APPENDIX

SQL Server 2005 Management and Administration

This appendix includes step-by-step instructions on the following SQL Server tasks:

- Basic installation of SQL Server 2005 including all components
- Installation of SQL Server 2005 Service Pack 2
- Configuration of the AdventureWorks OLTP sample database
- Configuration of the AdventureWorks OLAP sample database
- Basic installation of Certificate Services
- Basic installation of Operations Manager 2007

Basic Installation of SQL Server 2005 Including All Components

To install SQL Server 2005 to support SharePoint Server 2007, follow these steps:

- **1.** Insert the SQL Server 2005 disk (Standard or Enterprise Edition).
- Autorun should launch a splash screen with options for installing the prerequisites and application. If Autorun does not work, select Start, Run. Then type DVDDrive: \servers\splash.hta and click OK.

- On the Start page, click Server Components, Tools, Books Online, and Samples to install SQL Server 2005.
- **4.** On the license agreement page, click I Accept the Licensing Terms and Conditions and click Next.

Note

Before you can install Microsoft SQL Server 2005, the Setup Installation Wizard verifies whether the necessary prerequisites such as Microsoft SQL Native Client and Microsoft SQL Server 2005 Setup Support Files have been installed. If the prerequisites have not been met, they are installed now.

- **5.** On the SQL Server Component Update page, click Install to install the necessary prerequisites for SQL Server 2005. To continue after the required components are installed, click Next.
- **6.** On the Welcome to the Microsoft SQL Server Installation Wizard page, click Next.
- 7. On the System Configuration Check (SCC) page, the wizard verifies that the system does not have any installation problems and provides success or failure status including a message on each action being analyzed. To proceed with setup after the SCC scan is complete, click Next to continue.

Note

If you cannot install SQL Server 2005 because a specific action fails during the System Configuration Check, you should stop the setup, address the item, and restart setup. It is possible to use the Help and Report command button to display a list of checked items grouped by result.

- **8.** On the Registration Information page, personalize the installation by entering name and company information; then click Next.
- **9.** On the Components to Install page, select the desired components to install and then click Next. For the purposes of this book, select all components including sample databases.

Basic Installation of SQL Server 2005 Including All Components

Note

You can customize the installation by clicking the Advanced button on the Components to Install page. The Feature Selection page allows you to add or remove specific SQL Server 2005 features, including the installation path on the server. In addition, you need to click Advanced to install the sample databases. The sample databases are included under Workstation Components, Books Online, and Development Tools.

- **10.** On the Instance Name page, select a default or named instance for the SQL Server installation and then click Next. For this example, use the Default instance.
- **11.** On the Service Account page, select either Use the Built-In System Account or Use a Domain User Account. In addition, check which services should start automatically. Alternatively, you can specify a dedicated account for each service. Click Next.
- **12.** On the Authentication Mode page, select the authentication mode to use for the installation and then click Next. Windows Authentication is the preferred authentication mode to use for enhancing security authorization.
- **13.** On the Collation Settings page, click Next. It is possible to change default collation settings used by the Database Engine and Analysis Services for language and sorting purposes. In addition, collation designator and sort order settings can be modified for each service account.

Caution

You cannot change the Collation Setting of a SQL Server installation after setup is complete. Therefore, choose the collation settings wisely; otherwise, a full reinstall is warranted if you must change the settings.

- **14.** On the Report Server Installation Options, review the report server installation details. Then click Next to accept the default values.
- **15.** On the Error and Usage Report Settings page, select whether to participate in the Customer Experience Improvement Program by automatically sending error reports for SQL Server 2005 to Microsoft and automatically sending feature usage data for SQL Server 2005 to Microsoft. Then click Next.

- **16.** To commence the SQL Server 2005 installation, on the Ready to Install page, review the components that will be installed and then click Next.
- 17. On the Setup Summary page, click Next.
- **18.** To exit the SQL Server Installation Wizard, click Finish on the Completing Microsoft SQL Server 2005 Setup page.

SQL Server 2005 Post-Installation Tasks

Post-installation tasks should be conducted after SQL Server 2005 has been installed. Some of these post-installation tasks validate whether the installation was successful, whereas other tasks are required to ensure that the server is secure and operational. The post-installation tasks include

- Reviewing installation logs
- Reviewing event logs
- Obtaining and applying the latest SQL Server service packs and critical updates
- Verifying that server components are installed
- Securing your installation with SQL Server Configuration tools such as SQL Server Surface Area Configuration and SQL Server Configuration Manager

Installing SQL Server 2005 Service Pack 2

As of this writing, SQL Server Service Pack 2 is the latest service pack available for SQL Server 2005. It was issued in February 2007. SQL Server 2005 Service Pack 2 offers a number of features that improve the SQL Server product.

The following example illustrates how to install SQL Server 2005 Service Pack 2 on an unpatched server by downloading the binaries from the Microsoft website.

To update SQL Server 2005 with Service Pack 2, obtain or download the service pack binaries from http://www.microsoft.com/downloads and perform the following steps:

- **1.** Start the installation by double-clicking on the downloaded file.
- 2. On the Welcome page, click Next to continue.
- **3.** Read the licensing agreement; select I Agree if you agree with the terms. Click Next to continue.

- **4.** On the Feature Selection page, select the program features that should be upgraded to Service Pack 2 and click Next to continue.
- 5. On the Authentication page, select the authentication mode, Windows Authentication or SQL Authentication, that the setup program will use to install SQL Server Service Pack 2. Click Test to verify the installation account credentials and click Next to continue.

Note

If the authentication mode, username, and password are the same for all components or instances being updated, select the Apply Selection to All Instances check box. Otherwise, provide the instance name, authentication type, username, and password information for each component or instance being updated.

6. On the Error and Usage Report Settings page, select whether to participate in the Customer Experience Improvement Program, which automatically sends error reports and feature usage data for SQL Server 2005 to Microsoft. Click Next after making your selection.

Note

Participating in the Customer Experience Improvement Program is generally a good idea because the information sent to Microsoft assists the company with building a stronger product and addressing customer errors. Personal data is not typically sent to Microsoft; however, you should read the warnings thoroughly because error reports may unintentionally include personal information from time to time. Microsoft states it will not use the personal information captured.

7. On the Running Processes page, review the locked files identified by the wizard. Either end the processes to avoid a computer restart or click Next to continue.

The Running Processes page identifies all processes that lock SQL Server files as they directly affect the installation of SQL Server Service Pack 2. When these processes are identified, you can manually stop any services, components, or applications causing the files to lock. This includes stopping services listed, including SQL Server Management Studio and Business Intelligence Development Studio. When this task is accomplished, you do not need to reboot SQL Server

after the installation of SQL Server Service Pack 2 is complete. If, however, files are not unlocked, a reboot is required after the installation.

Tip

In production, it is not always possible or realistic to stop the processes responsible for locking SQL Server files because this undertaking would result in a service outage. As a result, it is best practice to schedule planned downtime when production SQL Servers will be updated with the latest service pack.

- **8.** On the Ready to Install page, click Install to initiate the installation of SQL Server Service Pack 2.
- **9.** On the Installation Progress page, verify the results of the installation and click Next to continue.

The Installation Progress page monitors the installation of Service Pack 2 and provides a success or failure message for each component being upgraded. The wizard also indicates whether a reboot is required. A reboot is required if files have operations pending.

10. For a summary of the installation, click View Summary on the Installation Complete page and then click Next.

The summary results are displayed in Notepad and can be saved to a text file for future analysis. The Details section of this page also displays the location of each summary log file.

11. The final screen includes additional information pertaining to security and Vista. Review the information on the Additional Information page and click Finish to complete the SQL Server 2005 Service Pack 2 installation.

Note

The final screen includes information pertaining to security and Vista, which is the latest operating system from Microsoft. By default, Vista users who are also part of the Windows Administrators group are not automatically granted permission to connect to SQL Server. If these users need access to SQL Server, they need to be provisioned. If you're using Vista, follow the steps in the wizard to provision new Vista users by enabling the option Launch the SQL Server 2005 Provisioning Tool for Vista to grant administrative rights to the appropriate Windows Vista users.

Configuring the AdventureWorks OLTP Sample Database

Configuring the AdventureWorks OLTP Sample Database

You can obtain the latest version of the AdventureWorks OLTP database directly from the Microsoft Download Center. The sample database was updated with the release of SQL Server 2005 Service Pack 2 as of February 2007.

Note

If the AdventureWorks OLTP database has already been installed during the default installation of SQL Server 2005, you must remove it before conducting the following steps.

Downloading the Latest AdventureWorks Sample Database

Follow these steps to obtain the latest AdventureWorks OLTP database (based on the February 2007 version) from the Microsoft Download Center:

- Download the latest sample AdventureWorks OLTP Sample database by conducting a search for "SQL Server 2005 Samples and Sample Databases" from the Microsoft Download Center. The following link, http://www.microsoft.com/downloads, represents the location for the Microsoft Download Center. The database choices are based on the processor version—x86, x64, or Itanium (IA64)—and whether the collation setting will be case-sensitive or not. For this example, use the file AdventureWorksDBCI_x64.msi that is *not* case-sensitive.
- 2. Double-click the appropriate MSI file to start the installation process.
- 3. On the Welcome to the Install Shield Wizard page, click Next.
- **4.** On the license agreement page, review the license, accept the terms, and then click Next.
- **5.** On the Destination folder page, install the sample database in the default location or click the Change command button and enter a folder of choice for the installation. Click Next to continue.
- **6.** To initiate the installation, click Install on the Ready to Install Program page.
- 7. Click Finish.

Attaching the Latest AdventureWorks Database

After the latest database has been downloaded and installed, the next steps are to attach the database and transaction log files. To attach the sample

AdventureWorks OLTP database to a SQL Server instance using SQL Server Management Studio (SSMS), follow these steps:

- Choose Start, All Programs, Microsoft SQL Server 2005, SQL Server Management Studio.
- 2. In Object Explorer, first connect to the Database Engine, expand the desired server, and then expand the database folder.
- 3. Right-click the Databases folder and select Attach.
- **4.** In the Attach Database dialog box, click Add in the Databases to Attach section.
- 5. Locate AdventureWorks database files and click OK.

Note

The AdventureWorks sample database and transaction log files are located in the destination folder you used when installing the sample databases in the previous steps. It is a best practice to isolate the database and transaction log files on separate volumes for performance and availability.

Configuring the AdventureWorks OLAP Sample Database

In Chapter 2, "Administering SQL Server 2005 Analysis Services," all the examples are based on the AdventureWorks data warehouse database. You can find the step-by-step instructions on how to install the sample data warehouse database including the Visual Studio project in that chapter.

Basic Installation of Certificate Services

Windows Server 2003 includes a built-in certificate authority (CA) known as Certificate Services. Certificate Services can be used to create and manage certificates; it is responsible for ensuring their validity. Certificate Services is often used to generate certificates for encryption if there is no particular need to have a third-party verify an organization's certificates. It is common practice to set up a standalone CA for encryption that requires certificates only for internal databases or applications. Third-party certificate authorities such as VeriSign are also extensively used but require an investment in individual certificates.

Certificate Services for Windows Server 2003 can be installed as one of the following CA types:

- Enterprise Root Certificate Authority—This is the most trusted CA in an organization and should be installed before any other CA. All other CAs are subordinate to an enterprise root CA.
- Enterprise Subordinate Certificate Authority—This CA must get a CA certificate from an enterprise root CA but can then issue certificates to all users and computers in the enterprise. This type of CA is often used for load balancing an enterprise root CA.
- Standalone Root Certificate Authority—This CA is the root of a hierarchy that is not related to the enterprise domain information. Multiple standalone CAs can be established for particular purposes.
- Standalone Subordinate Certificate Authority—This CA receives its certificate from a standalone root CA and can then be used to distribute certificates to users and computers associated with that standalone CA.

To install Certificate Services on a Windows Server 2003 server, follow these steps:

- 1. Choose Start, Control Panel, Add or Remove Programs.
- 2. Click Add/Remove Windows Components.
- 3. Check the Certificate Services box.
- **4.** A warning dialog box appears indicating that the computer name or domain name cannot be changed after the install of Certificate Services. Click Yes to proceed with the installation.
- 5. Click Next to continue.
- 6. The following screen allows you to create the type of CA required. Refer to the preceding list for more information about the different types of CAs you can install. For this example, choose Enterprise Root CA and click Next to continue.
- 7. Enter a common name for the CA, for example, CompanyABC Enterprise Root CA.
- **8.** Enter the validity period for the certificate authority and click Next to continue. The cryptographic key is then created.
- **9.** Enter a location for the certificate database and then database logs. Choose a secure location to prevent unauthorized tampering with the CA. Click Next to continue. Setup then installs the CA components.
- **10.** If Internet Information Services (IIS) is not installed, a prompt appears indicating that Web Enrollment will be disabled until IIS is installed. If

this box appears, click OK to continue. If IIS is installed, a message is displayed indicating that IIS will be stopped to complete the installation. Click Yes to continue.

11. Click Finish after installation to complete the process.

The CA is now ready to start issuing certificates for encryption and the protection of the SQL Server 2005 services.

Basic Installation of Operations Manager 2007

Following are the components associated with an Operations Manager 2007 implementation:

- Management Group—At a minimum, the management group consists of a root management server, an operations database, and managed systems. A name must be used to identify each management group in the organization. Because a management group can scale to thousands of managed systems and security can be delegated at many different levels, it is common to need only a single management group.
- Root Management Server (RMS)—The RMS is the first management server installed in the management group; it performs several unique functions. The RMS contains the key used to encrypt and decrypt data in the operations database. It also runs the Software Development Kit (SDK) service and is the central point for console and connector communication.
- Management Server—The management server is responsible for communication between clients; its primary role is to insert data received from clients into the operations database.
- Gateway Server—The gateway server is an optional component and is responsible for client communication when clients are located in a nontrusted domain or workgroup. This component is often used when monitoring systems are located in the demilitarized zone (DMZ).
- Management Console—The management console is the single console used to monitor clients, author management packs, create and schedule reports, and administer the management group.
- Web Console—The web console allows you to perform many of the functions in the monitoring area of the management console, including viewing alerts and computer and distributed applications. The web console also allows you to run actions against clients and change the maintenance mode of clients.

- Reporting—Operations manager reporting consists of the reporting component hosted on a SQL Server 2005 reporting service and the data warehouse database.
- Audit Collection Services (ACS)—The ACS feature consists of three different components. The ACS forwarder is a service that resides on the managed client used to forward security events. The ACS collector resides on a management server and is responsible for collecting events received from the forwarder. Finally, the ACS database stores events.

Not all the components are necessary for every installation. For example, if security events are not collected, the audit collection services do not have to be installed.

For a complete description of the supported configuration along with minimum and recommended hardware for the implementation, review the following Microsoft link: http://technet.microsoft.com/en-us/library/bb309428.aspx.

Defining Access and Service Accounts

The following security group and service accounts are implemented during the Operations Manager 2007 installation:

- MOM Administrators—The Operations Manager 2007 full administrators group is defined during installation. This group has complete control of the entire Operations Manager 2007 environment and, by default, this is set to the local administrators group on the management server. As a best practice, it is recommended to create a role and access group.
- Management Server Action Account—The Management Server action account is used to gather data, run responses, and perform actions on the management servers. This account should be a limited domain user; the correct permissions are given to the account during setup.
- SDK and Config Service Account—The SDK service provides a communication layer allowing agents and consoles to communicate with the database. The configuration service is responsible for distributing configuration settings to agents. This account should be a limited domain user. Before setup is run, this account must be added to the Local Administrators group on each management server.

- Data Warehouse Write Account—This account is used to read the data in the Operations database and write information to the data warehouse database.
- Data Warehouse Reader Account—This account is used to execute queries against the data warehouse and is used for the reporting services IIS application pool.

Table A.1 shows a sample configuration that can be used during the installation process. The accounts specified in this table must be created as domain user accounts in Active Directory before you start setup.

Table A.1 Operations Manager 2007 Sample Configuration

Setting	Value
Root Management Server	OPS01
Management Group Name	ABC Global Operations
MOM Administrators	Companyabc\All-D-RA-OM Full Admin
Action Account	SCOM.Action
SDK/Config Service Account	SCOM.Access
Data Warehouse Write Account	SCOM.Write
Data Reader Account	SCOM.Read

Installing Operations Manager 2007 Prerequisites

Operations Manager 2007 requires SQL Server 2005 to host each database and IIS to support the web console. Refer to "Basic Installation of SQL Server 2005 Including All Components" earlier in this appendix for detailed instructions on how to install SQL Server 2005 and IIS 6.0.

In addition to SQL Server 2005 and IIS 6.0, you must install the .NET Framework 3.0. You can download it from the following links:

- 32-bit download—http://go.microsoft.com/fwlink/?LinkId=74965
- 64-bit download—http://go.microsoft.com/fwlink/?LinkId=74966

Follow these steps to install the .NET Framework 3.0 on the management server:

- **1.** Download and launch dotnetfx3.exe.
- 2. Select I Have Read and Accept... and click Install.
- **3.** Wait for the installation to complete.

Basic Installation of Operations Manager 2007

PowerShell is also required if the Operations Manager Command Shell will be installed. You can download PowerShell from the following link: http://www.microsoft.com/windowsserver2003/technologies/management/ powershell/download.mspx

Follow these steps to install PowerShell on the management server:

- **1.** Download and launch the PowerShell setup.
- 2. On the Welcome page, click Next.
- 3. On the License page, select I Agree and then click Next.
- 4. Wait for the installation to complete and then click Finish.

Installing Operations Manager 2007

The basic installation of Operations Manager 2007 creates the operations database on SQL Server 2005, installs the root management server services, and installs the web console.

In this scenario, each component is hosted on the same test server. In a largescale environment, each component should be hosted on different servers for maximum scalability.

Follow these steps to install Operations Manager 2007:

- 1. From the OpsMgr installation source, launch SetupOM.exe.
- 2. Select Install Operations Manager 2007.
- **3.** On the Welcome page, click Next.
- 4. Select I Accept and then click Next.
- 5. Enter the username and organization name and then click Next.
- 6. Accept the default component selection, All Components.
- 7. Change the install path to D:\ and then click Next.
- 8. Enter the management group name.
- 9. Select the MOM Administrators access group and then click Next.
- 10. Select the SQL Server database instance and then click Next.
- **11.** Accept the default DB name and size, OperationsManager.
- **12.** Click the Advanced button.
- 13. Change the Database data file location to D:\.
- 14. Change the Log file location to L:\, click OK, and then click Next.

- **15.** Enter the name of the action account and then click Next.
- 16. Select Domain or Local Account.
- 17. Enter the SDK and Config service account and then click Next.
- 18. Select Use Windows Authentication and then click Next.
- 19. Select Do Not Send Error Reports to Microsoft and then click Next.
- Select Do Not Join the Customer Experience Program and then click Next.
- **21.** Use Microsoft Update if necessary and then click Next.
- 22. Click Install.
- **23.** When the installation is complete, click Finish.

Installing Operations Manager 2007 Reporting

The basic installation of Operations Manager 2007 reporting creates the data warehouse and installs the reporting server component.

In this scenario, each component is hosted on the same test server. In a largescale environment, each reporting component should be hosted on different servers for maximum scalability.

Follow these steps to install the Operations Manager 2007 reporting feature:

- **1.** From the OpsMgr installation source, launch SetupOM.exe.
- 2. Select Install Operations Manager 2007 Reporting.
- 3. On the Welcome page, click Next.
- 4. Select I Accept and then click Next.
- 5. Enter the username and organization name and then click Next.
- 6. Accept the default component selection, All Components.
- 7. Change the install path to D:\ and then click Next.
- 8. Enter the name of the root management server and then click Next.
- 9. Select the SQL Server database instance and then click Next.
- **10.** Accept the default DB name, OperationsManagerDW.
- **11.** Click the Advanced button.
- 12. Change the database data file location to D:\.

- **13.** Change the Log file location to L:\, click OK, and then click Next.
- **14.** Select the Reporting Server instance and then click Next.
- **15.** Enter the Data Warehouse write account and then click Next.
- **16.** Enter the Data read account and then click Next.
- 17. Select Do Not Send Microsoft Operational Report and then click Next.
- **18.** Click Install.
- **19.** When the installation is complete, click Finish.

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