CHAPTER 1

Recent Developments

The two latest releases of BizTalk (2010 and 2013) provide a number of new features that will aid developers and increase the ability of the platform to support solutions built on it.

New Functionalty in BizTalk 2013

BizTalk 2013 introduces a number of new adapters, but the main focus of this release is on cloud-based technologies and functionality. Recipes 1-1 through 1-16 outline several aspects to this functionality, while Chapter 6 has coverage for many of the new adapters and Chapter 12 focuses entirely on cloud-based concepts. The following bullets list some of the key areas of functionality:

- Updates for HL7, SWIFT, X12, and EDIFACT. These schemas and processes are updated to support the latest requirements for the various standards. Chapter 8 demonstrates how to work with X12 EDI.
- View artifact dependencies (see Recipe 1-12).
- New adapters (SFTP, SharePoint, REST support, LOB, etc.). There is coverage of numerous adapters in Chapter 6.
- Simplified setup of ESB (see Recipe 1-11).
- Host handler association of dynamic send ports. See Chapter 10 for a recipe associated with administration.
- XslCompiledTransform maps (see Recipe 1-14).
- Building hybrid on-premise and cloud-based applications, connecting to Azure Service Bus and Azure Storage, Access Control Service, paying for use and other cloud-based solutions are covered in Chapter 12.
- Hosting BizTalk rapidly in the cloud (see Recipe 1-15).

New Functionalty in BizTalk 2010

The primary updates in BizTalk 2010, which are all still available in BizTalk 2013, centered around the BizTalk mapper user interface and EDI trading partner configuration and management. Additional updates included improvements to administrative functionality and the consolidation of tools within the BizTalk Admin Console. Recipes 1-1 through 1-10 are meant to introduce this new functionality, while Chapter 8 focuses entirely on the EDI components.

The most obvious piece of new functionality for all BizTalk developers was the mapper interface. A new toolbar offers a number of features allowing for better navigation, smarter linking, and an overall better user experience. Figure 1-1 shows this new toolbar.

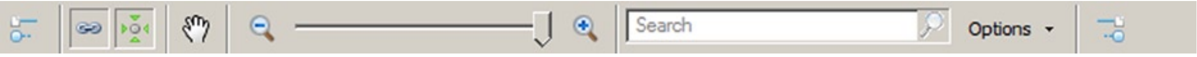


Figure 1-1. *The BizTalk 2010 mapper toolbar*

The most innovative piece of new functionality released was the EDI Trading Partner management interface. The entire engine was revamped, and what was impossible before became possible. Exchanging documents among multiple business divisions and multiple partners with different envelope and document configurations and tracking settings became a snap. Developers of EDI solutions found this functionality refreshing and much needed.

Almost as important as asking "What's new?" is considering "What's gone?" Several core pieces of functionality were removed in BizTalk 2010. The most notable was the Health and Activity Tracking (HAT) application and the ability to do administration of ports and orchestrations directly from Visual Studio using BizTalk Explorer. These were both central to a developer's everyday use of BizTalk, and in many respects, it is unfortunate that these tools are gone. Everything is now centralized in the BizTalk Administration Console, and most of the functionality of HAT and BizTalk Explorer became available in that console.

1-1. Using the Relevance Tree View

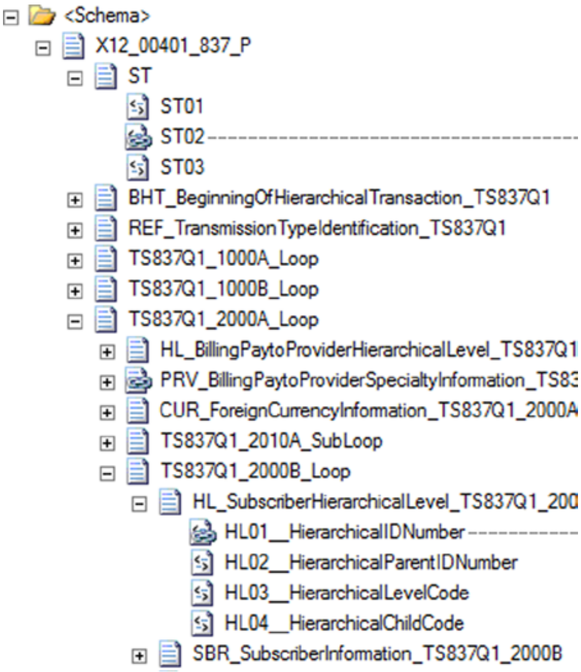
Problem

You have complex schemas in your map, and you are having difficulty seeing what nodes are being used.

Solution

By using the relevance tree view, only the nodes that are actually being used in mapping the active tab will be shown. Use the following steps to work with this functionality:

1. Open an existing map in Visual Studio. By default, the full tree view will be shown. Dotted lines show that some child node is being mapped, but the schema would have to be manually expanded to see what specific node it is. An example of this is shown in Figure 1-2.



```
⊟ <Schema>
    ⊟ X12_00401_837_P
        ⊟ ST
            ST01
            ST02
            ST03
        ⊞ BHT_BeginningOfHierarchicalTransaction_TS837Q1
        ⊞ REF_TransmissionTypeIdentification_TS837Q1
        ⊞ TS837Q1_1000A_Loop
        ⊞ TS837Q1_1000B_Loop
        ⊟ TS837Q1_2000A_Loop
            ⊞ HL_BillingPaytoProviderHierarchicalLevel_TS837Q1
            ⊞ PRV_BillingPaytoProviderSpecialtyInformation_TS83
            ⊞ CUR_ForeignCurrencyInformation_TS837Q1_2000A
            ⊞ TS837Q1_2010A_SubLoop
            ⊟ TS837Q1_2000B_Loop
                ⊟ HL_SubscriberHierarchicalLevel_TS837Q1_200
                    HL01__HierarchicalIDNumber
                    HL02__HierarchicalParentIDNumber
                    HL03__HierarchicalLevelCode
                    HL04__HierarchicalChildCode
                ⊞ SBR_SubscriberInformation_TS837Q1_2000B
```

Figure 1-2. *Default full tree view*

2. Click the first button on the mapping toolbar to show the relevant links for the source schema, or click the last button to show them for the target schema. Clicking this button causes only the mapped nodes to be displayed, as shown in Figure 1-3.

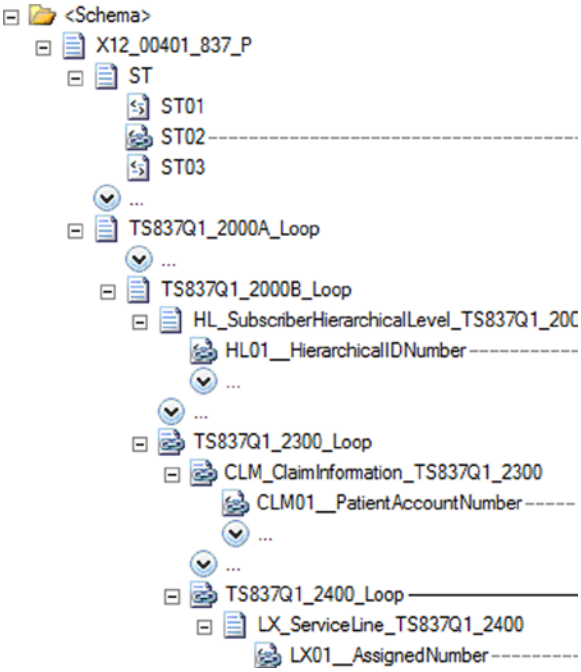

<Schema>
X12_00401_837_P
ST
ST01
ST02
ST03
...
TS837Q1_2000A_Loop
...
TS837Q1_2000B_Loop
HL_SubscriberHierarchicalLevel_TS837Q1_200
HL01__HierarchicalIDNumber
...
...
TS837Q1_2300_Loop
CLM_ClaimInformation_TS837Q1_2300
CLM01__PatientAccountNumber
...
...
TS837Q1_2400_Loop
LX_ServiceLine_TS837Q1_2400
LX01__AssignedNumber

Figure 1-3. *Showing only the nodes that are being mapped*

3. Click the button again to return to the full tree view.

How It Works

Showing only the nodes that are actually being mapped can save a lot of time on schemas that have more than a few nodes. Developers of EDI maps will find these particularly helpful, since there can be hundreds or thousands of nodes and elements in a schema. Having to manually sort through all of the nodes can be confusing and time consuming.

There also exists the ability to show only links that are relevant. The mapping surface can become crowded with all of the links, and it can help to turn off any that are not pertinent to the current mapping taking place. The relevant links can be turned on and off by clicking the second button that appears on the mapping toolbar. An example of a map with all of the links turned on is shown in Figure 1-4, while the same map with only the relevant links showing appears in Figure 1-5.

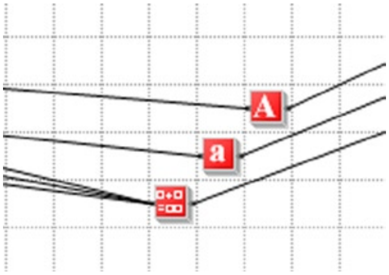


Figure 1-4. *Showing all links*

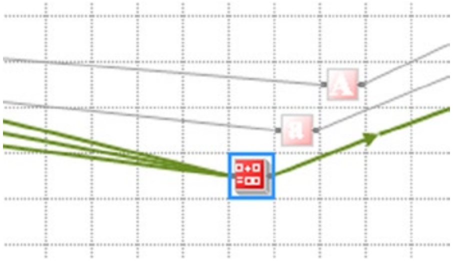


Figure 1-5. Showing only relevant links

1-2. Navigating the Mapping Surface

Problem

You want to be able to access elements of the mapping surface as rapidly as possible and need to understand how to use the new functionality.

Solution

There are a number of new tools that can be used to move and view the mapping surface. These include

- Panning
- Zooming
- Searching
- Grid preview

This solution walks through the use of each of them.

1. Open an existing map in Visual Studio.
2. To pan a map from top to bottom or left to right, click the hand button on the mapping toolbar, which is shown in Figure 1-6. You can now drag the mapping surface in any direction needed.

Figure 1-6. The pan button

3. To zoom in and out on the map, use the zoom functionality on the mapper toolbar. Zooming out can give you perspective on where your functoids are and allow you to easily locate and modify mappings. If you zoom in and the functoids loose focus, you will notice flashing blue arrows to guide you to where the components are (see Figure 1-7).

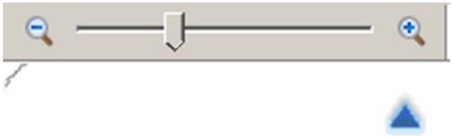


Figure 1-7. Arrow indicating where functoids are after zooming in

4. To find a specific value or word in a schema or a functoid, you can use the search functionality (see Figure 1-8). You can search on name, label, comments, inputs, and scripts in functoids. Searching on a value will highlight all of the results; you can use the up and down arrows to navigate through the results (see Figure 1-9).

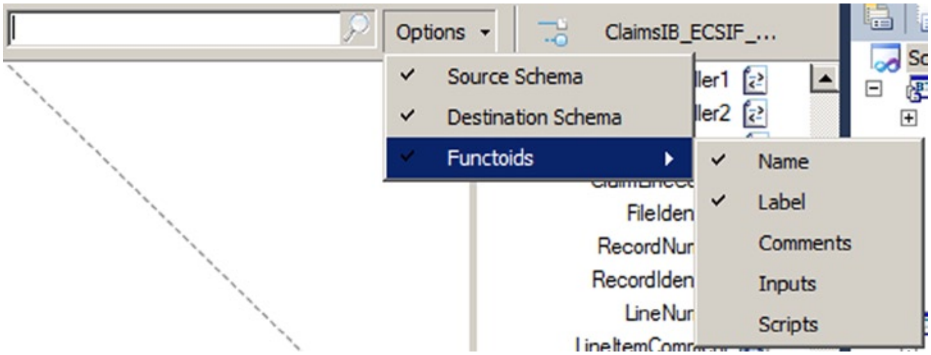


Figure 1-8. Searching for a value in a functoid

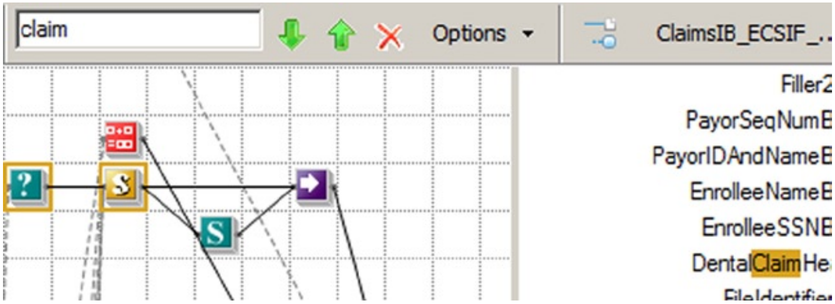


Figure 1-9. Search results are highlighted

5. To use the grid preview functionality, right-click the mapping surface, and select Grid Preview. This will pop up a window that shows a box and all of the functoids (see Figure 1-10). You can drag and drop the box over the area of the map you want to scroll to, and the map will automatically move.

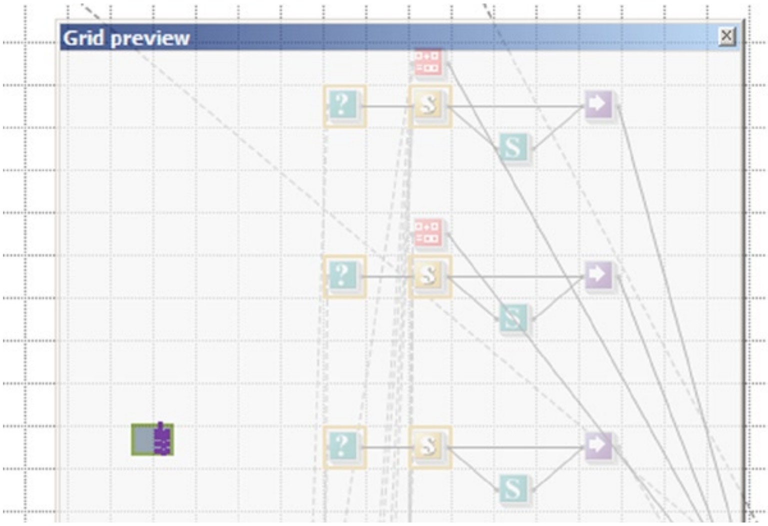


Figure 1-10. *Using the grid preview functionality*

How It Works

There are a variety of ways to move around a map now. Prior to BizTalk 2010, the mapping interface was pretty rudimentary and didn't provide a lot of options. Based on feedback from developers, the mapper user interface has been greatly improved.

■ **Note** Make sure to comment your functoids so that you can use the search functionality to more easily find them. If you've got more than a handful of advanced scripting functoids, for example, you will find that by adding comments you will save a lot of time trying to figure out which ones contain the methods you are looking for.

1-3. Correcting Errors in Functoids

Problem

You have some complex mappings using various functoids, and you want to make sure you don't have any obvious errors.

Solution

The new mapper brings intelligence to the functoids, showing errors prior to the testing of a map. This allows you to rapidly assess where incomplete mappings exist and eases development by indicating possible fixes to the errors. To see how this is done, follow these steps:

1. Open an existing map in Visual Studio.
2. Drop a functoid onto the mapping surface.

3. An exclamation mark will be on top of the functoid, indicating that an error exists. Roll your mouse cursor over the top of the functoid to see the details of the error (as shown in Figure 1-11).

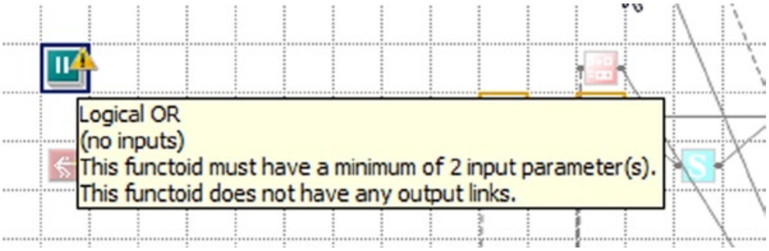
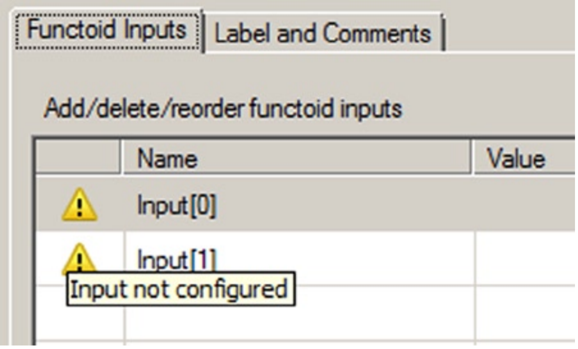

Logical OR
(no inputs)
This functoid must have a minimum of 2 input parameter(s).
This functoid does not have any output links.

Figure 1-11. *Functoid error information*

How It Works

There are a number of upgrades to the coding of maps in addition to the quick overview of the error as shown in the solution to this recipe. Another valuable update is that the functoid interface actually forces the selection of required inputs (see Figure 1-12). For example, if there are two inputs required, they will appear in the functoid configuration window, and the functoid will continue to show an error until these are configured. You can scroll over the warning icons for each input to see the exception message.



Add/delete/reorder functoid inputs

	Name	Value
⚠	Input[0]	
⚠	Input[1]	

Input not configured

Figure 1-12. *Configuring the required inputs to the functoid*

1-4. Indicating Matches in Maps

Problem

You want some help mapping the source schema nodes to the target schema nodes.

Solution

There is now some intelligence built into the mapper that aids in mapping source nodes to target nodes. A developer can request that all nodes in the target schema that appear to be matches be highlighted. This can be done using the following steps:

1. Open an existing map in Visual Studio.
2. Right-click a node in the source schema and select Indicate Matches.
3. One or more links should appear with suggested matches (see Figure 1-13). Clicking a link will cause the link to be made permanent in the map.

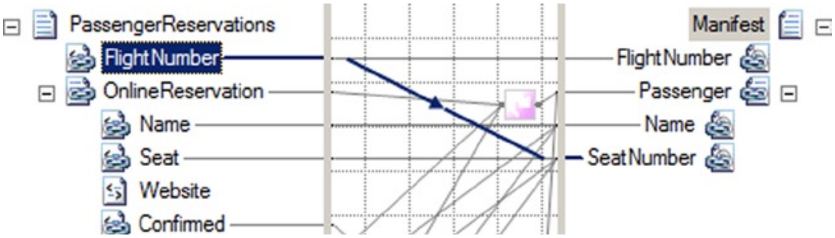


Figure 1-13. *A suggested match*

■ **Note** Not all recommendations by the mapper are accurate! There is no requirement to use this feature.

How It Works

The mapper tries to find a match based largely on name, though it also looks at the structure of nodes in the source and target schemas. A related piece of new functionality allows for the auto-linking based on name or structure of the source nodes. This functionality appears when you drag a source schema record (not an element or attribute, but the record itself) and drop it on a target schema record. When the link is dropped, a context menu appears (as shown in Figure 1-14).

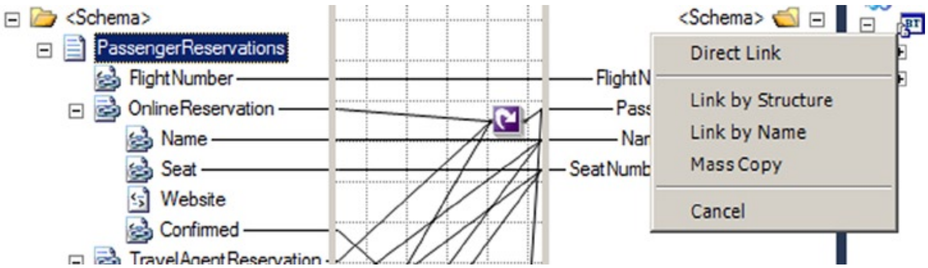


Figure 1-14. *Linking by structure or name*

1-5. Configuring Core Server Settings

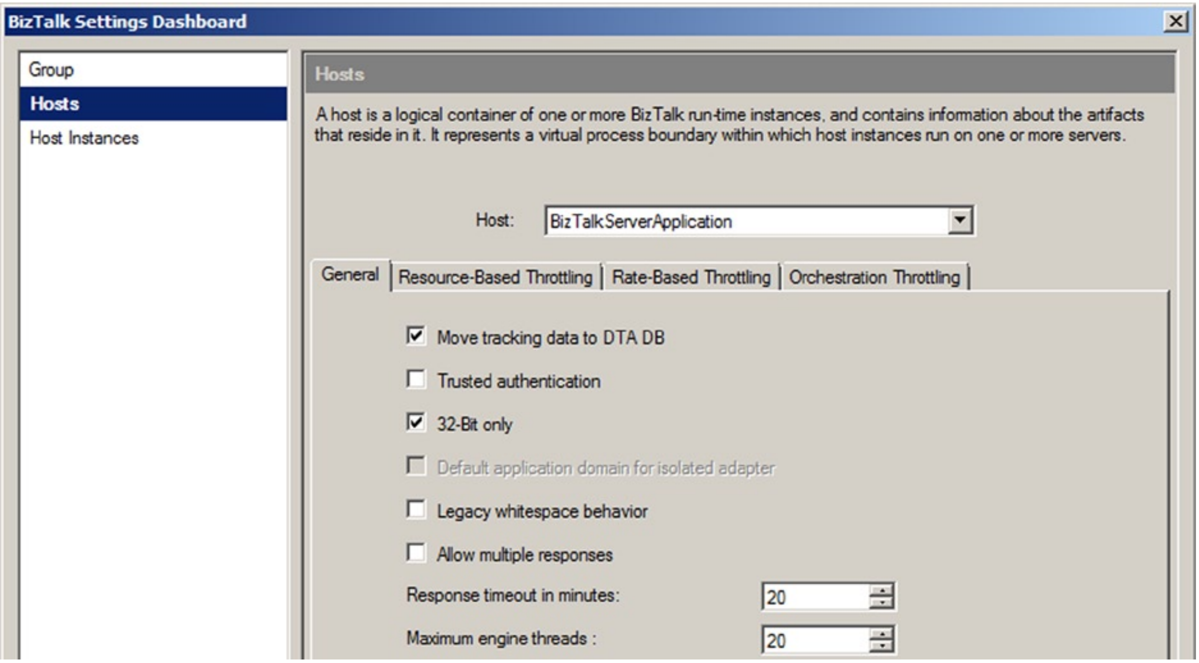
Problem

You want to set throttles, thresholds, tracking, polling intervals, and other systemwide settings that will be used to optimize and control processes running within BizTalk.

Solution

Prior to BizTalk 2010, configuring core settings was done through a variety of methods, including manually setting registry keys. Now, the BizTalk Settings Dashboard has been introduced. To access this dashboard, take the following steps:

1. Open the BizTalk Administration Console.
2. Right-click the BizTalk Server Group, and select Settings. In the BizTalk Settings Dashboard that opens, you will notice a variety of properties that can be set (see Figure 1-15).



A host is a logical container of one or more BizTalk run-time instances, and contains information about the artifacts that reside in it. It represents a virtual process boundary within which host instances run on one or more servers.

Host: BizTalkServerApplication

☑ Move tracking data to DTA DB

□ Trusted authentication

☑ 32-Bit only

□ Default application domain for isolated adapter

□ Legacy whitespace behavior

□ Allow multiple responses

Response timeout in minutes: 20

Maximum engine threads : 20

Figure 1-15. *The BizTalk Settings Dashboard*

How It Works

A great deal of performance tuning is available through the use of the BizTalk Settings Dashboard. It centralizes all of the throttles, timeouts, thread handling, and other functionality that used to be manually configured. Take a look at the different properties available prior to deployment and become familiar with the settings in order to better support your BizTalk environment.

1-6. Transfering Files Using SFTP

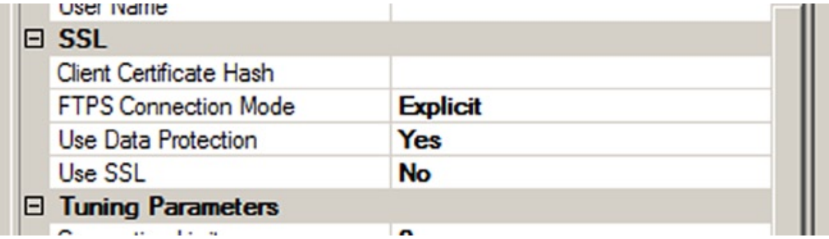
Problem

You need to use the BizTalk FTP adapter to transfer files using SFTP.

Solution

In previous versions of BizTalk Server, the FTP adapter did not support SFTP transactions. Now, support for SFTP is built into the standard adapter and can be easily configured using these steps:

1. Open the BizTalk Administration Console, and right-click the Send Ports folder under a BizTalk application.
2. Select New Static One-way Receive Port.
3. On the General tab, select FTP for the Type property. Once selected, click the Configure button.
4. There is a new section in the FTP Transport Properties configuration window called SSL (see Figure 1-16), which allows for the specification of the client certificate hash (among other things). Set the properties for the Firewall, FTP, and SSL Sections as needed, and save the settings.



User Name	
⊟ **SSL**	
Client Certificate Hash	
FTPS Connection Mode	**Explicit**
Use Data Protection	**Yes**
Use SSL	**No**
⊟ **Tuning Parameters**	

Figure 1-16. *Configuring the SSL settings for SFTP*

How It Works

In addition to supporting SFTP, the FTP Adapter has some additional feature updates. These include support for the following:

- *Downloading files from read-only FTP sites*: In previous versions, when BizTalk retrieved a file from an FTP site, it would automatically delete the file. This prevented the FTP adapter from being used successfully with read-only FTP sites.
- *Atomic ASCII-based file transfers*: Previous versions only supported binary atomic transactions.

1-7. Accessing the EDI Version 5010 HIPAA Schemas

Problem

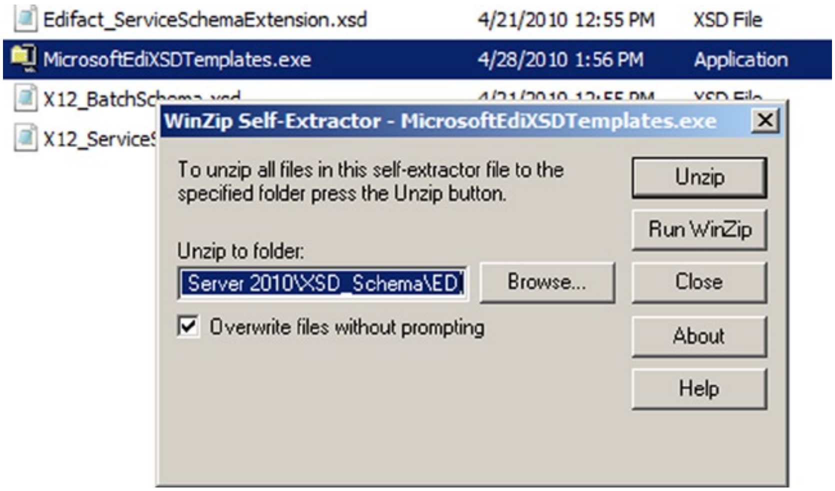
You are building an EDI (Electronic Document Interchange) solution that requires the use of 5010 HIPAA-compliant schemas.

Solution

BizTalk ships with thousands of precreated schemas that support the various EDI documents. Shipping with BizTalk 2010 are a number of HIPAA 5010-compliant schemas. These schemas can be accessed using the following steps:

1. Using Windows Explorer, browse to `$\Program Files\Microsoft BizTalk Server 2010\XSD_Schema\EDI`.

2. Double-click the `MicrosoftEdiXSDTemplates.exe` file to extract all of the schemas (see Figure 1-17).



Edifact_ServiceSchemaExtension.xsd	4/21/2010 12:55 PM	XSD File
MicrosoftEdiXSDTemplates.exe	4/28/2010 1:56 PM	Application
X12_BatchSchema.xsd	4/21/2010 12:55 PM	XSD File
X12_Service		

WinZip Self-Extractor - MicrosoftEdiXSDTemplates.exe

To unzip all files in this self-extractor file to the specified folder press the Unzip button.

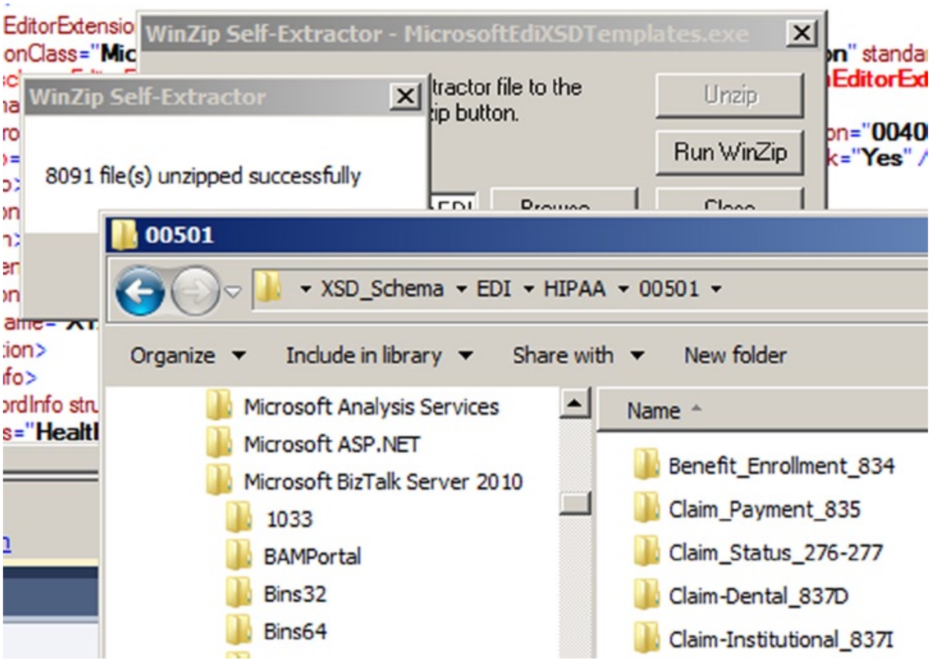
Unzip to folder: Server 2010\XSD_Schema\ED

☑ Overwrite files without prompting

***Figure 1-17.** Extracting the EDI schemas*

■ **Note** It can take a substantial amount of time to extract all of the schemas.

3. The 5010 documents will be available in the `HIPAA\00501` subfolder (see Figure 1-18).

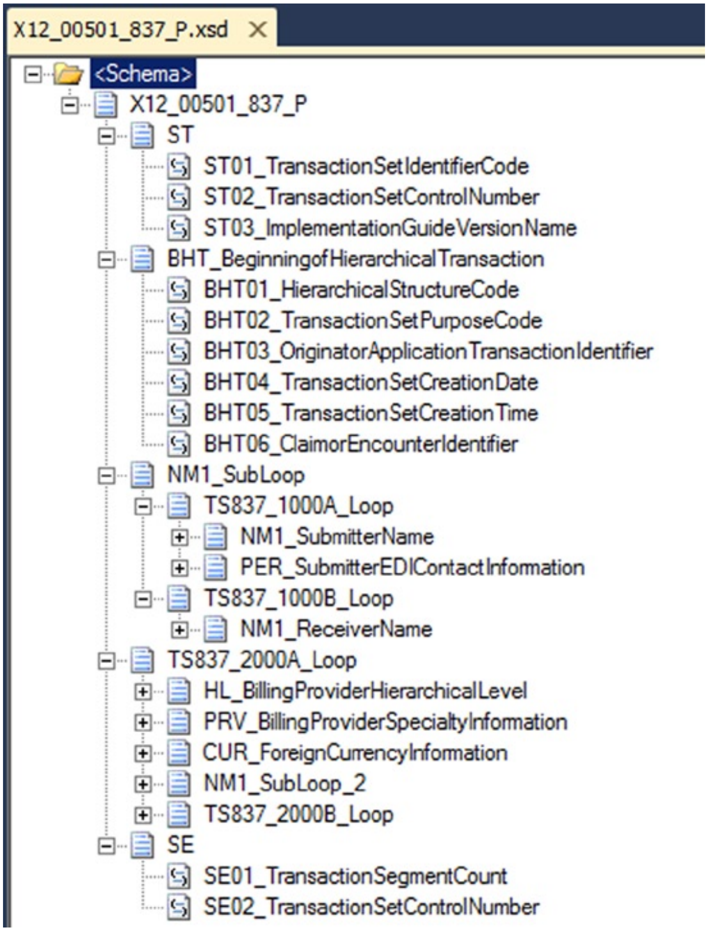


8091 file(s) unzipped successfully

Figure 1-18. *The extracted 5010 schemas*

How It Works

EDI schemas are identical to other BizTalk schemas and can be added to any Visual Studio solution. Generally speaking, they are more complex in structure and contain many more nodes and elements than other BizTalk schemas. An example of a 5010 HIPAA Schema in Visual Studio is shown in Figure 1-19. There are continual updates to EDI schemas. The HIPAA 5010 schemas are primarily related to health care, so given the volatility of health care laws today, it is very likely that there will continue to be other versions of these (and other) schemas.



```
X12_00501_837_P.xsd
<Schema>
  X12_00501_837_P
    ST
      ST01_TransactionSetIdentifierCode
      ST02_TransactionSetControlNumber
      ST03_ImplementationGuideVersionName
    BHT_BeginningofHierarchicalTransaction
      BHT01_HierarchicalStructureCode
      BHT02_TransactionSetPurposeCode
      BHT03_OriginatorApplicationTransactionIdentifier
      BHT04_TransactionSetCreationDate
      BHT05_TransactionSetCreationTime
      BHT06_ClaimorEncounterIdentifier
    NM1_SubLoop
      TS837_1000A_Loop
        NM1_SubmitterName
        PER_SubmitterEDIContactInformation
      TS837_1000B_Loop
        NM1_ReceiverName
    TS837_2000A_Loop
      HL_BillingProviderHierarchicalLevel
      PRV_BillingProviderSpecialtyInformation
      CUR_ForeignCurrencyInformation
      NM1_SubLoop_2
      TS837_2000B_Loop
    SE
      SE01_TransactionSegmentCount
      SE02_TransactionSetControlNumber
```

Figure 1-19. *The HIPAA compliant 837P 5010 schema in Visual Studio*

1-8. Configuring EDI Trading Partners

Problem

You are developing an EDI solition, and you need to configure a new trading partner.

Solution

Trading partner management is the most significant new functionality presented in BizTalk Server 2010. The new mapper has some nice features, but it doesn't bring new functionality to the product. The trading partner configuration, on the other hand, allows for the development of EDI solutions that could not be done before. This solution outlines how to create a trading partner in BizTalk Server.

■ **Note** An entire chapter in this book (Chapter 8) is dedicated to EDI solutions and the configuration of trading partners. This recipe introduces the most basic aspect of this new functionality.

1. Open the BizTalk Administration Console, and click `Parties` (see Figure 1-20).

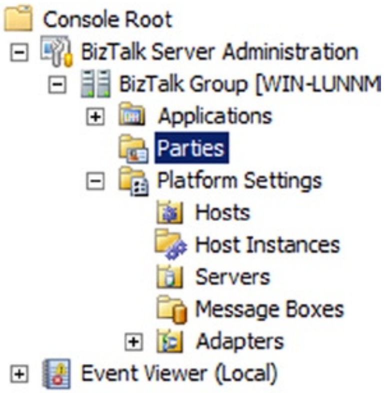
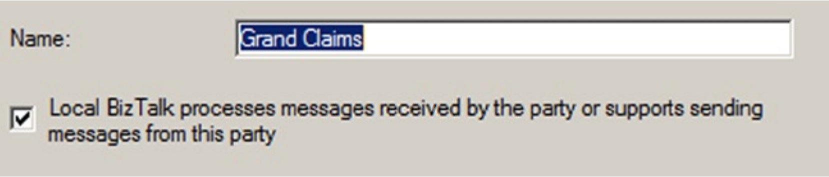

Console Root
BizTalk Server Administration
BizTalk Group [WIN-LUNNM
Applications
Parties
Platform Settings
Hosts
Host Instances
Servers
Message Boxes
Adapters
Event Viewer (Local)

Figure 1-20. *The Parties folder in BizTalk*

2. Right-click any area in the Parties and Business Profiles area and select New ➤ Party.
3. In the Party Properties dialogue box, give the party an appropriate name. This should be the name of the trading partner you will be exchanging documents with.
4. Enable the option for the Local BizTalk processing (see Figure 1-21). This setting is used to indicate that BizTalk Server will be used to process messages to or from the party (rather than being the default party itself).


Name: Grand Claims

☑ Local BizTalk processes messages received by the party or supports sending messages from this party

Figure 1-21. *Configuring the base party object*

5. Click the “Send ports” tab. This is where ports are associated with a party, and it is used in instances where all outbound EDI documents on this port should have envelope information configured as specified in the EDI properties of the party being configured. Add any relevant send ports, and click OK.

Now that the party object has been created, a new business profile must be created. A business profile contains all of the EDI configurations for a given business of a trading partner. For example, a trading partner may be a single company with multiple departments or divisions. Each department has its own integrations with internal and external vendors, and each uses its own X12 or EDIFACT settings. One business profile for each department must be created in order to ensure that the envelopes on the EDI documents being exchanged are set properly, and that all other EDI specific configurations are accurate for that department.

6. Right-click the party that was created, and select New ➤ Business Profile (see Figure 1-22).

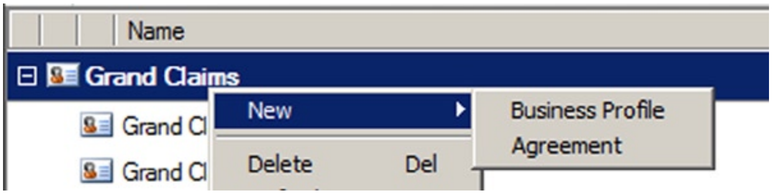
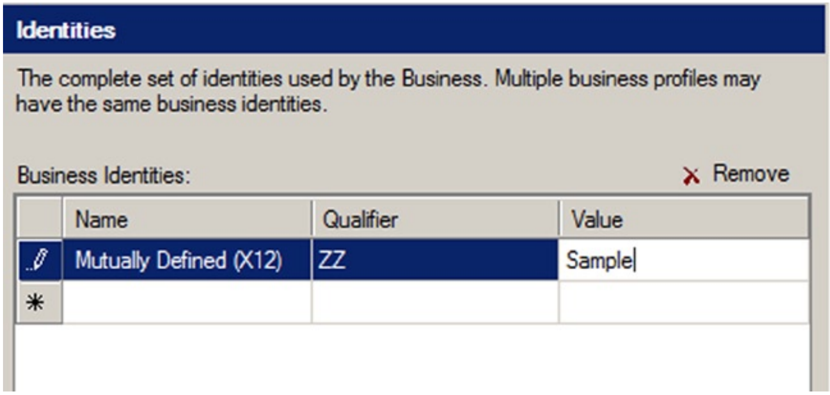


Figure 1-22. *Creating a business profile on a party*

7. Give the business profile a name representative of the business unit or department being set up. In many cases, a party will only have a single business profile.

8. On the identities screen, set the trading partner ID(s) and qualifier(s) (see Figure 1-23). These values are given to you directly by the trading partner, and are the way trading partners are uniquely identified.


Identities

The complete set of identities used by the Business. Multiple business profiles may have the same business identities.

Business Identities:

	Name	Qualifier	Value
	Mutually Defined (X12)	ZZ	Sample
*			

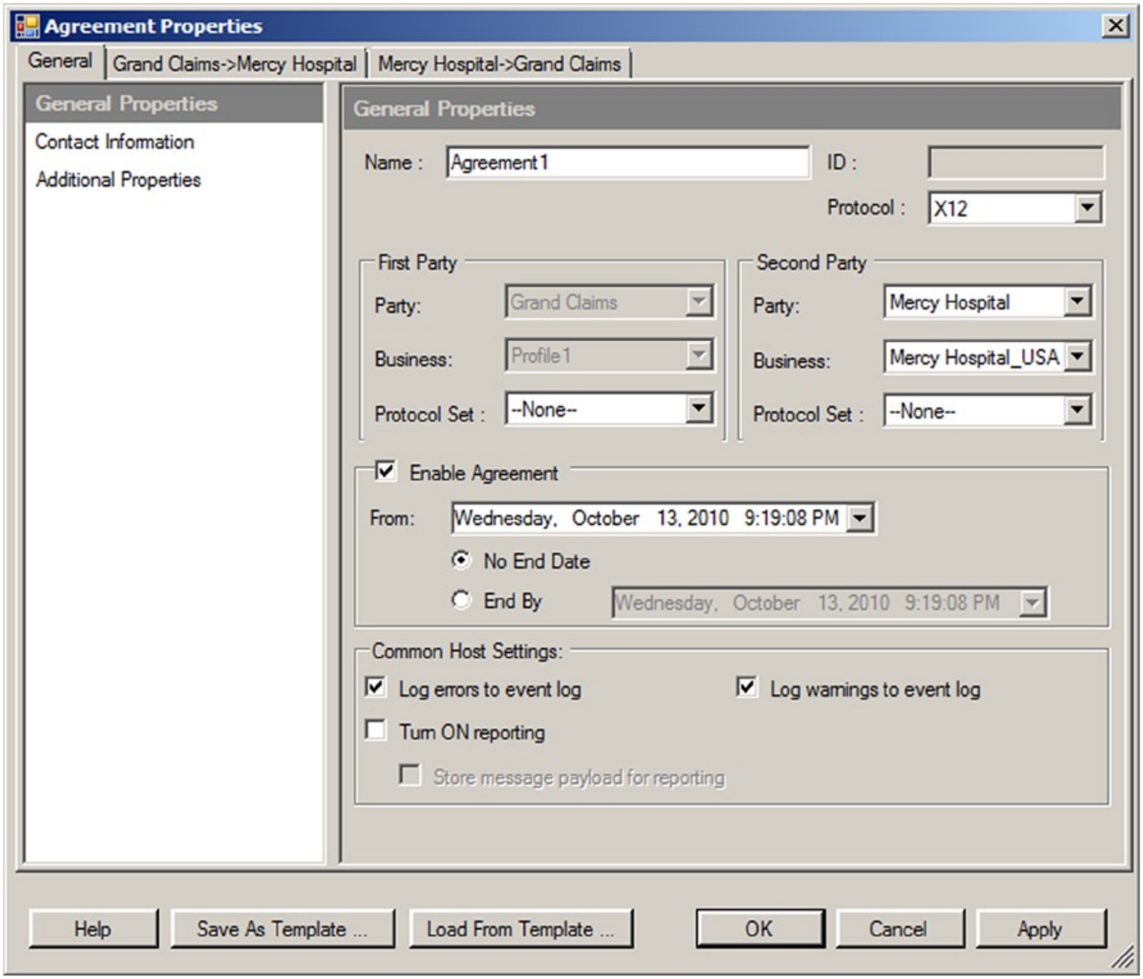
Figure 1-23. *Setting the Business Profile's identities*

9. Once the business profile is fully configured, click OK.

With the business profile and core party configured, an agreement can be made. However, to create an agreement, you must have two parties configured. One party represents the recipient, and one is the sender. In many cases, BizTalk is going to be one of the parties. However, in the cases where BizTalk is acting as a value added network (VAN)—essentially, as a router of documents between parties—there may be many parties sending and receiving documents to many other parties. All of the configurations representing document communication between parties are known as agreements.

10. To create an agreement, right-click the business profile, and select New ➤ Agreement.

11. Initially, there will be only a single tab to configure. You must specify the party being interacted with and the protocol being used. To do so, set the Protocol property to (for example) X12, and the Party and Business properties to an available party. Once these have been set, two new tabs will appear (see Figure 1-24). These tabs are where all of the EDI specific information is configured for the given agreement.



Name : Agreement1

ID :

Protocol : X12

First Party

Party: Grand Claims

Business: Profile1

Protocol Set : --None--

Second Party

Party: Mercy Hospital

Business: Mercy Hospital_USA

Protocol Set : --None--

☑ Enable Agreement

From: Wednesday, October 13, 2010 9:19:08 PM

● No End Date

○ End By Wednesday, October 13, 2010 9:19:08 PM

Common Host Settings:

☑ Log errors to event log

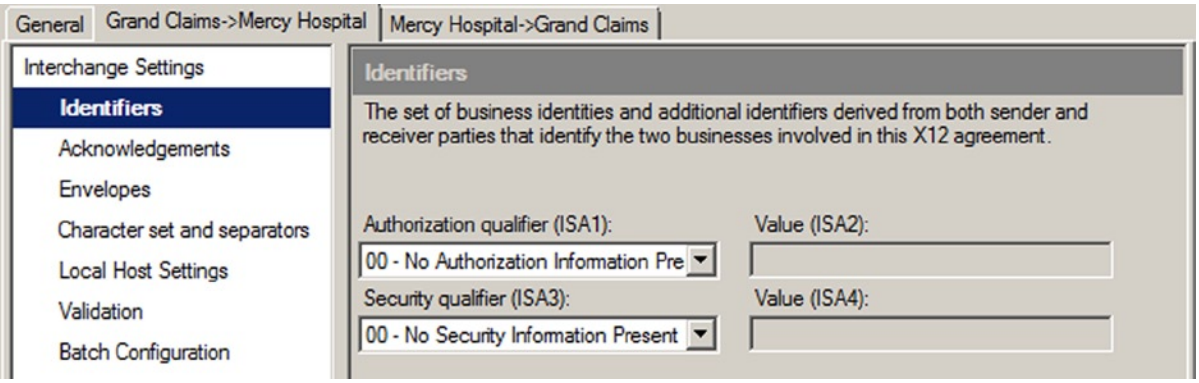
☑ Log warnings to event log

☐ Turn ON reporting

☐ Store message payload for reporting

***Figure 1-24.** Setting the general properties of the Agreement*

12. Click each of the tabs to set the EDI-specific values based on the trading partner configuration specifications. An example of the Identifiers screen is shown in Figure 1-25. Once you are finished, click OK to save the trading partner configuration.



Identifiers

The set of business identities and additional identifiers derived from both sender and receiver parties that identify the two businesses involved in this X12 agreement.

Authorization qualifier (ISA1): 00 - No Authorization Information Pre

Value (ISA2):

Security qualifier (ISA3): 00 - No Security Information Present

Value (ISA4):

Figure 1-25. *Setting values within the agreement*

How It Works

This recipe outlined how to configure the different components that make up a trading partner, but without the full story, understanding all of the settings is difficult. Chapter 8 of this book covers a number of aspects of configuring EDI solutions, and much of it deals with trading partner configurations. Make sure to read through the appropriate sections to understand how parties, business profiles, agreements, and other components all tie together.

1-9. Zooming Out on an Orchestration

Problem

You need to be able to zoom out on an orchestration to see more of the design surface.

Solution

Right-click the design surface of an orchestration and select the Zoom option. Different levels of zooming are available, as shown in Figure 1-26.

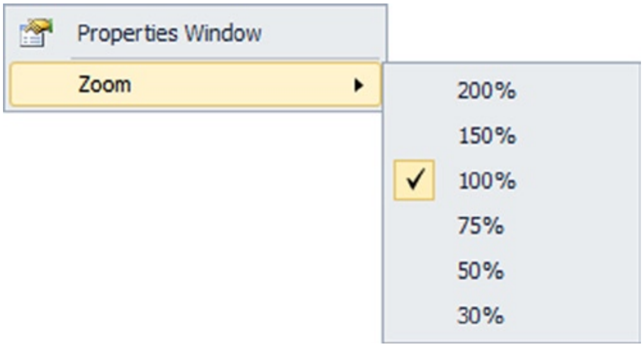


Figure 1-26. *Zooming options on an orchestration*

How It Works

It is very simple to zoom in and out on an orchestration, but the value and benefits are great. For large orchestrations, it is invaluable to be able to get a bird's eye view of the full flow. In previous versions of BizTalk Server, no zooming was available, which was a hinderance to development and code reviews.

■ **Note** You can get more granular levels of zooming by holding the Ctrl key and using the wheel on your mouse to zoom in and out on the orchestation.

1-10. Installing BizTalk Server RFID 2010

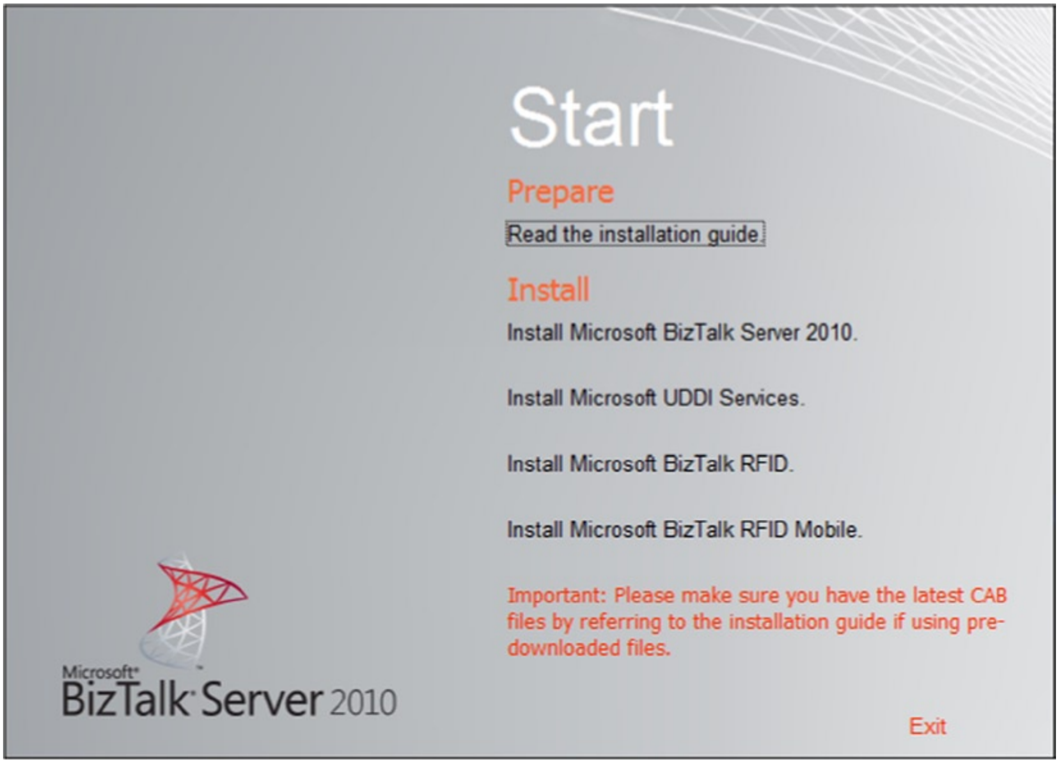
Problem

You want to insall BizTalk Server RFID (Radio-Frequency Identification) on the same server as BizTalk Server 2010.

Solution

BizTalk Server RFID 2010 must be installed with BizTalk Server 2010; it is not compatible with previous versions of BizTalk. Take the following steps to install it:

1. BizTalk RFID can be installed from the standard setup screen of BizTalk Server 2010. Click the Install Microsoft BizTalk RFID option shown in Figure 1-27.



Start

Prepare

Read the installation guide

Install

Install Microsoft BizTalk Server 2010.

Install Microsoft UDDI Services.

Install Microsoft BizTalk RFID.

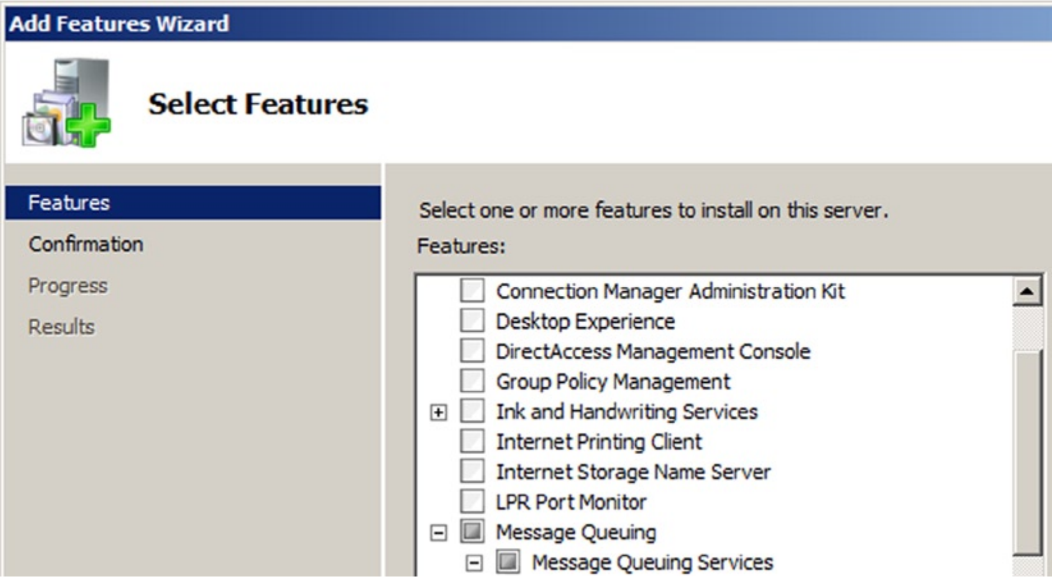
Install Microsoft BizTalk RFID Mobile.

Important: Please make sure you have the latest CAB files by referring to the installation guide if using pre-downloaded files.

Figure 1-27. *Install link for BizTalk RFID*

2. Click through the initial setup screens, indicating the database to connect to and other basic information.

■ **Note** During the System Configuration Check, you may get a message warning that MSMQ is not installed. This can be remedied by enabling MSMQ on your operating system. Figure 1-28 shows this for Windows Server 2008 R2.



Add Features Wizard

Select Features

Select one or more features to install on this server.

Features:

- □ Connection Manager Administration Kit
- □ Desktop Experience
- □ DirectAccess Management Console
- □ Group Policy Management
- ⊞ □ Ink and Handwriting Services
- □ Internet Printing Client
- □ Internet Storage Name Server
- □ LPR Port Monitor
- ⊟ ■ Message Queuing
  - ⊟ ■ Message Queuing Services

Figure 1-28. *Enabling message queuing for BizTalk RFID Install*

How It Works

Many developers assume that BizTalk RFID is built into the standard BizTalk Server application, but it is not. BizTalk Server RFID is a completely separate application from BizTalk Server 2010. It is a part of the BizTalk family, which includes applications like Host Integration Server (HIS), the Enterprise Service Bus (ESB) Framework, and the Adapter Pack. BizTalk RFID allows for the administration of RFID devices. The way in which it collects data allows for easy integration with BizTalk Server 2010, but in no way is it tied to the core product. The most common way to integrateBizTalk RFID with BizTalk Server is to use the SQL tables representing the RFID data. This integration does not differ in any way from that of any other external system.

■ **Note** *Pro RFID in BizTalk Server 2009* (Apress, 2009) is solely focused on BizTalk RFID. While it is based on the previous version of BizTalk RFID, virtually all of the concepts and process apply to the 2010 version.

1-11. Installing and Configuring the Enterprise Service Bus with BizTalk Server 2013

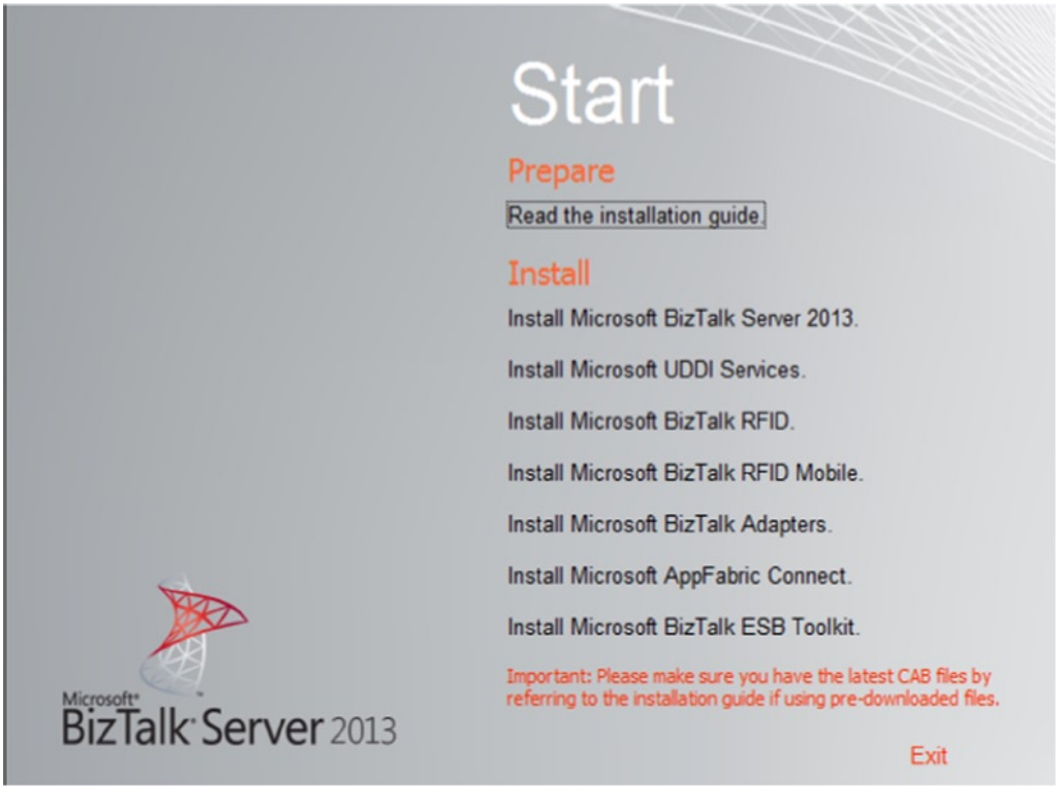
Problem

You want to install Enterprise Service Bus Tool kit with BizTalk Server 2013.

Solution

Enterprise Service Bus (ESB) is an add-on to base BizTalk Server 2013 installation. To install and configure ESB take the following steps:

1. The option to install ESB is added to the standard installation screen of BizTalk. Click on Install Microsoft BizTalk ESB Tool kit link to start the installation, as shown in Figure 1-29.



Start

Prepare

Read the installation guide.

Install

Install Microsoft BizTalk Server 2013.

Install Microsoft UDDI Services.

Install Microsoft BizTalk RFID.

Install Microsoft BizTalk RFID Mobile.

Install Microsoft BizTalk Adapters.

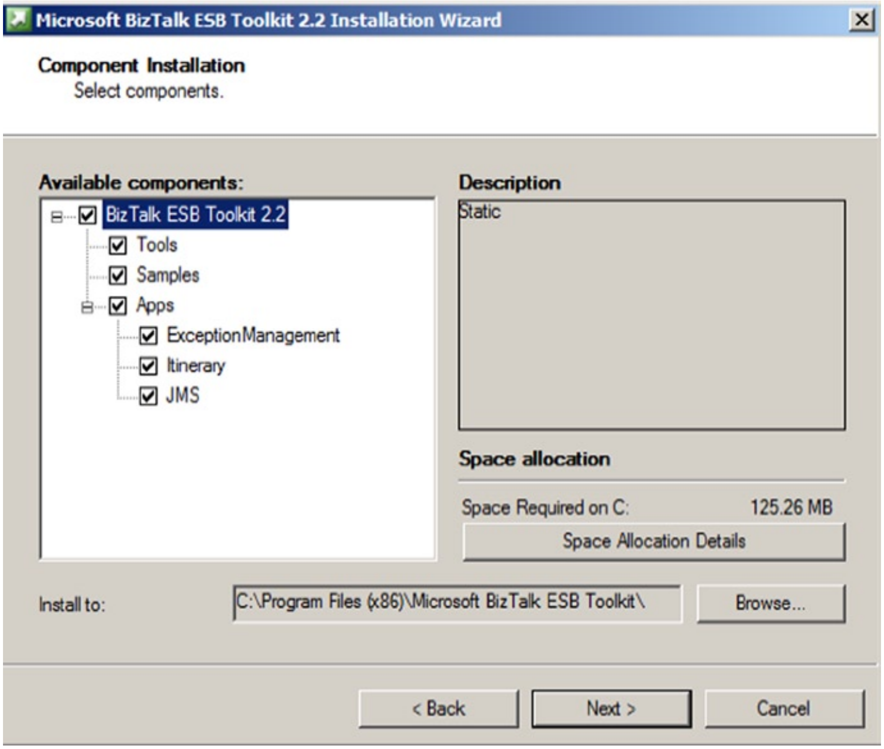
Install Microsoft AppFabric Connect.

Install Microsoft BizTalk ESB Toolkit.

Important: Please make sure you have the latest CAB files by referring to the installation guide if using pre-downloaded files.

Figure 1-29. *Install Link for BizTalk ESB Toolkit*

2. Agree to the License agreement and select the components to install. In the current case all the components are selected, as shown in Figure 1-30.



☑ BizTalk ESB Toolkit 2.2
- ☑ Tools
- ☑ Samples
- ☑ Apps
  - ☑ ExceptionManagement
  - ☑ Itinerary
  - ☑ JMS

Description: Static

Space Required on C: 125.26 MB

Install to: C:\Program Files (x86)\Microsoft BizTalk ESB Toolkit\

Figure 1-30. *BizTalk ESB Toolkit Component Installation*

3. Select the ESB Configuration tool to configure ESB Tool kit (see Figure 1-31).

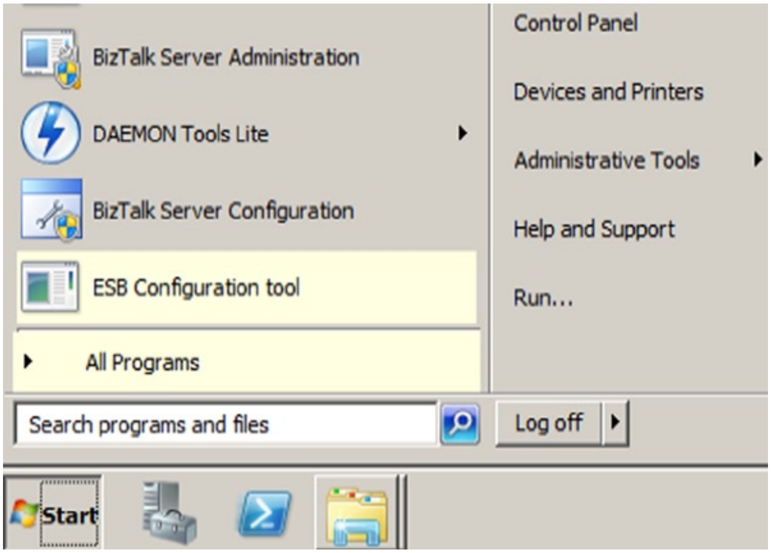
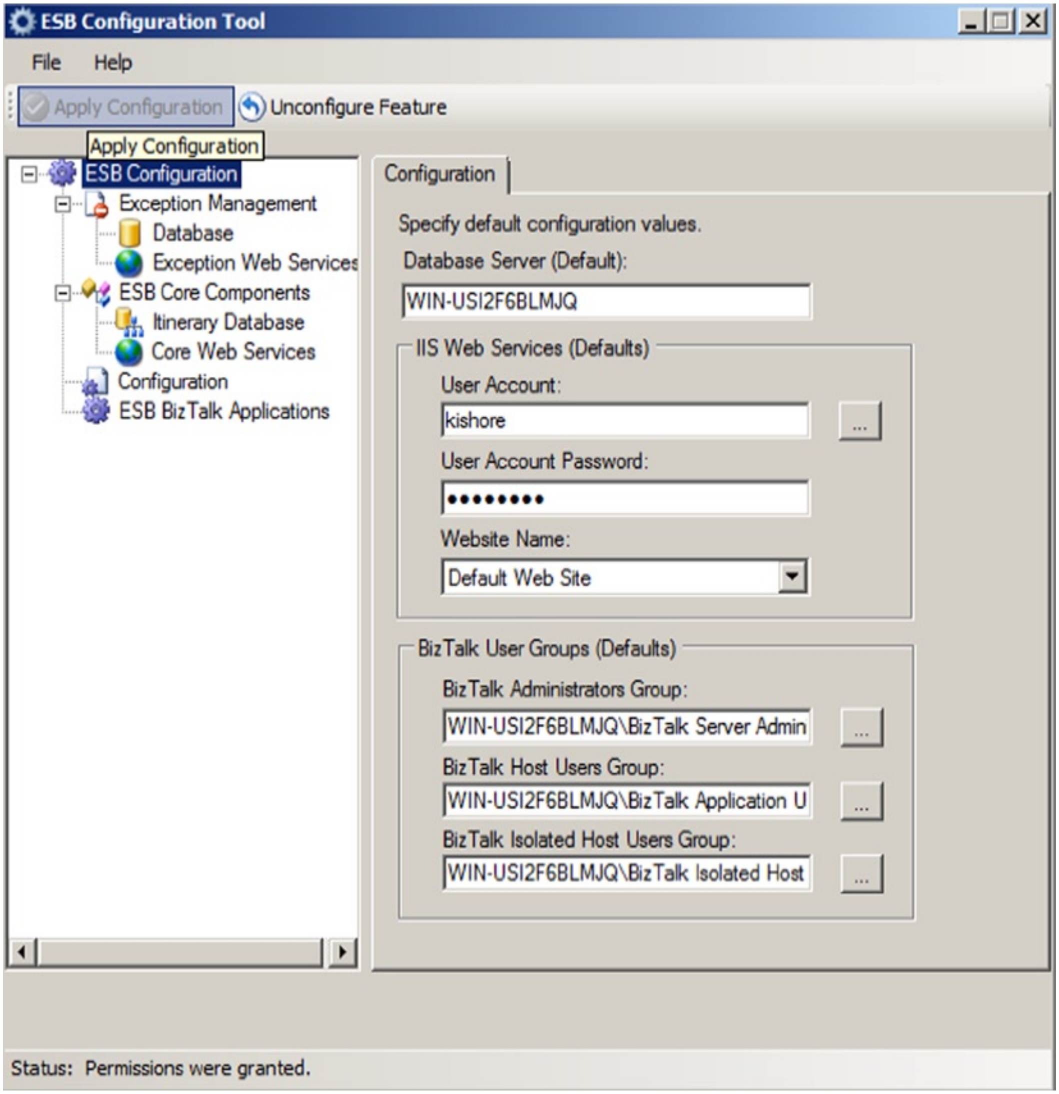


Figure 1-31. *ESB Configuration tool selection*

4. Input the proper credentials (shown in Figure 1-32), proper BizTalk User Groups, and Database information to finish the configuration.



Specify default configuration values.

Database Server (Default): WIN-USI2F6BLMJQ

IIS Web Services (Defaults)

User Account: kishore

User Account Password: •••••••••

Website Name: Default Web Site

BizTalk User Groups (Defaults)

BizTalk Administrators Group: WIN-USI2F6BLMJQ\BizTalk Server Admin

BizTalk Host Users Group: WIN-USI2F6BLMJQ\BizTalk Application U

BizTalk Isolated Host Users Group: WIN-USI2F6BLMJQ\BizTalk Isolated Host

Status: Permissions were granted.

Figure 1-32. *ESB Configuration tool set up*

How It Works

Enterprise Service Bus (ESB) Framework provides an infrastructure for developing a loosely coupled Service Oriented architecture based solutions. BizTalk's publish-subscribe mechanism provides a scalable platform for Service-Oriented Architecture (SOA)-based applications. BizTalk has been supporting ESB framework since BizTalk 2006 R2. Over the years new capabilities are added to the ESB framework. Some of the feedback received from the clients included a request to simplify the installation process. In previous versions of BizTalk Servers a number of steps needed to be taken to successfully install ESB. The process was not integrated into the core installation. In the current version, it only requires selecting ESB on the root installation menu to finish it.

■ **Note** The core installation includes BizTalk ESB Toolkit Core and ESB Exception Management Framework. Even though the configuration is significantly simplified, a few more steps are needed to configure the ESB portal. The source code for portal needs to be downloaded to the machine on which the portal is being configured and the install scripts need to be executed. Multi-node ESB Tool Kit Configuration requires a lot of attention to service accounts, database servers, and Active Directory groups for BizTalk. The current Recipe highlights the simplification of the installation and configuration. Refer to the product documentation for detailed instructions on ESB configuration.

1-12. Viewing BizTalk Artifact Dependencies

Problem

You need to identify the dependencies between BizTalk artifacts in case some of the artifacts need to be stopped or redeployed.

Solution

Dependency between the artifacts can be viewed in a deployed application by following the below steps in BizTalk Administration Console:

1. Open the BizTalk Administration Console and select the BizTalk application.
2. Right click any BizTalk artifact and select the View Dependencies option from the menu (see Figure 1-33). In this case, the dependencies for an orchestration are viewed.

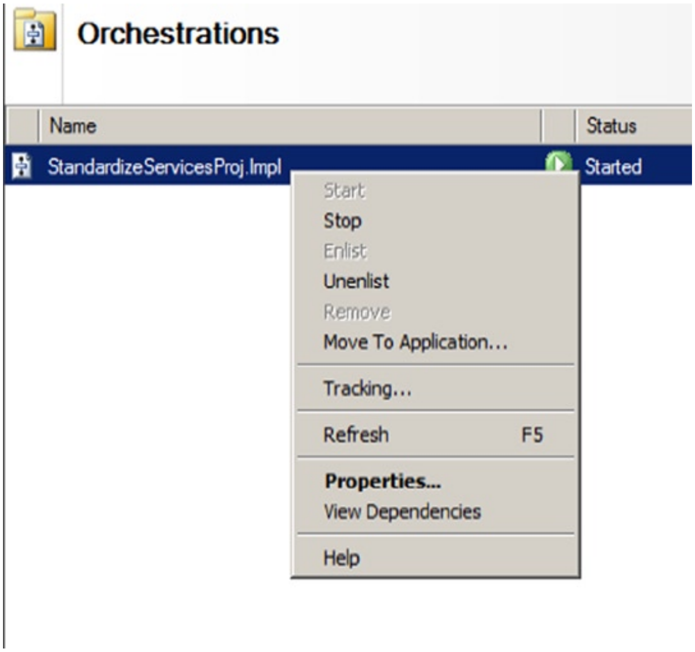
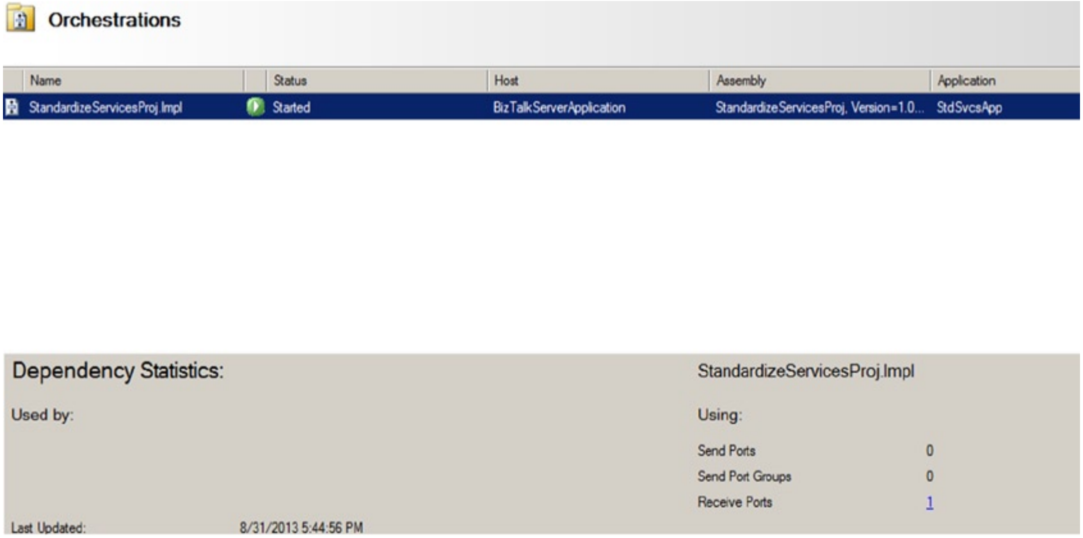


Figure 1-33. *Menu Option to View Dependencies*

3. Look at current orchestration's dependency on the Receive port as shown in Figure 1-34



Name	Status	Host	Assembly	Application
StandardizeServicesProj.Impl	Started	BizTalkServerApplication	StandardizeServicesProj, Version=1.0...	StdSvcsApp

Dependency Statistics: StandardizeServicesProj.Impl

Used by:

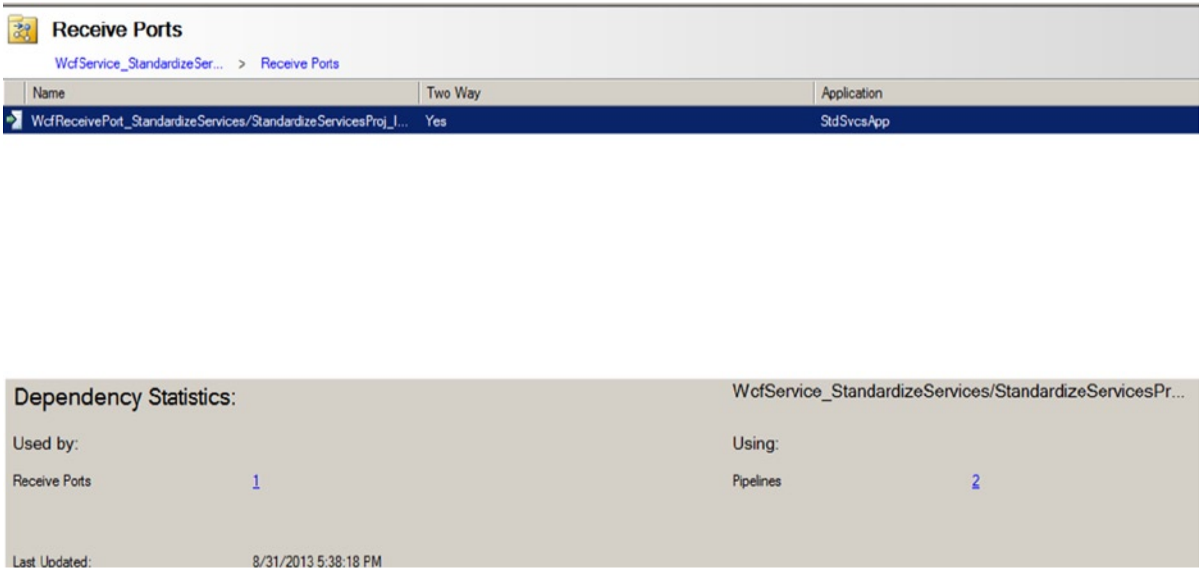
Using:

Send Ports	0
Send Port Groups	0
Receive Ports	1

Last Updated: 8/31/2013 5:44:56 PM

Figure 1-34. *Dependency Statistics for an Orchestration*

4. Look at the Receive Location's Dependency on pipelines, as shown in Figure 1-35.



Receive Ports

Name	Two Way	Application
WcfReceivePort_StandardizeServices/StandardizeServicesProj_I...	Yes	StdSvcsApp

Dependency Statistics: WcfService_StandardizeServices/StandardizeServicesPr...

Used by:

Receive Ports 1

Using:

Pipelines 2

Last Updated: 8/31/2013 5:38:18 PM

Figure 1-35. Dependency Statistics for a Receive Location

How It Works

Dependency tracking is a long awaited feature in BizTalk Administration. It will significantly simplify upgrading the BizTalk artifacts when there is a deep dependency hierarchy. The typical BizTalk artifacts are Orchestrations, Send Ports, receive ports, pipelines, maps and schemas. There are two types of dependencies for every artifact. A “Used By” type of dependency shows the dependency of another artifact on this artifact. And a “Using” type of dependency shows the dependency of this artifact on another artifact.

In the current scenario, the orchestration has a dependency on a receive port. In other words, orchestration has a using dependency on a receive port. The receive location is used by receive port, and receive location uses two pipelines (XMLReceive pipeline for receiving request and PassThrough send Pipeline for sending response).

1-13. Configuring Dynamic Send Ports

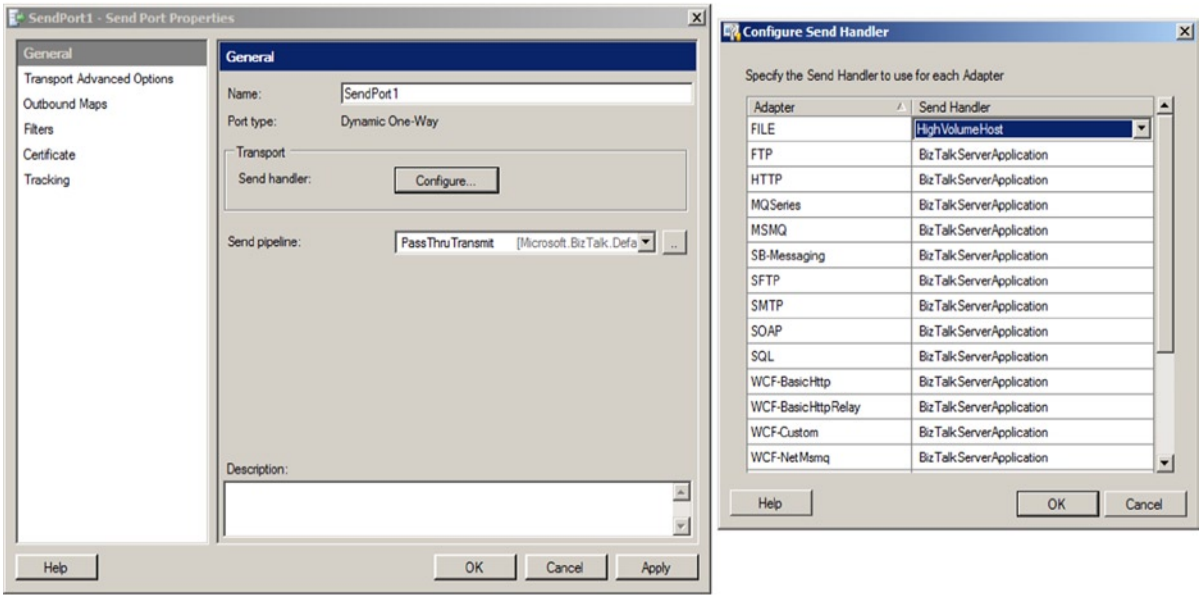
Problem

You need to configure a dynamic send port and assign a send handler for it.

Solution

Perform the following steps in BizTalk Administration Console:

1. Open the BizTalk Administration Console and select the BizTalk application.
2. To create a Send port, right click the Send Port and click on New ➤ Dynamic One-way Send Port.
3. Double click the send port and click on the Configure button to set the Send Handler Information (see Figure 1-36).



Name: SendPort1

Port type: Dynamic One-Way

Send handler:

Send pipeline: PassThruTransmit [Microsoft.BizTalk.Defa

Specify the Send Handler to use for each Adapter

Adapter	Send Handler
FILE	HighVolumeHost
FTP	BizTalkServerApplication
HTTP	BizTalkServerApplication
MQSeries	BizTalkServerApplication
MSMQ	BizTalkServerApplication
SB-Messaging	BizTalkServerApplication
SFTP	BizTalkServerApplication
SMTP	BizTalkServerApplication
SOAP	BizTalkServerApplication
SQL	BizTalkServerApplication
WCF-BasicHttp	BizTalkServerApplication
WCF-BasicHttpRelay	BizTalkServerApplication
WCF-Custom	BizTalkServerApplication
WCF-NetMsmq	BizTalkServerApplication

Figure 1-36. *Handler Configuration for a Dynamic Send Port*

How It Works

BizTalk 2013 now offers the ability to select the appropriate host for the dynamic send port. Till the current version, BizTalk framework did not offer this capability. It is a limitation if the dynamic send port is participating in a high volume scenario. The Administration console always selected the Default Host (BizTalkServerApplication) for all dynamic send ports. With this new feature, the hosts can be separated based on the scenario.

1-14. Verifying Performance Improvments in BizTalk Maps

Problem

You are trying to understand the performance improvements of the Maps in BizTalk 2013 that come about from the compiler's use of the `XslCompliedTransform` class

Solution

The XslCompiledTransform class in BizTalk 2013 is used by the compiler, instead of XslTransform class. The developer will still perform the same activities on the map's design surface as before, and saves the map file in a BizTalk project. At run time, when the map is invoked by either a port or an orchestration, BizTalk framework loads the map into the context. And when invoked, this compiled map will be executed.

The best way to observe this performance improvement is by executing a complex Map from EDI document to a canonical XML schema. Then compare the time taken in execting the map in the BizTalk 2013 environment with the exection time of the same map in BizTalk 2010.

■ **Note** Refer to Recipe 8-2 for creating a complex EDI map. Build and deploy a BizTalk Project to the BizTalk Administration Console by following the steps in Recipe 9-4.

How It Works

BizTalk supports very mature mapping capabilities. Mapping simplifications are being worked on in various versions of BizTalk. Now in BizTalk 2013, the mapping framework uses XslCompiledTransform class instead of XmlTransform class as in previous versions. XslCompiledTransform class provides huge performance improvements (about four fold improvement), and it will be glaringly obvious in a complicated map with lot of mappings between input schemas to the output schema. The first improvement is in the multithreading support. Once the loading of the map is completed, the transform method can be called simultaneously from various threads. The second improvement is in caching the map. The new XSLT processor compiles the XSLT style sheet to a common intermediate format. Once the style sheet is compiled, it can be cached and reused.

1-15. Hosting BizTalk Server 2013 in the Cloud

Problem

You are tasked to quickly set up infrastructure for a BizTalk 2013 Development environment for an upcoming execution of a project.

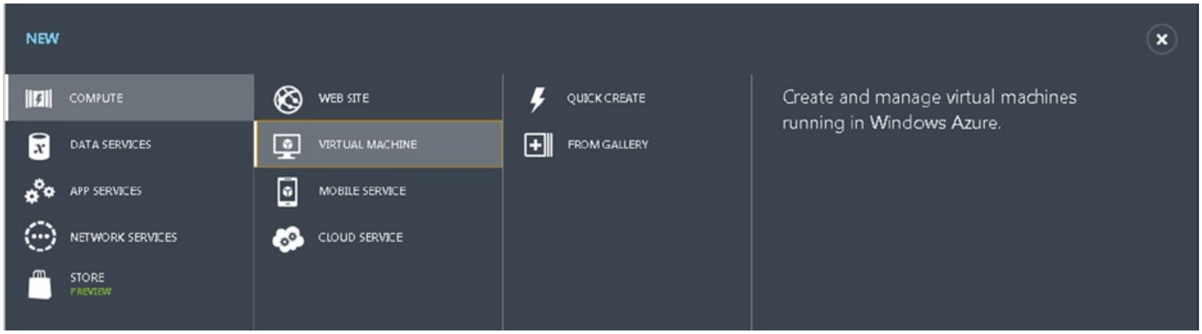
Solution

Create your environment quickly and easily via Microsoft's Azure service. Microsoft provides a series of prebuilt images for virtual machines in their Azure data centers. Once a Microsoft Azure subscription for the enterprise is set up, it is just the matter of subscribing to the correct virtal machine by following certain payment model.

■ **Note** The details of Azure Subscriptions, payment models, and Azure portal and Service Bus are discussed in detail in Chapter 12.

Here is the process to follow, to create a BizTalk 2013 environment in the cloud:

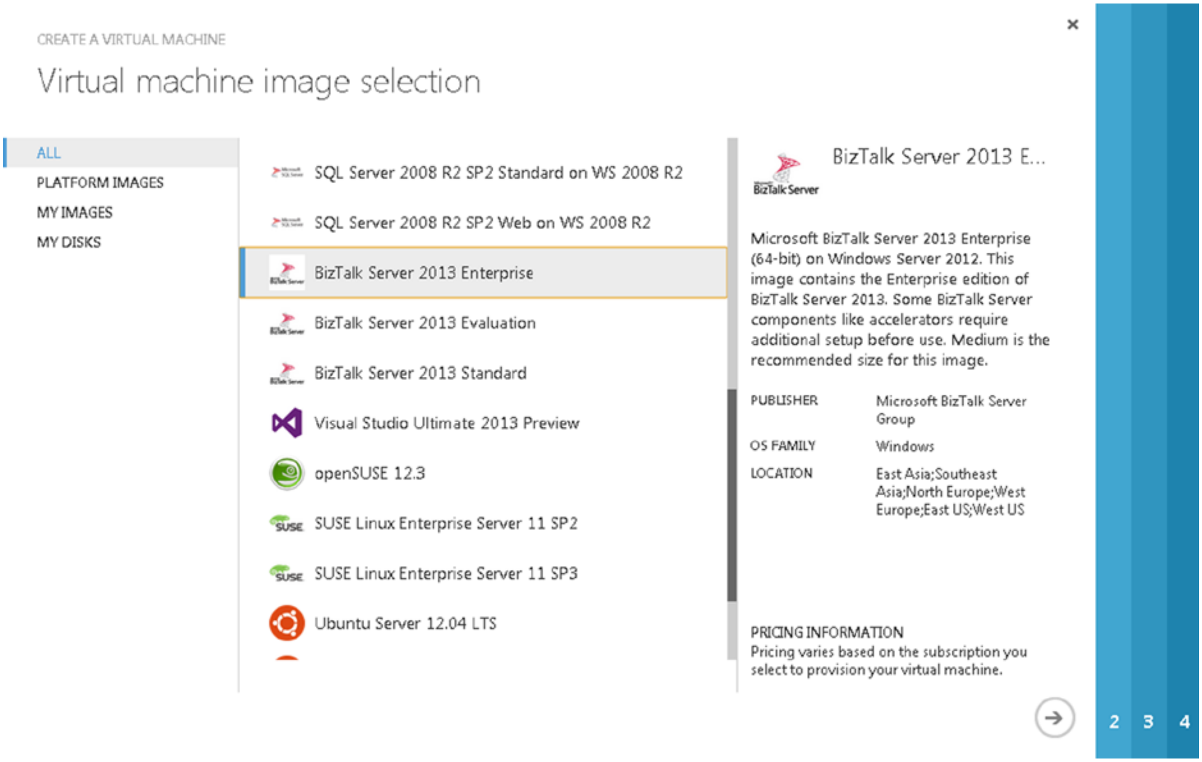
1. Open the Microsoft Azure Management Portal for creating a BizTalk environment on demand. To create BizTalk environment from the pre-built gallery of virtual machines, click on '+ NEW' at the bottom left corner of the portal Management Default page ➤ COMPUTE ➤ VIRTUAL MACHINE ➤ FROM GALLARY. See Figure 1-37.



Create and manage virtual machines running in Windows Azure.

Figure 1-37. *Azure Portal's Create a Virtual machine from a Gallery option*

2. Select the most appropriate BizTalk virtual machine image suitable for your current need – an example of this is shown in Figure 1-38.


CREATE A VIRTUAL MACHINE
Virtual machine image selection
ALL
PLATFORM IMAGES
MY IMAGES
MY DISKS
SQL Server 2008 R2 SP2 Standard on WS 2008 R2
SQL Server 2008 R2 SP2 Web on WS 2008 R2
BizTalk Server 2013 Enterprise
BizTalk Server 2013 Evaluation
BizTalk Server 2013 Standard
Visual Studio Ultimate 2013 Preview
openSUSE 12.3
SUSE Linux Enterprise Server 11 SP2
SUSE Linux Enterprise Server 11 SP3
Ubuntu Server 12.04 LTS
BizTalk Server 2013 E...
BizTalk Server
2
3
4

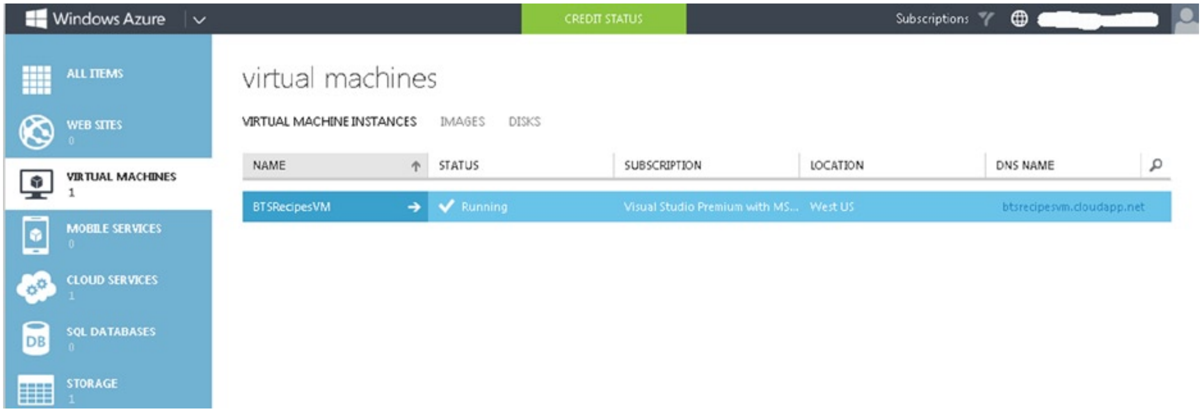
Microsoft BizTalk Server 2013 Enterprise (64-bit) on Windows Server 2012. This image contains the Enterprise edition of BizTalk Server 2013. Some BizTalk Server components like accelerators require additional setup before use. Medium is the recommended size for this image.

PUBLISHER	Microsoft BizTalk Server Group
OS FAMILY	Windows
LOCATION	East Asia;Southeast Asia;North Europe;West Europe;East US;West US

PRICING INFORMATION
Pricing varies based on the subscription you select to provision your virtual machine.

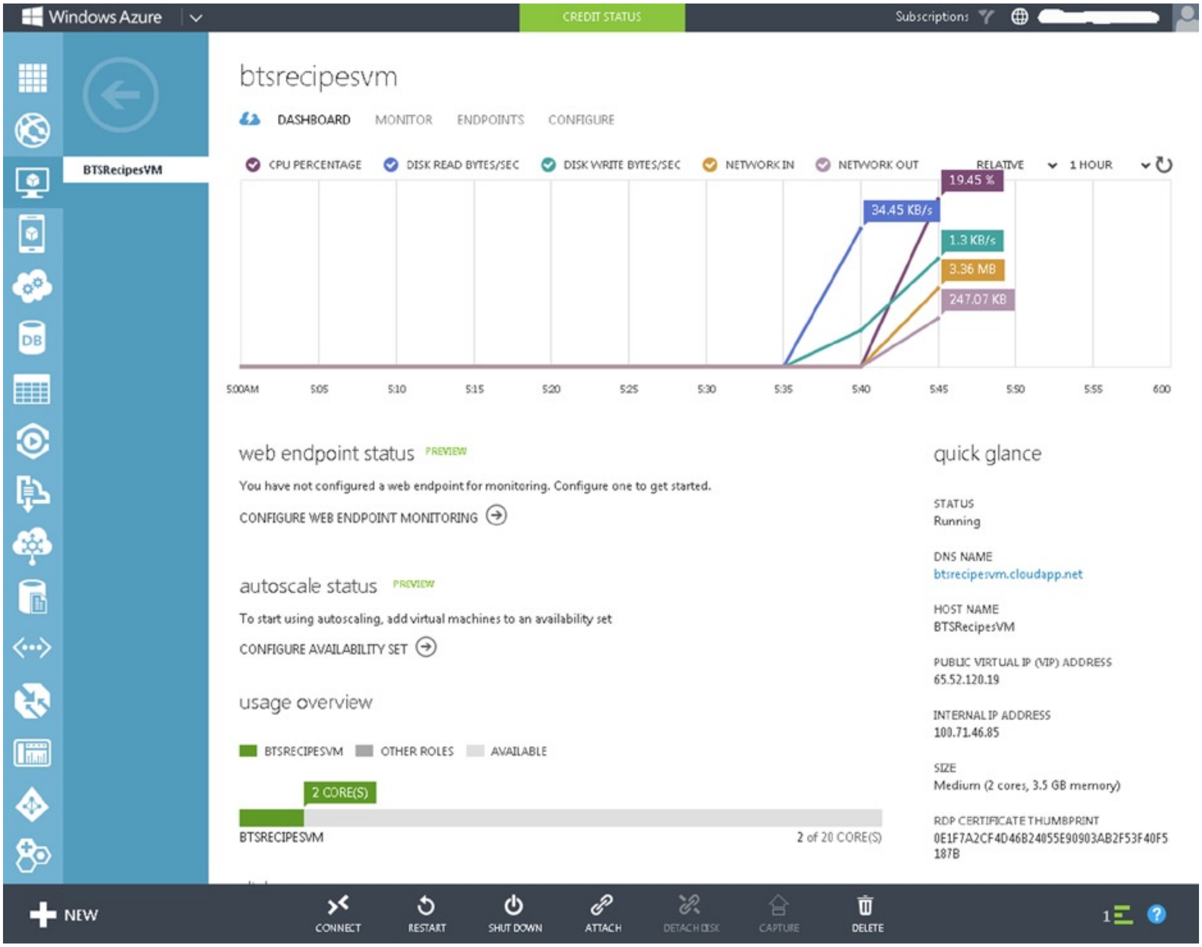
Figure 1-38. *Virtal Machine image selection option*

3. Fill the configuration details for the virtual machine:
    - A descriptive name
    - A new user
    - Select the subscription
    - Region of the data center
    - Availalability set
4. The above steps will provision a virtual machine. The details can be viewed in Azure portal, as shown in Figure 1-39 and 1-40.



NAME	STATUS	SUBSCRIPTION	LOCATION	DNS NAME
BTSRecipesVM	✓ Running	Visual Studio Premium with MS...	West US	btsrecipesvm.cloudapp.net

Figure 1-39. *Provisioned Virtual machine*



btsrecipesvm

web endpoint status

You have not configured a web endpoint for monitoring. Configure one to get started.

autoscale status

To start using autoscaling, add virtual machines to an availability set

usage overview

quick glance

STATUS
Running

DNS NAME
btsrecipesvm.cloudapp.net

HOST NAME
BTSRecipesVM

PUBLIC VIRTUAL IP (VIP) ADDRESS
65.52.120.19

INTERNAL IP ADDRESS
100.71.46.85

SIZE
Medium (2 cores, 3.5 GB memory)

RDP CERTIFICATE THUMBPRINT
0E1F7A2CF4D46B24055E90903AB2F53F40F5
187B

Figure 1-40. *Provisioned Virtual machine - Details*

How It Works

In a typical enterprise, installing and configuring a BizTalk environment takes several days. It requires budget approval from the management, acquiring licenses for the software, allocating physical or virtual machines for the environment, and finally installing and configuring the software. This process is repeated every time a new BizTalk environment is set up or an existing environment is upgraded. Going to a cloud-based solution sidesteps much of that work, and can be done more quickly.

Before getting approval for BizTalk environment changes, IT professionals need to figure out usage patterns and link them to business scenarios. Is the new environment for a short term project initiative? Is it to resolve the burst in traffic in a specific time of the year (For example, holiday shopping seasons will have a burst of orders that need to be fulfilled)? Or, is the new environment for a scaling-up scenario in which more application servers and database servers are being added to the existing configuration?

Microsoft considered all these complexities and came up with the Windows Azure BizTalk Infrastructure-as-a-service (IaaS) model.

The BizTalk environment in cloud can help out in various ways. For example:

- Lower budget overhead – The pay-as-you-go model requires only enuogh budget to resolve the current, short-term business need. This avoids huge, upfront software licensing and acquisition costs
- Decreased set up time – The set up and configuration steps are decreased, because the pre-built images simplify what needs to be done to ramp up in a new environment. A BizTalk environment can be set up in then cloud in a few minutes instead of taking days.
- Scaled by demand – The scaling up or scaling out of the BizTalk environment can be achieved on an on-demand basis to resolve burst scenarios.
- Migration of existing licenses- Using Software license mobility, existing licenses can be migrated to the Windows Azure BizTalk environment.
- Decreased effort in Environment Management – Much less effort is now required in managing, upgrading and patching the BizTalk nodes in Windows Azure. This is because much of the work is now handled by Microsoft professionals in their Data Centers.
- Distribution of Data Centres - Geographic distribution of the BizTalk environment will make transactions run faster in a global enterprise which is spanning multiple countries.
- Customised prebuilt BizTalk images – With the help of customized Scripting and APIs, a BizTalk environment can be tailored to your needs.
- Centralized Management - Unified access to Azure Portal in managing the BizTalk environment will significantly simplify monitoring and reporting tasks.

1-16. Configure Windows Azure BizTalk Services

Problem

You are tasked to configure Windows Azure BizTalk services for an upcoming hybrid integration with on-premise ERP system.

Solution

Windows Azure BizTalk Services is one of the most exciting features released as part of BizTalk 2013. It significantly decreases the complexity in building, deploying and managing a hybrid integration. It requires three components to facilitate the communication from Windows Azure BizTalk Services to an on-premise ERP system. The development and deployment of the integration is done in Visual Studio with an add-on template which is installed as part of BizTalk Services SDK. Windows Azure BizTalk services need to be set up for your subscription in Windows Azure portal. BizTalk Adapter Services need to be installed to connect to the on-premise ERP system. The current recipe highlights the set up of Windows Azure BizTalk Services for an existing Azure subscription.

■ **Note** Refer to BizTalk product documentation for installation instructions on BizTalk Services SDK and BizTalk Adapter Services . Since, it is mostly a double click installation; these instructions are not covered in the recipe.

Here are the steps in the solution:

1. Before BizTalk Services are configured under your Windows Azure subscription, few required prerequisites need to be configured.

    a. Configure Windows Azure Access Control Service namespace, to authenticate BizTalk Services.

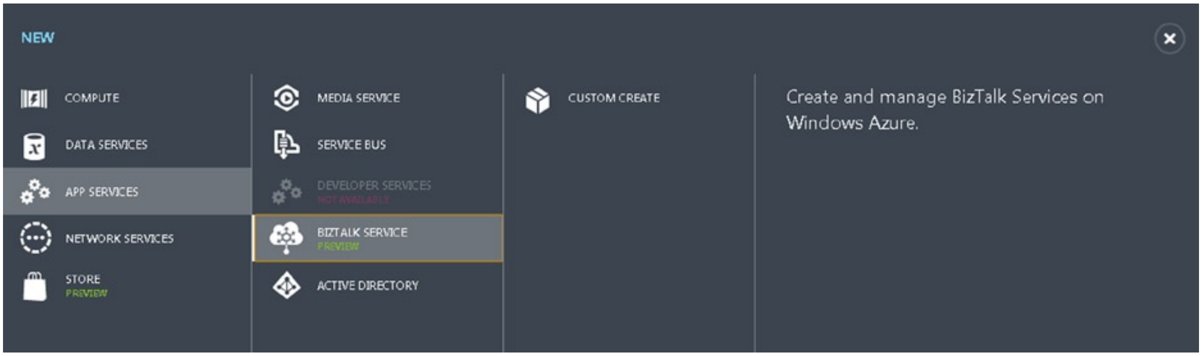
    b. Configure Windows Azure SQL Data base, for storing tables, views and stored procedures that are required for BizTalk Services.

    c. Configure Windows Azure Storage Account, to access tables, blobs and queues. It stores logging and tracking information.

    d. Configure SSL Certificate, for communicating with BizTalk Services URL over HTTPS.

2. Log into Azure Management Portal using Windows Live account.

3. To configure BizTalk Service, click on '+ NEW' at the bottom left corner of the portal Management Default page ➤ APP SERVICES ➤ BIZTALK SERVICE➤ CUSTOM CREATE, as shown in Figure 1-41.



Create and manage BizTalk Services on Windows Azure.

Figure 1-41. *Azure Portal's Custom Create BizTalk Service option*

1. Configure the BizTalk Service specific properties as listed in Table 1-1.

Table 1-1. *BizTalk Service Configuration Properties*

Grouping - Configuration Property	Description
`BizTalk Service Settings - BizTalk Service Name`	Name of the BizTalk Service.
`BizTalk Service Settings - Domain URL`	By default the Domain URL is constructed from the BizTalk Service Name. It can be changed to something other than BizTalk Service name.
`BizTalk Service Settings - BizTalk Service Settings - Edition`	Possible editions are – Developer, Standard, Basic and Premium. Based on the business scenario a version of these editions is selected.
`BizTalk Service Settings - Region`	Select the region of the data center closest to your needs.
`BizTalk Service Settings - Tracking Data base`	The SQL Database which stores the tracking data.
`BizTalk Service Settings - Subscription`	Optional. Select the subscription that is most appropriate for your BizTalk Service.
`Database Settings - Subscriptions`	Optional. This option is available only when there are multiple applicable Azure subscriptions.
`Database Settings – Data base`	Name of the SQL Data base instance, which is created as one of the prerequisites.
`Database Settings – Login Name`	Login user name for the SQL Data base instance
`Database Settings – Login Password`	Password for the SQL Data base
`Data base Settings - Region`	Geographic Region to host the SQL Data base.
`Access Control Settings – Access Control Namespace`	Name of the ACS namespace
`Access Control Settings – Access Control Management Service Username`	Username for the ACS Namespace
`Access Control Settings – Access Control Management Service Password`	Password for the ACS Namespace
`Access Control Settings – Monitoring/Arching Storage Account`	Select the existing Storage account from the list
`BizTalk Service Certificate - Certificate`	Browse and select the private SSL Certificate file (.pfx) which includes BizTalk Service name.
`BizTalk Service Certificate - Password`	Enter the password for the certificate.

How It Works

BizTalk Services on Windows Azure provides a simple, yet powerful integration platform to extend on-premise applications to the cloud. These managed services significantly simplify the integration by providing a no code drag and drop feature to hybrid integrations. BizTalk Services are helpful in cloud based EAI and EDI transmissions.

Microsoft provides these EAI and B2B integration capabilities through something called a bridge. A bridge is a combination of a pipeline, a source and a destination. In a EAI scenario, when a source sends a message to the bridge, it is picked up by the pipeline which performs validation or enrichment, and the resulting message is routed to the specified destination. In a B2B scenario, when a trading partner submits a X12 message to the bridge it is validated, transformed and routed to the destination. A service bus destination can relay the message to the on premise end point through BizTalk Adapter services framework.

The development, deployment and management are simplified with new set of features. An integration portal provides a unified view of all the Windows Azure deployments. Visual Studio is extended include templates for developing and deploying the custom integrations to Windows Azure. B2B services provide trading partner management (Partners, Agreements, and Profiles). The pipelines provide one-way and two-way message transmission, formatting and routing capabilities. The core framework provides monitoring; configuration and tracking stores save and view.

■ **Note** As of third Quarter of 2013, BizTalk Services are in Preview mode. Until these services are released to the general audience, Microsoft doesn't commit to full Service Level Agreements, but can selectively work with individual clients in taking the integrations to production. In the coming releases, robust business process orchestration capabilities will be added to the current feature set.