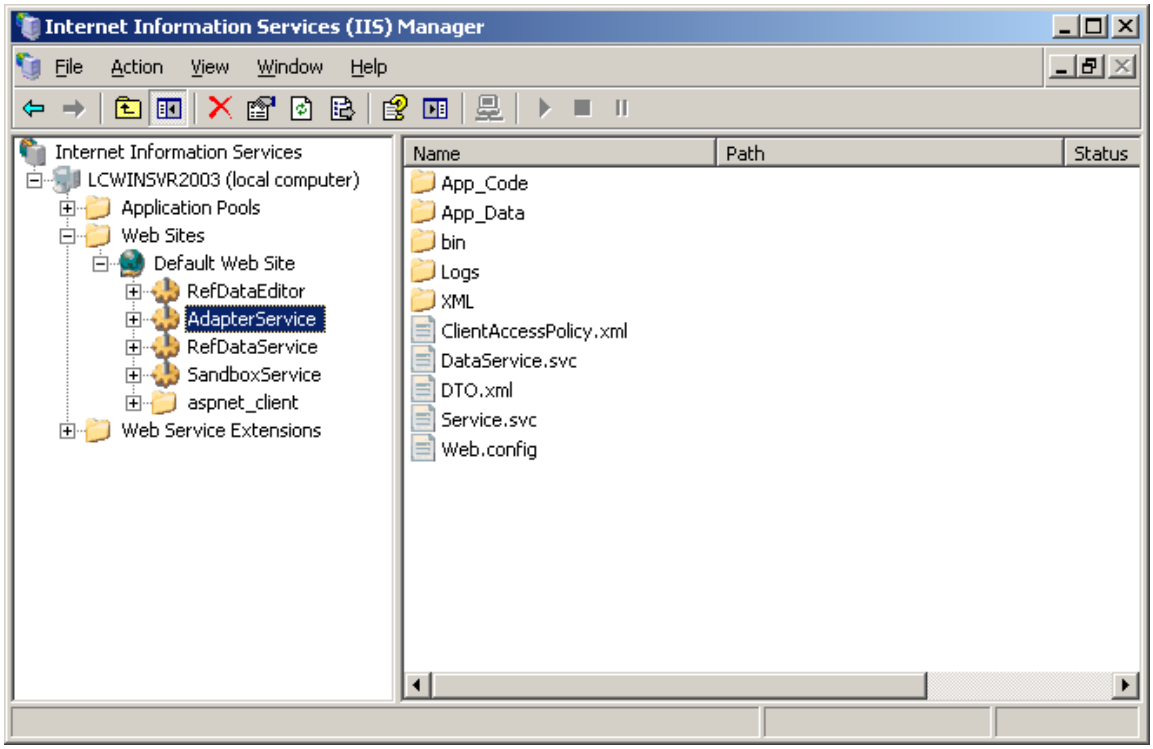



8. Select the permissions Read and Run Scripts and then click the Next button.



9. The virtual directory setup is complete. Click the Finish button to close the wizard.

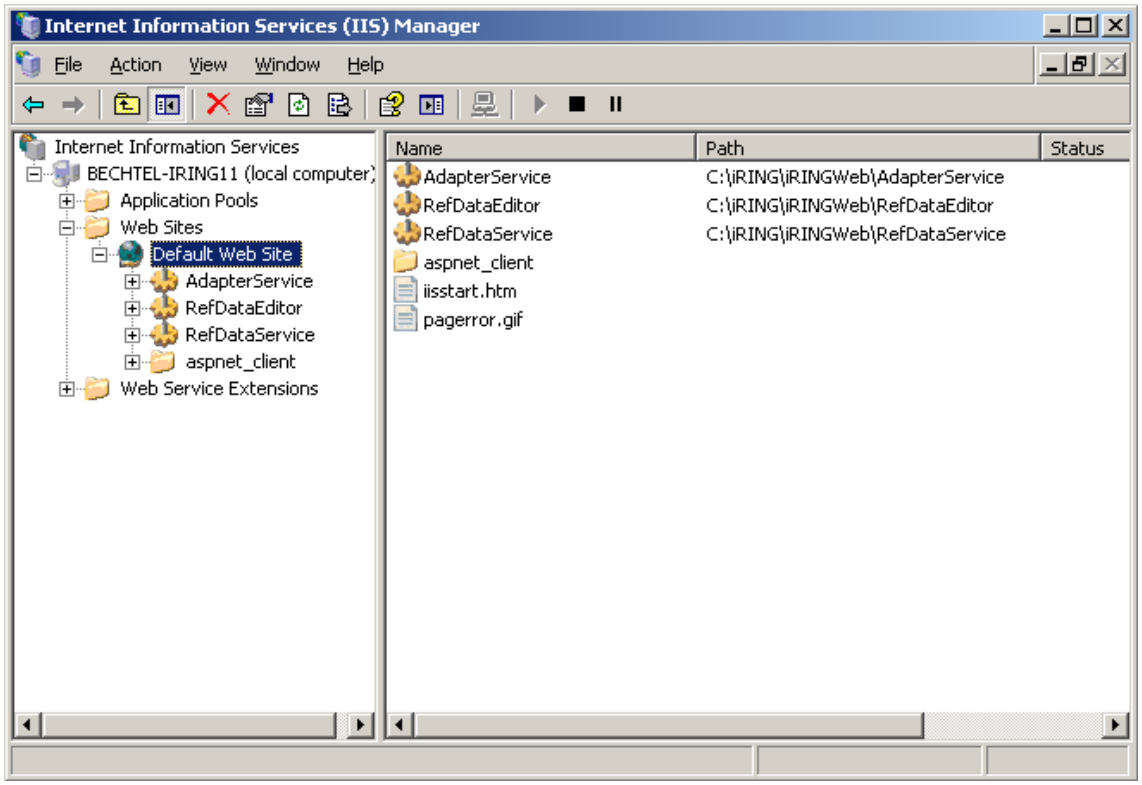

10. The virtual directory appears in the target web site folder.



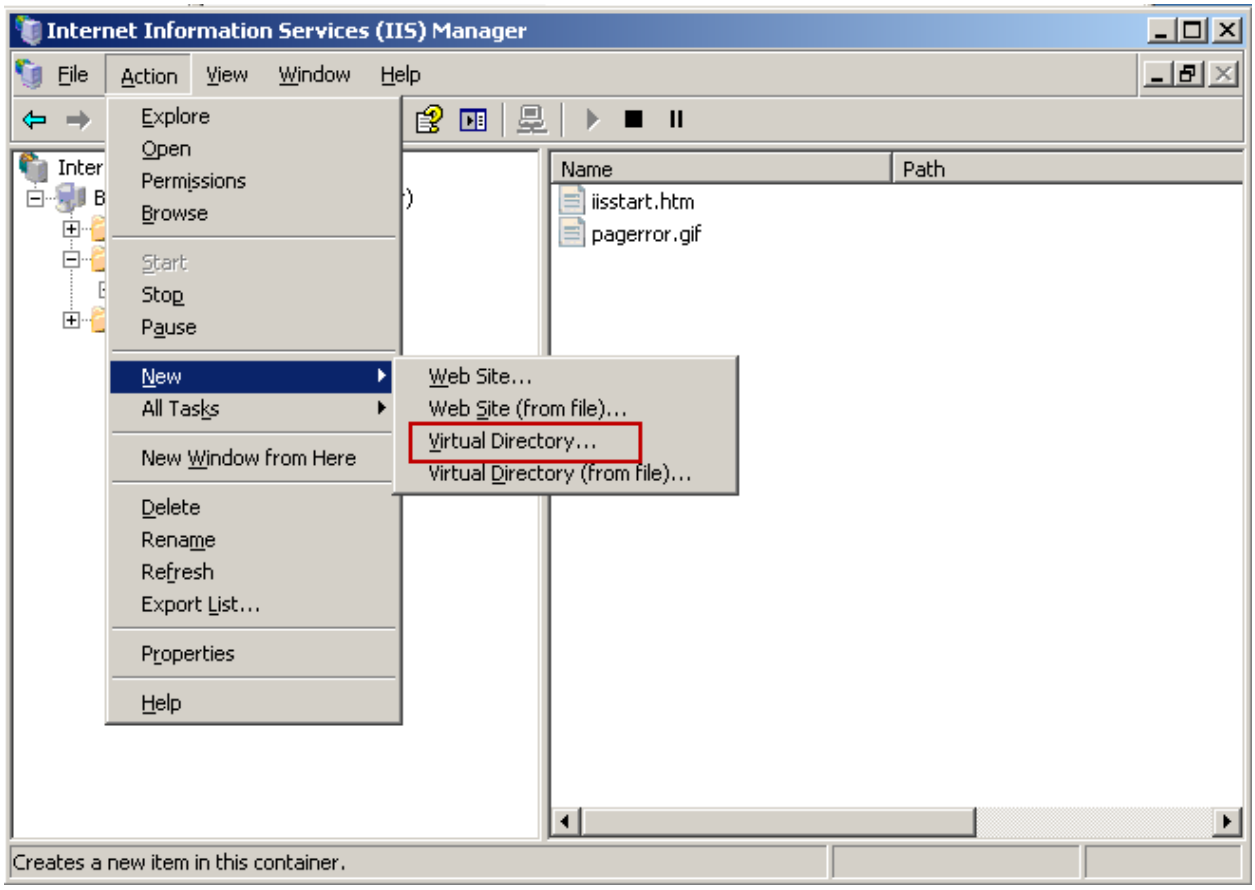
## 4.4 Creating the MappingEditor Virtual Directory

Create the MappingEditor virtual directory in IIS by performing the following steps.

1. Start IIS Manager. In IIS Manager, select the target web site folder in the Web Sites folder.

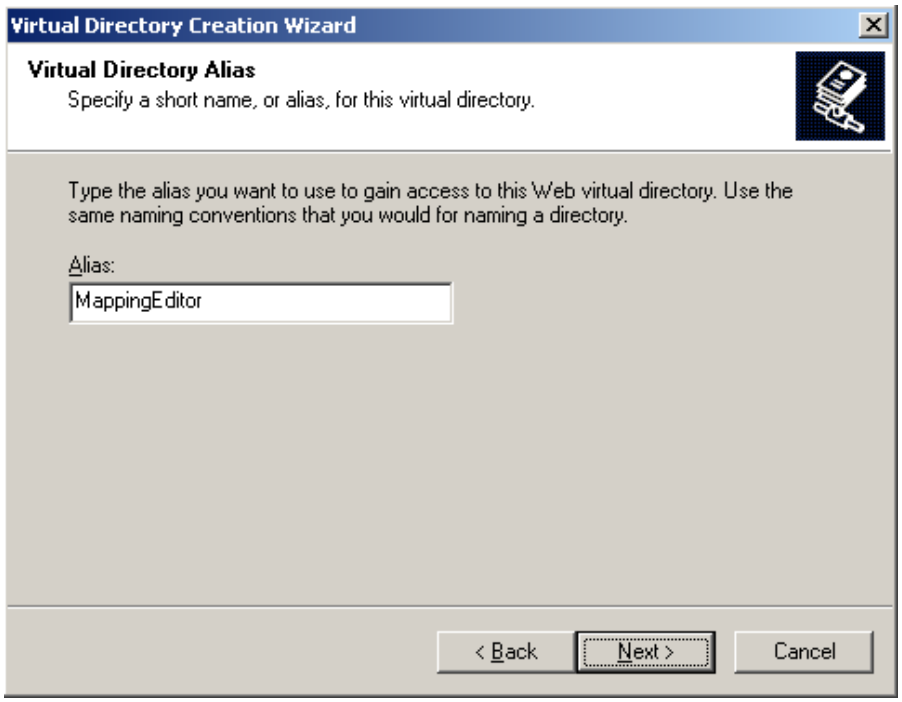


2. From the main menu, select Action > New > Virtual Directory.

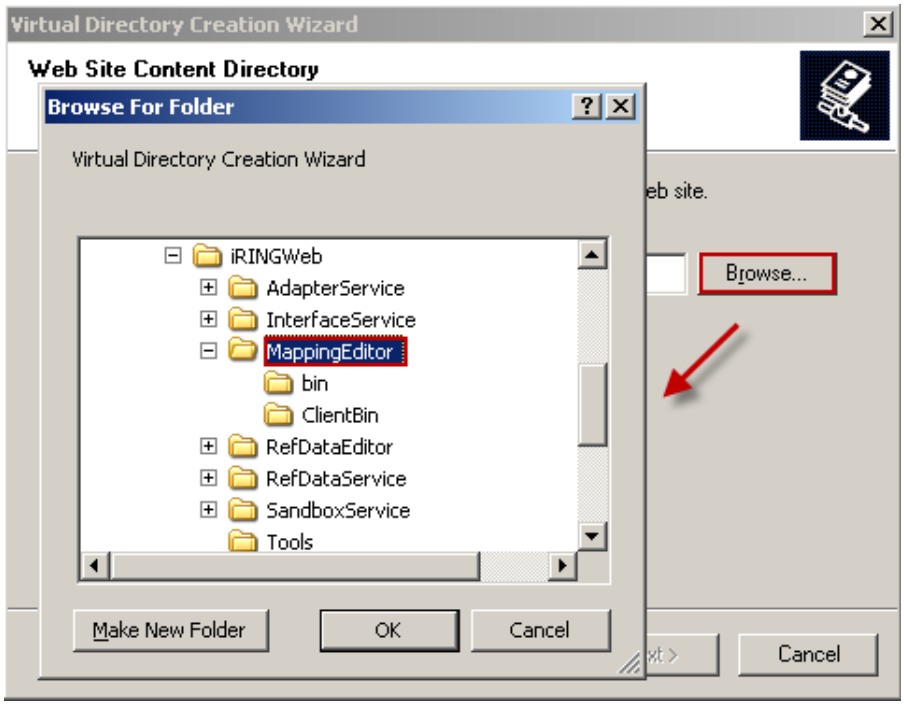


3. The Virtual Directory Creation wizard starts. Click the next button.

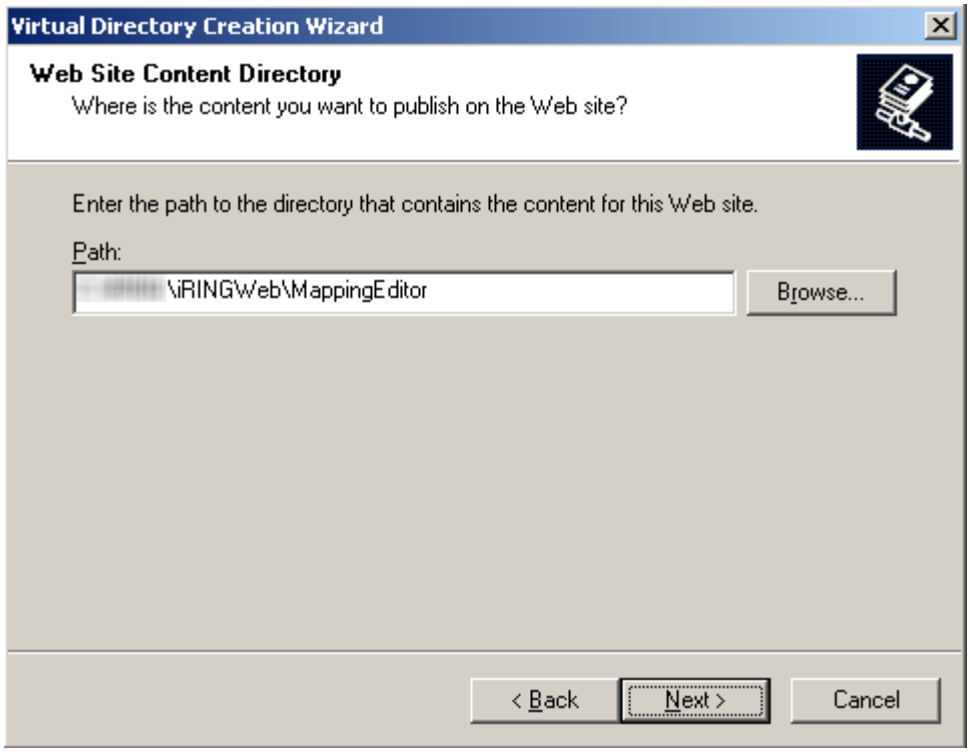

4. Name the virtual directory as MappingEditor and then click the Next button.



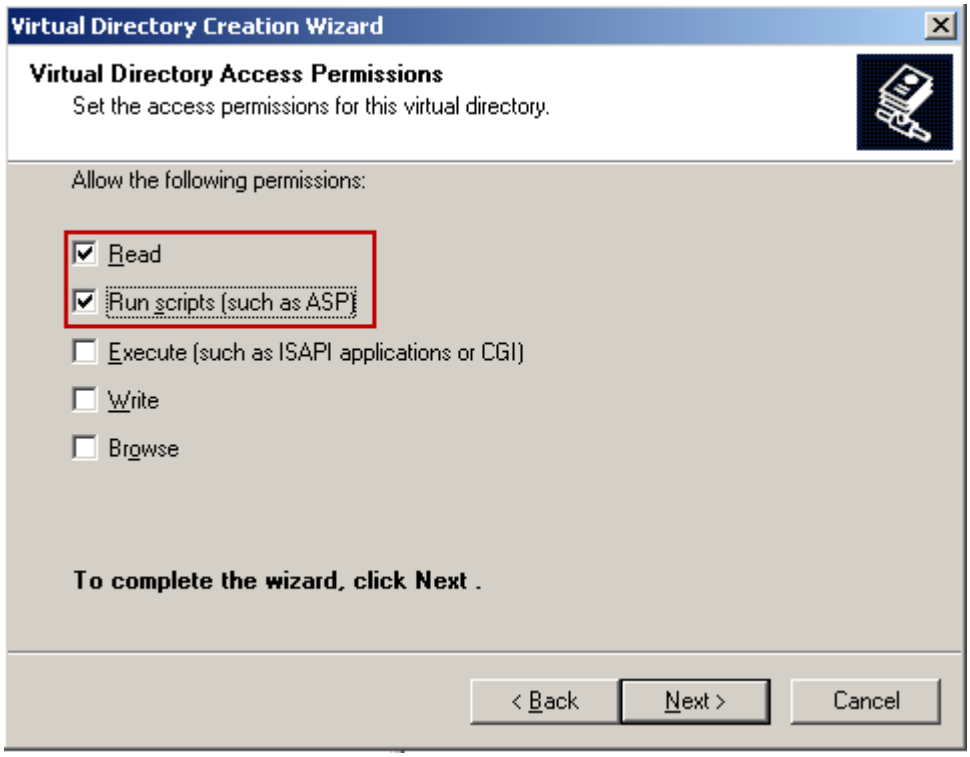
5. Browse to the iRingWeb\MappingEditor folder (installed earlier).




6. Click the Next button.

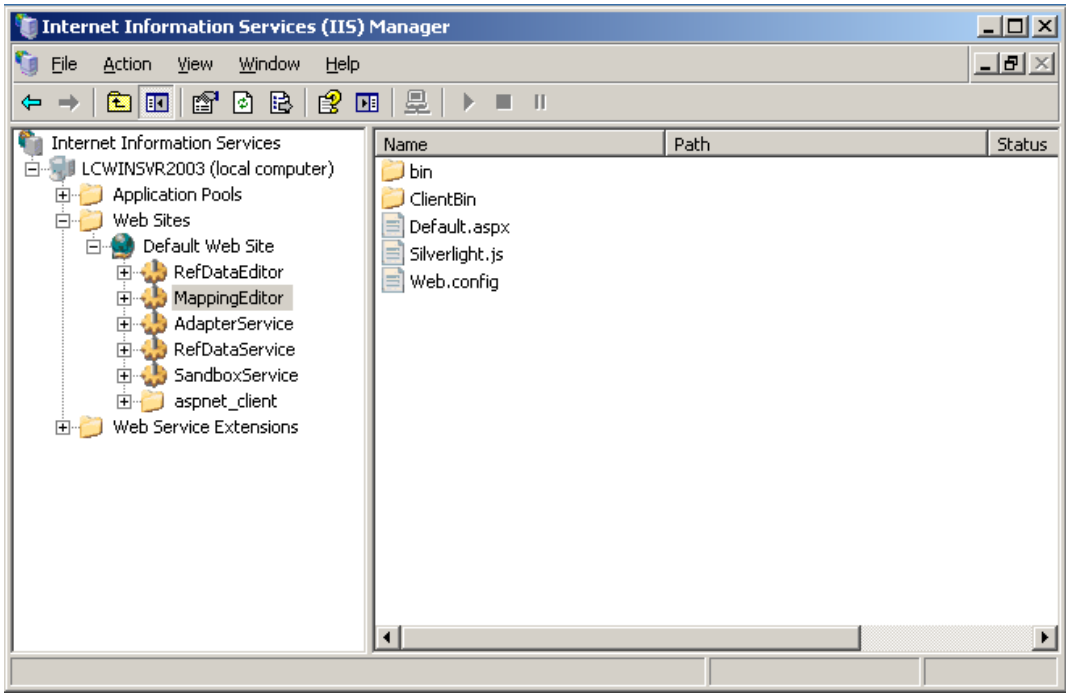


7. Select the permissions Read and Run Scripts and then click the Next button.




8. The virtual directory setup is complete. Click the Finish button to close the wizard.

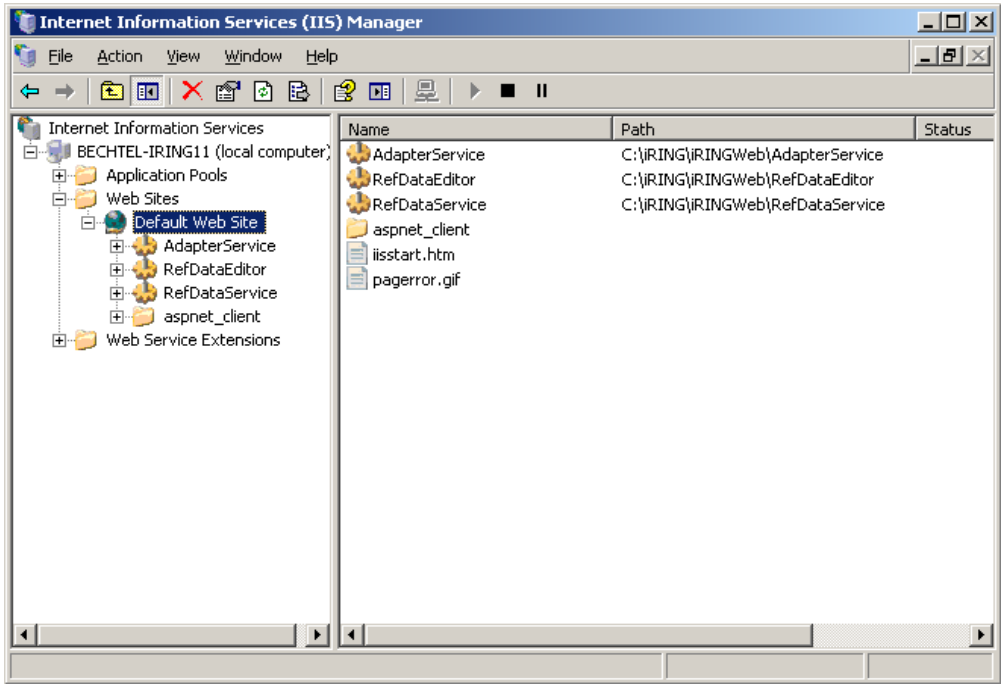
9. The virtual directory appears in the target web site folder.



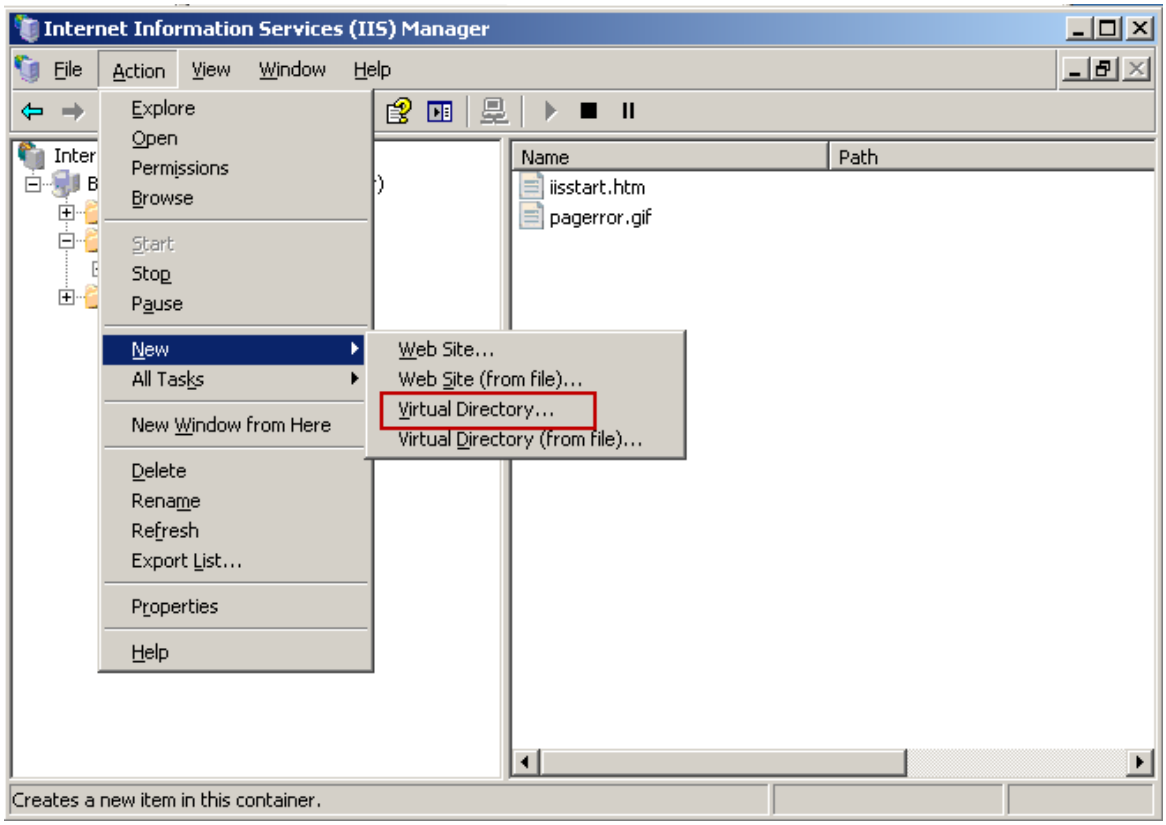

## 4.5 Creating the InterfaceService Virtual Directory

Create the InterfaceService virtual directory in IIS by performing the following steps.

1. Start IIS Manager. In IIS Manager, select the target web site folder in the Web Sites folder.

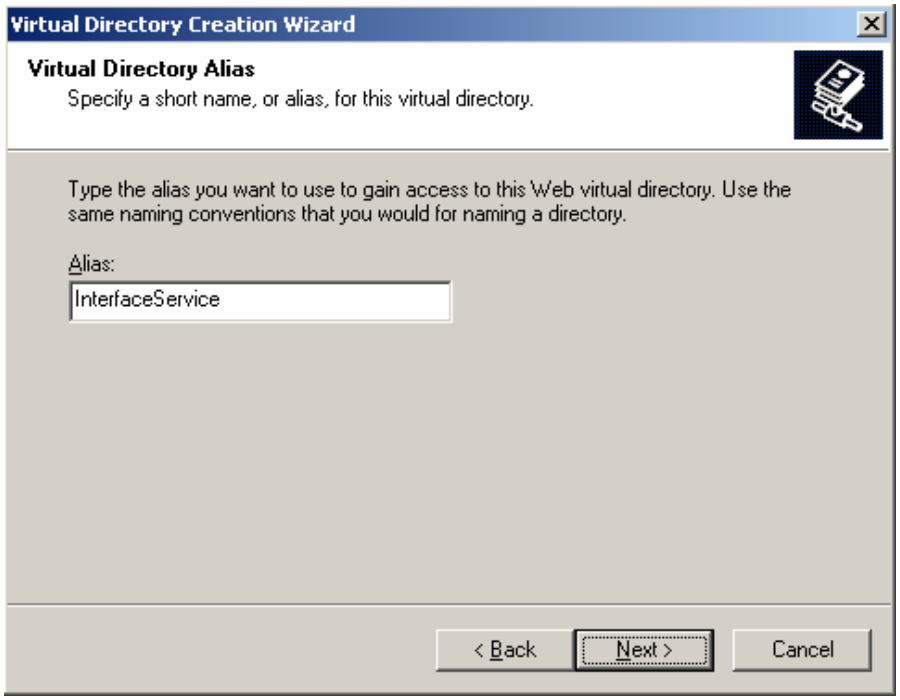


2. From the main menu, select Action > New > Virtual Directory.

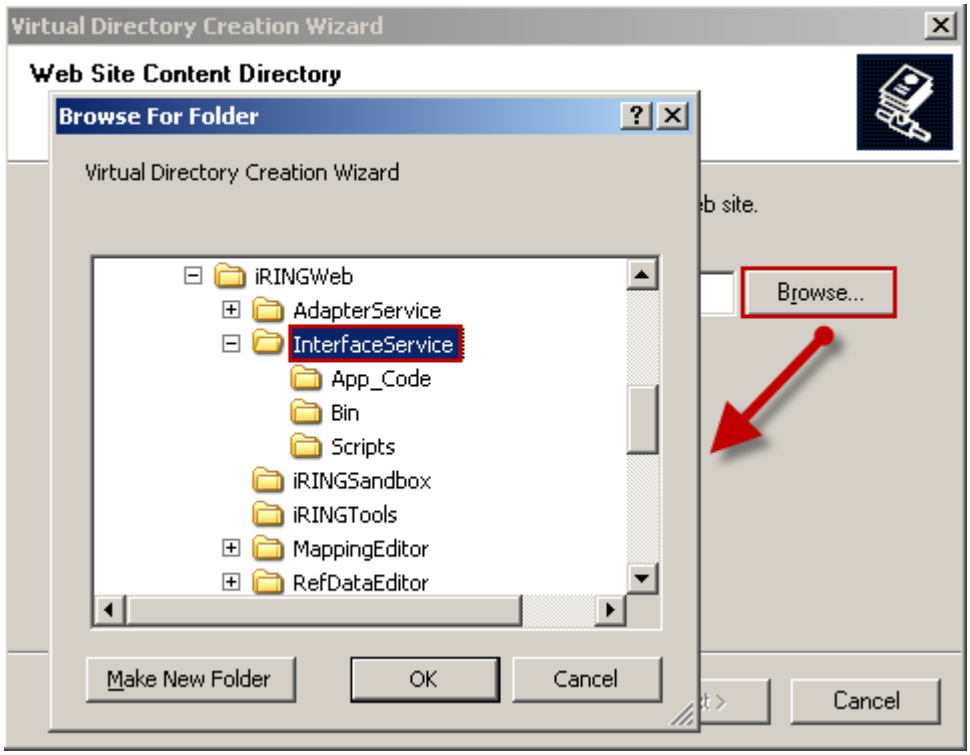



3. The Virtual Directory Creation wizard starts. Click the next button.

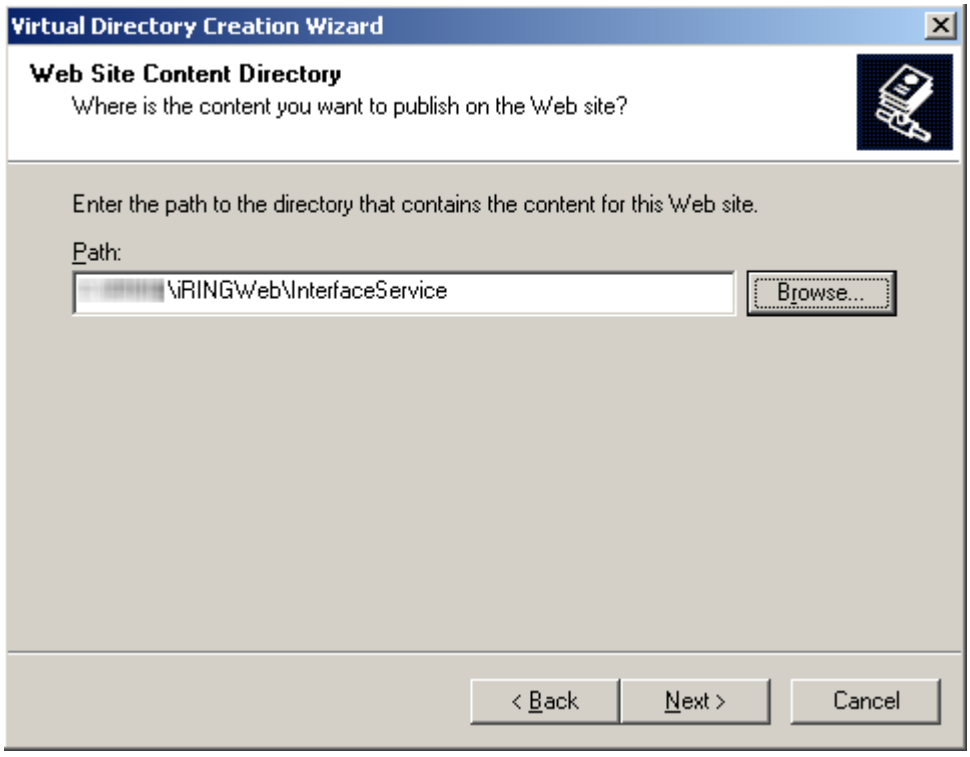
4. Name the virtual directory as InterfaceService and then click the Next button.



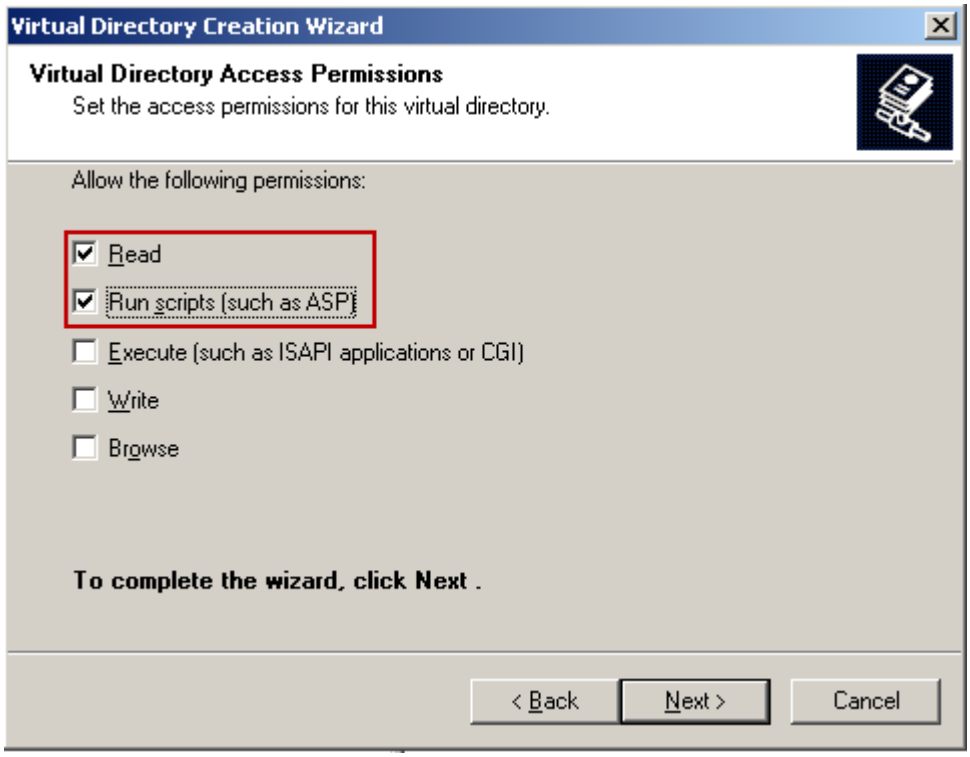

5. Browse to the iRingWeb\InterfaceService folder (installed earlier).



6. Click the Next button.

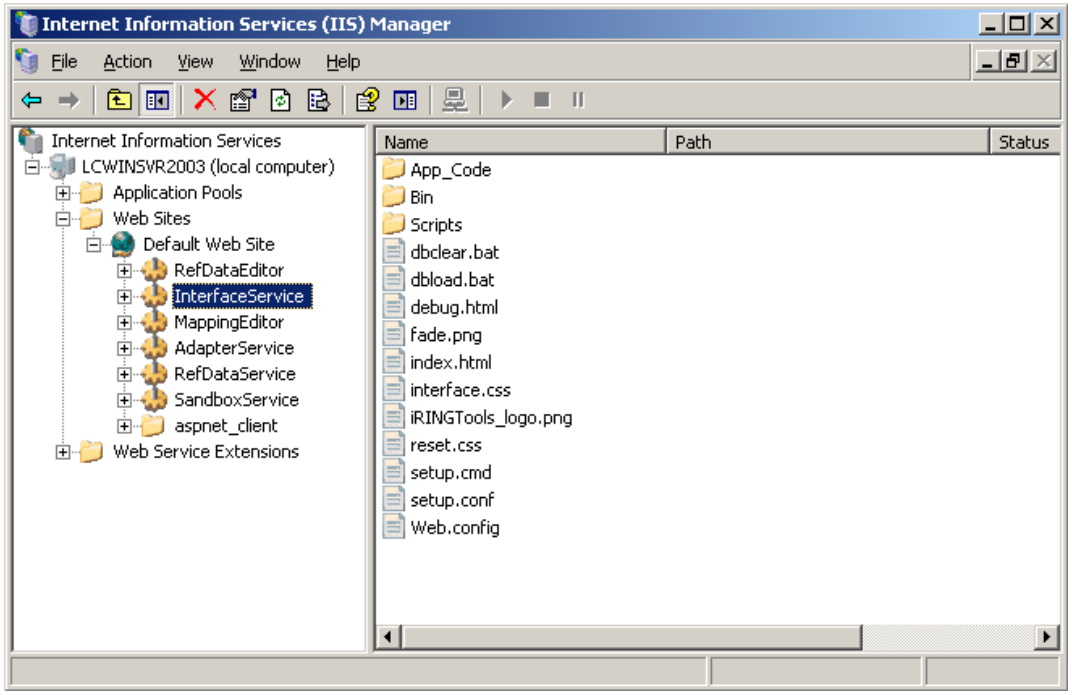



7. Select the permissions Read and Run Scripts and then click the Next button.



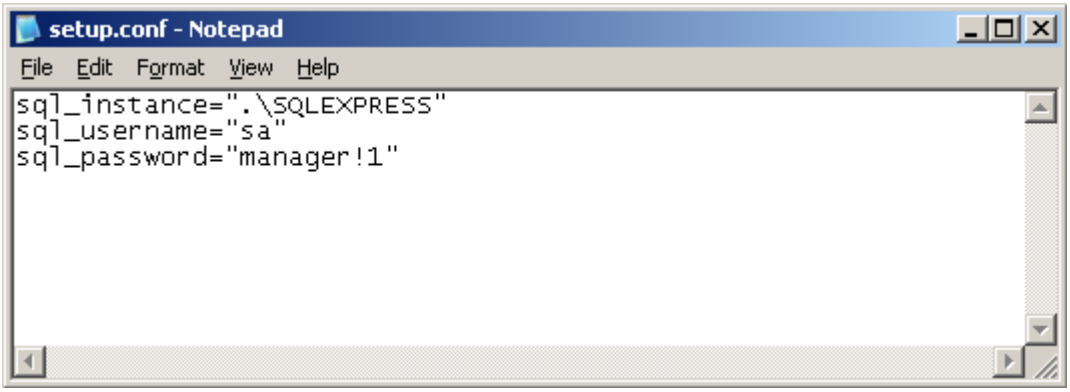
8. The virtual directory setup is complete. Click the Finish button to close the wizard.


9. The virtual directory appears in the target web site folder.

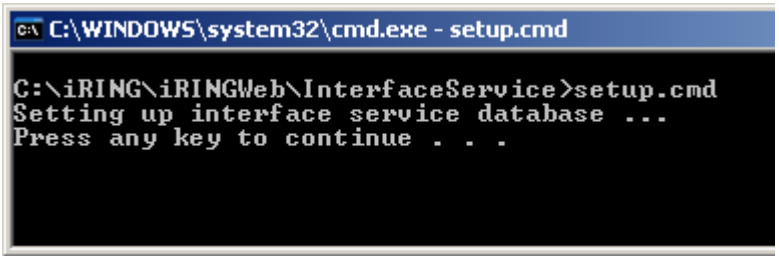


## 4.6 Configuring Interface Service

1. Open the file iRINGWeb\InterfaceService\setup.conf in a text editor (e.g., Notepad) and modify the contents to match your installation (i.e., SQL Server instance, admin username and password). Save the file.




2. Open a command window and execute iRINGWeb\InterfaceService\setup.cmd. This will create the MySQL database and the ***iRINGTools*** Sandbox windows service based on the settings in setup.conf.

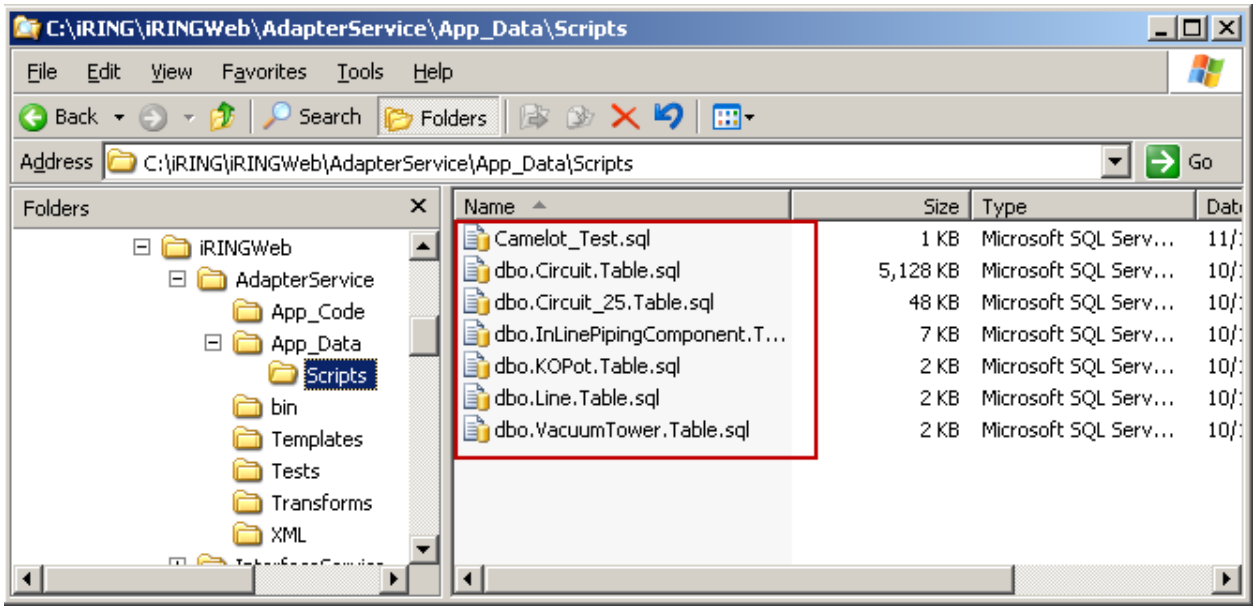



**Note**: The InterfaceService will be tested later in another section.

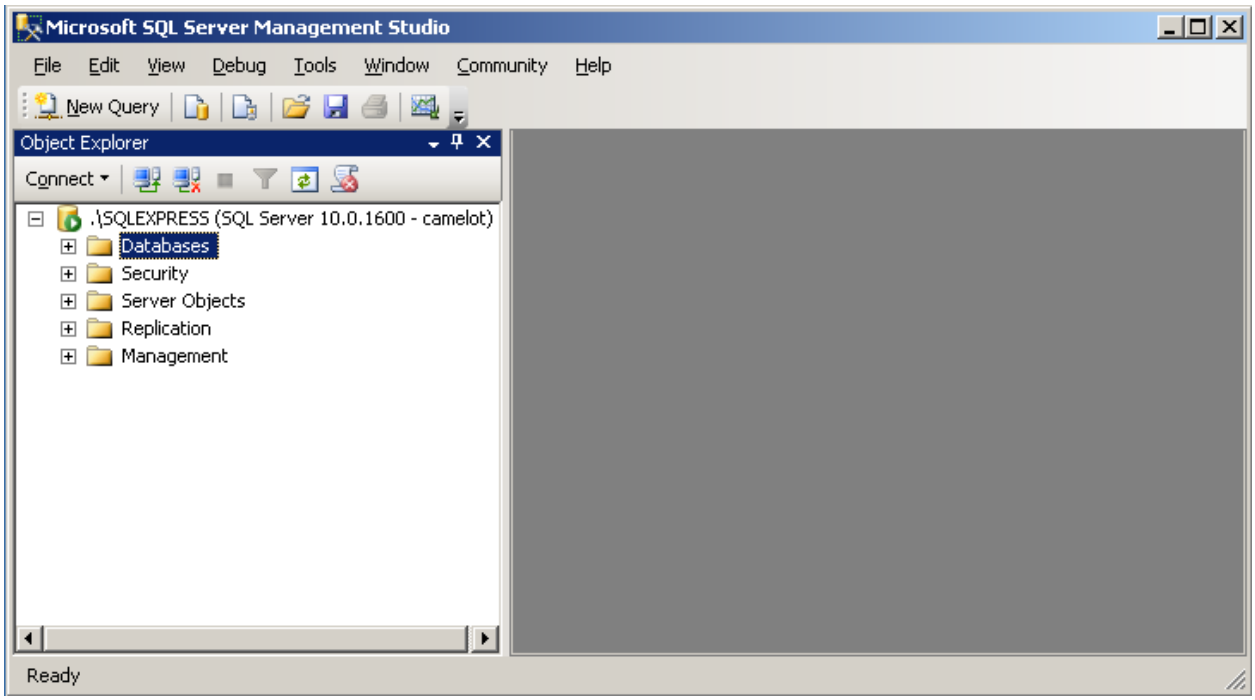
## 4.7 Creating the Test Database

Create a test database in SQL Server by performing the following steps.

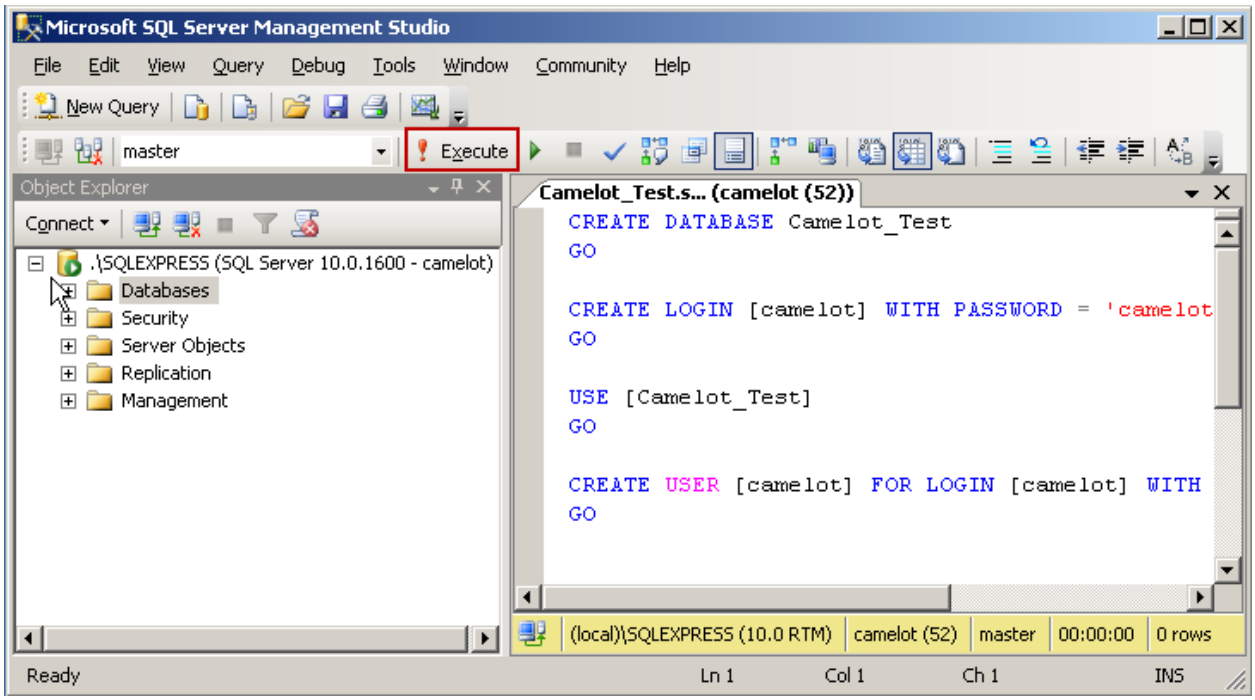
1. Open the folder iRINGWeb\AdapterService\App_Data\Scripts.




2. Open Microsoft SQL Server Management Studio.



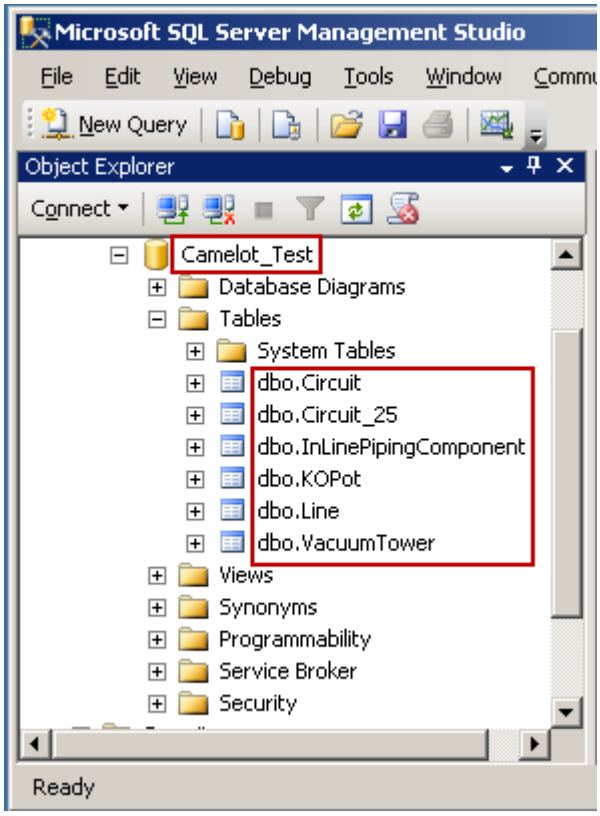
3. Drag the file Camelot_Test.sql to Microsoft SQL Server Management Studio and then click the Execute button to create the test database.




4. One by one, drag the following files from the folder to Microsoft SQL Server Management Studio and then click the Execute button to create data the database tables.

   (a) dbo.Circuit.Table.sql
   (b) dbo.Circuit_25.Table.sql
   (c) dbo.InLinePipingComponent.Table.sql
   (d) dbo.KOPot.Table.sql
   (e) dbo.Line.Table.sql
   (f) dbo.VacuumTower.Table.sql

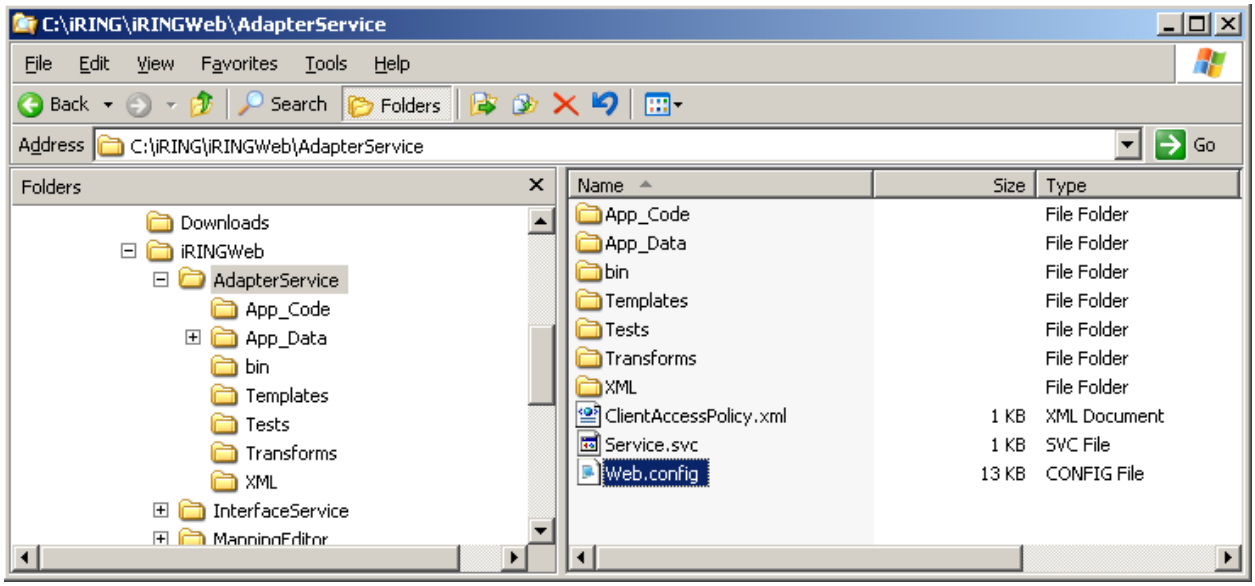
5. Verify the database, tables and data are created.



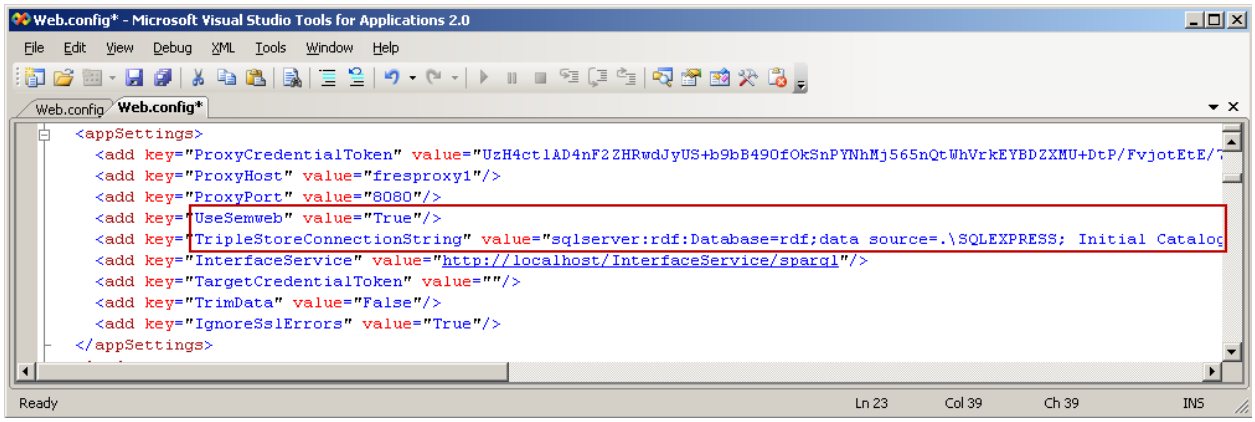

## 4.8 Configuring the AdapterService

Configure the adapter service by modifying the AdapterService Web.config file as follows.

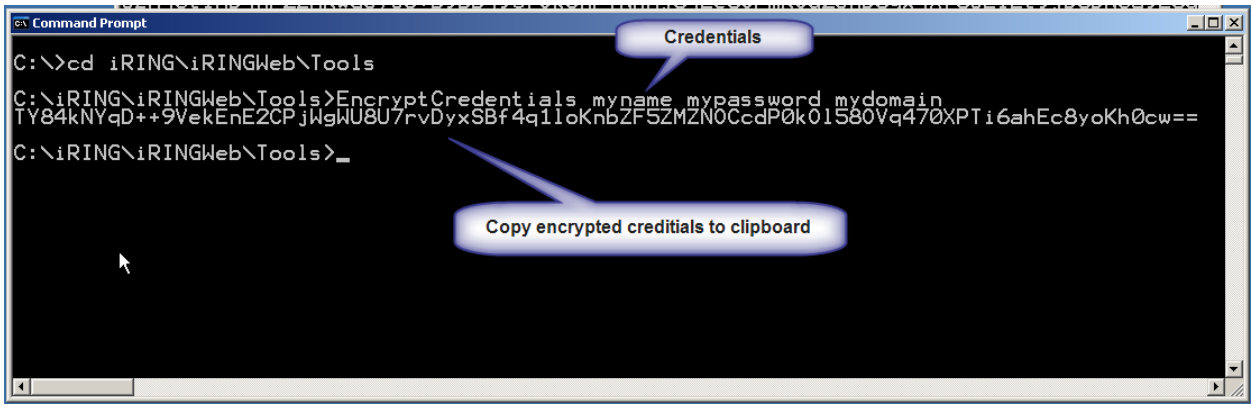
1. Open the file Web.config file located in the iRINGWeb\AdapterService in a text editor.



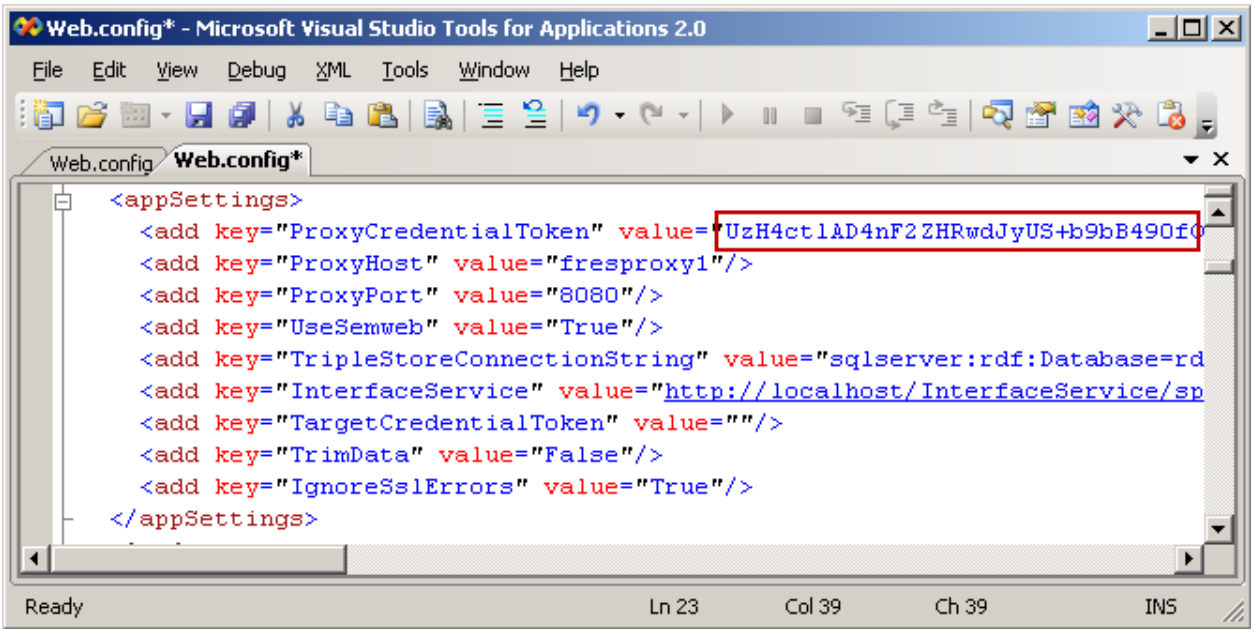
2. In the file Web.config in the appSettings section, verify the following:
   - The UseSemweb value is set to True
   - The data source value is set to your database server (e.g., .\SQLEXPRESS)
   - The Initial Catalog, User Id and Password are each set to iring



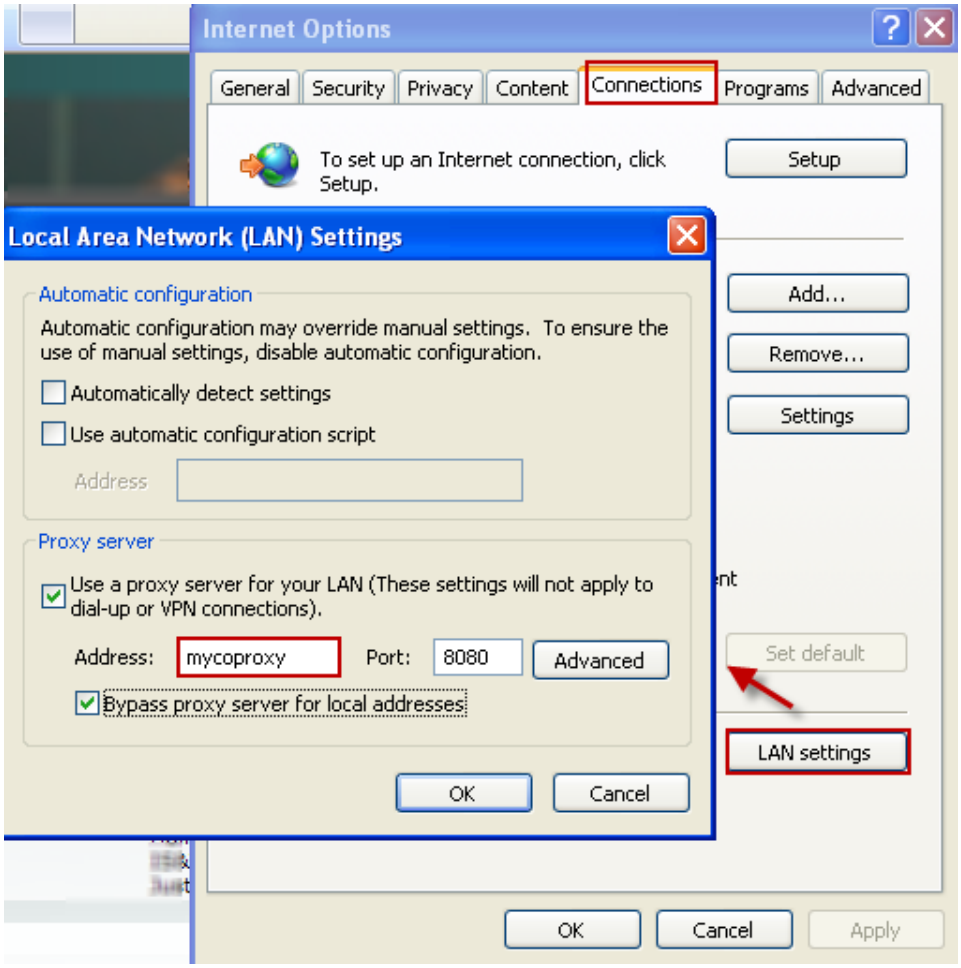

3. If your server is behind a firewall, then credentials are needed to access the internet. Create an encrypted token with the EncryptCredentials utility in iRingWeb\Tools. Enter the username, password and optionally the domain. Copy the resulting encrypted string to the clipboard.



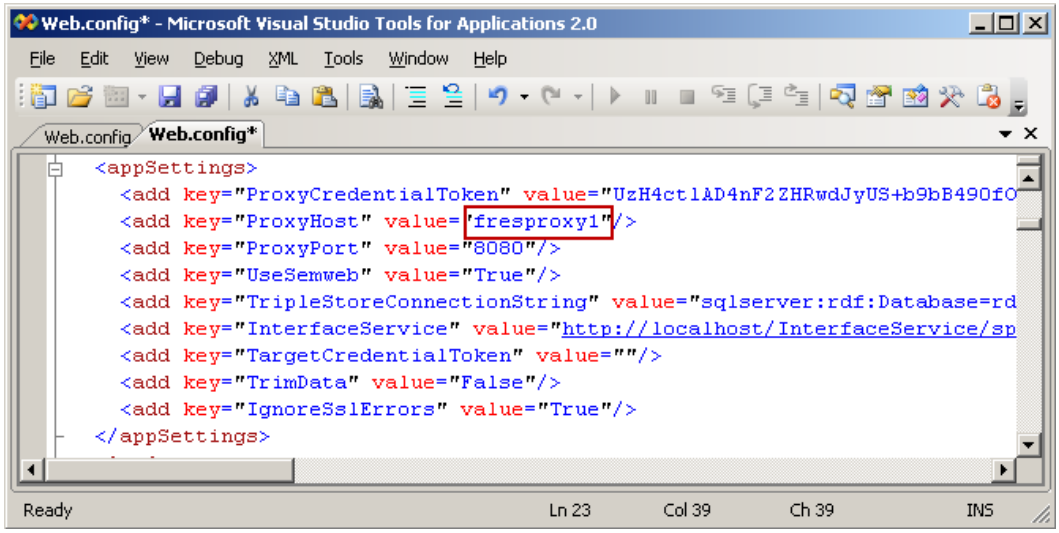

4. In the file Web.config, locate the ProxyCredentialToken key in appSettings. Paste the token in the value between the double quotes. **Note**: If proxy credentials are not required, then leave the value empty.



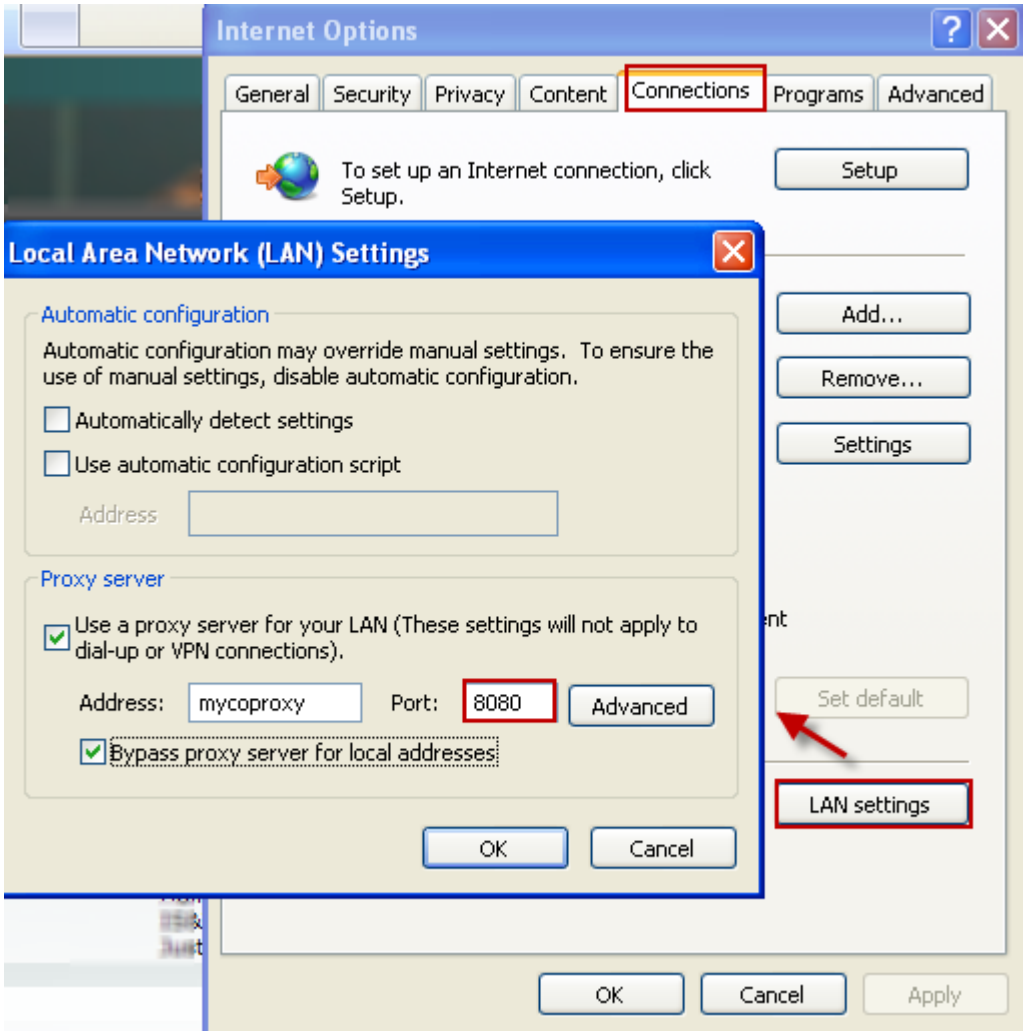

5. In the file Web.config, locate the ProxyHost key in appSettings. Enter the ProxyHost needed to access the internet. This can be found in Internet Options on the Connections tab in the LAN settings.



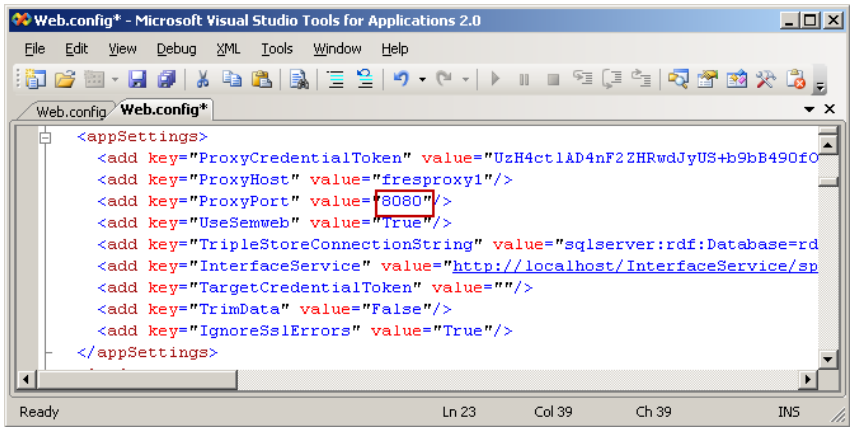

6. Enter the ProxyHost in the value between the double quotes. If there is no ProxyHost, then leave the value empty.



7. In the file Web.config, locate the ProxyPort key in appSettings. Enter the ProxyPort needed to access the internet. This can be found in Internet Options on the Connections tab in the LAN settings.




8. Enter the ProxyPort in the value between the double quotes. If there is no ProxyPort, then leave the value empty.

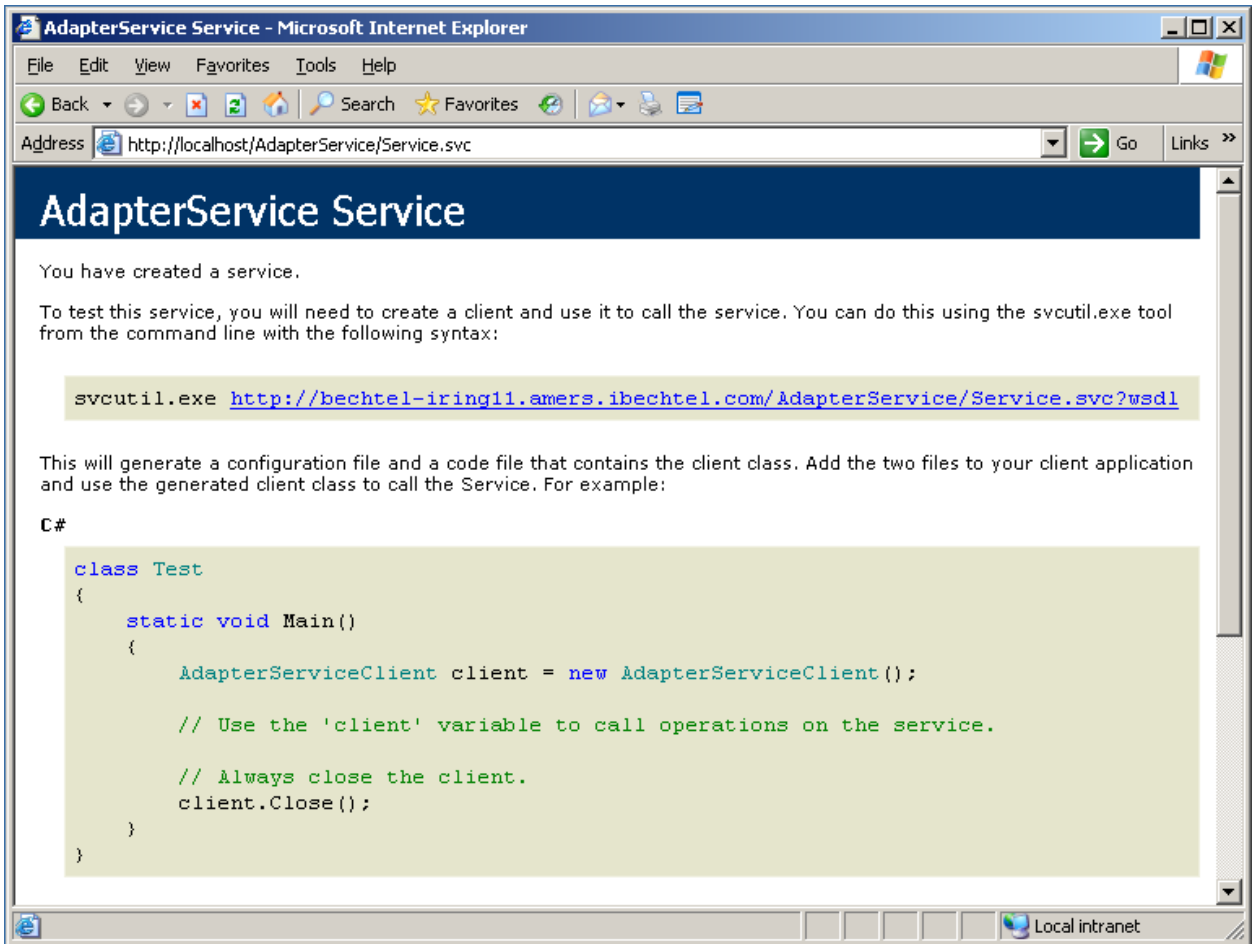


9. Save the changes to the file Web.config and close it.

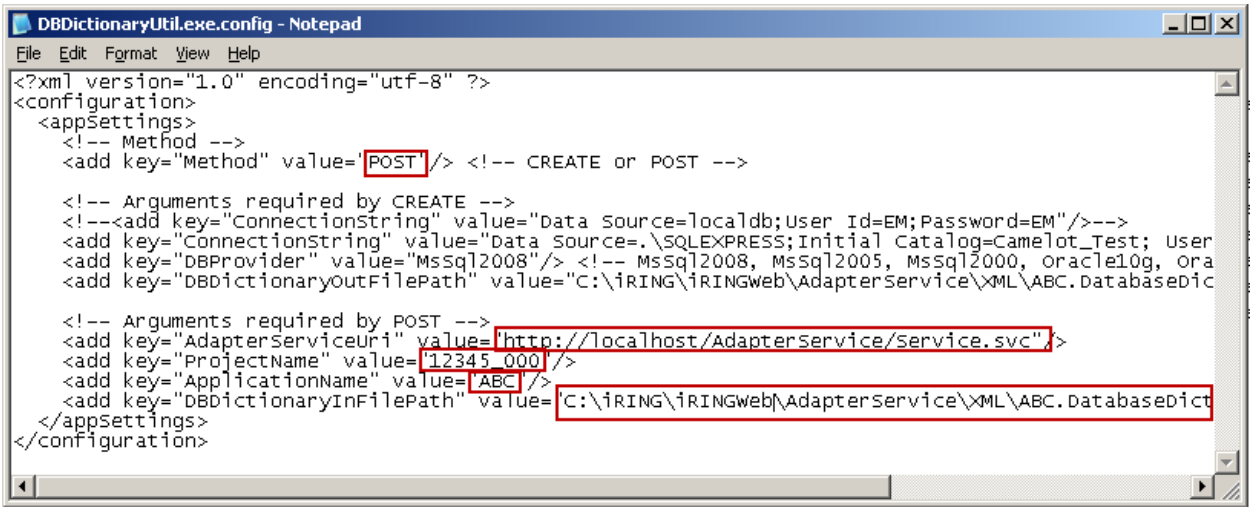
## 4.9 Testing the AdapterService

Perform the following tests for the ***iRINGTools*** AdapterService.

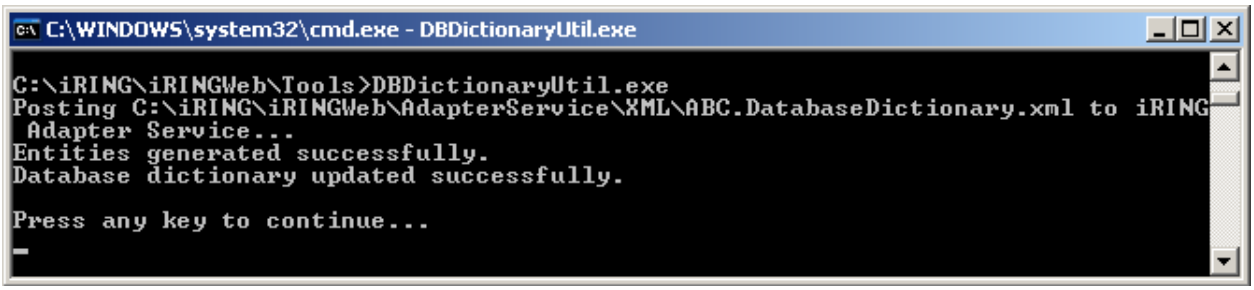
1. Test the AdapterService by opening your browser on the server and entering the address http://localhost/AdapterService/Service.svc. You should see the following (or similar).



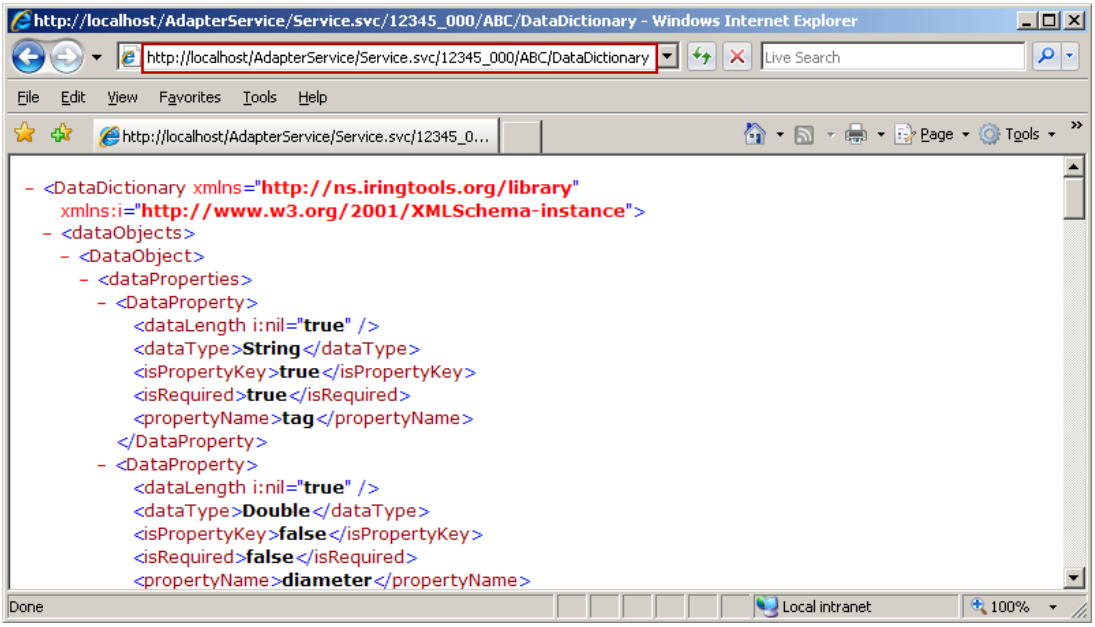

2. Modify file Tools\DBDictionaryUtil.exe.config to verify the DBDictionaryInFilePath value is correct for the AdapterService. Also verify Method key is set to Post, ProjectName is 12345_000 and ApplicationName is ABC.



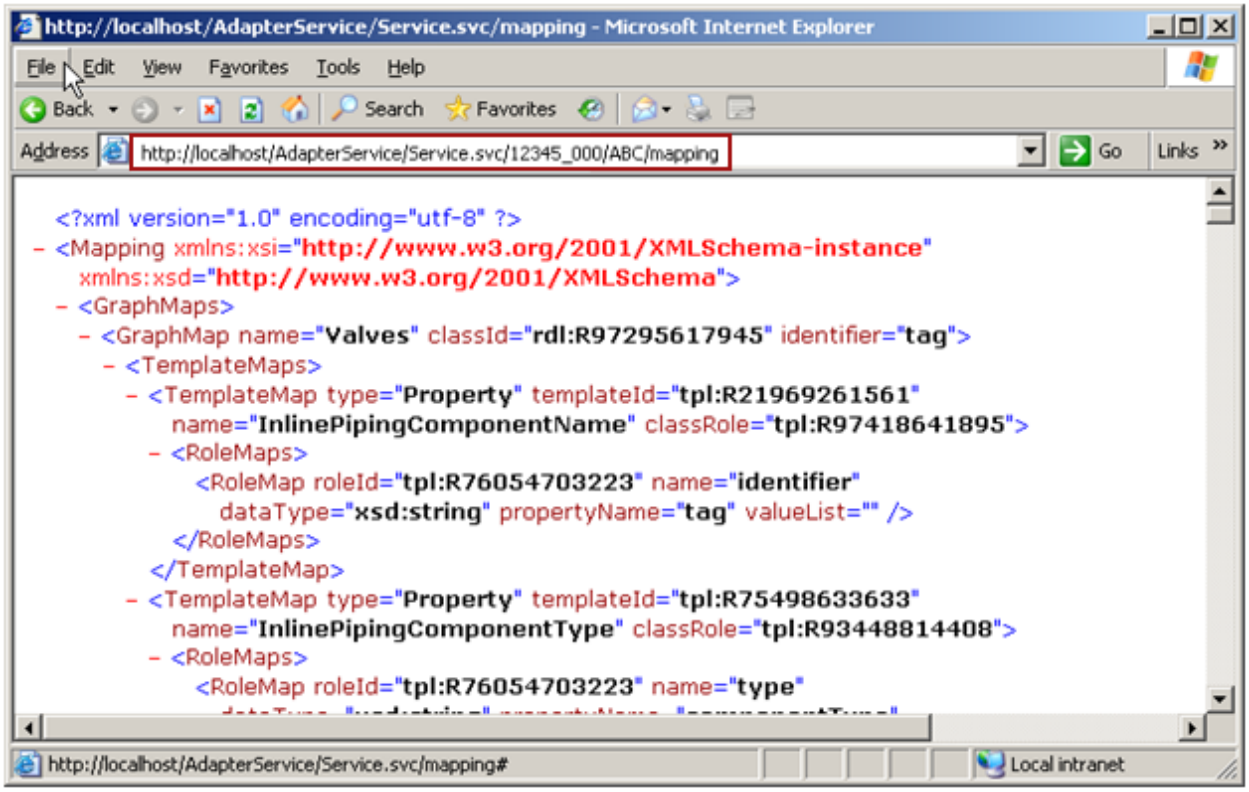

3. Execute Tools\DBDictionaryUtil.exe to configure NHibernate for the test database, which uses the 12345_000 project, and ABC application.




4. Test the data dictionary by entering the address http://localhost/AdapterService/Service.svc/12345_000/ABC/DataDictionary in your browser. You should see the following (or similar).

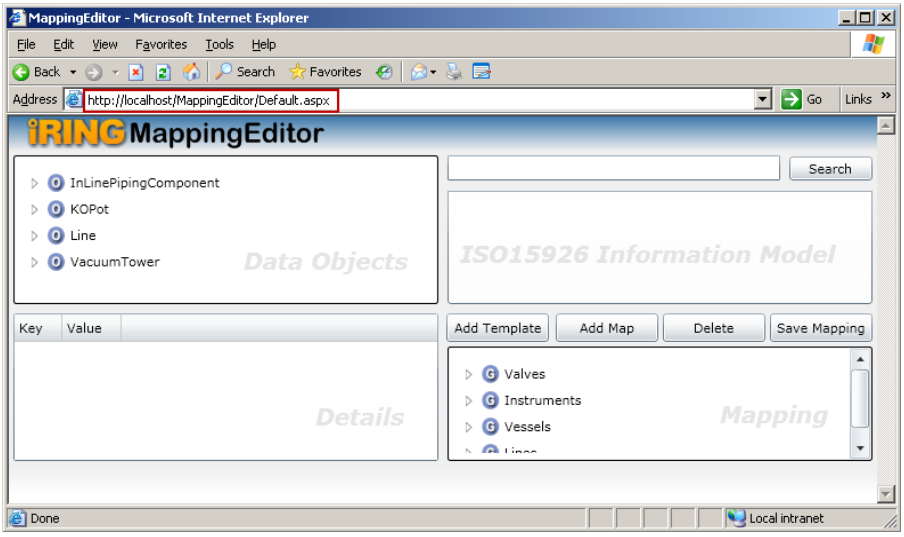


5. Test the mapping by entering the address http://localhost/AdapterService/Service.svc/12345_000/ABC/Mapping in your browser. You should see the following (or similar).




## 4.10 Testing the Mapping Editor

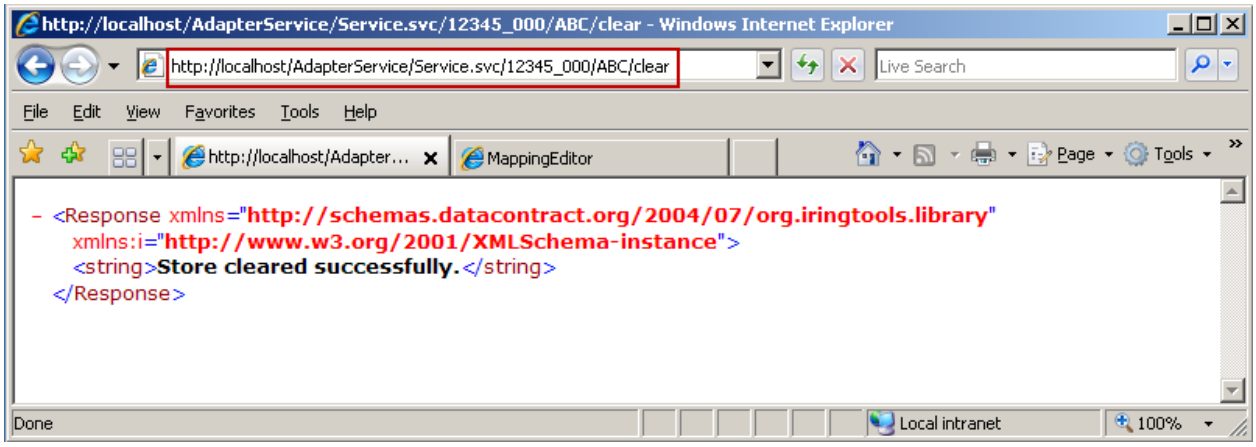
Test the Mapping Editor by opening your browser on the server and entering the address http://localhost/MappingEditor/Default.aspx. You should see the following.



## 4.11 Final Test for the InterfaceService and AdapterService

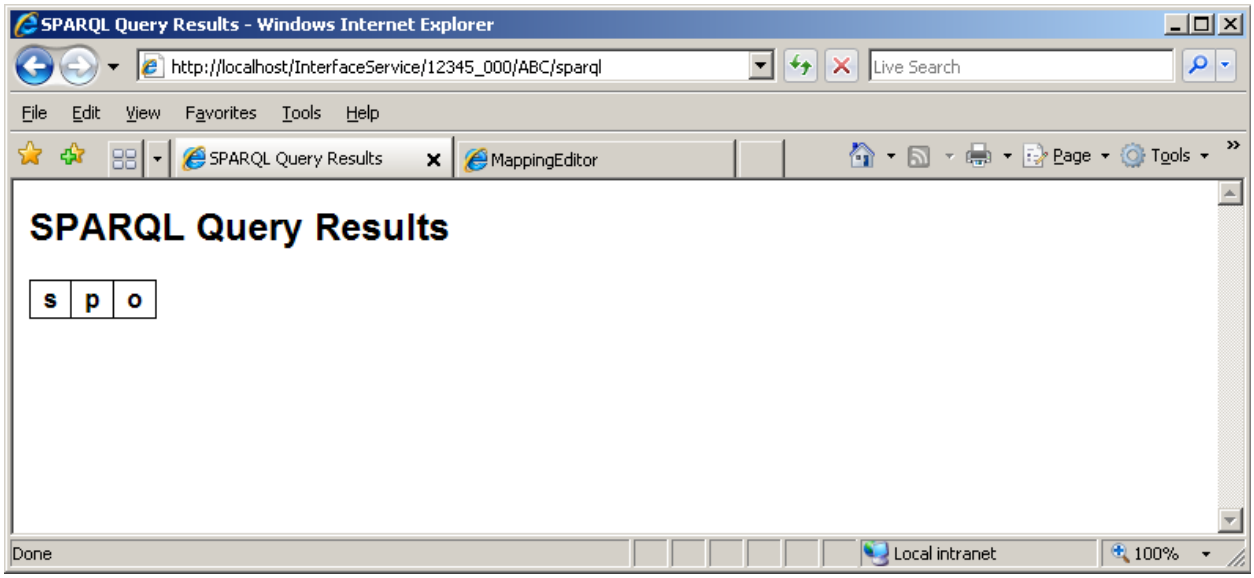
Complete the InterfaceService and AdapterService configuration by performing the following.

1. Test creating the triple store with data from the database by entering the address http://localhost/AdapterService/Service.svc/12345_000/ABC/clear in your browser. You should see the following (or similar).

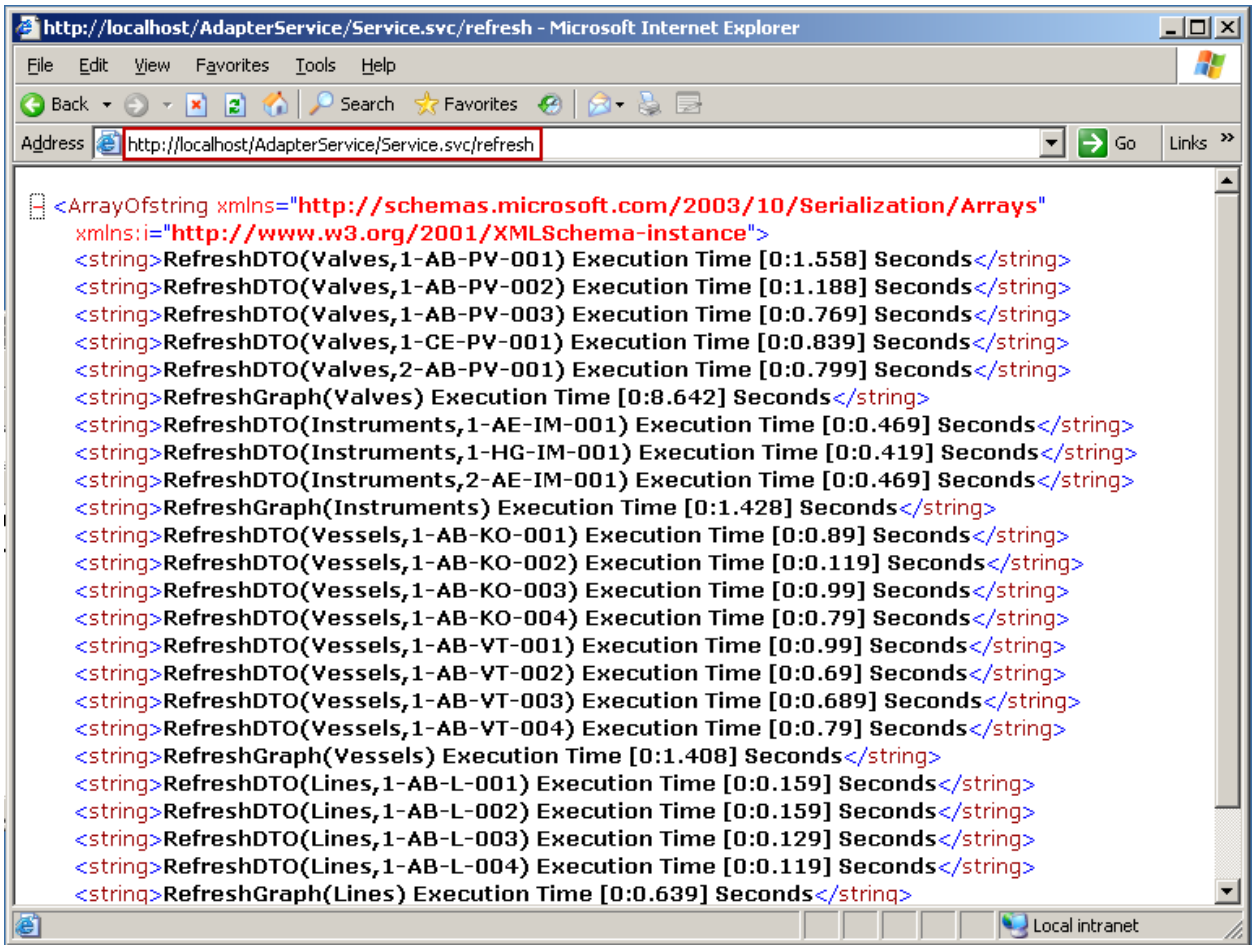



2. In your web browser, open the address http://localhost/InterfaceService/index.html. You should see the following (or similar).

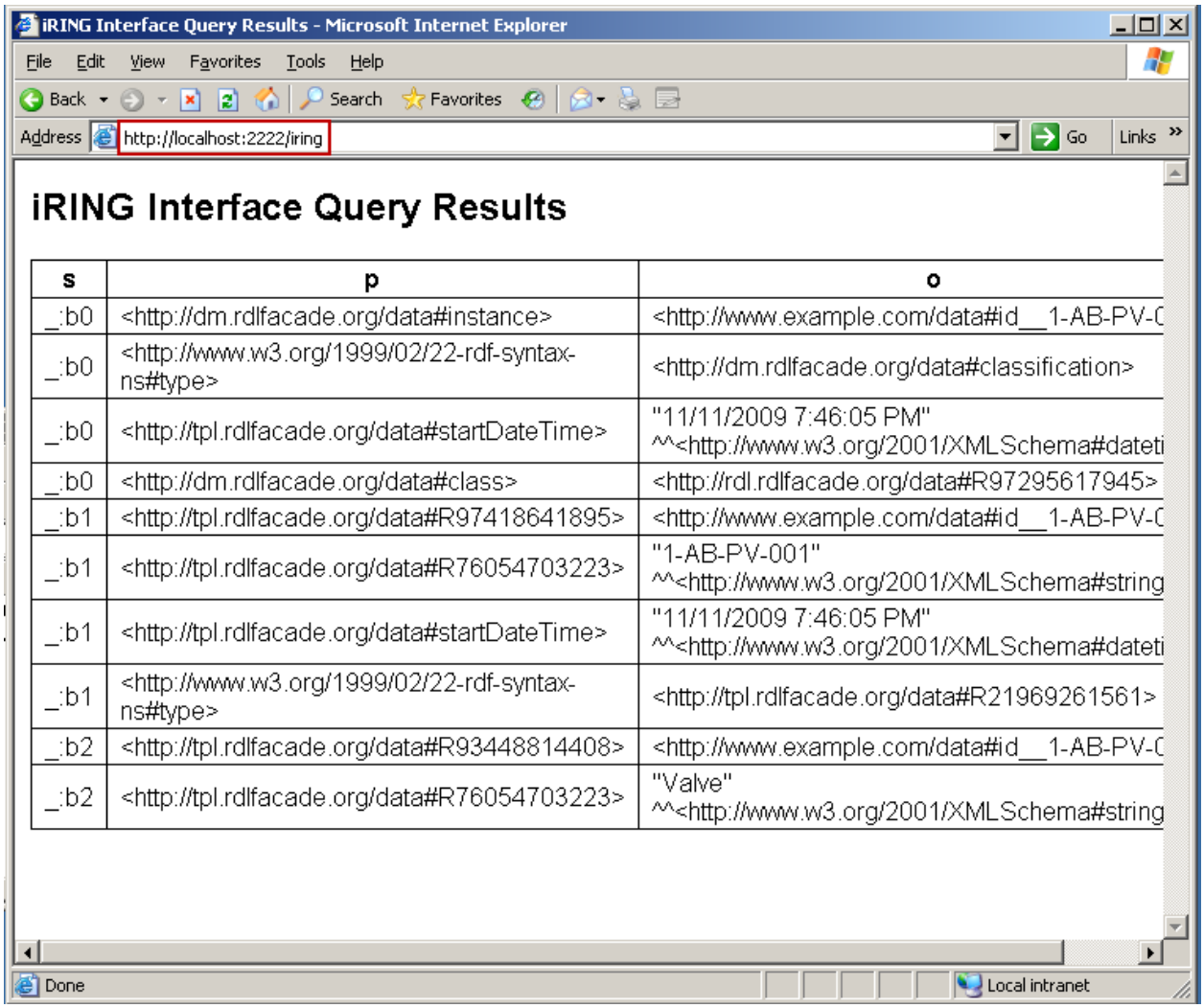

3. Click the Execute Query button. You should see the following result (or similar).




4. Test populating the triple store with data from the database by entering the address http://localhost/AdapterService/Service.svc/12345_000/ABC/refresh in your browser. You should see the following (or similar).



5. In your web browser, open the address http://localhost/InterfaceService/index.html and click the Execute Query button. You should see the following (or similar).




| s | p | o |
|---|---|---|
| _:b0 | <http://dm.rdlfacade.org/data#instance> | <http://www.example.com/data#id__1-AB-PV-0 |
| _:b0 | <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> | <http://dm.rdlfacade.org/data#classification> |
| _:b0 | <http://tpl.rdlfacade.org/data#startDateTime> | "11/11/2009 7:46:05 PM" ^^<http://www.w3.org/2001/XMLSchema#dateti |
| _:b0 | <http://dm.rdlfacade.org/data#class> | <http://rdl.rdlfacade.org/data#R97295617945> |
| _:b1 | <http://tpl.rdlfacade.org/data#R97418641895> | <http://www.example.com/data#id__1-AB-PV-0 |
| _:b1 | <http://tpl.rdlfacade.org/data#R76054703223> | "1-AB-PV-001" ^^<http://www.w3.org/2001/XMLSchema#string |
| _:b1 | <http://tpl.rdlfacade.org/data#startDateTime> | "11/11/2009 7:46:05 PM" ^^<http://www.w3.org/2001/XMLSchema#dateti |
| _:b1 | <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> | <http://tpl.rdlfacade.org/data#R21969261561> |
| _:b2 | <http://tpl.rdlfacade.org/data#R93448814408> | <http://www.example.com/data#id__1-AB-PV-0 |
| _:b2 | <http://tpl.rdlfacade.org/data#R76054703223> | "Valve" ^^<http://www.w3.org/2001/XMLSchema#string |

This completes the installation of ***iRingTools*** Adapter.

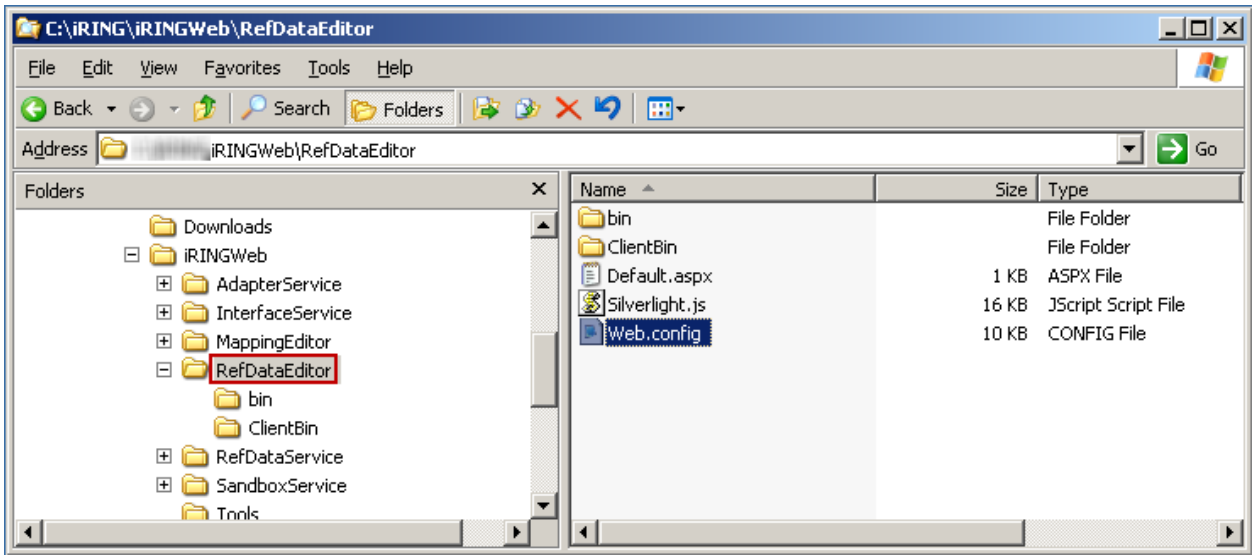
# 5 Hostname Setup

The final step in the installation is updating hostname in certain ***iRINGTools*** services for use with client browsers on the network.

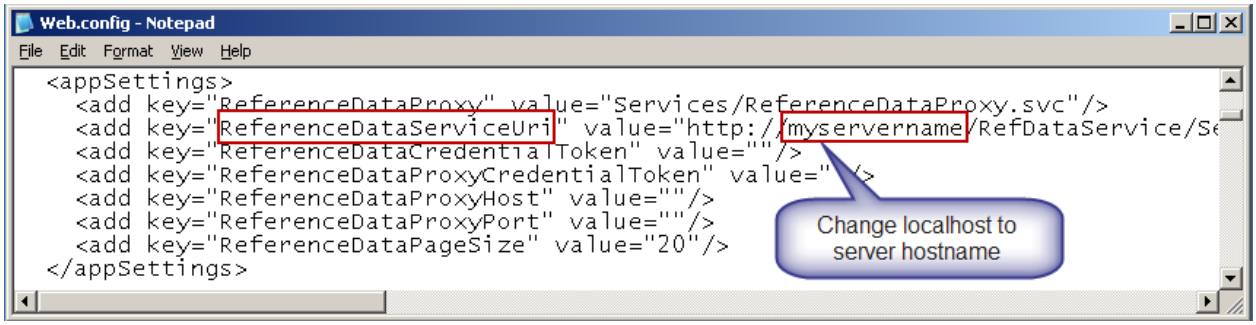
## 5.1 iRINGTools Sandbox

If you installed the ***iRINGTools*** sandbox, then the RefDataEditor Web.config file needs updating for the server hostname. Modify the file as follows.

1. Open the file Web.config file located in the iRINGWeb\ RefDataEditor in a text editor.




2. In the file Web.config, locate the ReferenceDataServiceUri key in appSettings. Change localhost in the value to the server hostname; preserve other portions of the value.

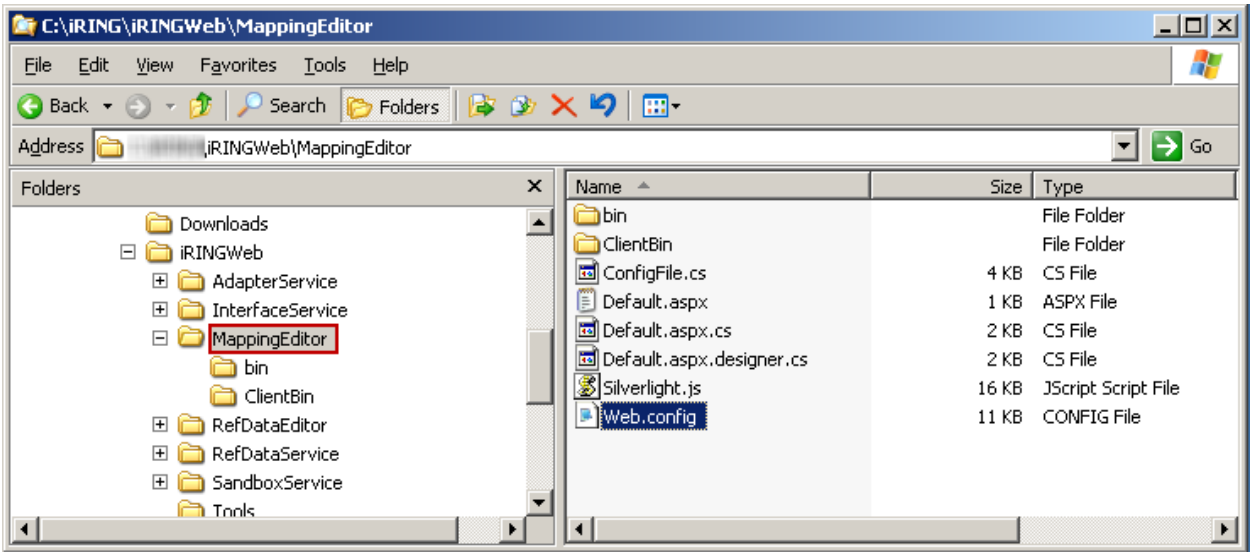



3. Save the changes to the file Web.config and close it.

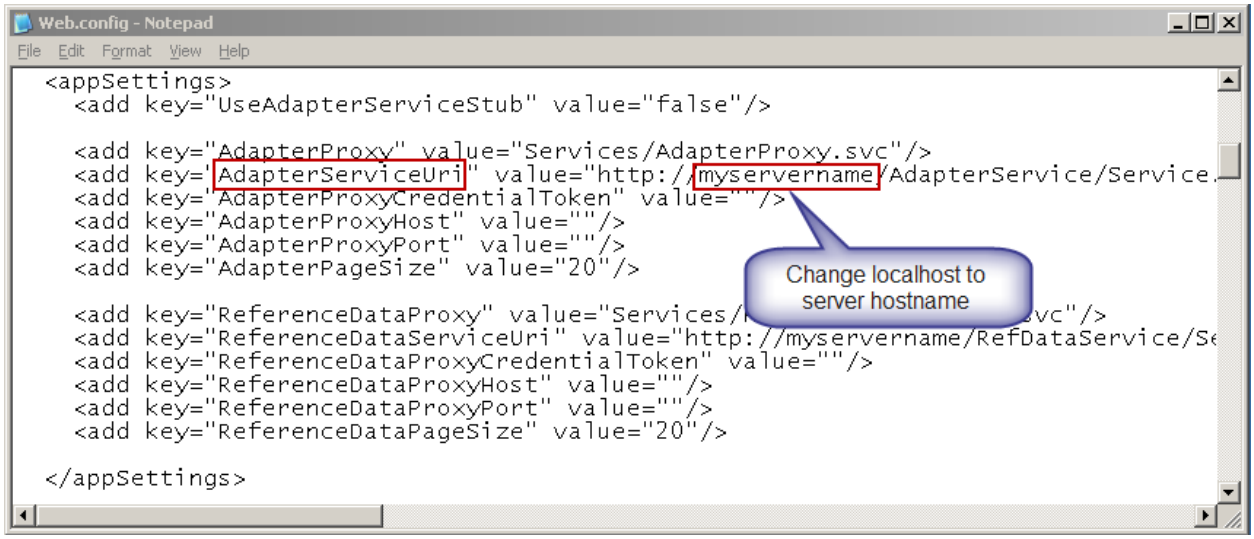
## 5.2 iRINGTools Adapter

If you installed the ***iRINGTools*** Adapter, then the MappingEditor Web.config file needs updating for the server hostname. Modify the file as follows.

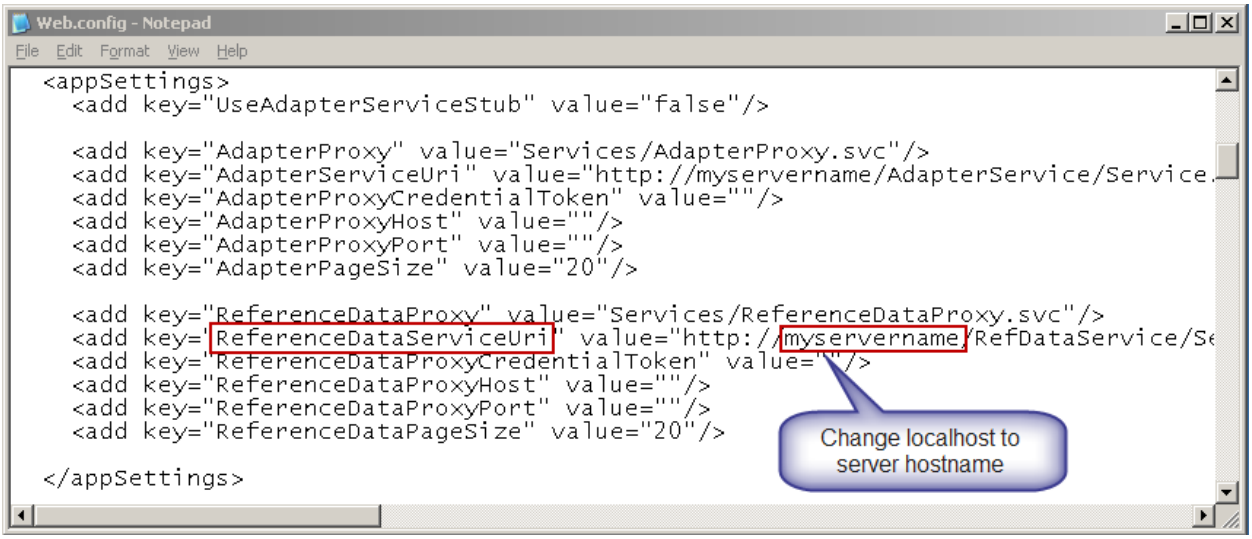
1. Open the file Web.config file located in the iRINGWeb\ MappingEditor in a text editor.




2. In the file Web.config, locate the AdapterServiceUri key in appSettings. Change localhost in the value to the server hostname; preserve other portions of the value.



3. In the file Web.config, locate the ReferenceDataServiceUri key in appSettings. Change localhost in the value to the server hostname; preserve other portions of the value.




4. Save the changes to the file Web.config and close it.

Installation of ***iRINGTools*** sandbox and/or adapter is complete.