

Roles and Prerequisites

This section describes the roles of different users and helps new users understand which prerequisites are required for each business service activity. The following topics are covered:

- Introduction
 - Understanding Prerequisites
 - Types of Security Available with EntireX
 - Summary of Tasks
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Introduction

With all the functionality and components of Natural Business Services, it is important to understand which components are required for your scenario. Every development activity requires the Business Service repository and the Administration subsystem and every consumer requires an existing business service. All business services are created using the Natural Business Services Natural plug-in. As this plug-in does not require EntireX, you can use Natural Development Server (NDV) for development. EntireX is required for runtime environments.

At a high level, the minimum tasks required to produce a viable business service are:

1. Install Natural Business Services on the client and the server.
2. Ensure connectivity exists through NDV (for development activities) and EntireX (for development and/or runtime activities).
3. Ensure security is set for users and the development environments.
4. Create the business service.
5. Consume the business service through one of the following options:
 - Java (via Eclipse)
 - Visual Studio
6. Invoke the business service through one of the consumers.

Understanding Prerequisites

This section describes the prerequisites required for each business service activity. The following topics are covered:

- Create Business Services with the Natural Plug-in

- Create Business Services with the Eclipse Plug-in
- Create Web Services Without a Client SDK
- Create Java Applications or Web Services
- Create .NET Applications or Web Services
- Execute Web Applications Created Without a Client SDK
- Execute Java Applications
- Execute Java Web Services
- Execute .NET Applications
- Execute .NET Web Services

Create Business Services with the Natural Plug-in

The following components are required to create a business service with the Natural Business Services Natural plug-in:

Natural Business Services	Natural for Windows	Eclipse (Java)	Visual Studio .NET	Communication Tool	IIS	.NET Runtime	Java Runtime
	X			NDV		X	

Create Business Services with the Eclipse Plug-in

The following components are required to create a business service with the Natural Business Services Eclipse plug-in:

Natural Business Services	Natural for Windows	Eclipse (Java)	Visual Studio .NET	Communication Tool	IIS	.NET Runtime	Java Runtime
		X		EntireX			X

Create Web Services Without a Client SDK

The following components are required to create a Web service to be used with IIS (Internet Information Server) and without a client SDK, such as Visual Studio or Eclipse:

Natural Business Services	Natural for Windows	Eclipse (Java)	Visual Studio .NET	Communication Tool	IIS	.NET Runtime	Java Runtime
X				EntireX	X	X	

Tip:

Use these Web services to generate web applications created with HTML, JavaScript, and XSL. For more information, see Build a Web Application.

Create Java Applications or Web Services

The following components are required to create a Java application or Web service:

Natural Business Services	Natural for Windows	Eclipse (Java)	Visual Studio .NET	Communication Tool	IIS	.NET Runtime	Java Runtime
X		X		EntireX			

Create .NET Applications or Web Services

The following components are required to create a .NET application or Web service:

Natural Business Services	Natural for Windows	Eclipse (Java)	Visual Studio .NET	Communication Tool	IIS	.NET Runtime	Java Runtime
X			X	NDV or EntireX		X	

Execute Web Applications Created Without a Client SDK

The following components are required to execute a web application for Web services created without using an SDK:

Natural Business Services	Natural for Windows	Eclipse (Java)	Visual Studio .NET	Communication Tool	IIS	.NET Runtime	Java Runtime
X				EntireX	X	X	

Execute Java Applications

The following components are required to execute a Java application:

Natural Business Services	Natural for Windows	Eclipse (Java)	Visual Studio .NET	Communication Tool	IIS	.NET Runtime	Java Runtime
X				EntireX			X

Execute Java Web Services

The following components are required to execute a Java Web service:

Natural Business Services	Natural for Windows	Eclipse (Java)	Visual Studio .NET	Communication Tool	IIS	.NET Runtime	Java Runtime
X				EntireX			X

Execute .NET Applications

The following components are required to execute a .NET application:

Natural Business Services	Natural for Windows	Eclipse (Java)	Visual Studio .NET	Communication Tool	IIS	.NET Runtime	Java Runtime
X				EntireX		X	

Execute .NET Web Services

The following components are required to execute a .NET Web service that works with ASP.NET:

Natural Business Services	Natural for Windows	Eclipse (Java)	Visual Studio .NET	Communication Tool	IIS	.NET Runtime	Java Runtime
X				EntireX		X	

Types of Security Available with EntireX

The following types of security are available when using the EntireX communication middleware:

Security Type	Description
NONE	Uses no security.
NSC	Uses Natural Security to validate users and check library access. (Natural Business Services definitions are used to check authorizations.)
APPL	Uses Natural Business Services to validate users and check authorization.
SAF	Uses SAF to validate users and check authorizations.
SAF-NSC	Uses SAF for user authentication, Natural Business Services for user, group, service, and method validation.
SAF-APPL	Uses SAF for user authentication, Natural Security for user and group validation, and Natural Business Services for service and method validation.

Note:

Depending on your configuration, use either NSC or APPL with Natural Development Server (NDV).

As most sites have both a production and development environment, the decision about which type of security to use can be postponed for a while (although you must eventually choose a security type).

For more information on security, see Defining Users and Security Groups.

Summary of Tasks

Once you know which components are required for your site, you can determine which tasks must be done and how to verify that a task is completed. This section covers the following topics:

- Install Natural Business Services
- Set up, Deploy, and Monitor the Development Environment
- Create a Business Service
- Configure the Client
- Set Up Internet Information Server
- Create a Client Proxy
- Create a Web Service

Install Natural Business Services

This section describes the products and procedures required to install Natural Business Services on the server and on the client.

On the Server

The following products are required to install Natural Business Services on the server:

- Natural Development Server (NDV)
- Natural Business Services (NBS)

Note:

Natural Security and EntireX are optional.

For information on installing Natural Business Services on the server, see:

- Natural Business Services Installation on Mainframes
- Natural Business Services Installation on Unix

▶ To verify that Natural Business Services is installed on the server:

1. Ensure that Natural for Windows can connect to the server via NDV.
2. Ensure that users and groups are defined in NBS and, optionally, Natural Security.
3. Optionally, ensure that the attach, dispatch, and security servers can be initiated and pinged.

On the Client

The following products are required to install Natural Business Services on the client:

- Natural for Windows
- Business Service plug-in (repository explorer)

For information on installing Natural Business Services on the client, see Natural Business Services Installation on Windows.

▶ To verify that the plug-in is installed and activated on the client:

1. Access the Business Service repository explorer.
2. Select **Domains > DEMO**.
3. Open the context menu for Customer.
4. Select **Test** on the submenu.
5. Select the Browse method.
6. Select **Run**.

If data comes back, there is connectivity to a business service.

Set up, Deploy, and Monitor the Development Environment

This section describes the products and procedures required to set up, deploy, and monitor the development environment. The following products are required for these tasks:

- Natural for Windows
- Business Service plug-in (repository explorer)

 **To verify that the products are operational:**

1. Add a new domain.
 2. Define a new steplib chain that includes all your development libraries required for the new domain.
 3. Associate the new steplib chain with the new domain.
 4. Define the domain, service, and method-level security.
 5. Perform audit activities (as required).
 6. Deploy services (as required).
- For information on the Eclipse plug-in, see [Natural Business Services Eclipse Plug-in](#)
 - For information on the Natural plug-in, see [Natural Business Services Natural Plug-in](#)

Create a Business Service

This section describes the products and procedures required to create a business service using the Eclipse and Natural plug-ins.

Eclipse Plug-in

The following products are required to create a business service in the Eclipse plug-in:

- Eclipse SDK
- Natural Business Services Eclipse plug-in

 **To verify that the plug-in is operational:**

1. Invoke the wizard and create a new business service.
2. Use the Service Repository Explorer to test the business service.

For information, see [Natural Business Services Eclipse Plug-in](#).

Natural Plug-in

The following products are required to create a business service in the Natural plug-in:

- Natural for Windows
- Natural Business Services Natural plug-in

 **To verify that the plug-in is operational:**

1. Invoke the wizard and create a new business service.
2. Use the Business Service repository explorer to test the business service.

For information, see Natural Business Services Natural Plug-in.

Configure the Client

This section describes the products and procedures required to configure the client in the Eclipse and Natural plug-ins, and in the Visual Studio add-in.

Eclipse Plug-in

The following product is required to configure the client in the Eclipse plug-in:

- Natural Business Services Eclipse plug-in

To verify that the plug-in is operational:

1. Open the context menu for **Default Broker** in the repository explorer.
2. Select **Configure** on the submenu.

The **Connection Configuration Wizard** is displayed.

3. Select **Default Broker** from **Connection ID**.
4. Type the broker ID for the default broker in **Broker ID**.
5. Type the port number for the default broker in **Port**.
6. Select **Test** and verify that there is connectivity.

For information, see Configure Connections.

Natural Plug-in

The following product is required to configure the client in the Natural plug-in:

- Natural Business Services Natural plug-in

Note:

The NBS attach server must be available to complete this test.

To verify that the plug-in is operational:

1. Select **Configuration** from the **Business Services** menu.
2. Select **Default Broker** from **Connection ID**.
3. Type the broker ID for the default broker in **Broker ID**.

4. Type the port number in **Port**.
5. Select **Test** and verify that there is connectivity.

For information, see Access Business Services.

Visual Studio Add-in

The following product is required to configure the client in the Visual Studio add-in:

- Natural Business Services Natural plug-in

Note:

The NBS attach server must be available to complete this test.

To verify that the plug-in is operational:

1. Select **Configuration** from the **Business Services** menu.
2. Select **Default Broker** from **Connection ID**.
3. Type the broker ID for the default broker in **Broker ID**.
4. Type the port number in **Port**.
5. Select **Test** and verify that there is connectivity.

For information, see Configure Connections.

Set Up Internet Information Server

This section describes the products and procedures required to set up the Internet Information server in the Natural plug-in and in the Visual Studio add-in.

Natural Plug-in

The following products are required to set up the Internet Information server in the Natural plug-in:

- Internet Information Server (IIS)
- Natural Business Services Natural plug-in

To verify that IIS is operational:

1. Open the Business Service explorer window in the Natural plug-in.

For information, see Using the Business Service Repository.

2. Expand the **Business Services** node.

The **Domains** and **Configuration** nodes are displayed.

3. Expand the **Domains** node.

The server retrieves the list of business service domains for the specified connection.

4. Select the **Demo** domain.

The server retrieves the list of business services in the **Demo** domain.

5. Open the context menu for OrderTraditional.

6. Select **SOAP Client Tests** on the submenu.

7. Test the Browse method.

If the method cannot be tested, the reason may be that IIS has not been set up correctly or that the Web.config file in the demo folder (under wwwroot) is using a different connection ID than the active one in the current configuration..

Visual Studio Add-in

The following products are required to set up the Internet Information server in the Visual Studio add-in:

- Internet Information Server (IIS)
- Natural Business Services Visual Studio add-in

To verify that IIS is operational:

1. Open the Business Service explorer window in the Visual Studio add-in.

For information, see Use the Business Service Explorer.

2. Expand the **Business Services** node.

The **Domains** and **Configuration** nodes are displayed.

3. Expand the **Domains** node.

The server retrieves the list of business service domains for the specified connection.

4. Select the **Demo** domain.

The server retrieves the list of business services in the **Demo** domain.

5. Open the context menu for OrderTraditional.

6. Select **SOAP Client Tests** on the submenu.

7. Test the Browse method.

If the method cannot be tested, the reason may be that IIS has not been set up correctly or that the Web.config file in the demo folder (under wwwroot) is using a different connection ID than the active one in the current configuration..

Create a Client Proxy

This section describes the products and procedures required to create a client proxy in the Eclipse plug-in and in the Visual Studio add-in.

Eclipse Plug-in

The following products are required to create a client proxy in the Eclipse plug-in:

- Eclipse SDK
- Natural Business Services Eclipse plug-in

To verify that the plug-in is operational:

1. Open the Business Services repository explorer.
2. Open the context menu for a business service.
3. Select **Create class**.

The Create Class wizard is displayed.

4. Select **Finish** to generate the proxy class using the defaults.

Note:

For more information, see [Generate a Client Proxy Class](#).

Visual Studio Add-in

The following products are required to create a client proxy in the Visual Studio add-in:

- Visual Studio 2005 or higher
- Natural Business Services Visual Studio add-in

To verify that the product is operational:

1. Open the Business Services repository explorer.
2. Define a connection to a remote Natural Business Services environment.
3. Use the Create Class wizard to generate a class for a business service.

Note:

For more information, see [Creating a Client Proxy Class](#).

Create a Web Service

This section describes the products and procedures required to create a Web service in the Eclipse plug-in and in the Visual Studio add-in (to generate in Visual Basic .NET).

Eclipse Plug-in

The following products are required to create a Web service in the Eclipse plug-in:

- Eclipse SDK
- Natural Business Services Eclipse plug-in

▶ To verify that the plug-in is operational:

1. Open the context menu for a business service in the **NBS Repositories** view.
2. Select **Create class**.

The **Configure generated class** panel for the Create Class wizard is displayed.

3. Select **Generate Web service class**.
4. Select **Finish** to generate the proxy class using the defaults.

Note:

For more information, see Generate a Client Proxy Class.

Visual Studio Add-in

The following products are required to create a Web service in the Visual Studio add-in for Visual Basic .NET:

- Visual Basic .NET
- Natural Business Services Visual Studio add-in

▶ To create a Web service:

1. Create an ASP.NET Web services project.
2. Write code to access and expose the methods for a previously generated Web service.

Note:

For more information, see SAMPLES in the Natural Business Services Installation folder.

Test a Web Service

▶ To test a Web service:

1. Open the context menu for a Web service in the explorer.
2. Select **Test**.
3. Select a SOAP method to test.

Note:

For more information, see Test a Web Service.

Create a Web Application

To create a web application:

1. Open the context menu for the Web Applications node in the explorer.

Tip:

Typically the word “localhost” is used in the node name.

2. Select **New Web Application**.

The Web Application wizard panel is displayed. This wizard will set up an environment for your new web application.

Note:

For more information, see [Create the Web Application Project](#).

Create a Web Page

To create a web page:

1. Select the node for a web application listed in the explorer.
2. Open the context menu for the Pages node.
3. Select **New Page**.

The Web Page wizard panel is displayed.

4. Create a web page.

Note:

For more information, see [Generate a Web Page](#).

Create a Menu

To create a menu:

1. Select the node for a web application listed in the repository explorer.
2. Open the context menu for Menu.
3. Select **Show Wizard**.

The Menu wizard panel is displayed.

4. Create the menu.

Note:

For more information, see [Generate a Menu](#).