`HelloWorldService` is a class library. It has to be hosted in an environment where client applications canaccess it. In this section, we will learn how to host it using IIS Express. Later in the next chapter, we will discuss more hosting options for a WCF service.

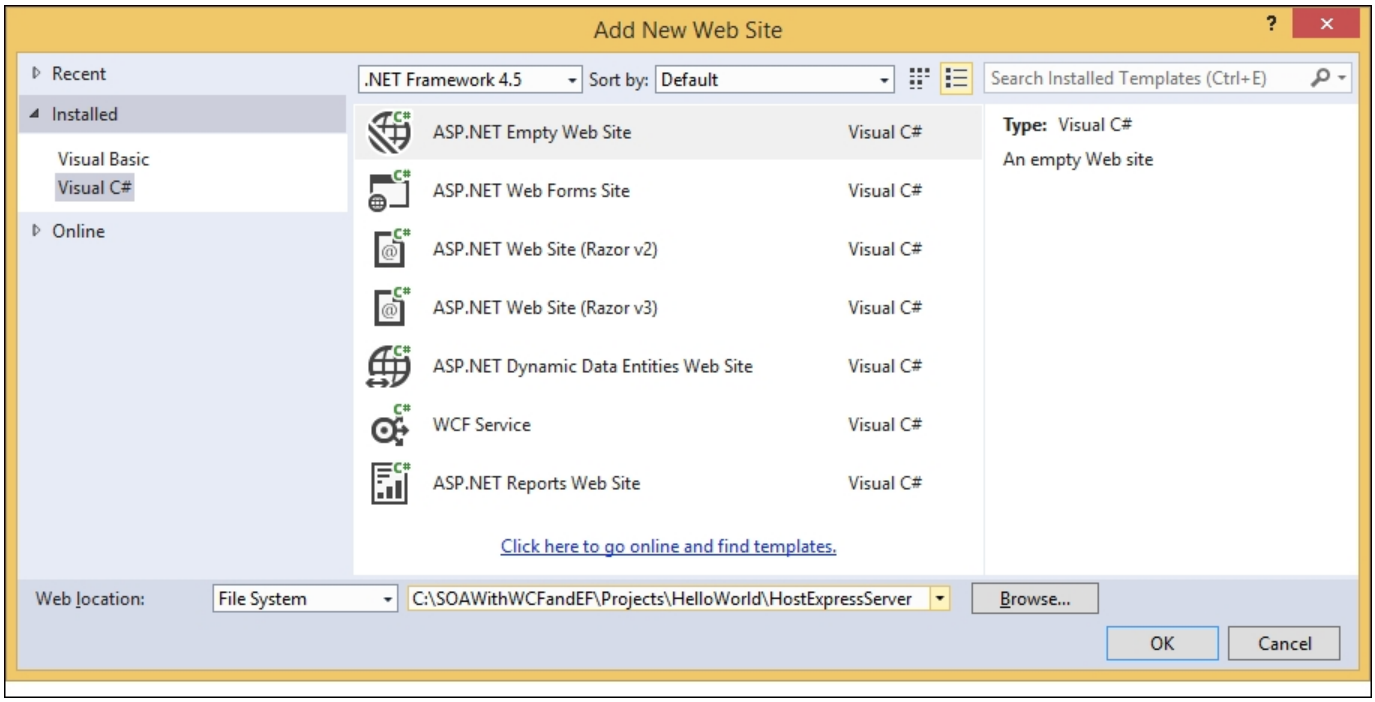
Creating the host application

There are several built-in host applications for WCF services within Visual Studio 2013. However, in this section, we will manually create the host application so that you can have a better understanding of what a hosting application is really like under the hood. In subsequent chapters, we will learn and use the built-in hosting application.

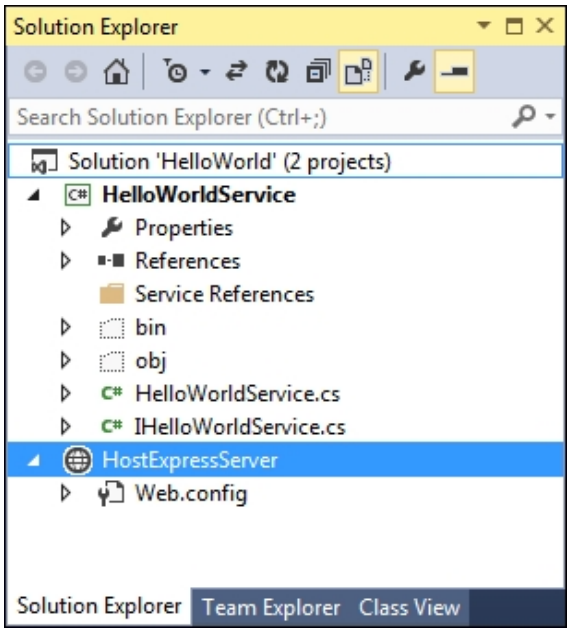
To host the library using IIS Express, we need to add a new website to the solution. Follow these steps to create this website:

In the **Solution Explorer**, right-click on the solution **HelloWorld** and select **Add | New Web Site…** from the context menu (**Always show solution** must be enabled in **DEBUG | Options and Settings... | Projects and Solutions** in order to see the solution file). The **Add New Web Site** dialog window should pop up.

Select **Visual C# | ASP.NET Empty Web Site** as the template and leave the **Web location** field set to **File System**, but change the default address to `C:\SOAwithWCFandEF\Projects\HelloWorld\HostExpressServer` and click on **OK**.



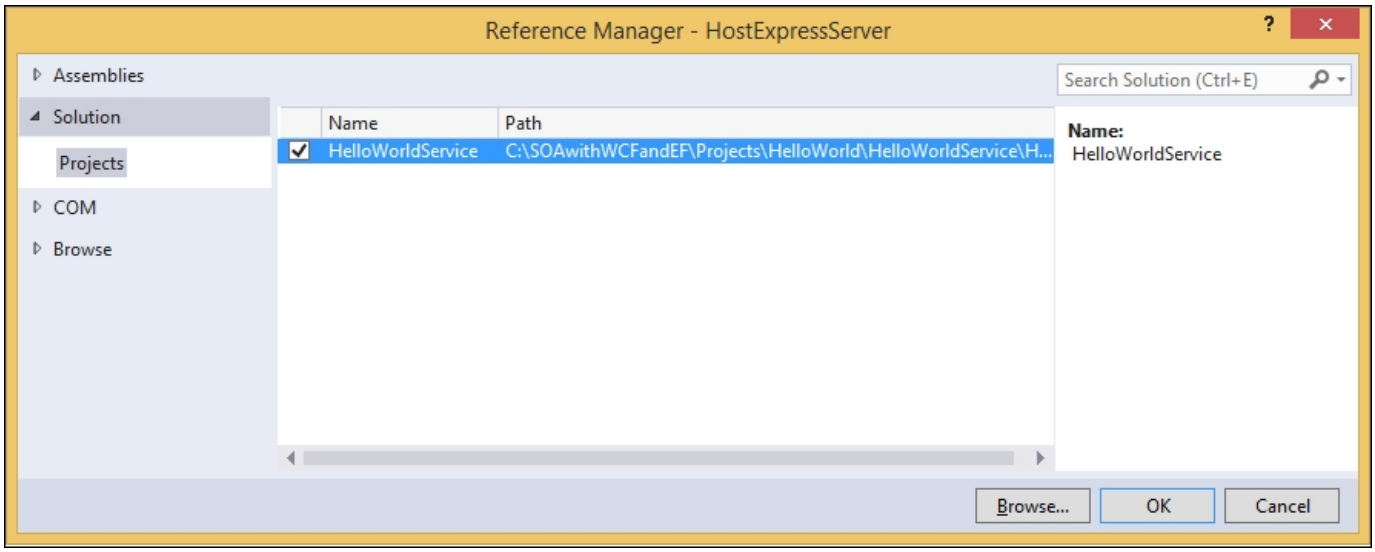
Now in **Solution Explorer**, you have one more item (**HostExpressServer**) within the solution. It will look like the following:



Next, we need to set the website as the startup project. In the **Solution Explorer**, right-click on the **HostExpressServer** website and select **Set as StartUp Project** from the context menu (or you can first select the website from **Solution Explorer** and then select the menu item **WEBSITE | Set as StartUp**

Project). The **HostExpressServer** website should be highlighted in **Solution Explorer**, indicating that it is now the startup project.

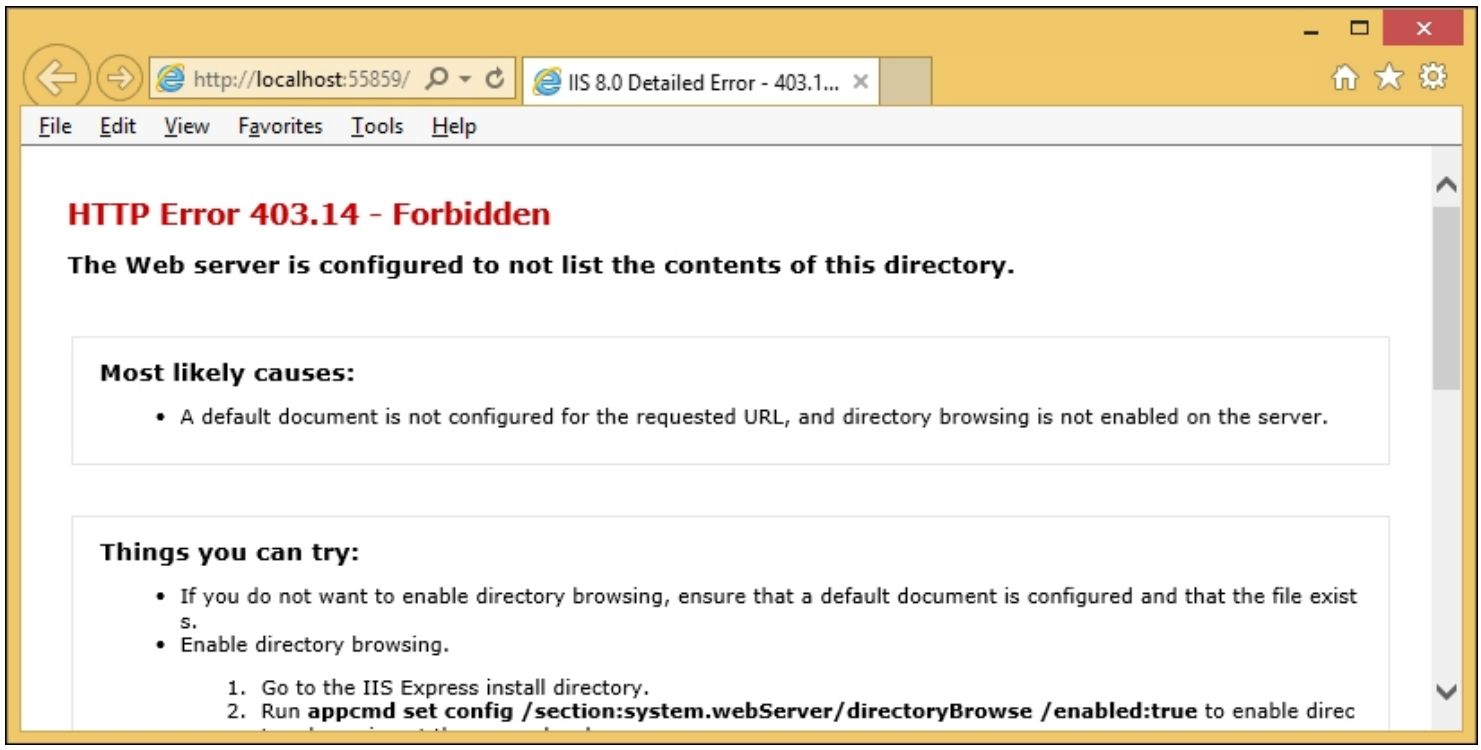
As we will host `HelloWorldService` from this website, we need to add a `HelloWorldService` reference to the website. In the **Solution Explorer**, right-click on the **HostExpressServer** website and select **Add | Reference…** from the context menu. The **Reference Manager** dialog box should appear, as shown in the following screenshot:



> In the **Reference Manager** dialog box, click on the **Solutions** tab and then click on **Projects**. Check the **HelloWorldService** project and then click on **OK**. You will see that a new directory (`bin`) has been created under the `HostExpressServer` website and two files from the **HelloWorldService**project have been copied to this new directory. Later on, when this website is accessed, the web server (IIS Express) will look for executable code in the `bin` directory.

Testing the host application

Now we can run the website inside IIS Express. If you start the `HostExpressServer` website by pressing **Ctrl** + **F5** or by selecting **DEBUG** | **Start Without Debugging** in the menu, you will see an empty website in your browser with an error:

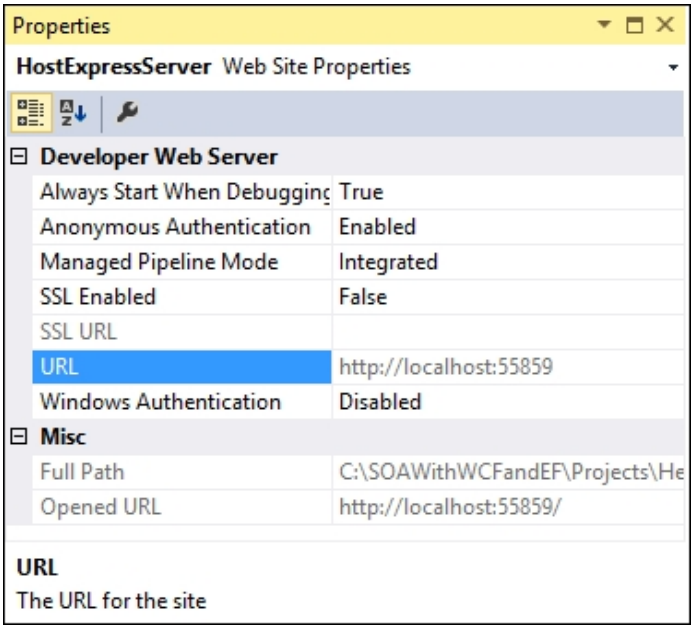


If you press **F5** (or select **DEBUG** | **Start Debugging** from the menu), you might see a dialog saying **Debugging Not Enabled**. Choose the **Run without debugging** (equivalent to **Ctrl** + **F5**) option and click on the **OK** button to continue. We will explore the debugging options of a WCF service later. Until then, we will continue to use **Ctrl** + **F5** to start the website without debugging.

IIS Express

At this point, you should have the `HostExpressServer` site up and running. This site actually runs inside IIS Express. IIS Express is a lightweight, self-contained version of IIS optimized for developers. This web server is intended to be used by developers only and has functionality similar to that of the **Internet Information Services** (**IIS**) server. It also has some limitations, for example, it only supports the HTTP and HTTPS protocols.

When a new website is created within Visual Studio, IIS Express will automatically assign a port for it. You can find your website's port in the **Properties** window of your website, as shown in the following screenshot:



IIS Express is normally started from within Visual Studio when you need to debug or unit test a web project. If you really need to start it from outside of Visual Studio, you can use a command-line statement in the following format:

```
"C:\Program Files\IIS Express\iisexpress" /path:c:\myapp\ /port:[your_port] /clr:v4.0
```

Copy

For our website, the statement should be as follows:

```
"C:\Program Files\IIS Express\iisexpress" /path:C:\SOAwithWCFandEF\Projects\HelloWorld\HostExpressServer /por
```

Copy

> Note
>
> `iisexpress.exe` is located under your `Program Files\ IIS Express\` directory. In an x64 system, it should be under your `Program Files (x86)\ IIS Express\` directory.

Modifying the Web.config file

/

Although we can start the website now, it is only an empty site. Currently, it does not host our `HelloWorldService` website. This is because we haven't specified which service this website should host or an entry point for this website.

To specify which service our website will host, we can add a `.svc` file to the website. From .NET 4.0 onwards, we can also use the file-less (svc-less) activation service to accomplish this. In this section, we will take the file-less approach to specify the service.

Now, let's modify the `Web.config` file of the website to host our `HelloWorldService` (WCF service). Open the `Web.config` file of the website and change it to the following:

Copy

/

```
<?xml version="1.0"?>
<!--
  For more information on how to configure your ASP.NET application, please visit
  http://go.microsoft.com/fwlink/?LinkId=169433
  -->
<configuration>
  <system.web>
    <compilation debug="true" targetFramework="4.5"/>
    <httpRuntime targetFramework="4.5"/>
  </system.web>

  <system.serviceModel>
    <serviceHostingEnvironment >
      <serviceActivations>
        <add factory="System.ServiceModel.Activation.ServiceHostFactory"
         relativeAddress="./HostExpressServer/HelloWorldService.svc"
         service="HelloWorldService.HelloWorldService"/>
      </serviceActivations>
    </serviceHostingEnvironment>
```

Note that the `system.serviceModel` node is the only code that we have manually added to the `Web.config` file.

The `httpGetEnabled` behavior is essential because we want other applications to be able to locate the metadata of this service via HTTP. Without the metadata, the client applications can't generate the proxy and thus won't be able to use the service.

The following is a brief explanation of the other elements in this configuration file:

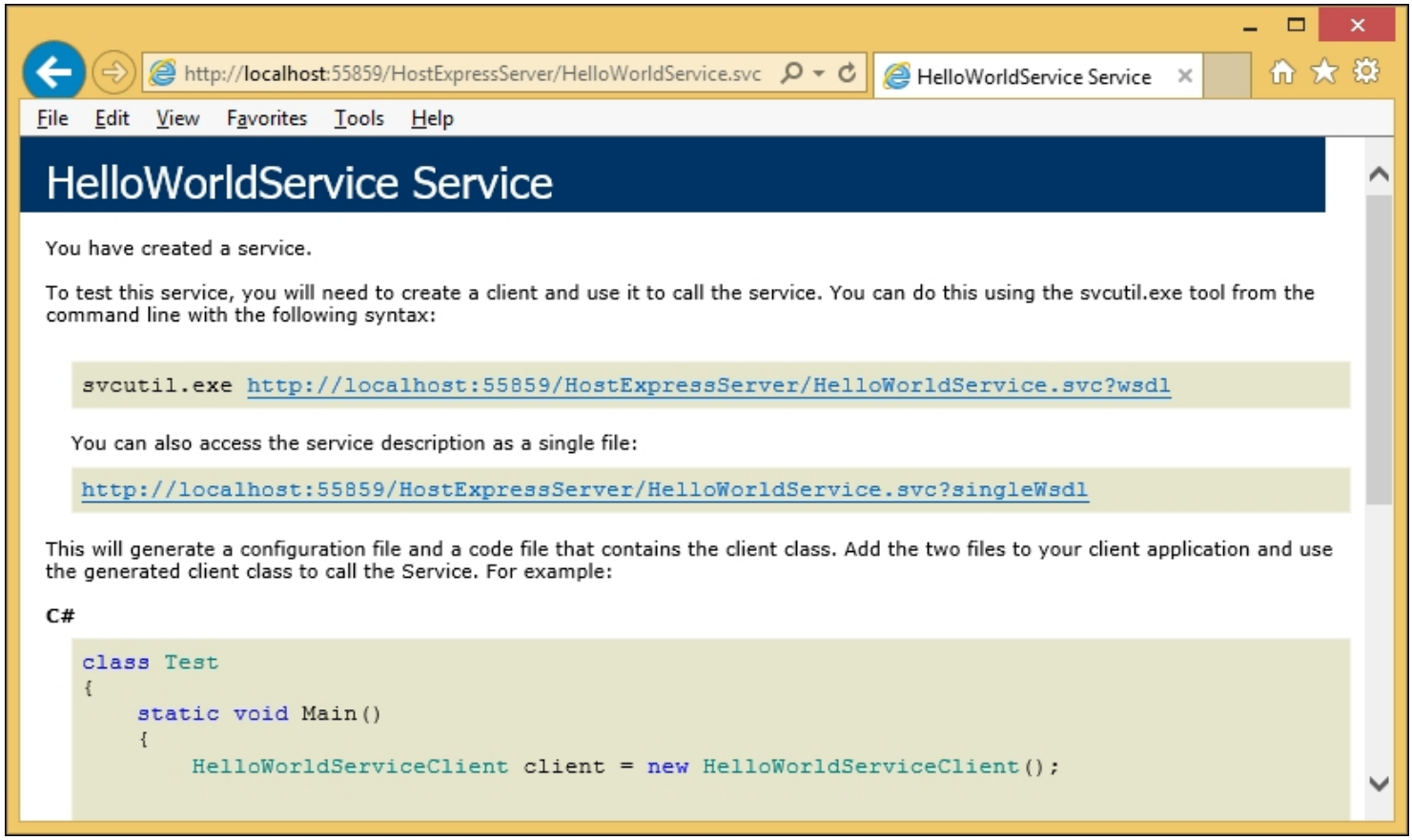
- The `configuration` node is the root node of the file.

/

- The `system.serviceModel` node is the top node for all the WCF service-specific settings.
- The `serviceHostingEnvironment` node is used to specify the hosting environment.
- The `serviceActivations` node is where you specify the service name and its relative address. This configuration element allows you to define the virtual service activation settings that map to your WCF service types. This makes it possible to activate services hosted in WAS/IIS without a `.svc` file.
- Within the `serviceBehaviors` node, you can define specific behaviors for a service. In our example, we have specified one behavior, which enables the service metadata exchange for the service.

Starting the host application

Now, if you start the website by pressing **Ctrl** + **F5** (don't use **F5** or the menu option **DEBUG** | **Start Debugging** until we discuss these later), you will still see the same empty website with the same error. However, this time we have a service hosted within this website, so just append `HostExpressServer/HelloWorldService.svc` after the address (it should look something like `http://localhost:55859/HostExpressServer/HelloWorldService.svc`). Then, you will get the description of this service, that is, how to get the `wsdl` file of this service and how to create a client to consume this service. You should see a page similar to the one shown in the following screenshot:



Now, click on the WSDL link on this page and you will get the WSDL XML file for this service. The `wsdl` file gives all of the contract information for this service. In the next section, we will use this `wsdl` file to generate a proxy for our client application.

/