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BizTalk 2010 Recipes

A Problem-Solution Approach

A compendium of ready-to-use solutions to speed your BizTalk 2010 development

Mark Beckner

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To the coolest gal I've ever met—the fantastic, bright, beautiful, Sara Ann Beckner.
I wouldn't be where I am without you!

Contents at a Glance

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Foreword

Happy Birthday, BizTalk!

By the time you're reading this in a bookstore, BizTalk will have celebrated its tenth birthday. Over the past decade, there have been seven releases of Microsoft's enterprise integration server, and it has become the most broadly deployed integration middleware technology in the industry, with over 10,000 customers worldwide. BizTalk as a product line has matured tremendously during this period, expanding beyond its simple roots in Enterprise Application Integration (EAI) to add in capabilities around business-to-business integration, business rules, business activity monitoring, legacy integration, RFID event processing, and more.

But why does middleware like this have such staying power? You'd think that newer advances in technology like web services, SOA, and software as a service (SaaS) would render applications much more inherently interoperable and that the pain and complexity of systems integration would be a thing of the past. If you believe that, I have a bridge in Brooklyn that I can sell you!

The truth is that enterprises of all sizes still experience tremendous cost and complexity when extending and customizing their applications. Given the recent constraints of the economy, IT departments must increasingly find new ways to do more with less, which means finding less expensive ways to develop new capabilities that meet the needs of the business. At the same time, the demands of business users are ever increasing; environments of great predictability and stability have given way to business conditions that are continually changing, with shorter windows of opportunity and greater impacts of globalization and regulation. These factors all put tremendous stress on IT departments to find new ways to bridge the demanding needs of the users and businesses with the reality of their packaged applications.

This leads back to the reason why middleware—certainly not sexy as technologies go—continues to deliver tremendous value to both businesses and IT departments. As the technology's name suggests, it sits in the middle between the applications you use and the underlying infrastructure; this enables IT departments to continue to innovate at the infrastructure level with shifts like many-core processing, virtualization, and cloud computing. Instead of having to continue to continually rewrite your LOB applications to tap into infrastructure advances, you can depend on middleware to provide a higher level of abstraction, so you can focus your efforts on writing the business logic, not plumbing code. Using middleware also helps future-proof your applications, so that even as you move ahead to the next-generation development tools and platforms (including the current trends toward composite applications and platforms as a service), you can still leverage the existing investments you've made over the years.

So, in the decade ahead, middleware will be more important and relevant than ever before. In this book, you'll learn practical tips and tricks, regardless of whether you are new to integration middleware and want to pick up the fundamentals of BizTalk or an experienced middleware developer wanting to stay current on the latest new features being released in BizTalk Server 2010.

If only all birthdays were as kind to us! Let's raise a toast to BizTalk and wish it a happy birthday; and then it's time to get back to the business of integrating applications and connecting end-to-end business processes.

Burley Kawasaki
Director of Product Management, Microsoft Corporation

About the Author

Mark Beckner is a technical consultant specializing in business development and enterprise application integration. He runs his own consulting firm, Inotek Consulting Group, LLC, delivering innovative solutions to large corporations and small businesses.

His projects have included engagements with numerous clients throughout the United States and range in nature from mobile application development to complete integration solutions. In addition to this book, he has authored *BizTalk 2006 Recipes* (Apress, 2006), *Pro EDI in BizTalk Server 2006 R2* (Apress, 2007), and *Pro RFID in BizTalk Server 2009* (Apress, 2009), and he has spoken at a number of venues including Microsoft TechEd. He works across the Microsoft enterprise stack, including SharePoint, Dynamics CRM, and custom .NET development.

Mr. Beckner, his wife, Sara, and his boy, Ciro, split their time between western Colorado and northern New Mexico. He can be contacted at `mbeckner@inotekgroup.com`.

About the Technical Reviewer

Henry Li has a strong background in laser physics and optics, as well as experience surviving tough computer science classes in a Chinese college. He is a technical consultant specializing in enterprise application integration and distributed system solutions. Mr. Li has many years of professional consulting experience with large-scale enterprise organizations and small businesses. He has been engaged in the design and implementation of large-scale middleware infrastructures, based on Microsoft .Net and BizTalk technologies.

He has served clients across the United States, including diverse enterprise organizations, government agencies, semiconductor manufactures, and industry equipment facility manufactures. He strongly believes that object oriented programming is not only a software development technology but also a philosophy that should be applied to any business solution's architecture, design analysis, and problem solving. Mr. Li is most interested in the areas of service-oriented architecture (SOA), aspect-oriented programming (AOP), and XML data-driven solutions. He is the author of the book *Introduction to Windows Azure* (Apress 2010) and can be reached at yinghong@softnetsolution.net.

Acknowledgments

A big thank you goes to all of my friends and colleagues at Apress—what an honor and priviledge to get to work with you and publish through you!

CHAPTER 1

What's New in BizTalk 2010

BizTalk 2010 has a number of new features that will aid developers and increase the ability of the platform to support solutions built on it. The primary updates center around the BizTalk mapper user interface and EDI trading partner configuration and management. Additional updates include improvements to administrative functionality and the consolidation of tools within the BizTalk Admin Console. The recipes in this chapter are meant to introduce this new functionality.

The most obvious piece of new functionality for all BizTalk developers will be the mapper interface. There is a new toolbar that has a number of features on it 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 is the EDI Trading Partner management interface. The entire engine has been revamped, and what was impossible before is now possible. Exchanging documents between multiple business divisions and multiple partners with different envelope and document configurations and tracking settings are now a snap. Developers of EDI solutions will find this functionality refreshing and much needed.

Almost as important a questions as asking "What's new?" is considering "What's gone?" Several core pieces of functionality that have been removed in BizTalk 2010. The most notable are 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 from Visual Studio. Everything is now centralized in the BizTalk Administration Console, and all of the functionality of HAT and BizTalk Explorer are 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 was. An example of this is shown in Figure 1–2.

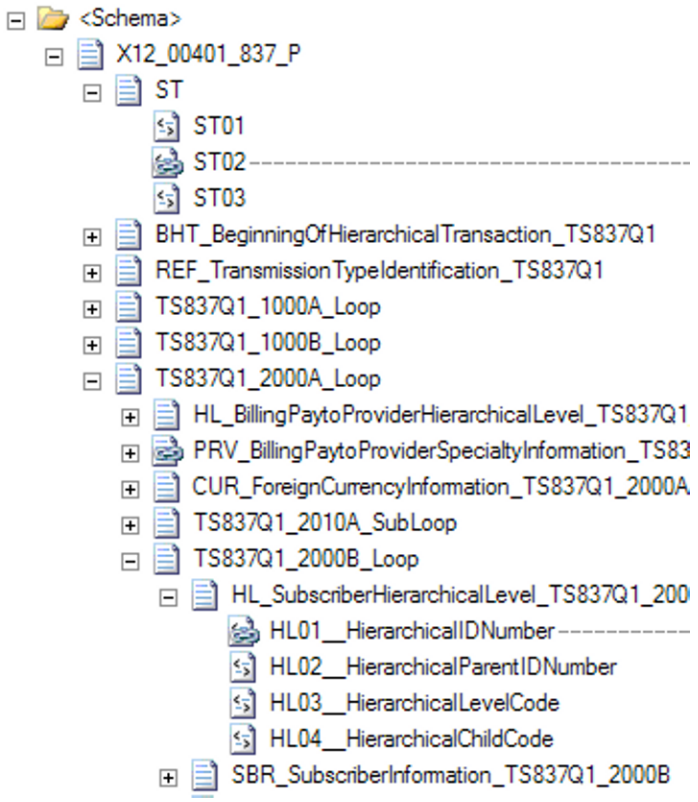

Figure 1–2. *Default full tree view*

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.

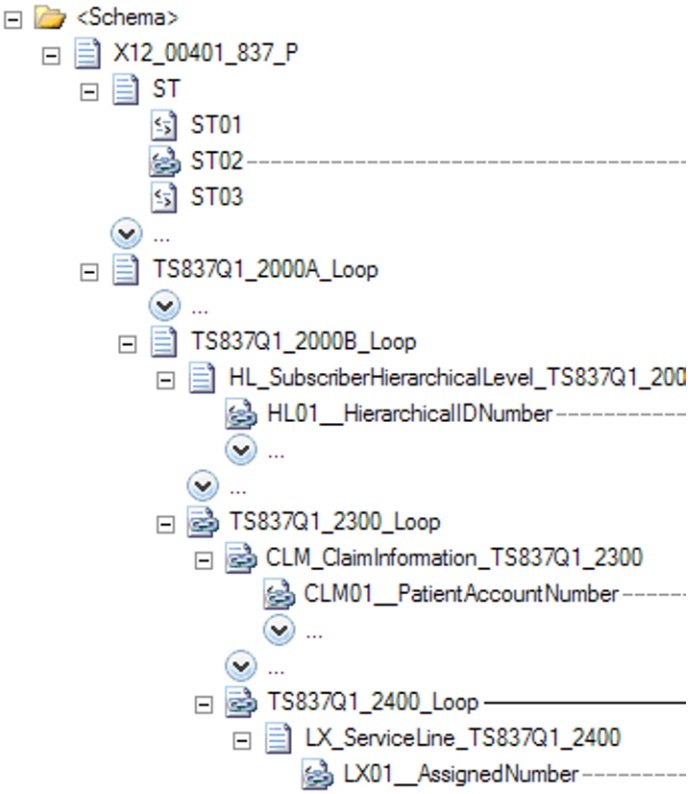

Figure 1–3. *Showing only the nodes that are being mapped*

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 pertainent 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.

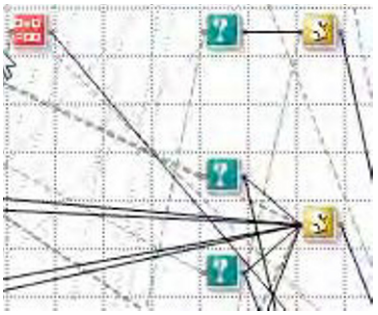

Figure 1–4. *Showing all links*

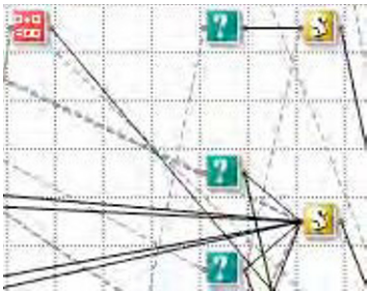

Figure 1–5. *Showing only relevant links*

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).

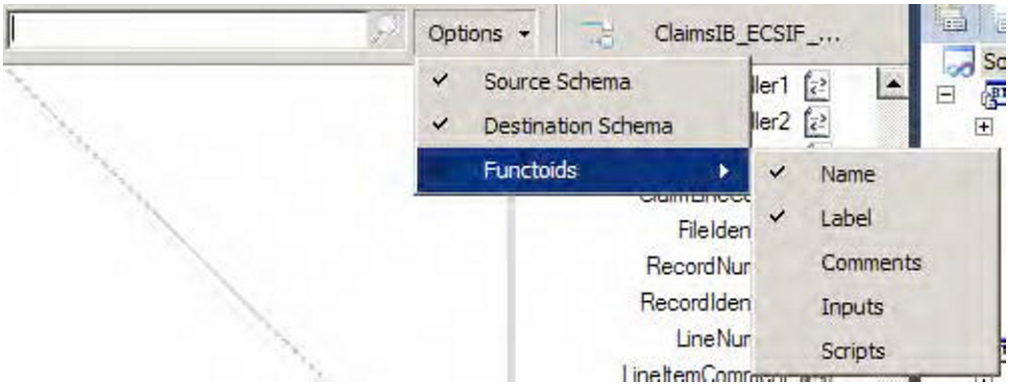

Figure 1–8. *Searching for a value in a functoid*

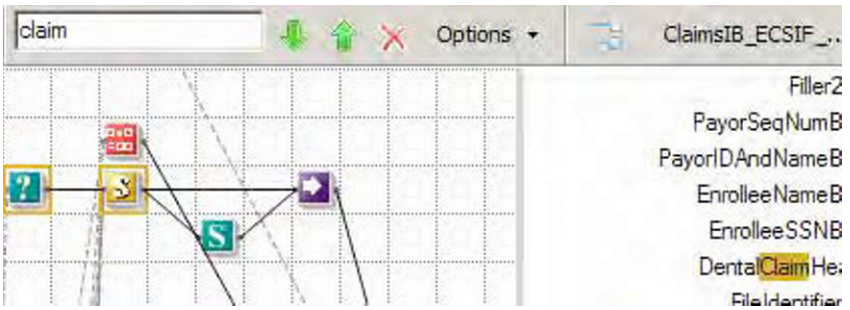

Figure 1–9. *Search resultsare highlighted*

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.

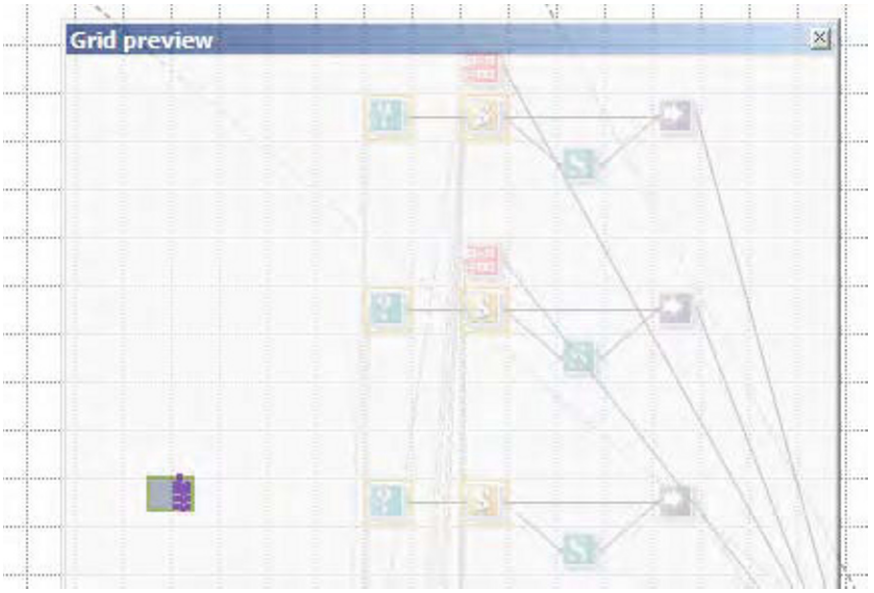

Figure 1–10. *Using the grid preview functionality*

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).

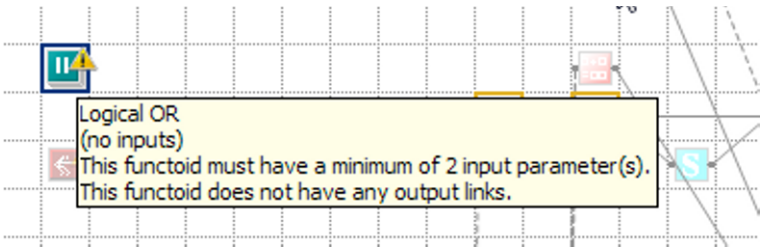

Figure 1–11. *Functoid error information*

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.

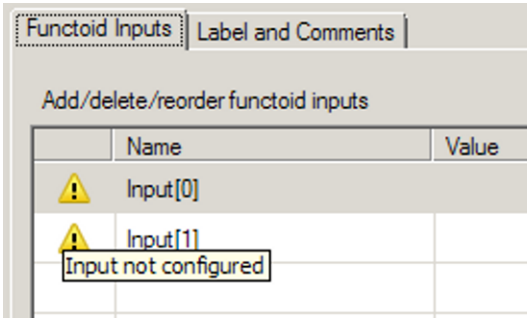

Figure 1–12. *Configuring the required inputs to the functoid*

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 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.

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

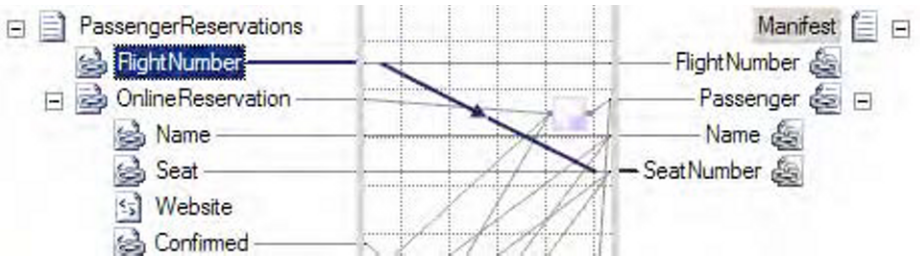

Figure 1–13. *A suggested match*

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).

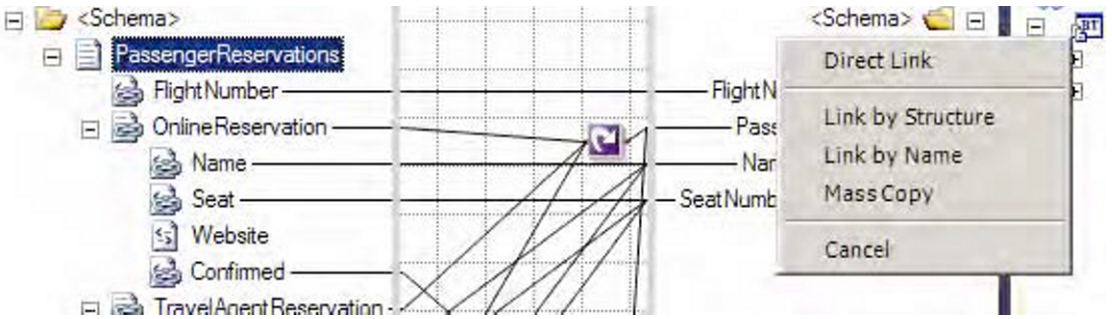

Figure 1–14. *Linking by structure or name*

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).

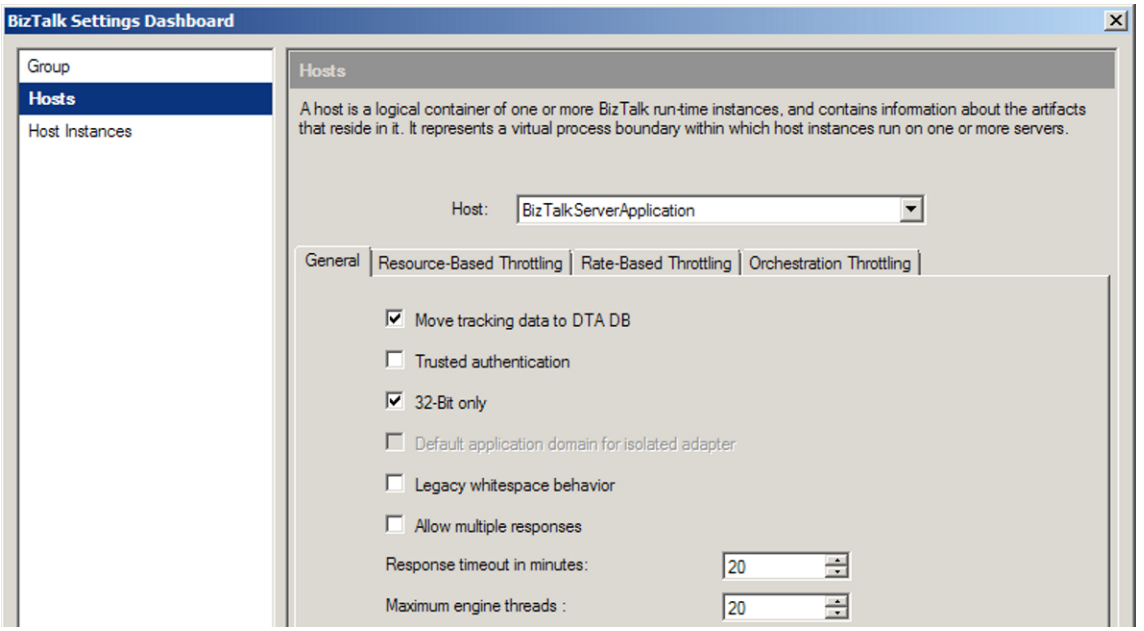

Figure 1–15. *The BizTalk Settings Dashboard*

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.

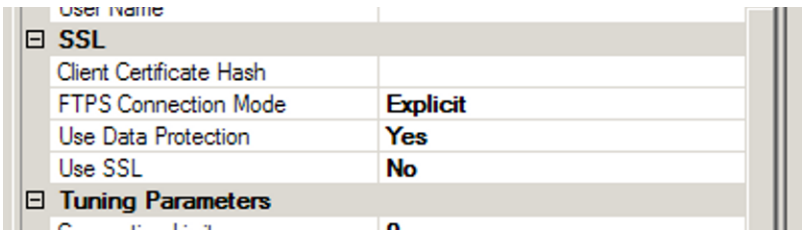

Figure 1–16. *Configuring the SSL settings for SFTP*

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).

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

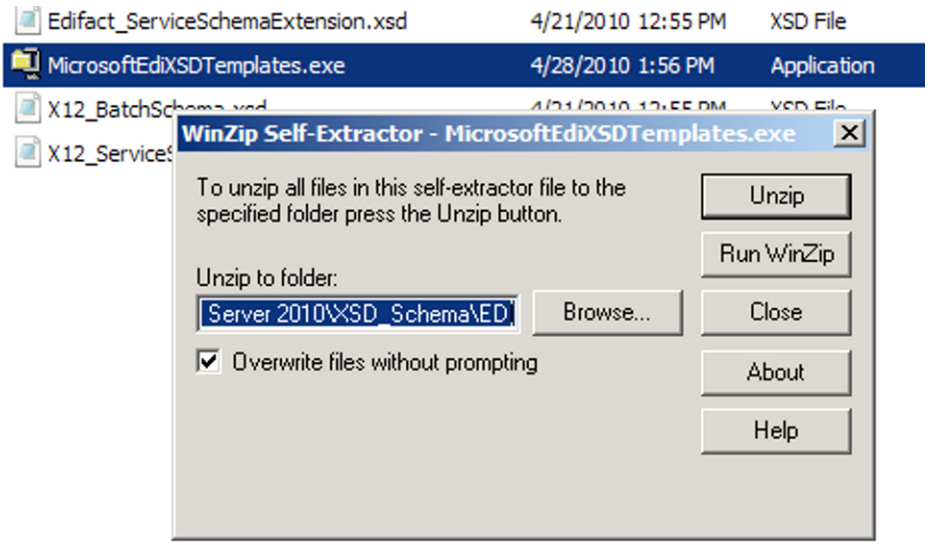

Figure 1–17. *Extracting the EDI schemas*

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

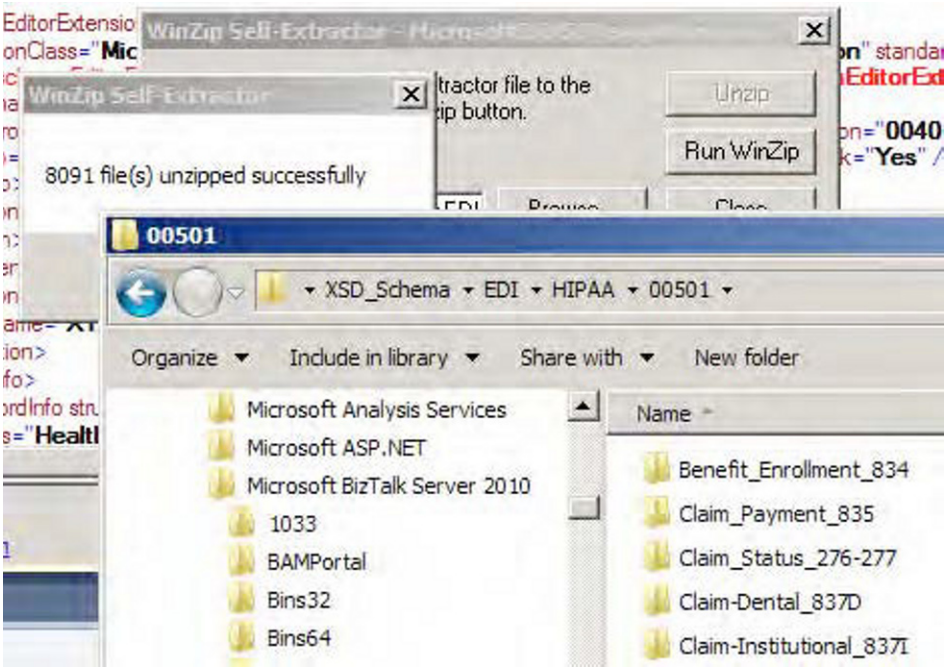

Figure 1–18. *The extracted 5010 schemas*

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 soon be another version to these (and other) schemas.

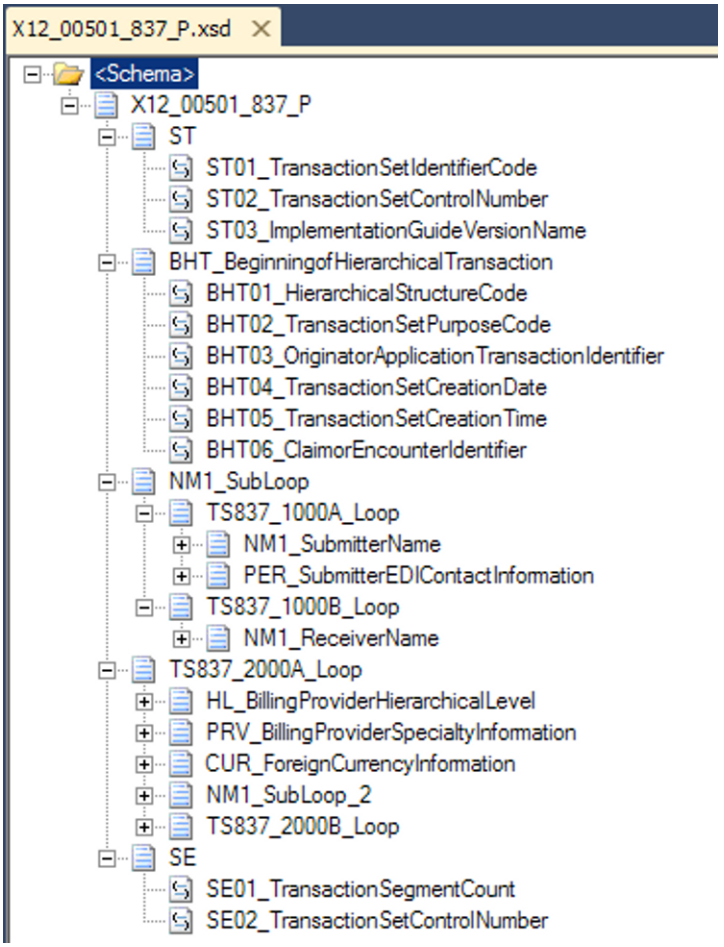

Figure 1–19. *The HIPAA compliant 837P 5010 schema in Visual Studio*

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.

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

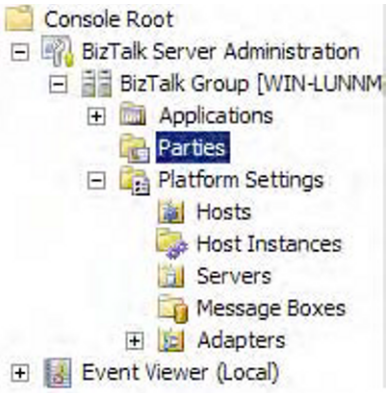

Figure 1–20. *The Parties folder in BizTalk*

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).

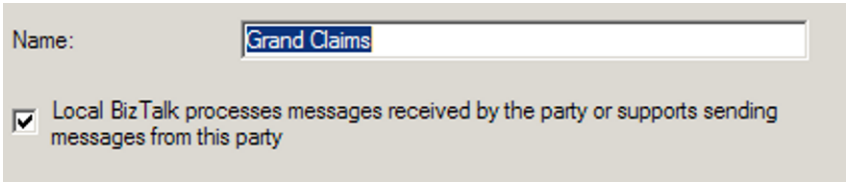

Figure 1–21. *Configuring the base party object*