

2008

Installation Overview and Checklists

For Microsoft's Enterprise Service Bus Guidance

This document contains a start to finish review of the steps and actions required to install Microsoft's new ESB guidance for BizTalk server. This review is split into two sections. The first section contains a more detailed review of the steps you need to take. This section is most appropriate for a person planning their first install. The second section contains shorter and straight to the point checklist of the actions you need to take. These are most appropriate for someone that is already somewhat familiar with the installation process.



Version

Version	Notes	Editor	Date
0.1	First draft	Peter Kelcey	January 8, 2007
0.2	Peer Review	Jim Bowyer	January 22, 2007
1.0	First Public Release	Peter Kelcey	January 22, 2007

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Forward - Installing the Microsoft ESB Guidance for BizTalk Server

Many people are eager to get their hands on the new Microsoft ESB Guidance for BizTalk and start exploring all of the great stuff it contains. However, we're seeing that a lot of people are struggling with the installation process. Therefore, I thought I'd put together some documentation on the process I followed and I also figured that it would be useful to create some simple checklists that outline all of the tasks, actions and software you need to complete.

Based on my experiences (and backed up by my colleague Jim Bowyer's experiences) most of your time will be spent installing the prerequisites that the ESB guidance requires. The guidance does include some fairly comprehensive help files that do outline all of the service packs, hot fixes etc that you need, however I've found that most people rush through this section a bit and miss one of two of the required components or required tasks. I myself spent several hours trying to debug the sample applications only to realize that I had missed one key hot fix and one key step in the configuration process. My strongest recommendation is to really take your time when setting up your environment and make sure you've got everything install and configured properly before you try and install the ESB guidance. A little care taken at early will save you massive amount of time later when you're trying to debug malfunctioning components and sample applications.

After running through this process a couple of times, I'd estimate that I could do a complete installation in a little less than ½ a day. It took me almost two days the first time I did this due to fact that I rushed through the process and missing a couple of steps. The ½ day estimate is also based on the fact that I have a base Virtual PC image that I can start from. Without this image (i.e. if you're building a machine from the O/S up), you'll obviously need more time (perhaps even up to 2 days). Finally, please note documentation is not my day job; these are merely supplementary notes to help folks get started with the ESB Guidance. I hope you find this valuable and I welcome your feedback.

Knowing What You're Installing

The ESB Guidance for BizTalk server contains a number of interrelated components. It's key to understand what the guidance contains before you begin the process as each component has a separate install process and you do not need to install everything

1. ESB Engine : Core Component and Services
 - This is the heart of the ESB and contains all of the core functionality such as the itinerary processors, resolver classes, routing agents, mapping agents, external mapping services, operations services etc.
2. ESB Namespace Component
 - BizTalk requires namespaces on all XML messages in order to process them. For those of you that have XML messages with no namespaces, you can use this component to dynamically assign temporary namespaces to messages as they enter the ESB and then remove them as they leave it.

3. ESB JMS Component
 - This is a specialized component that allows the ESB to pull JMS based messages off of an MQ Series Queue. Not everyone will need this component.
4. Exception Management Framework
 - A centralized framework for managing exceptions that occur both inside and outside of the ESB. This is a useful component for anyone implementing any kind of BizTalk project whether it is an ESB pattern or not.
5. ESB Administration Portal
 - An ASP.NET web application that provides a lot of functionality for an ESB operator. It contains the ability to review exceptions flowing through the Exception management framework, review the health of the ESB, manage new web services, etc.
6. Prebuilt Samples
 - Sample applications that can be used by developers to understand how to interact and extend the other 5 components. These are not intended for a production system.

This write up contains the steps I followed to install components 1, 4, 5 and 6. However, the prerequisite software I outline covers everything you will need to install all of the components.

Starting Environment

My base image has the following software already installed. Before you start with the ESB install, make sure that you have each and every one of these components installed before you start your install.

- Windows Server 2003 Enterprise Edition
 - Configured as 'Application Server' installing:
 - Internet Information Service 6.0
 - ASP.NET
 - Service Pack 2 for Windows 2003
 - UDDI Services installed (install after SQL Server to use it as data store)
- SQL Server 2005
 - SP2 for SQL Server 2005
 - Database services installed
 - Analysis Services installed
 - SSIS installed
- Visual Studio 2005
 - Web Projects must be installed

- C# projects
- SP1 for Visual Studio 2005
 - The ESB core components don't need this, but if you want to compile and run the ASP.NET based *ESB Management Portal*, then you will need it, if you do not install this, then you will see the following error message when you try and load the portal code in Visual Studio 2005 "The project file... ESB.portal.csproj cannot be opened. The project type is not supported by this installation.")
 - If installing on Windows Server 2003 machine then you should apply Windows Installer hot fix KB 925336 **before** you install VS2005 SP1 (See note box below for info on related error)
- BizTalk Server 2006 R2
 - With all the BAM elements installed and configured
 - With all the Business Rules elements installed and configured
- .NET Framework 3.0
- InfoPath 2003 (you could use 2007 instead)
- Excel 2003 (you could use 2007 instead)

Note: When you try to install the SP1 for Visual Studio, You might receive the following error:



If you receive this same error upon install, you can find a knowledge base article for it at <http://support.microsoft.com/kb/925336>

The fix mentioned in the knowledge base article can be found at: <http://www.microsoft.com/downloads/details.aspx?FamilyId=8EFFE1D9-7224-4586-BE2B-42C9AE5B9071&displaylang=en>

Note: These instructions are for a single machine install, i.e. a single Windows Server in a standalone workgroup. If you are installing to multiple machines in a group, there are some known issues with these steps. These issues (and their resolutions) are covered in the core help documents that ships with the guidance

Download Microsoft ESB Guidance for BizTalk Server 2006 R2

If you haven't already got your hands on the latest version of the guidance, it is available at <http://www.microsoft.com/downloads>

Unpack the Guidance

Run the file that you downloaded from to install the guidance. It will by default be installed to "C:\Program Files\Microsoft ESB Guidance 1.0 - November 2007\". This does not install the ESB components, it will merely unpack the download file and install all of the documentation and install scripts to your system. You should have a new entry in your start menu under "all programs" named "Microsoft patterns and practices->ESB Guidance 1.0 - November 2007"

Installing the prerequisites

The following elements are prerequisites for the ESB guidance. Install them **before** you try and run any other part of the installation process.

1. Hot fix KB923028

More Info At: <https://connect.microsoft.com/VisualStudio/content/content.aspx?ContentID=3705&wa=wsignin1.0>

Download Install file at: <https://connect.microsoft.com/VisualStudio/Downloads/DownloadDetails.aspx?DownloadID=6003>

2. Enterprise Library 3.1

You can download from: <http://www.microsoft.com/downloads>

3. Hot fix for KB944532

Apparently for this one you have to contact support. It's not available for public download. Some people have mentioned that it's been renumbered from KB 943871, but either way you'll need to make a support call. This is for the exception management feature areas. Apparently the ESB Guidance still works without it but the information we collect from BizTalk won't be as correct as it could be without.

4. Dundas Chart for ASP.NET Control

If you plan to use the ESB Admin portal, you will need to purchase the Dundas Chart for ASP.NET control from www.dundas.com You have to make sure that you have the Enterprise version. The professional or standard version will not work. For my installation, I downloaded the Enterprise Eval version.

5. SysInternals DebugView

If this is a development or test machine, then it is recommended that you install the Sysinternals DebugView tool as it really simplifies debugging. It is available for free at <http://www.microsoft.com/technet/sysinternals/Miscellaneous/DebugView.mspx>

Prerequisite Security Configuration

There are a number of security configuration steps that you need to enable Kerberos for IIS Authentication. Steps on how to do this can be found at <http://support.microsoft.com/kb/215383>

You need to allow the server to be trusted for delegation. Details on how to do this can be found at <http://technet2.microsoft.com/windowsserver/en/library/b207ee9c-a055-43f7-b9be-20599b694a311033.mspx?mfr=true> (Note for standalone machines in workgroup environments this step can be skipped.)

To ensure your SQL Server can participate in Kerberos authentication, you must make sure that the SQL Server service is running under the LOCAL SYSTEM or NETWORK SERVICE account.

The BizTalk Operations Web Service obtains and updates BizTalk-related information in several different ways. In some cases, to maximize performance, it directly queries database tables in the BizTalk Message Box database and the BizTalk Management database.

For successful execution of these operations, you must grant the following rights to the BTS_HOST_USERS database role in the relevant databases. You can use Microsoft SQL Server Management Studio to accomplish these tasks. Grant the following table rights to the BTS_HOST_USERS database role in the BizTalkManagement database (BizTalkMgmtDb):

adm_hostInstance -> SELECT

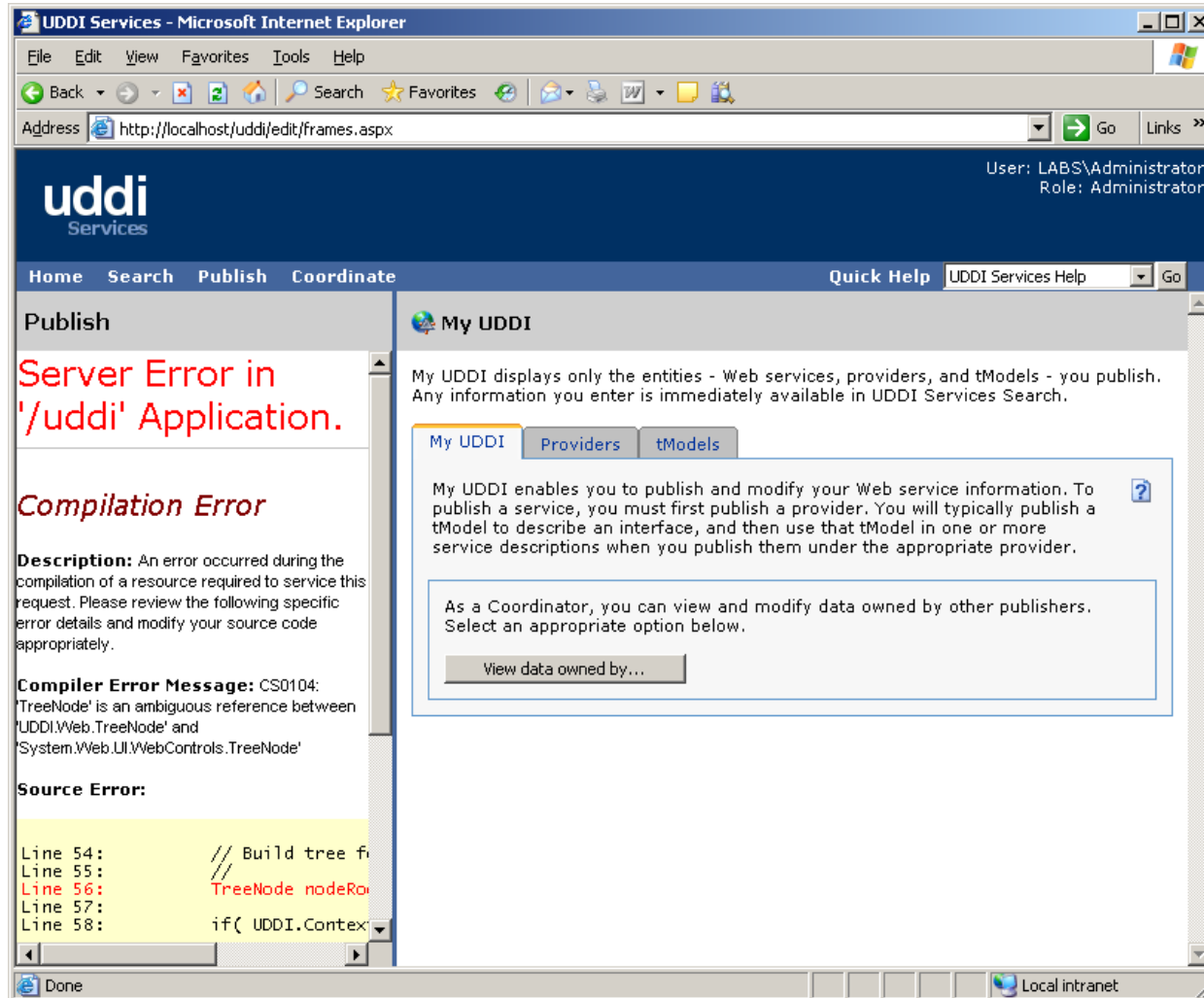
adm_Server2HostMapping -> SELECT

Grant the following table rights to the BTS_HOST_USERS database role in the BizTalk MessageBox database (BizTalkMsgBoxDb):

ProcessHeartbeat -> SELECT

Fixing a Broken UDDI Install

If you've installed the Microsoft UDDI services on your machine and you have the .NET 2.0 or 3.0 framework installed, then it's likely that your UDDI install is broken. If you try to run the UDDI administrative interface under .NET Framework 2.0, you will discover a class ambiguity error because the TreeNode class also exists as part of the UDDI system, as within the .NET Framework 2.0. An example of this error is shown below.



To fix this, you must edit the Explorer.aspx page in both the UDDI\webrroot\edit and UDDI\webrroot\admin folders to change the TreeNode class references to UDDI.Web.TreeNode.

Please note the information in this document is provided "AS IS" with no warranties, and confers no rights.

Choosing Your Installation Type

Note: this is a key decision during the installation process as it will affect a number of other decisions throughout the remaining process. There are two ways you can install the ESB guidance core components, you can either use the Install packages that ship with the guidance, or you can deploy the components directly from the source code. The key thing to keep in mind is that once you've picked one of the options

I chose to install the guidance via the source code and that's the only approach that I've documented from this point on for all the ESB components.

Installing the Core Components from the Solution Project

Copy the ESBSource.zip file from C:\Program Files\Microsoft ESB Guidance 1.0 - November 2007\ into a folder with a short name, such as C:\Temp, on your hard drive to avoid errors due to the long path and file names contained in the .zip file.

Create a folder named Projects in the root of your C: drive, and create a subfolder named Microsoft.Practices.ESB within this folder.

Uncompress the distribution ESBSource.zip file into the C:\Projects\ Microsoft.Practices.ESB folder. This will create folders named Keys and Source containing the sample key, the source files, and the samples.

Note: Do not change the name of this folder or install to a different location. If you change the name of this folder, then several of the automated installation scripts will fail.

Note: You must either compile the Microsoft ESB core solution and copy all assemblies into \bin directory created by Microsoft ESB guidance installer or manually update sample references, so that the samples will compile and deploy properly. This is a requirement for resolving the samples dependencies on the assemblies included in the released version, or on assemblies that you compile.

Once you've unpacked the files and you're prerequisites are all installed and configured, you're ready to start the install of the core ESB components.

- Open the Microsoft.Practices.ESB.sln solution. Open the properties windows for each BizTalk project. Select the Deployment entry in the Configuration Settings section of the tree in the right-side pane, and then click All Configurations in the drop-down list at the top of the dialog. Ensure that the Server and Configuration Database settings point to the appropriate SQL Server and BizTalkMgmtDb database.
- Run the EsbExceptionDb_CREATE.sql from the \Source\Exception Handling\SQL\ESB.ExceptionHandling.Database\Create Scripts folder. This creates the EsbExceptionDb database and creates the required security roles
- Select the BizTalk Application Users group (the default is [domain]\BizTalk Application Users) in the Security\Logins section and open the properties dialog box. Select User Mapping and map this login to the EsbExceptionDb database and to the ESBPortal database role. This grants the account execution rights for all the stored procedures within the database. Repeat this step with the [domain]\BizTalk Server Administrators group, mapping it to the ESBPortalAdmin role.
- Open the file at \Source\Core\Install\Scripts\ PreProcessingCORE.vbs edit the parameters as you need for your environment. Run this file once your changes are saved.

Note: I've found a number of issues that can cause this PreProcessingCore.vbs script to fail. (One of these is changing the name of the base C:\Projects\ Microsoft.Practices.ESB folder). The thing to be really careful of is that while the script will fail, it does not give any explicit "success" message. It simply tells you that the script is complete. However there might have been errors that prevent a number of the tasks from completing. In the case of the changed folder structure, the script will fail to create the required Virtual Directories in IIS. Therefore it is recommended that you manually verify the tasks and actions that the script was suppose to perform. The documentation that ships with the guidance is quite good in outlining exactly what each install script was suppose to have done.

- Run \Source\Core\Install\Scripts\ 1.Install_Prerequisites.cmd (This sets up the UDDI stuff and installs the event source (Microsoft.Practices.ESB.EventSource.dll)
- When the last script completes successfully, run the \Source\Core\Install\Scripts\ 1.CORE_CreateBizTalkApplication.cmd file
- Open the BizTalk admin console and change the SQL Target setting for the SQL Adapter associated with the send port named All.Exceptions, which supports the Exception Management Framework, to point to the EsbExceptionDb database you created earlier
- Open up the BizTalk Administrative Console and start the Microsoft.Practices.ESB application

Configuration

After installing the components, you'll need to update the BTSNTSvc.exe.config file from C:\Program Files\Microsoft BizTalk Server 2006 and the machine.config file. Samples for both of these files are located in the C:\Projects\ Microsoft.Practices.ESB\Source\Core\Config folder. Do not copy these files over top of your own files. Read the "Configure BizTalk and Machine.config Files" section in the help file for information on which sections you have to edit.

Installing the Exception Management Framework from the Solution Project

Note: The installation guidance in the help files assumes that you haven't already deployed the core components. If you have already done that, then you'll notice a number of steps are duplicated in this process. You can skip those duplicated steps. If you haven't already installed the core components, then you'll need to follow each of these steps.

- Open the Microsoft.Practices.ESB.ExceptionHandling.sln solution from the C:\Projects\ Microsoft.Practices.ESB\Source\Exception Handling folder
- Open the properties window for each BizTalk project and make sure the deployment options are setup to point to the correct BizTalk server instance
- Open the PreProcessingCORE.vbs file that is in C:\Projects\ Microsoft.Practices.ESB\Source\Exception Handling\Install\Scripts folder and edit the variables to match you local environment settings
- Run the PreProcessingCORE.vbs file
- Run the 1.CreateBizTalkApplication.cmd file that is in the C:\Projects\ Microsoft.Practices.ESB\Source\Exception Handling\Install\Scripts folder

Installing the ESB Management Portal from the Solution Project

The ESB Management Portal is a custom ASP.NET Web Application created to management a number of elements within the ESB. To setup this portal you'll need to follow these basic steps:

- Open SQL Server Management Studio (or an equivalent SQL Server management tool) and connect to the SQL Server that will host the portal administration database. Open the SQL script ESB.Administration Database.sql from the \Source\Samples\Management Portal\SQL\ folder into a new Query window and execute it to create the EsbAdmin database.
- Create a new IIS virtual directory for the portal using the following settings:
 - Alias: ESB.Portal
 - Directory: C:\Projects\Microsoft.Practices.ESB\Source\Samples\Management Portal\ESB.Portal
 - Allow the following: Read, Run Scripts (such as ASP)
 - Allow anonymous access: No
 - Application Pool: ESBNetworkAppPool
- Open the solution located at C:\Projects\ Microsoft.Practices.ESB\Source\Samples\Management Portal\ESB.Portal\ESB.Portal.sln
- Open the references and remove the broken reference to DundasWebChart

- Add in a reference to the DundasWebChart you installed as part of the pre-requisite software installation phase. It should be located at C:\Program Files\Dundas Software\Charting\WebControlVS2005\Bin\DundasWebChart.dll
- There are a number of configuration settings you'll want to validation/change. These settings are in the Web.config file
- Build the solution
- Open the portal at <http://localhost/esb.portal/> to validate that the portal loads correctly

Check Lists

The following list are provided for an individual who is familiar with the installation processes and who is looking for a quick checklist to validate that they have performed all of the core stages. These are not formal Microsoft approved checklists and you may need to augment them if you're system requires additional tasks, software or actions. Please use them only as a jump start for your own official system installation process

Pre-Installation Software Requirements	More Info	Complete
Windows 2003		
Windows 2003 Service Pack 2	http://www.microsoft.com/downloads	
Internet Information Services 6.0		
UDDI Services (using MSDE as the database)		
SQL Server 2005 Database Services		
SQL Server 2005 Analysis Services		
SQL Server 2005 Integration Services		
SQL Server 2005 Service Pack 2		
Visual Studio 2005 (Including C#, C++ and Web Projects)		
Hot fix for Installer KB925336 (required before VS2005 SP1 Installed on Win Svr 2003)	http://support.microsoft.com/kb/925336	
Visual Studio 2005 Service Pack 1 (required for running the ESB Management Portal)	http://www.microsoft.com/downloads	
BizTalk Server 2006 –R2 (Including all BAM components, Business Rules Components)		
.NET Framework 3.0	http://www.microsoft.com/downloads	
Enterprise Library 3.1	http://www.microsoft.com/downloads	
InfoPath 2003 or 2007		
Excel 2003		
.NET 3.0		
Hot fix KB923028	http://support.microsoft.com/kb/923028	
Hot fix for BizTalk KB944532 (or KB943871)	Contact Microsoft Support	
SysInternals DebugView	http://www.microsoft.com/technet/sysinternals/Miscellaneous/DebugView.msp	
Dundas Chart for ASP.NET (Enterprise Edition)	http://www.dundas.com	

Pre-Installation Tasks	More Info	Complete
Enable Kerberos Authentication for IIS	http://support.microsoft.com/kb/215383 http://support.microsoft.com/kb/326089	
Enable Trust Delegation for IIS	http://technet2.microsoft.com/windowsserver/en/library/b207ee9c-a055-43f7-b9be-20599b694a311033.mspx?mfr=true	
Verify that the SQL Server process is running as LOCAL SYSTEM or NETWORK SERVICE account		
Configure the BizTalk Server 2006-R2 installation (including BRE elements and all of the BAM elements)		
Required permissions granted to the BTS_HOST_USERS role in SQL Server (a manual process)	Help Documents Section "Security Requirements"	
Verify that the default BizTalk hosts exist		
Verify that the default BizTalk Security Groups exist		
UDDI Installation is validated to ensure that http://localhost/uddi/admin/ and http://localhost/uddi/edit/ pages load correctly	Help Documents Section "Operating System and Applications"	
Validated that the ESB Guidance has been unpacked to "C:\Projects\Microsoft.Practices.ESB"	Help Documents Section "Unpack the Microsoft ESB Guidance Source Files"	
Download the ESB guidance	http://www.microsoft.com/downloads	

Core Components - Installation Tasks	More Info	Complete
Modify all of the BizTalk projects in the C:\Projects\Microsoft.Practices.ESB\Source\Microsoft.Practices.ESB.sln solution so that their deployment options point to the correct BizTalkMgmtDB database		
Run the EsbExceptionDb_CREATE.sql script		
Map the [domain]\BizTalk Server Administrators account to the "ESBPortal" role in the EsbExceptionDb		
Map the [domain]\BizTalk Application Users account to the "ESBPortalAdmin" role in the EsbExceptionDb database		
Edit the PreProcessingCORE.vbs file so that the variables match the local environment settings	Help Documents Section "Settings in the PreProcessingCORE Script"	
Run the PreProcessingCORE.vbs		
Review outcome of PreProcessingCore.vbs and validate that all required actions have completed successfully	Help Documents Section "Install the ESB Guidance from the Solution Project". Step 6 lists	

	the expected outcomes of this script.	
Run the 1.Install_Prerequisites.cmd script		
Run the 1.CORE_CreateBizTalkApplication.cmd script		
Review outcome of the two install files and validated that all required artifacts have been installed	Help Documents Section "Assemblies and Artifacts Installed by the ESB Core the ESB Core" list all artifacts installed by the 2 scripts	
Re-configure the SQL Adapter in the ALL.Exceptions send port in the Microsoft.Practices.ESB application within the BizTalk Administrative console. Make sure it points to the proper database server.		

Core Components - Post Installation Tasks	More Info	Complete
Update the BTSNTSvc.exe.config file from C:\Program Files\Microsoft BizTalk Server 2006	Help Documents Section "Configure BizTalk and Machine.config Files"	
Update the machine.config. <i>Settings from the sample file at "C:\Projects\Microsoft.Practices.ESB\Source\Core\Config\machine.config" were used</i>	Help Documents Section "Configure BizTalk and Machine.config Files"	
Start the Microsoft.Practices.ESB application in the BizTalk Administrative Console		

Exception Management Framework - Installation Tasks	More Info	Complete
Run the EsbExceptionDb_CREATE.sql from C:\Projects\Microsoft.Practices.ESB\Source\Exception Handling\SQL\ESB.ExceptionHandling.Database\Create Scripts folder		
Under the SQL Server security/logins section, ensure that the [domain]\BizTalk Application Users account has a user mapping to the EsbExceptionDb database and the ESBPortal database role		
Modify all of the BizTalk projects in the C:\Projects\Microsoft.Practices.ESB\Source\Exception Handling \ Microsoft.Practices.ESB.ExceptionHandling.sln solution so that their deployment options point to the correct BizTalkMgmtDB database		
Open the Preprocessingcore.vbs in the C:\Projects\Microsoft.Practices.ESB\Source\Exception Handling\Install\Scripts folder and edit the variables to match the local environment settings.		
Run the Preprocessingcore.vbs in the C:\Projects\Microsoft.Practices.ESB\Source\Exception Handling\Install\Scripts folder		
Review outcome of PreProcessingCore.vbs and validate that all required actions have completed successfully	Help Documents Section "Install the Exception Management Framework from the Solution Project". Step 6 lists the expected outcomes of this script.	
Run the install script located at C:\Projects\Microsoft.Practices.ESB\Source\Exception		

Handling\Install\Scripts\1. CreateBizTalkApplication.cmd		
Review outcome of the install file and validated that all required artifacts have been installed	Help Documents Section “Assemblies and Artifacts Installed for ESB Exception Management Framework”	

ESB Management Portal - Installation Tasks	More Info	Complete
Run the SQL script located at C:\Projects\Microsoft.Practices.ESB\Source\Samples\Management Portal\SQL\ESB.Administration Database.sql		
Create a new IIS virtual directory for the portal using the following settings: <ul style="list-style-type: none"> • Alias: ESB.Portal • Directory: C:\Projects\Microsoft.Practices.ESB\Source\Samples\Management Portal\ESB.Portal • Allow the following: Read, Run Scripts (such as ASP) • Allow anonymous access: No • Application Pool: ESBNetworkAppPool 		
Modify solution located at C:\Projects\Microsoft.Practices.ESB\Source\Samples\Management Portal\ESB.Portal\ESB.Portal.sln so that it points to the Dundas WebChart that you installed in the pre-requisite software stage		
Confirm the connection strings in the web.config file point to the correct SQL Server	Documents Section “Check Portal Configuration Settings” in the Portal Configuration Settings	
Validate that the security settings in the web.config file (i.e. the < authorization> section) point to the proper BizTalk groups	Help Documents Section “Check Portal Configuration Settings” in the Portal Authorization Section	
Validate that the URL of the BizTalk Operations Web Service points to the proper URL location.	Help Documents Section “Check Portal Configuration Settings” in the Portal Configuration Settings	
Build the solution		