

# Setup of Windows Server 2003 and Networking with Active Directory in the Network Laboratory (II)

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Keyword : (1)Windows Server 2003 R2  
(2)Business-to-business(B2B) Integrated Network System  
(3)BizTalk Server 2006  
(4)SQL Server 2005  
(5)Virtual Server Extension and SharePoint Services 2002

## Section 5. B2B Integration Server

### 5.1. BizTalk Server 2006 (BTS)

As stated in Chapter 1<sup>1)</sup>, we are going to construct a business-to-business(B2B) integrated network system for the students in the Management and Information Department, Hokusei Gakuen University.

What kind of application should we run as a B2B integration server? Here we introduce BizTalk Server 2006 (BTS)<sup>7)-9)</sup> as a solution to our purpose. BTS is a B2B integration service application that manages various business processes and can communicate with end users with back-end processes. BTS is available as a Web service application and in forms accessible to legacy applications as well.

### 5.2. Application Server of Windows Server 2003

In order to construct a B2B integrated server system on Windows Server 2003 R2 (WSR)<sup>2)-6)</sup>, we have to invoke its “Application Server” function. Application Server is an expanded server role which provides the core technologies required to build, deploy and operate XML Web Services, Web applications and distributed applications. These applications respond to requests that arrive over the network from remote client computers or from other applications. Typically, applications that are deployed and run on Application Server take advantage of one or more of the following:

- Internet Information Services (IIS) (the Hypertext Transfer Protocol (HTTP) server that is built into Windows Server)
- Microsoft .NET Framework versions 3.0 and 2.0
- ASP.NET
- COM+
- Message Queuing
- Web services that are built with Windows Communication Foundation (WCF)

The Application Server role is required when WSR runs applications that depend on role services or features that are part of the integrated Application Server role and that we select during the installation process. Such is the case with a specific configuration of our BTS that uses a set of role services or features that are part of the Application Server environment.

We set up our server to perform Application Server role, by selecting “Application server (IIS, ASP.NET)” in Configuration Your Server Wizard. We select “FrontPage Server Extensions” and “Enable ASP.NET” in addition to the automatically installed IIS, COM+, ASP.NET, and Microsoft.NET Framework which are summarized in Configuration Your Server Wizard in Figure 1.

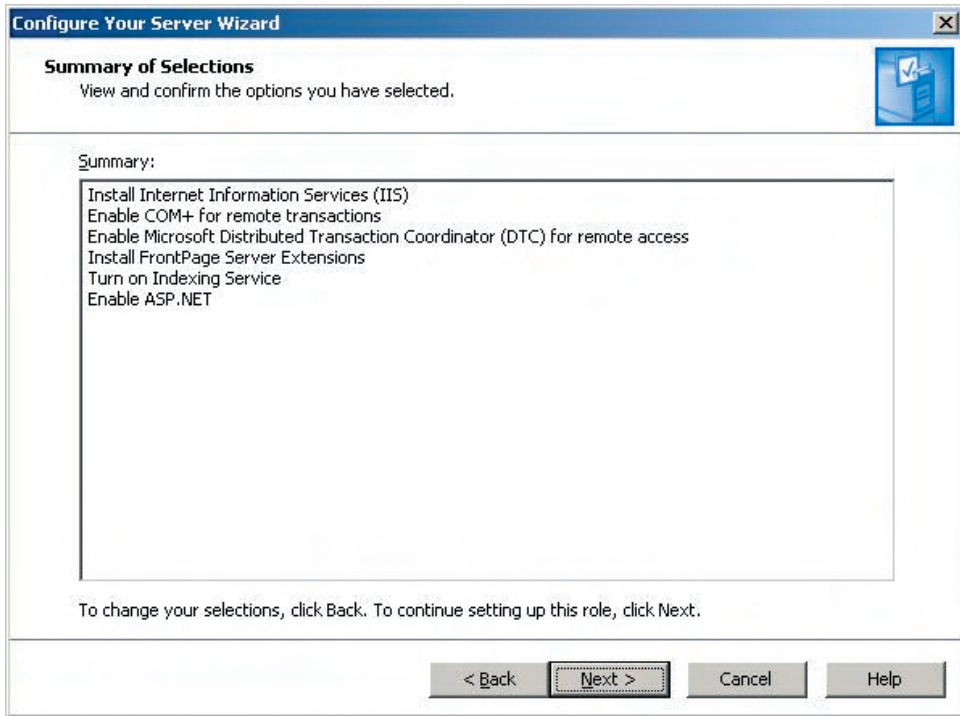


Figure 1 Summary of applications we have selected in the installation of WSR.

Thereby the server acquires the role of Application Server as shown in Figure 2.

### 5.3. Requirements for BTS

#### 5.3.1. Hardware Requirements

The following table (Table 1) shows the minimum recommended hardware requirements for a BizTalk Server 2006 (BTS) installation.

Table 1 Minimum hardware requirements for a BTS installation.

Component	Requirement
<b>Computer and processor</b>	450 MHz or higher Intel Pentium-compatible CPU
<b>Memory</b>	512 MB of RAM
<b>Hard disk</b>	10 GB of available hard disk space
<b>Drive</b>	CD-ROM or DVD-ROM drive
<b>Display</b>	Microsoft Windows 2003-compatible VGA or higher-resolution monitor set to 1024 x 768 pixels resolution or greater
<b>Other</b>	Network adapter card (we recommend 10 MBps or larger bandwidth)

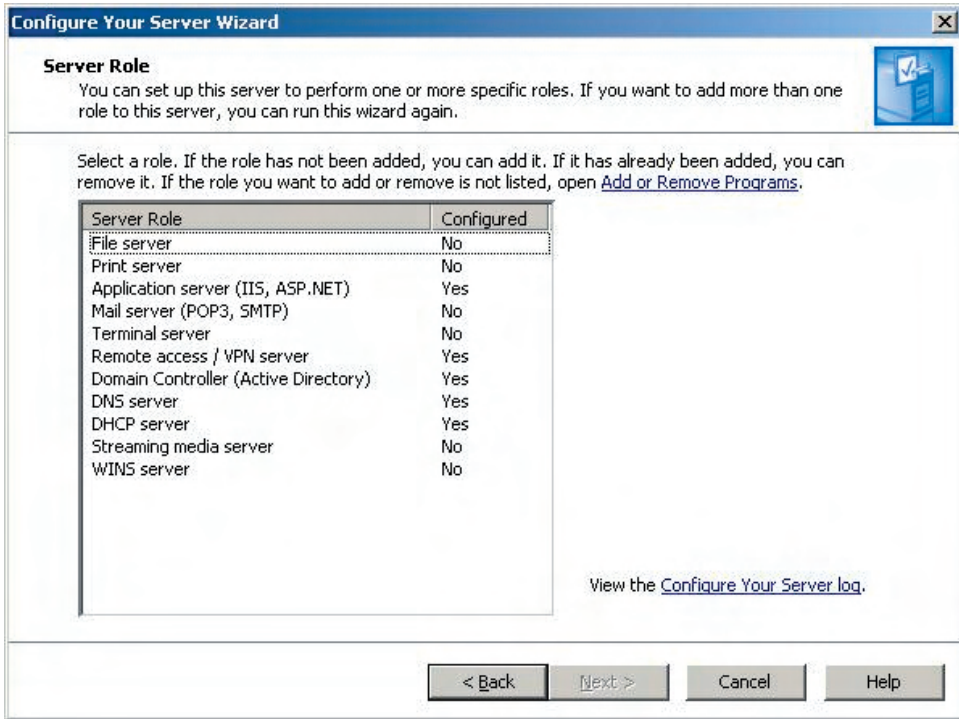


Figure 2 Server roles added to WSR are assigned “Yes” in the Configured column.

### 5.3.2. Software Requirements

The following table (Table 2) lists the prerequisite software we must install on the server that will run BizTalk Server 2006. The software we have installed as prerequisite on our server is shown in bold type in the Product column in the Table 2.

Table 2 Prerequisite software for BTS. The software we have installed as such is shown in bold type.

Product	Description
Microsoft Windows Server 2003 Standard Edition, Enterprise Edition, or Datacenter Edition with Service Pack 1, or <b>Microsoft Windows Server 2003 R2 Standard Edition, Enterprise Edition, or Datacenter Edition</b>	Provides operating system security and Web site administration through Microsoft Internet Information Services (IIS).
<b>Internet Information Services 6.0</b>	Microsoft Internet Information Services (IIS) is a powerful Web server that provides a highly reliable, manageable, and scalable Web application infrastructure. BizTalk Server requires IIS for certain features.

Product	Description
Microsoft SQL Server 2005 or Microsoft SQL Server 2000 with Service Pack 4	Microsoft SQL Server is an enterprise-class relational database server capable of efficiently processing high volumes of critical data. For optimal performance, we use Enterprise Edition of SQL Server.
Microsoft SQL Server 2000 Analysis Services with Service Pack 4	SQL Server 2000 Analysis Services is the next generation of the OLAP (Online Analytical Processing) Services component that shipped in SQL Server 7.0.
SQLXML 3.0 with Service Pack 3	SQLXML enables XML support for our SQL Server database. It allows developers to bridge the gap between XML and relational data. We can create an XML View of our existing relational data and work with it as if it were an XML file.
SQL Server Notification Services 2.0 with Service Pack 1	Microsoft SQL Server 2000 Notification Services provides organizations with a high-performance platform to build scalable notification applications that generate messages customized to meet their users' specific information requirements. This is required if we plan to configure Business Activity Monitoring (BAM) Alerts.
Windows SharePoint Services 2.0 with Service Pack 2	Windows SharePoint Services is a collection of services for Microsoft Windows Server 2003 that we can use to share information, collaborate with other users on documents, and create lists and Web Part pages. This is required if we plan to configure Business Activity Services (BAS).
Microsoft Excel 2003 with Service Pack 2	Business Activity Monitoring (BAM) uses a Microsoft Excel workbook to provide business users with a way to see a real-time holistic view of business processes.
Microsoft InfoPath 2003 with Service Pack 2	Microsoft InfoPath 2003 can help teams and organizations efficiently gather the information they need through rich, dynamic forms. The information collected can easily be reused throughout organizations and across business processes because InfoPath 2003 supports industry-standard Extensible Markup Language (XML) using any customer-defined schema. InfoPath is optional for a BizTalk Server 2006 installation. It is required if we plan to configure Business Activity Services (BAS).

Product	Description
<b>Microsoft .NET Framework 1.1</b>	The .NET Framework version 1.1 is required for the Business Activity Monitoring (BAM) Tools. This is required when we plan to configure BAM Alerts with SQL Server 2000 with Service Pack 4 and SQL Server Notification Services 2.0 with Service Pack 1.
<b>Microsoft .NET Framework 2.0</b>	The .NET Framework version 2.0 improves scalability and performance with improved caching, application deployment and updating with ClickOnce, support for the broadest array of browsers and devices with ASP.NET 2.0 controls and services. This is required for the BizTalk Server 2006 runtime.
<b>Microsoft Visual Studio 2005</b>	Microsoft Visual Studio 2005 provides a powerful, enterprise team development environment for rapidly building mission-critical applications that target any device and integrate with any platform. This is required for the BizTalk Server Developer Tools and SDK component.
<b>Microsoft Data Access Components (MDAC) 2.8 Service Pack 1 (SP1)</b>	Microsoft Data Access Components (MDAC) 2.8 SP1 contains core Data Access components such as the Microsoft SQL Server OLE (Object Linking and Embedding) DB provider and ODBC (Open Database Connectivity) driver. By default, MDAC 2.8 is installed on Windows Server 2003.
<b>Microsoft XML Core Services (MSXML) 3.0 Service Pack 7 (SP7)</b>	XML Core Services (formerly known as MSXML, for Microsoft Extensible Markup Language or XML) is an application for processing Extensible Stylesheet Language Transformation (XSLT) in an XML file. XML Core Services is a required piece of software for our BizTalk Server installation.
<b>Microsoft XML Core Services (MSXML) 6.0</b>	MSXML 6.0 has improved reliability, security, conformance with the XML 1.0 and XML Schema 1.0 W3C Recommendations, and compatibility with System.Xml 2.0.
<b>ADOMD.NET 8.0</b>	ADOMD.NET 8.0 is a .NET object model, used for building client applications that access an XML for Analysis 1.1-compliant data provider, such as that provided by the XML for Analysis 1.1 SDK. ADOMD.NET is the .NET successor to the ADOMD (COM) object model.
<b>ADOMD.NET 9.0</b>	ADOMD.NET 9.0 is the successor to ADOMD.NET 8.0.

#### 5.4. Installation of Prerequisites for BTS

Before the installation of prerequisite software for BTS, it should be noted that: the installation of BizTalk Server 2006 into a domain is only supported on a Microsoft Active Directory domain environment that is running in Windows 2000 native mode or later; we must be logged on as an administrator into the Windows Server 2000 or later and add a Windows user account to the Administrators group in order to install additional software. Our B2B integrated network system is constructed on the platform of Windows Server 2003 R2 with Active Directory service enabled.

Windows Server 2003 R2 provides a scalable, security-enhanced Web platform and enables new scenarios, including simplified branch server management, improved identity and access management, and more efficient storage management. The R2 release builds upon the increased security, reliability, and performance provided by Windows Server 2003 Service Pack 1. Here the word “scalable” means that the web platform is built upon the global Internet backbone and provides a single, highly interactive web control console and unified data repository and that large, medium and small businesses can manage a variety of business services, such as file sharing, documents, video, instant messaging, bulletin boards, news, and so on in a unified way.

##### 5.4.1. Internet Information Services 6.0 (IIS 6.0)

Microsoft Internet Information Services (IIS) is a powerful Web server that provides a highly manageable and scalable Web application infrastructure. By BizTalk Server required of IIS are the following features:

- HTTP adapter
- SOAP adapter
- Windows SharePoint Services adapter
- Secure Sockets Layer (SSL) encryption
- Business Activity Services (BAS)
- Human Workflow Services (HWS)

The **Common Files** component in IIS 6.0 is required for publishing BizTalk Web services. We should be careful not to remove this component after installing IIS 6.0.

##### 5.4.2. Microsoft SQL Server 2005

Microsoft SQL Server is an enterprise-class relational database server capable of efficiently processing high volumes of critical data. The BizTalk Server 2006 engine provides the capability to specify a business process and a mechanism for communicating between applications the business process uses. The BizTalk Server 2006 core engine uses SQL Server as the main repository for this communication mechanism. SQL Server 2000 or SQL Server 2005 is a required piece of the overall architecture.

SQL Server 2005 installation sets the profile to the Business Intelligence profile. When we launch Visual Studio for the first time, we will not have the option to select a default profile setting. To work around this issue, we can reset the settings to the profile we want by using **Import and Export Settings** in Visual Studio 2005.

SQL Server Setup installs the following software components required by the product:

1. Microsoft Windows .NET Framework 2.0
2. Microsoft SQL Server Native Client
3. Microsoft SQL Server Setup support files

In our SQL Server 2005 installation we are asked what components we want to select. As shown in Figure 3 in part, we select the following components which allow us to work with the entire BizTalk product:

- Analysis Services

If Analysis Services was upgraded from SQL Server 2000, all cubes, dimensions, and mining models must be reprocessed using SQL Server Management Studio.

- Reporting Services

The Reporting Services installation options we specified in Setup determine whether further configuration is required before we can access the report server. If we installed the default configuration, the report server can be used immediately. If we installed just the program files, we must run the Reporting Services Configuration tool to deploy the report server. We have specified “install the default configuration” in Report Server Installation Options.

The database will be accessed using the Service Context Virtual Directories:

Report Server: <http://KEIJO-DMI-NOTO/ReportServer>

Report Manager: <http://KEIJO-DMI-NOTO/Reports>

- Integration Services

SQL Server 2000 Data Transformation Services packages can run side by side with SQL Server 2005 Integration Services packages.

- Notification Services

This is required only if we want to use Business Activity Monitoring (BAM) Alerts. We can deploy and manage Notification Services instances using SQL Server Management Studio or the nscontrol command-prompt utility, as well as programmatically.



- Documentation and Samples

To add Microsoft Visual Studio documentation to Business Intelligence Development Studio, we install the MSDN Library from the SQL Server 2005 installation media.

To install sample databases and code samples, we can see “Running Setup to Install AdventureWorks Sample Databases and Samples” in SQL Server 2005 Books Online.



Figure 3 Report Server Installation Information.

### 5.4.3. Microsoft Excel 2003 with Service Pack 2

Microsoft Office Excel is used for the Business Activity Monitoring (BAM) feature in BizTalk Server. We use the BAM Microsoft Office Excel workbook to define the business processes we want to monitor. We also use the BAM Excel Workbook to define the way in which business users see the data collected by BAM.

#### 5.4.4. Microsoft InfoPath 2003 with Service Pack 2

Microsoft Office InfoPath is optional for a BizTalk Server 2006 installation. It is required if we plan to configure Business Activity Services (BAS) and use Microsoft Office InfoPath as a BAS client.

#### 5.4.5. Microsoft Visual Studio 2005

Visual Studio 2005 is important for the development process in BizTalk Server. To install the BizTalk Server 2006 development tools, we must install Visual Studio 2005 on our computer. The BizTalk Server development tools are based on Visual Studio 2005. Therefore, at a minimum, we must have the Visual C# .NET portion of Visual Studio 2005 installed on our computer before installing BizTalk Server Developer Tools and SDK component.

### 5.5. Windows Update Products

Now that we have installed all the prerequisite software for BizTalk Server 2006, it is time to update Windows Products on our server. At this point the high-priority update is Microsoft Windows Server 2003 Service Pack 2 (SP2). Windows Server 2003 SP2 is a cumulative service pack that includes the latest updates and provides enhancements to security and stability. In addition, it adds new features and updates to existing Windows Server 2003 features and utilities. After we install this item, we have to restart our computer.

Figure 4 shows that Windows Server 2003 SP2 is successfully updated and that there still remain ten software un-updated yet.

### 5.6. Configuration of Platform for BTS

Before installing BizTalk Server 2006, we have to finish configuring the platform. Mainly there are three configurations required.

#### 5.6.1. Default Web Site for ASP.NET 2.0

In the following procedure we configure the Default Web Site for ASP.NET 2.0 (see Figure 5). This is required to install the Windows SharePoint Services Adapter for BizTalk Server.

#### ▶ Configure Default Web Site for ASP.NET 2.0

1. Click **Start**, point to **Administrative Tools**, and then click **Internet Information Services (IIS) Manager**.
2. In **Internet Information Services (IIS) Manager**, expand our server, expand **Web Sites**, right-click **Default Web Site**, and then click **Properties**.

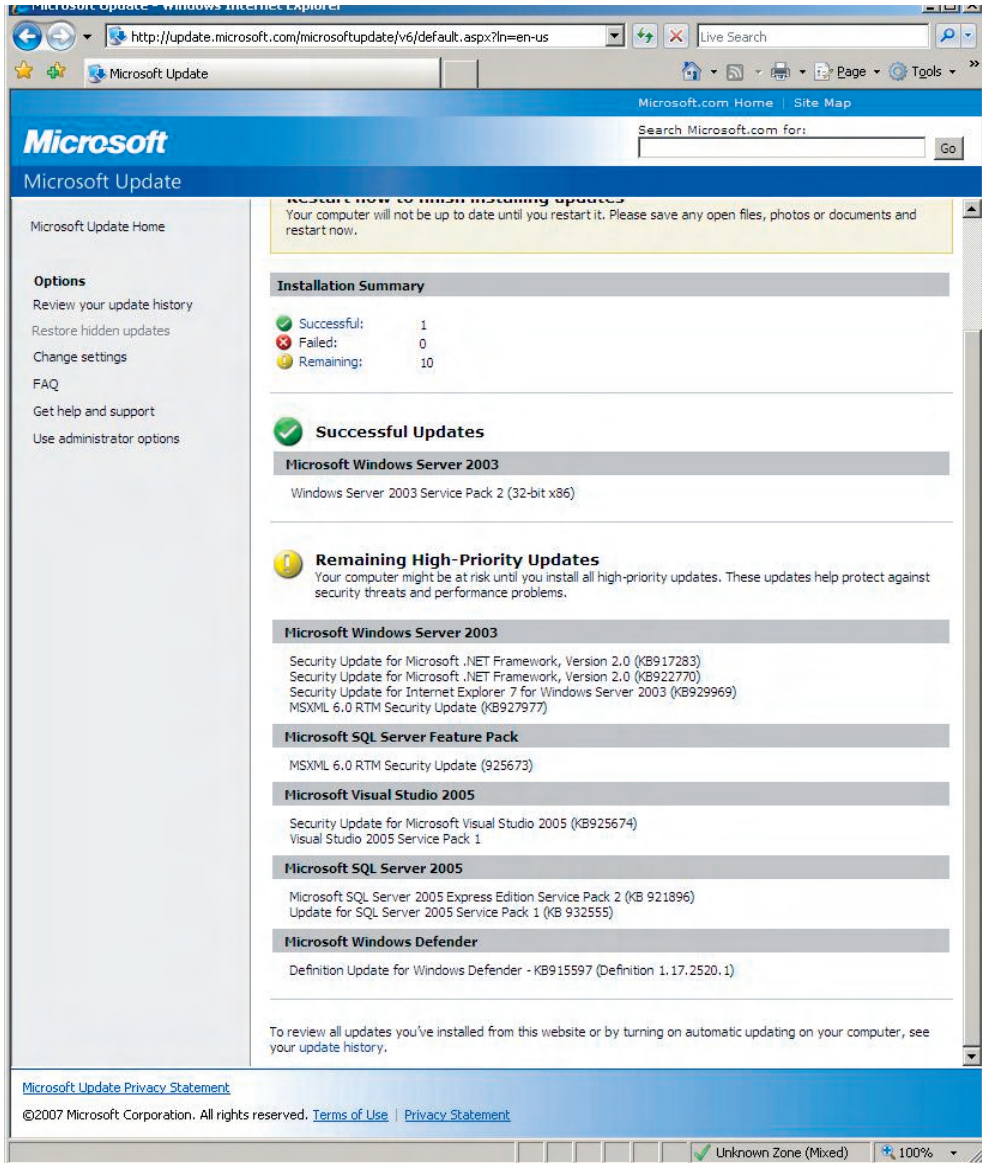


Figure 4 Review of our installation results: Successful Updates and Remaining High-Priority Updates.

3. In **Default Web Site Properties**, click the **ASP.NET** tab.
4. In the **ASP.NET Version** drop-down box, select **2.0.50727.0**, and then click **OK**.
5. Close IIS Manager.

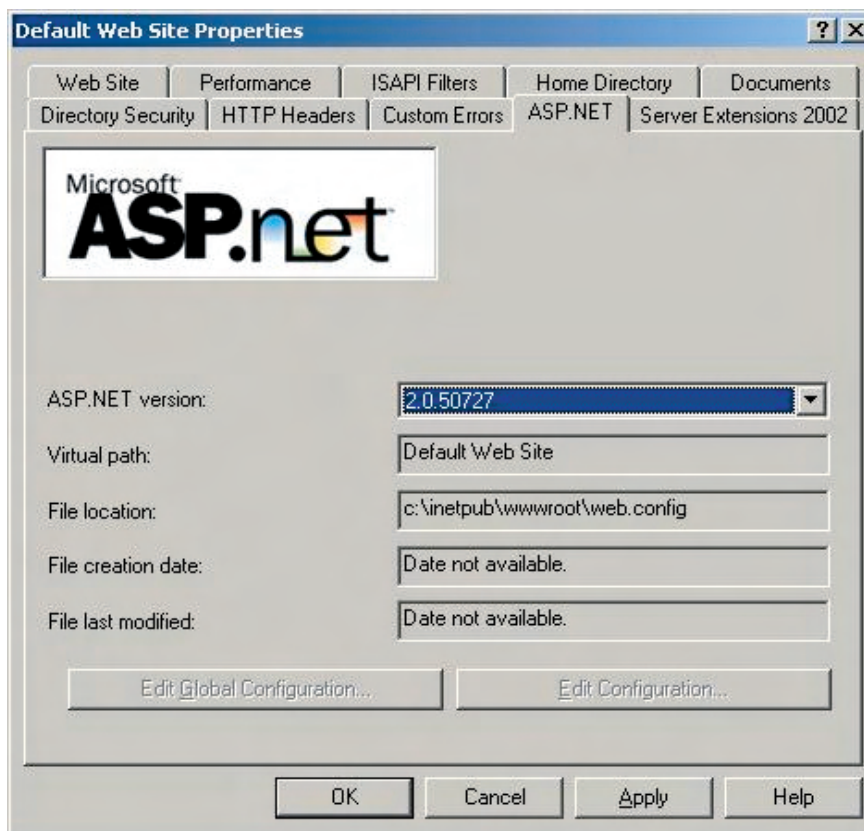


Figure 5 Default Web Site for ASP .NET 2.0.

### 5.6.2. Windows SharePoint Services

Windows SharePoint Services is a platform technology, and is designed to be extensible. Several products build on Windows SharePoint Services, and we can extend Windows SharePoint Services to work with our product. Windows SharePoint Services help users work together. SharePoint sites provide a central repository for documents, information, and ideas, and allow users to work interactively. Windows SharePoint Services can help us communicate within an organization, on the World Wide Web, and across these boundaries. Following the procedure below we configure Windows SharePoint Services.

#### ▶ Configure Windows SharePoint Services

1. Click **Start**, point to **Administrative Tools**, and then click **SharePoint Central Administration**.
2. Under **Application Pool**, ensure that **Create a new application pool** is selected.
3. In the **Application pool name** field, type **WSSAppPool**.
4. Under **Select a security account for this application pool**, ensure that **Configurable**

is selected.

5. In the **User name** field, type a domain account: “KEIJO\Administrator” .
6. In the **Password** field, type our domain account password, confirm our password, and then click **OK** (Figure 6).

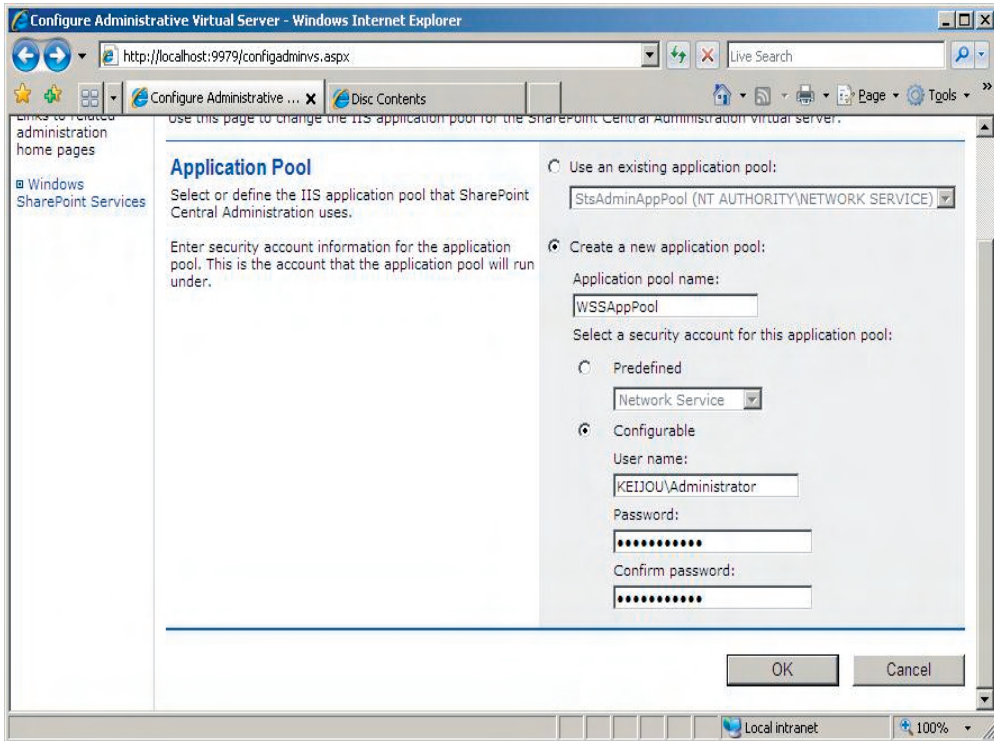


Figure 6 Application Pool setting fields on Configure Administrative Virtual Server page.

7. The **Application Pool Changed** page loads and tells us that we must restart IIS.
8. Click **Start**, click **Run**, type **IISRESET**, and then click **OK**.
9. On the **Application Pool Changed** page, click **OK**. The **Configuration Database** page loads (Figure 7).
10. Under **Configuration Database**, in the **Database server** field, type the name of our server “KEIJO-DMI-NOTO” .
11. In the **SQL Server database name** field, type **WSSDB**.
12. Leave the rest of the default values, and then click **OK**. This creates the configuration database and we are redirected to the **Central Administration Homepage**.

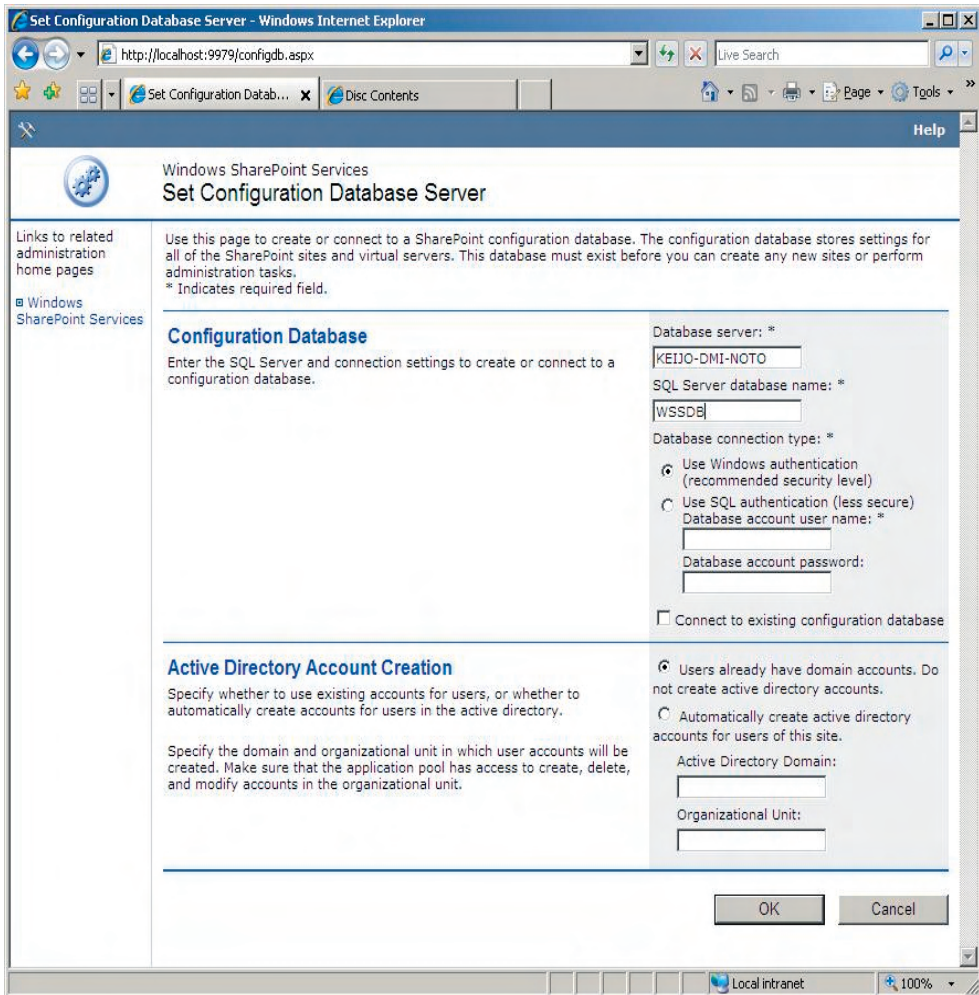


Figure 7 Set Configuration Database Server page.

### 5.6.3. Extension of Default Web Site as a Virtual Server

Microsoft Windows SharePoint Services uses virtual servers to host Web sites on our server. The process of applying Windows SharePoint Services to a virtual server is called “extending”. We must extend a virtual server with Windows SharePoint Services before we can create a Web site based on Windows SharePoint Services, namely we extend the Default Web Site as a Windows SharePoint Services virtual server.

### 5.6.4. Disabled SQL Server Shared Memory Protocol

We disable the SQL Server shared memory protocol (Figure 8). When using the SQL Server shared memory protocol with BizTalk Server 2006 we might experience degradation in performance under certain stress conditions, if clients are accessing

SQL Server from the same computer. To resolve the problem we need to disable the use of the shared memory network protocol in the SQL Server Client Network Utility. After we disable the shared memory protocol, we will need to restart SQL Server services.

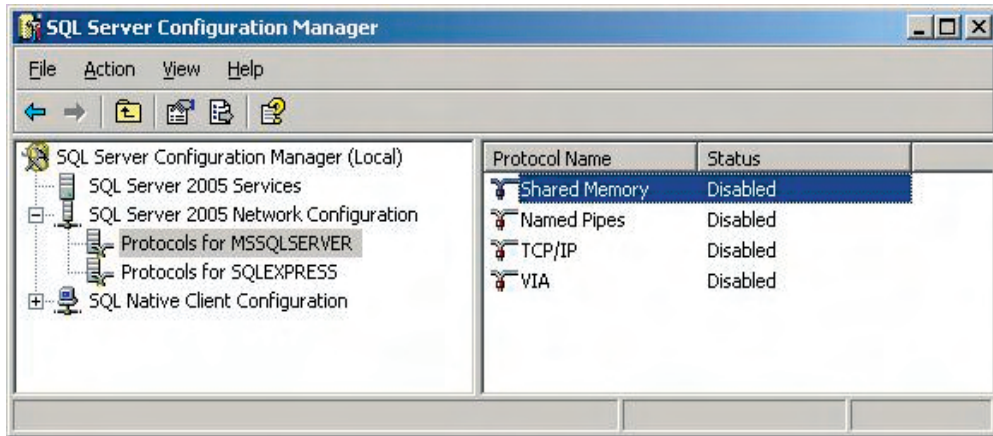


Figure 8 SQL Server shared memory disabled.

#### ► Disabled Shared Memory Protocol for SQL Server 2005

1. Click **Start**, point to **All Programs**, point to **Microsoft SQL Server 2005**, point to **Configuration Tools**, and then click **SQL Server Configuration Manager**.
2. In **SQL Server Configuration Manager**, expand **SQL Server 2005 Network Configuration**, and then expand **Protocols for MSSQLSERVER**.
3. Right-click **Shared Memory**, and then click **Disable**.
4. Close **SQL Server Configuration Manager**.

#### 5.7. Installation of BizTalk Server 2006

Now we install BizTalk Server 2006 on the server we just prepared.

When installing BizTalk Server 2006, we should check the following points:

- Ensure we have installed all BizTalk Server software prerequisites necessary for the type of installation we want to perform.
- If our computer name is longer than 15 characters, BizTalk Server configuration will not work.
- The account we are logged on as must be part of the local administrators group and have DBA (Database Administrator) rights on SQL Server. After configuration is complete, we can lower the privileges to DBO (Database Operator).

- Close all other programs before installing BizTalk Server.
- Both BizTalk Server 2006 Setup and Windows Installer generate log files during the installation process. By default, Setup creates log files in the %Temp% folder. The log files consist of one .htm summary file that is generated each time Setup is executed, one detailed .log file generated by MSI (Microsoft Installer), and one .log file for configuration.
- BizTalk Server 2006 writes event messages to the Windows application log. The Windows application log collects information about events that are generated by the applications running on the local system. We can use the Event Viewer to view the log file and to filter the messages it contains.

#### ▶ Install BizTalk Server 2006

We insert the Microsoft BizTalk Server 2006 R2 installation in the CD-ROM drive. The Microsoft BizTalk Server 2006 Installation Wizard appears. Then we click Install Microsoft BizTalk Server 2006 on the computer.

1. On the **Component Installation** page (Figure 9), we review the available components and select the ones we want to install. We accept the default installation location and click **Next**.
2. On the **Redistributable Prerequisites** page (Figure 10), our machine is missing a prerequisite component such as ADOMD .NET 8.0, ADOMD .NET 9.0, or SQLXML 3.0 SP3. Setup can install the redistributable prerequisites. we can either select **Automatically install the redistributable prerequisites from the web**, or select **Automatically install the redistributable prerequisites from a CAB file** (Microsoft Windows native compressed archive format) if we have downloaded the CAB file.
3. On the **Summary** page (Figure 11), we verify that the components that we select to install are correct.
4. We click **Install** to start the installation process.
5. On the **Installation Completed** page, verify that the **Launch BizTalk Server Configuration** check box is selected, and then click **Finish**. This starts the Configuration Wizard.



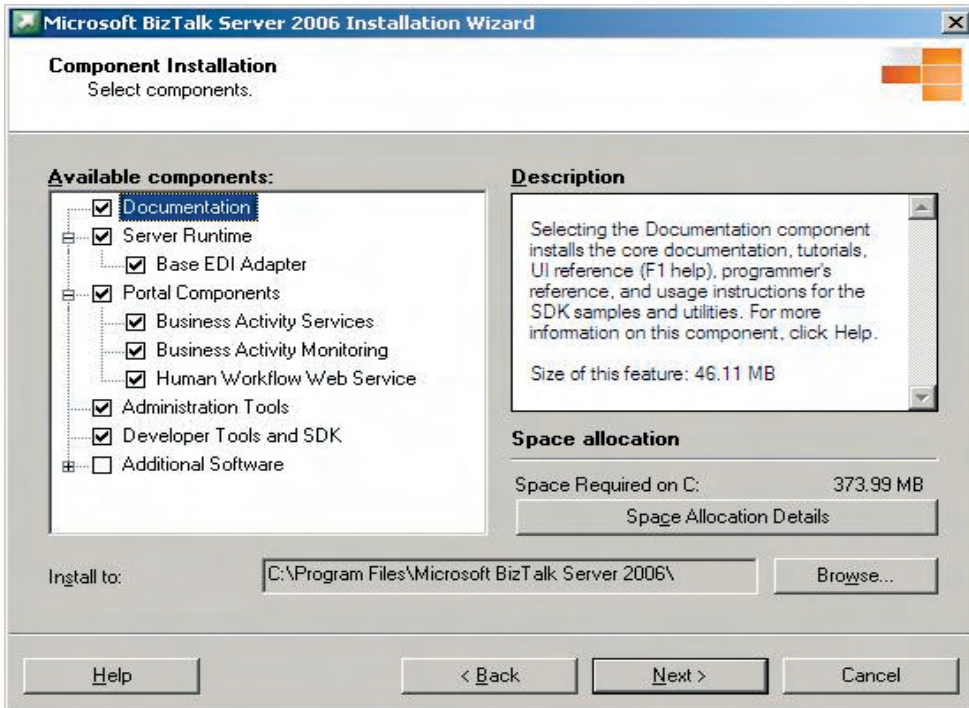


Figure 9 Component Installation page.

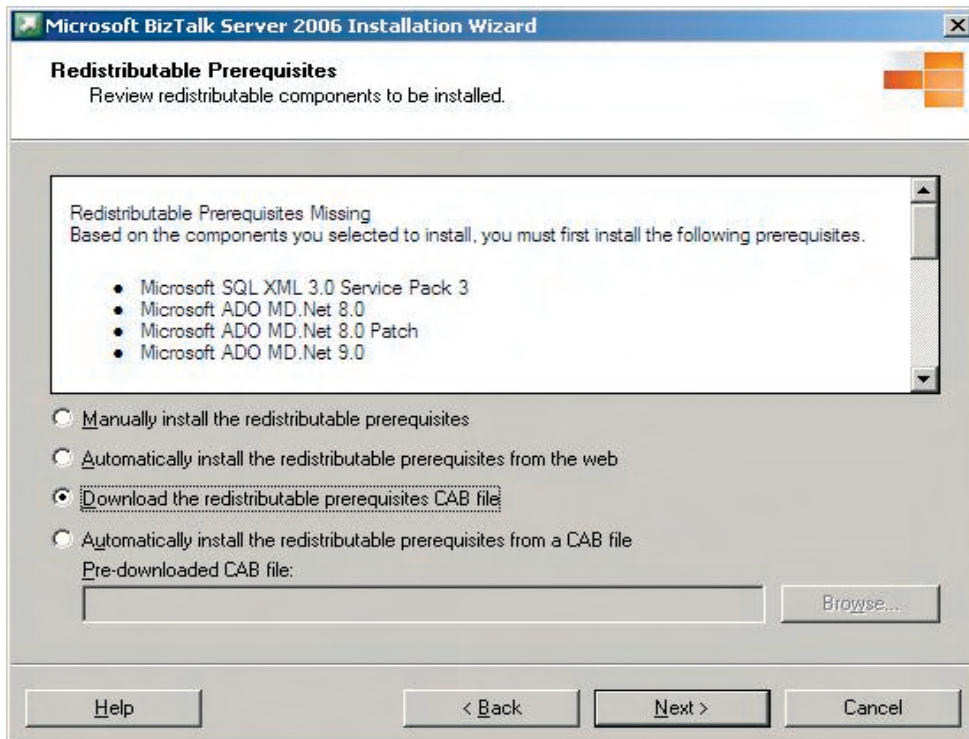


Figure 10 Redistributable Prerequisites page.

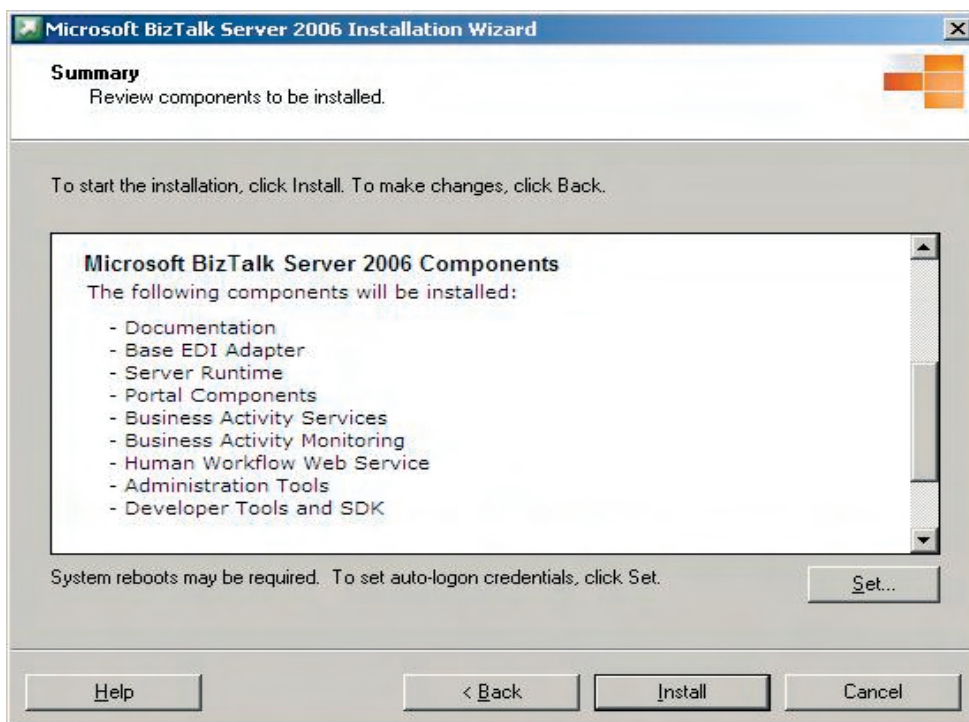


Figure 11 Summary page.

### 5.8. Features and Components of BizTalk Server 2006

We summarize here in Table 3 the basic and fundamental features and components that BizTalk Server 2006 provides.

Table 3 Basic and fundamental features and components of BizTalk Server 2006.

Component	Description
Documentation	Selecting the Documentation component installs the core documentation, tutorials, UI reference (F1 help), programmer's reference, and usage instructions for the SDK samples and utilities.
Server Runtime	Selecting the Server Runtime component installs the runtime services for BizTalk Server 2006. These runtime services are an essential part of the BizTalk Server platform.

Component	Description
Base EDI Adapter	Selecting the Base EDI Adapter component installs the necessary software that enables BizTalk Server 2006 to process documents in the Electronic Data Interchange (EDI) format.
Portal Components	<p>The Portal Components are a set of services used by business people to communicate, collaborate, and reach decisions enabling them to interact, configure, and monitor business processes and workflows. The components consist of the following:</p> <ul style="list-style-type: none"> <li>• Business Activity Services</li> <li>• Business Activity Monitoring</li> <li>• Human Workflow Web Service</li> </ul>
Administrative Tools	Selecting the Administration Tools component installs the necessary software to administer BizTalk Server 2006 on both the local machine and a remote server.
Developer Tools and SDK	Selecting the Developer Tools and SDK component installs samples and utilities that enable the rapid creation of BizTalk Server 2006 solutions. This includes: SDK samples and supporting documentation, BizTalk Explorer, schema and map designers, and Microsoft Visual Studio project templates. This component requires Visual Studio 2005.
Additional Software	<p>Additional Software is a set of components that enable deployment flexibility in BizTalk Server 2006. This includes the following:</p> <ul style="list-style-type: none"> <li>• Enterprise Single Sign-On Administration Module</li> <li>• Enterprise Single Sign-On Master Secret Server</li> <li>• Business Rules Components</li> <li>• MQSeries Agent</li> <li>• Windows SharePoint Services Adapter Web Service</li> <li>• Business Activity Monitoring (BAM) Alert Provider for SQL Notification Services</li> <li>• BAM Client</li> <li>• BAM Event API</li> </ul>

## Acknowledgement

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## Keyword

- (1)Windows Server 2003 R2
- (2)Business-to-business(B2B) Integrated Network System
- (3)BizTalk Server 2006
- (4)SQL Server 2005
- (5)Virtual Server Extension and SharePoint Services 2002

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[Abstract]

Setup of Windows Server 2003 and Networking  
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Active Directory in the Network Laboratory (II)

Hiroshi NOTO

We have planned to introduce and configure a business-to-business (B2B) integrated network system for the students in the Management and Information Department of Hokusei Gakuen University to help them understand and practice connecting applications, defining business processes, managing and monitoring business processes across an organization, and optimizing both internal and B2B processes. This B2B network system will be set up in the Network Laboratory in the Comprehensive Information Center of this university. This article describes the network system, starting with the introduction of an operating system (Windows Server 2003) and the selection of a server computer. It also describes how to install the operating system on the server computer. The article explains in detail how to setup the server system. The main component of the server systems is the Active Directory directory service that is configured to meet the B2B practice requirements on Windows Server 2003. The B2B integrated network system is constructed by exploiting BizTalk Server 2006 which is a service application that manages various business processes and can communicate with end users with back-end processes. The prerequisite software is to be installed on the server computer that will run BizTalk Server 2006. The prerequisites for BizTalk Server 2006 and the installation of BizTalk Server 2006 are elaborated in this article.

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