# BTSHOL13: Deployment and Management

Overview

This lab will demonstrate the deployment and management features in BizTalk Server 2016. Specifically, you will see how BizTalk artifacts can be grouped and managed as an *application* and how the BizTalk Server 2016 Administration Console enables and simplifies the deployment and administration of applications.

Objectives

After completing this lab, you will be able to:

* Assign an application name to a BizTalk Server project
* Use the BizTalk Server 2016 Administration Console to create receive ports, receive locations
* Use the BizTalk Server 2016 Administration Console to import port binding information
* Bind orchestration ports to physical ports
* Export a BizTalk application to an MSI package
* Import a BizTalk application from an MSI package
* Use the Group Hub to manage suspended messages

Scenario

First, you will assign a BizTalk application name to a project and deploy the assembly for the project. Then you will manage the application using the functionality in the BizTalk Server 2016 Administration Console. You will then export the application as an MSI package and then use the import feature install the application. Finally, you will use the new Group Hub page to view and manage and resubmit a suspended message.

Estimated time to complete this lab: 60 minutes

User Name: **Administrator**

Password: **pass@word1**

Exercise 1

Assign and Deploy a BizTalk Assembly to an Application

A BizTalk *application* is a logical grouping of assemblies, orchestrations, and ports.Applications can be seen and managed from the BizTalk Server 2016 Administration Console.In this exercise, you will open an existing BizTalk Server solution and examine its artifacts. You will then assign the project to an application and then build and deploy the assembly.

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| Tasks | Detailed steps |
| 1. Open the BizTalk Server 2016 Solution. | 1. In Windows Explorer, browse to **C:\Labs\Lab 13\Start**,and then double click **Management.sln** to open the solution.   *The provided solution contains several artifacts that you will be reviewing in the next several steps of this exercise.* |
| 1. Examine the existing BizTalk Server project.   Through the remainder of this lab you will deploy this project and manage it as a BizTalk application. | 1. In Solution Explorer, open the **CustomerOrder** schema. 2. In the left pane of **BizTalk Editor**, right-click the **CustomerOrder** node, and then click **Expand Schema Node**.   *This schema represents the online form that customers use to generate orders.*   1. In Solution Explorer, open the **ProcessOrder** schema. 2. In the left pane of **BizTalk Editor**, right-click the **ProcessOrder**node, and then click **Expand Schema Node**.   *This schema represents the messages used for processing within the enterprise.*   1. In Solution Explorer, open the **CustomerOrder\_To\_ProcessOrder**map.   *This map is used to transform messages from the CustomerOrder format to the ProcessOrder format. Observe that the name and order of the nodes is different.*   1. In Solution Explorer, open the **ProcessOrders** orchestration.   *This orchestration receives the CustomerOrder message, transforms it into the ProcessOrder format using the CustomerOrder\_To\_ProcessOrder map, and then sends the message out.* |
| 1. Associate the BizTalk project to a BizTalk application. | 1. In Solution Explorer, right-click the **Management** project, and then click **Properties**. 2. In the **Management Property Pages** click on the **Deployment** tab. 3. Click on the **Application Name** property.   *Notice the description in the section below the properties pane. The Application Name property “Specifies the BizTalk application in which to deploy the assembly”. If an application isn’t specified here the assembly is deployed to the default application.*   1. Set the Application Name to **Lab13.** 2. Save**,** and close the property window. |
| 1. Deploy the Management project. | 1. In Solution Explorer, right-click the **Management** project, and then click **Deploy**. 2. Check the Output window to ensure that the deployment was successful, and then close **Visual Studio**. |

Exercise 2  
Create a Receive Port and Receive Location

In this exercise, you will use the BizTalk Server 2016 Administration Console to view the deployed assembly as an application. You will then create the receive port and location that the application will use to receive new customer orders.

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| Tasks | Detailed steps |
| 1. Ensure that the assembly was deployed to the Lab13application. | 1. On the **Start** menu, click **BizTalk Server Administration**. 2. In BizTalk Server 2016 Administration Console, expand **BizTalk Server 2016 Administration > BizTalk Group > Applications >Lab13**. 3. Click on **Resources**. 4. Notice that the **Management** assembly is listed in the right pane. |
| 1. Create a receive port and receive location. | 1. Right-click **Receive Ports**, then point to **New**, and then click **One-way ReceivePort**. 2. In the **Receive Port Properties** window, type **ReceiveCustomerOrders** in the **Name** field. 3. Click on **Receive Locations** in the left pane of the dialog. 4. On the **Receive Locations** page of the **Receive Port Properties** window, click the **New…** button above the Receive Locations box. 5. In the **Receive Location Properties** window, type **ReceiveCustomerOrdersFILE** in the **Name** field. 6. Choose **FILE**on the **Type** list, and then click **Configure**. 7. In the **FILE Transport Properties** dialog box, click **Browse**. 8. In the **Browse For Folder** dialog box, navigate to **C:\Labs\Work\Lab 13\Messages\NewOrdersIN**, and then click **OK**. 9. In the **FILE Transport Properties** dialog box, click **OK**. 10. In the **Receive Location Properties** window, change the **Receive pipeline** to **XMLReceive**, and then click **OK**. 11. In the **Receive Port Properties** window, click **OK**. |

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Exercise 3

ImportPort Bindings from a Binding File

In this exercise, you will create the send port for the application by importing the port information from an existing binding file.The binding file could similarly have been used to create the ReceivePort and location created in the preceding Exercise.

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| Tasks | Detailed steps |
| 1. Examine the binding file for the send port properties. | 1. In Windows Explorer, browse to **C:\Labs\Lab 13\Start\**,and then double-click **Lab13Binding.xml**. 2. If the **Information Bar** (the bar with the yellow icon below the Address bar) pops up with a warning about active content, right-click the **Information Bar**, and then click **Allow Blocked Content**. 3. In the **Security Warning** dialog box, click **Yes**. 4. Notice the **SendPort** node; it contains the name of the send port, the direction (one way or two way), and whether it is static or dynamic. 5. Notice the **TransmitPipeline** node; it contains the information about the pipeline used by the send port. 6. Notice the **PrimaryTransport** node; it contains properties that define transport type used, the address for where the message is to be sent, the ordered delivery option, and others. 7. Close Internet Explorer. |
| 1. Import the SendPort configuration from a binding file. | 1. In BizTalk Server 2016 Administration Console, right-click the **Lab13** application, point to **Import**, and then click **Bindings**. 2. In the **Import Bindings** dialog box, browse to **C:\Labs\Lab 13\Start\**and then double-click **Lab13Binding.xml**. |
| 1. Ensure that the SendPort was imported. | 1. Click **Send Ports** in the left pane of the BizTalk Server 2016 Administration Console. 2. Notice that the **SendCompleteOrder** send port has been added. 3. Double-click **SendCompleteOrder** to access the port’s properties, and on the **General** page, observe that the **URI** is **C:\Labs \Work\Lab 13\Messages\Completed\%MessageID%.xml**. 4. Close the **SendCompleteOrder** properties dialog box. |

Exercise 4  
Configure and Test the BizTalk Application

In this exercise, you will use the BizTalk Server 2016 Administration Console to configure the orchestration bindings and then you will start and test the application.

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| Tasks | Detailed steps |
| 1. Try to start the application. | 1. In the left pane of the BizTalk Server 2016 Administration Console, right-click the **Lab13** application, and then click **Start**.   *An application that isn’t fully configured cannot be started. In this case the orchestration hasn’t been properly configured. Clicking Yes will open the Configure Application window.*   1. In the **Configure Application** dialog box, click **Yes**. |
| 1. Configure the ProcessOrders application.   Notice that the ProcessOrders orchestration has a yellow exclamation icon next to it. This is because the orchestration isn’t fully configured. | 1. In the left pane of the **Configure Application** window, click on **ProcessOrders**. 2. Set the **Host** to **BizTalkServerApplication**. 3. Set the **Receive Port** to **ReceiveCustomerOrders**. 4. Set the **SendPort** to **SendCompleteOrder**.   *Notice that the yellow exclamation has changed to a green check.*   1. Click **OK**. |
| 1. Start the application.   Notice that you can choose to enable the receive locations, and start all the orchestrations, send ports, and host instances associated with this application, or uncheck any one of those and it will not be started/enabled. You also have the option to resume suspended instances. | 1. In the left pane of the BizTalk Server 2016 Administration Console, right-click the **Lab13** application, and then click **Start**. 2. In the **Start ‘Lab13’ Application** dialog box click **Options**. 3. Notice the options you have when starting an application. 4. Click **Start**. |
| 1. Test the application. | 1. In Windows Explorer, navigate to **C:\Labs\Work\Lab 13\Messages**. 2. Double-click **CustomerOrder1.xml**. 3. Notice that the message is in the **CustomerOrder** message format, and then close Internet Explorer. 4. Copy the **CustomerOrder1.xml** message to the **NewOrdersIN** folder. 5. Browse to the **Completed** folder and open the **{GUID}.xml** document. 6. Notice that the message is in the **ProcessOrder** message format, and then close Internet Explorer. 7. Delete all messages in the **Completed** folder. |

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Exercise 5

Export the Application to an MSI Package

An MSI package contains BizTalk artifacts and binding information. MSI packages are an ideal way to move BizTalk applications between servers and environments.

BizTalk Server 2016 enables administrators to use theExport MSI wizard to create packages containing assemblies, BRE policies, IIS Web services, and port bindings, as well as any other resources that you may wish to include. The MSI export wizard is started from the BizTalk Server 2016 Administration Console.

In this exercise, you will export the Lab13 application to an MSI package that can be used to distribute the application to multiple servers.

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| Tasks | Detailed steps |
| 1. Export the application to an MSI package. | 1. In the BizTalk Server 2016 Administration Console, right-click the **Lab13**application, point to **Export**, and then click **MSI file**.   *Notice that in addition to exporting to an MSI file the option to export Bindings is shown as well. This is how the binding file used in the precedingExercise was created.*  *This wizard lets you choose the configuration information for the application being exported.*   1. On the **Welcome** page of the **Export MSI Wizard**, click **Next**.   *This page specifies the resources to be included in the MSI. There is only one assembly deployed right now, but if there were several assemblies in the application each one would be displayed here and could be individually selected or excluded.*   1. On the **Select Resources** page, click **Next**.   *This page allows inclusion of Web Service sites which may be included in the application to be included in the MSI file. Because this application does not have any Web Servicesnothing is displayed.*   1. On the **Specify IIS Hosts** page, click **Next**.   *The Dependencies page identifies anything that the application has a dependency on. Any applications displayed here must to be installed on the target computer before this MSI can be installed.*   1. On the **Dependencies** page, click **Next**.   *The Destination page allows specifyingthe name of the destination application. For example, if an application was being moved from a test environment to a production environment, the name of the BizTalk application may need to change. In addition, toname of the destination application and the locationof the MSI file that is being generated isspecified.*   1. On the **Destination** page,ensure that the **Destination application name** is **Lab13**, then change the **MSI file to generate**to **C:\Labs\Work\Lab 13\Lab13.msi**,and then click **Export**.   *The Summary page lists the prerequisite applications and provides steps to be followed to deploy to the remote sever. The page also includes a link to a log file which you may wish to examine and save.*   1. On the **Summary** page, click **Finish**. |

Exercise 6  
Import the Application from an MSI Package

In this exercise, you simulate a “new” production environment by removing an application after which you will use the BizTalk Server 2016 Administration Console to import the application MSI package to the BizTalk configuration database. You will then run the MSI package to install the assembly and then you will test the application.

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| Tasks | Detailed steps |
| 1. Stop the Lab13 application. | 1. In the left pane of the BizTalk Server 2016 Administration Console, right-click the **Lab13** application, and then click **Stop**. 2. In the **Stop ‘Lab13’ Application** dialog box,click **Full Stop – Terminate instances**, and then click **Stop**. |
| 1. Delete the Lab13Lab13application. | 1. In the left pane of the BizTalk Server 2016 Administration Console, right-click the **Lab13**application, and then click **Delete**.   *This will remove the Application from the configuration database, but the DLL will still be deployed to the Global Assembly Cache (GAC) To completely remove the application and all its artifacts you would need to remove it from the GAC.*   1. On the **Confirm delete application** dialog box, click **Yes**. |
| 1. Import the Lab13 MSI package which will add the application to the BizTalk configuration database. | 1. In the left pane of the BizTalk Server 2016 Administration Console, right-click **Applications**, point to **Import**, and then click **MSI file**. 2. On the **Welcome** page of the **Import MSI Wizard**, type **C:\Labs\Work\Lab 13\Lab13.msi**as the MSI file to import.   *This wizard guides you through the process of importing an application from an MSI.This MSI was created in the previous Exercise.*   1. Click**Next**.   *You can add to an existing application or create a new application.*   1. Click **Next**.   *If you would have had binding files added as resource you would see them here..*   1. Click **Next**. 2. Click **Import**. 3. Select the **Run the Application Installation Wizard to install the application on the local computer** check box, and then click **Finish**.   *At this point the application has been added to the BizTalk configuration database. The MSI must be installed in addition to importing the application to the BizTalk configuration database. In a multi-server environment, this part of the process would need to be performed on each server.* |
| 1. Install the Lab13 MSI package which will copy the files to the local server and register them GAC. | 1. On the **Select Installation Folder** page, click **Next**. 2. Click **Next**. 3. Click **Next**. 4. On the **Lab13 Information** page, click **Next**. 5. Click **Close**. |
| 1. Start the Lab13 application. | 1. In the left pane of the BizTalk Server 2016 Administration Console, right-click the **Lab13** application, and then click **Start**. 2. In the **Start ‘Lab13’ Application** dialog box, click **Start**. |
| 1. Test the Lab13 application. | 1. In Windows Explorer, browse to **C:\Labs\Work\Lab 13\Messages**. 2. Copy **CustomerOrder1.xml** to the **NewOrdersIN** folder. 3. Browse to the **Completed** folder and notice message that appears.   *It may take a few seconds for the message to be processed****.*** |

Exercise 7

Use the Group Hub Page to Fix an Invalid Message

The Group Hub page is a feature in BizTalk Server 2016 thatprovides a centralized view of running and suspended services. This functionality was hosted in the Health and Activity Tracking tool previously but has been moved to the Group Hub page withinthe BizTalk Server 2016 Administration Console.

In this exercise you will use the group hub page to view a suspended service instance, and view the message body. You will then save the invalid message, edit it and resubmit it for processing. Then you will terminate the suspended service instance.

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| Tasks | Detailed steps |
| 1. Submit a message that contains bad data.   The message cannot be displayed in Internet Explorer because it is not well-formed XML. | 1. In Windows Explorer, browse to **C:\Labs\Work\Lab 13\Messages**. 2. Double-click **CustomerOrder3.xml** and notice that the message will not display in Internet Explorer. 3. Close Internet Explorer. 4. Open the message in Notepad and notice the **{BAD DATA}** in the Title element. 5. Copy **CustomerOrder3.xml** to the **NewOrdersIN** folder. 6. Browse to the **Completed** folder.   *The order does not successfully process, and does not appear in the Completed folder.* |
| 1. Use event viewer to help determine what happened to the message.   The error tells us that the message was received but could not be processed and has been suspended. | 1. In the **BizTalk Server 2016 Administration Console** expand, **Event Viewer**, and then click **Application**. 2. Notice the **BizTalk Server 2016** errors. 3. Double-click the error with the Event ID of **5753**. 4. Notice the first paragraph of the **Description**, it reads: *A message received by adapter "FILE" on receive location "ReceiveCustomerOrder" with URI "*C:\Labs\Work\Lab 13\*Messages\NewOrdersIN\\*.xml" is suspended.* 5. Close the **Event Properties** dialog box. |
| 1. Use the Group Hub page to view that suspended service instance and save the bad message so it can be edited.   This is the Group Hub page. It is used to diagnose and troubleshoot errors. Itdisplays information about running, suspended or tracked service instances. | 1. In the left pane of the BizTalk Server 2016 Administration Console, click on **BizTalk Group**, and then press the **F5**key to refresh.   *When working in a virtual machine, F5 may sometimes not work. In this case, right click the BizTalk Group node in the treeview and select Refresh.*   1. Under Suspended Items, click **Suspended service instances** link.   *The Suspended tab of the Group Hub page has three sections: Query Expression, Query results, and Preview for a selected result(s).*     1. Right-click the **ReceiveCustomerOrder** service instance in the **Preview for a selected result** section, and then click **Service Details**. 2. In the **Service Details** window, click the **Messages** tab. 3. Right-click the message in the **Messages referenced by the service instance** section, and select**Message Detail**s from the context menu. 4. Notice the information displayed on the **General** page of the **Message Details** window includes Message ID, Service Name, URI, and Service Instance ID. All this information can be helpful in troubleshooting an issue. 5. In the left pane of the Message Details window, click **Context**. The Context page displays the messaging engine properties, and the promotion type. 6. In the left pane of the Message Details window, click **body**. 7. Notice **\*\*{BADDATA}\*\*** in the <Title> tag of the message.      1. From the **File** menu of the Message Details window, click **Save Message**. 2. In the **BizTalk Server 2016 Administration Console** dialog box, click **OK**. 3. In the **Browse for Folder** dialog box, browse to **C:\Labs\Work\Lab 13\Messages**, and then click **OK**. 4. In the **BizTalk Server 2016 Administration Console** dialog box, click **OK**. 5. Close the Message Details window. |
| 1. Remove the invalid data from the message and resubmit the message for processing. | 1. In Windows Explorer, navigate to **C:\Labs\Work\Lab 13\Messages**. 2. Open the**{GUID}\_{GUID}\_body.out** file with Notepad   *The other message contains all of the context properties related to the message which has been saved. Notice that the first {GUID} value of the two messages is the same which is the message id generated by BizTalk.*   1. Remove the **\*\*{BADDATA}\*\*** from the **<Title>** tag so that the line looks like this: **<Title>Mrs.</Title>** 2. From the **File** menu, click **Save As**. 3. In the **Save As** dialog box type **“CustomerOrder3Fixed.xml”** as the File name (include quotes), and then click **Save**.   *By typing the name in quotes it will prevent Notepad from appending the .txt extension.*   1. CloseNotepad. 2. In Windows Explorer, copy **CustomerOrder3Fixed.xml** to the **NewOrdersIN** folder. 3. Navigate to the **Completed** folder, and notice that the fixed message is processed. |
| 1. Terminate the suspended service instance. | 1. In the BizTalk Server 2016 Administration Console, close the **Service Details** dialog box. 2. In the Query results section of the Group Hub page, right-click the **Suspended (resumable)** service instance, and then click **Terminate Instance**. 3. In the **Confirm Terminate Operation**dialog box, click **Yes**. 4. In the **Bulk Operation Progress** dialog box, click **Close**. 5. In the Query Expression section of the Group Hub page, click **Run Query**. 6. Notice that the suspended service instance no longer exists. |
| 1. Delete the application | 1. In BizTalk Server 2016 Administration Console, right click on the **Lab13** application and select **Stop**. 2. If the **Options** tab isn’t visible – click on the options button to expand the Stop Options tab. 3. Select the **Full Stop – Terminate Instances** radio button 4. Click **Stop**. 5. After the stopping progress is complete, right-click on the **Lab13** application again and select **Delete**. 6. Expand **Platform Settings > Host Instances** in the tree view, and select **BizTalkServerApplication** in the right-hand pane. Right-click and select **Restart**. |