



FLEXERA SOFTWARE™

Workflow Manager

Workflow Manager 5.6 / AdminStudio Enterprise Server 11.0

Installation Guide

Legal Information

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Workflow Manager 5.6 / AdminStudio Enterprise Server 11.0 Installation Guide

Information about installing Workflow Manager / AdminStudio Enterprise Server is presented in the following sections:

Table 1-1 • Installing Workflow Manager / AdminStudio Enterprise Server

Topic	Content
System Requirements	Lists the hardware and software requirements for the components of Workflow Manager / AdminStudio Enterprise Server.
Installing Workflow Manager / AdminStudio Enterprise Server	This chapter explains how to perform installation preparation tasks, and how to install Workflow Manager / AdminStudio Enterprise Server and Workflow Manager portals. This chapter also explains how to manually install Workflow Manager / AdminStudio Enterprise Server.
Appendix A: Special Configuration Tasks	Explains how to assign static IP addresses.
Appendix B: Installation and Configuration Tips	Provides configuration tips to address common installation issues.

Using Help

Help is available both from the product interface and directly from certain individual interface elements.

When you have questions about this product, first consult the AdminStudio Help Library, which is the complete user’s guide for using AdminStudio.

Web-Based Online Help

Web-based online help is available to you 24 hours a day, seven days a week, on our Web site at:

<http://helpnet.flexerasoftware.com>

Documentation as PDF

AdminStudio documentation is also available as a PDF. Visit the Downloads site at:

<http://www.flexerasoftware.com/downloads.htm>

Help Conventions

In this documentation, reader alert and style conventions are used to bring your attention to specific information or help you identify information.

- [Reader Alert Conventions](#)
- [Style Conventions](#)

Reader Alert Conventions

Reader alerts are used throughout this documentation to notify you of both supplementary and essential information. The following table explains the meaning of each alert.

Table 1-2 • Reader Alert Conventions








Image	Alert Name	Description
	Note	Notes are used to draw attention to pieces of information that should stand out.
	Important Note	Important notes are used for information that is essential for users to read.
	Caution	Cautions indicate that this information is critical to the success of the desired feature or product functionality.
	Tip	Tips are used to indicate helpful information that could assist you in better utilizing the desired function or feature.

Table 1-2 • Reader Alert Conventions (cont.)

Image	Alert Name	Description
	Best Practices	Best Practices alerts instruct you on the best way to accomplish a task.
	Edition-Specific Note	Edition-specific notes indicate that the information applies to a specific edition of a product (such as Professional or Premier edition).
	Procedure	The Procedure graphic indicates that procedural instructions follow.

Style Conventions

The following style conventions are used throughout this documentation.

Table 1-3 • Style Conventions

Style	Example	Description
User Interface Elements	On the File menu, click Open .	User interface elements appear in bold when referenced in tasks.
Variables	<i>fileName</i>	Variables appear in italics.
Code	<code>#define HWND_BROADCAST 0xffff</code>	Code snippets appear in a monospace typeface.
User-Inputted Text	Type <code>\$D(install)</code> .	Text that is to be entered as a literal value is displayed in a monospace typeface, in bold, and in blue.
File Names and Directory Paths	My files are located in the <code>C:\MyDocuments\SampleCode</code> directory.	File names and directory paths are presented in a monospace typeface.
.INI File Text	Insert the line <code>LimitedUI=Y</code> into the file to display only the Welcome dialog box when the Windows Installer package is run.	Text in .INI files is presented in a monospace typeface.
Command-Line Statements	To run the installation silently, enter: <code>Setup.exe /s /v/qn</code>	Command-line statements and parameters are presented in a monospace typeface.
Environment Variables	Set the value of the <code>windir</code> environment variable.	Environment variables are presented in a monospace typeface.

Table 1-3 • Style Conventions (cont.)

Style	Example	Description
Examples	Create two groups, one called Admins and the other called General .	Examples are presented in bold.
Functions	FeatureAddItem adds a new feature to a script-created feature set.	Functions are presented in presented in bold.
Properties	In the Name property, enter a name for this custom control that is unique among all of the controls in your project.	Properties are presented in bold.
Screen Output	If you type an incorrect parameter, the message <code>The system cannot find the path specified.</code> is displayed.	Screen output (from a log file or from the console) is displayed in a monospace typeface, and in blue.
Links	Obtain the latest modules, white papers, project samples, and more from: http://www.mycompany.com/downloads.htm	Links appear in blue.

Contacting Us

You may contact us from anywhere in the world by visiting our Web site at:

<http://www.flexerasoftware.com>

System Requirements

Before beginning the installation, review the following hardware and software requirements. This information is presented in the following sections:

- [Integration of AdminStudio Enterprise Server and Workflow Manager](#)
- [Hardware and Software Requirements](#)
- [Required User Rights Assignment for Windows 2000 Server](#)
- [Installing Internet Information Services \(IIS\)](#)

Integration of AdminStudio Enterprise Server and Workflow Manager



Edition • *This feature is only available if you have purchased both AdminStudio Enterprise Edition and Workflow Manager.*

The AdminStudio Enterprise Server tools are integrated with Workflow Manager and use the same security model and a single interface. You define users and roles/permissions for AdminStudio client tools, AdminStudio Enterprise tools, and Workflow Manager all from the same user interface. Security can still be Server-based or Windows authenticated (LDAP).

AdminStudio Enterprise Server and Workflow Manager Tool Bundles

The configuration of web tools that is available to you depends upon the software bundle that you purchased:

Table 2-1 • AdminStudio Enterprise Server and Workflow Manager Tool Bundles

Bundle Purchased	Security Console	Report Center	Job Manager	SMS Web Console	Workflow Manager
AdminStudio Enterprise Edition	Included	Includes AdminStudio Component	Included	Included	
AdminStudio Workflow Manager	Included	Includes Workflow Manager Component		Included	Included
AdminStudio Enterprise Edition and AdminStudio Workflow Manager	Included	Includes Both Components	Included	Included	Included

Because AdminStudio and Workflow Manager are integrated, you can easily have the AdminStudio client tools, the AdminStudio Enterprise tools, and Workflow Manager all connected to the same Application Catalog database. This allows you to link a package with its associated workflow request and produce integrated reports that contain package data originating from both AdminStudio and Workflow Manager. You can choose to activate AdminStudio Enterprise tools or Workflow Manager or both simply by entering serial numbers.

Activating Workflow Manager and AdminStudio Enterprise Server

Workflow Manager 5.6 / AdminStudio Enterprise Server 11.0

Workflow Manager and AdminStudio Enterprise Server Tools are each activated by entering a valid serial number. The number of tabs visible in the product depend upon which serial numbers you enter.

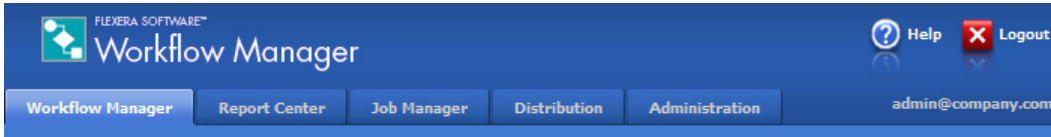


Figure 2-1: Workflow Manager / AdminStudio Enterprise Server Tabs

- The **Workflow Manager** tab is only visible if you enter a Workflow Manager serial number.
- The **Job Manager** tab is only visible if you enter an AdminStudio Enterprise Edition serial number.
- The **Report Center**, **Distribution**, and **Administration** tabs are always visible.

You can enter serial numbers during product installation or at any time after that on the **System Settings** page of the **Administration** tab.

- [Entering Serial Numbers During Installation](#)
- [Entering Serial Numbers in the Product Interface](#)

Entering Serial Numbers During Installation

You are prompted to enter a Workflow Manager and AdminStudio Enterprise Edition serial number on the **Serial Number** panel of the installation. You are required to enter at least one serial number.

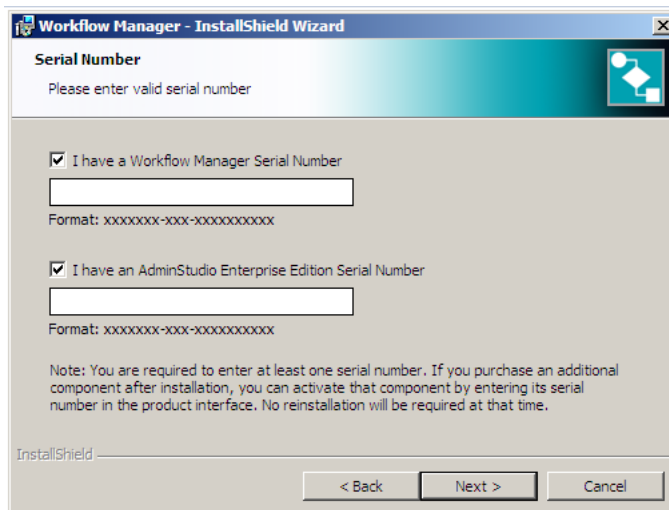


Figure 2-2: Serial Number Panel of the Workflow Manager Installation

Entering Serial Numbers in the Product Interface

After installation, you can enter (or remove) serial numbers on the **System Settings** page of the **Administration** tab:

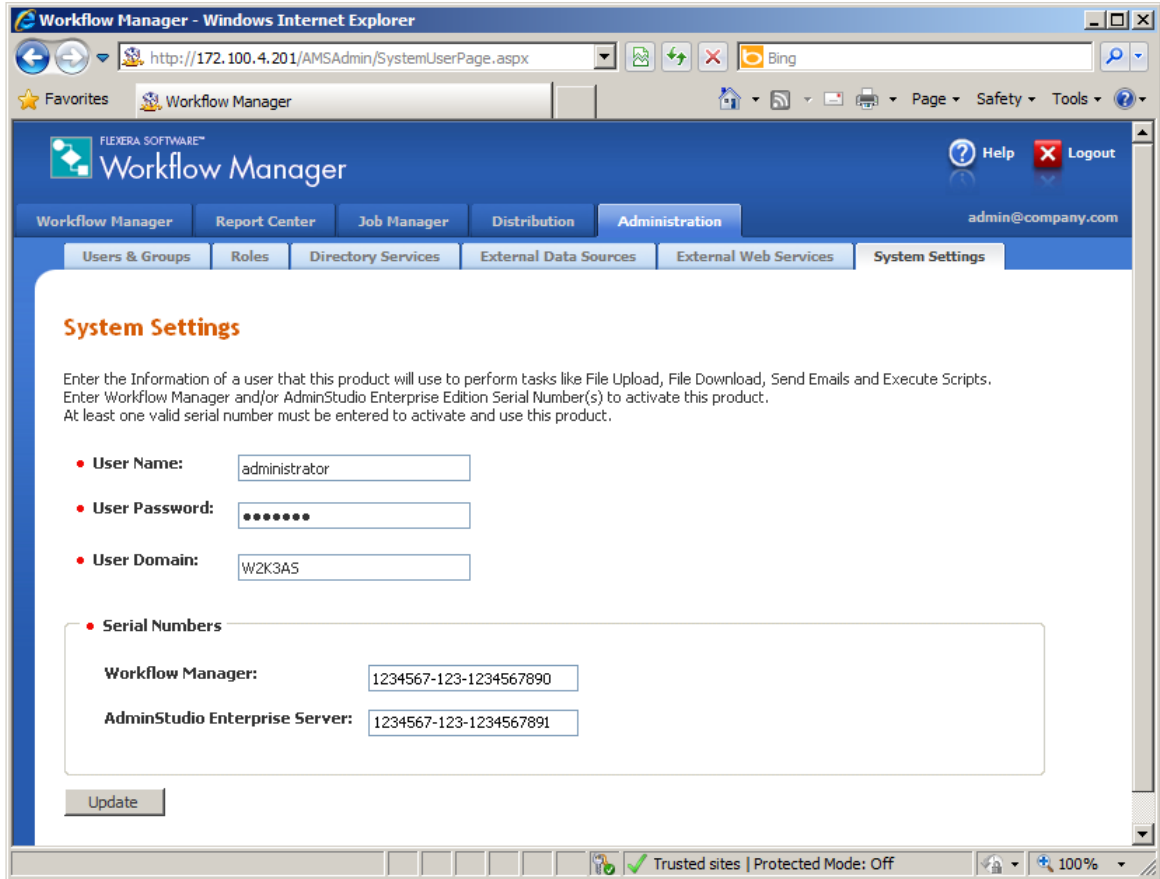


Figure 2-3: Serial Number Fields on System Settings Page

If you remove a serial number from this page and click **Update**, the product-specific functionality of that component is no longer visible.

- The **Job Manager** tab is only visible if you enter an AdminStudio Enterprise Edition serial number.
- The **Workflow Manager** tab is only visible if you enter a Workflow Manager serial number.
- The **Report Center**, **Distribution**, and **Administration** tabs are always visible.



Hardware and Software Requirements

This section lists the system requirements for Workflow Manager / AdminStudio Enterprise Server.

- [Workflow Manager Web Server / AdminStudio Enterprise Server](#)
- [Workflow Manager / AdminStudio Database Server](#)
- [File Share Server](#)
- [Workflow Manager End User Computers](#)
- [Portal Web Server for Internet Clients](#)
- [Portal Web Server for Intranet Clients](#)

Workflow Manager Web Server / AdminStudio Enterprise Server

This following table lists the system requirements for the Web server that hosts the Workflow Manager Data Web service and the actual Workflow Manager Web site and/or AdminStudio Enterprise Server.


Item	Description
Processor	32-bit (x86) or 64-bit (x64) processor at 1 GHz or greater. Workflow Manager is a 32-bit application.
RAM	1 GB or greater (2 GB preferred)
Hard Disk Space	100 GB or greater
Operating System	Windows Server 2003 or later
IIS	IIS 6.0 or later  Note • Workflow Manager also supports IIS 7.0 or later if IIS 6.0 compatibility mode is turned on.  Note • See Installing Internet Information Services (IIS) .
.NET	.NET Framework 3.5 SP1 (including ASP.NET 3.5 SP1 registered with IIS)
MSXML	MSXML 4.0

Item	Description
Running on a Domain Controller	If running on a domain controller, you will have to implement one of the procedures described in the Microsoft Developer Network topic Running ASPNET on a Domain Controller , available at: http://msdn2.microsoft.com/en-us/library/aa579070.aspx

Workflow Manager / AdminStudio Database Server

This following table lists the recommended system configuration for a Workflow Manager/AdminStudio Application Catalog database server:

Item	Description
Processor	32-bit (x86) or 64-bit (x64) processor at 1 GHz or greater
RAM	1 GB or greater (2 GB preferred)
Hard Disk Space	80 GB or greater
Operating System	Windows Server 2003 or later
Database Software	SQL Server 2005 or later databases. SQL Server must be installed with case-insensitive dictionary sort order and ISO-8859-1 character set. (Use <code>sp_helpsort</code> T-SQL command for more information.)

 **Note** • Before attempting to connect to an existing Microsoft SQL Server, open SQL Server Configuration Manager and make sure that the following three protocols are enabled:

- Shared Memory
- Named Pipes
- TCP/IP

File Share Server

This following table lists the system requirements for the machine that stores Workflow Manager's uploaded source files and the repackaged output files:

Item	Description
Processor	512 MHz or greater
RAM	512 MB or greater

Item	Description
Hard Disk Space	100 GB or greater
Operating System	Windows Server 2003 or later

Workflow Manager End User Computers

This following table lists the recommended system configuration for a Workflow Manager 5.6 end user machine:

Item	Description
Processor	400 MHz or higher Pentium-compatible CPU (Recommended)
Browser	Microsoft Internet Explorer 7.0 or later
RAM	512 MB or more RAM (Recommended)

Portal Web Server for Internet Clients

If Workflow Manager needs to be accessed over the Internet, it is recommended to set up another Web server, residing in a demilitarized zone (DMZ). This Web server:

- accepts the requests from the Internet clients,
- forwards them to the Workflow Manager / AdminStudio Enterprise Server,
- gets responses from the Workflow Manager / AdminStudio Enterprise Server, and
- forwards them to the clients

You can configure the Workflow Manager / AdminStudio Enterprise Server to entertain the request only if it is coming from the Portal Web server, and otherwise reject the request. The Portal Web server manages access to Workflow Manager / AdminStudio Enterprise Server and ensures that clients are not able to access any data or documents without logging in.

The system requirements for this machine are the same as for Workflow Manager / AdminStudio Enterprise Server.

Portal Web Server for Intranet Clients

For better security, and to manage access to the Workflow Manager Web Server, it is recommended to also set up a portal Web server for Intranet clients. If you would like to make use of the Single Sign On feature, you are required to install the Intranet Portal with NT Authentication mode of IIS directory security (by unselecting **Anonymous Authentication** and selecting **Integrated Windows Authentication**).

Chapter 2: System Requirements

Hardware and Software Requirements

Single Sign On is only supported when the user that logs into IIS has been imported into the Workflow Manager database using Active Directory. The administrator can either import the complete group or only one user. If a complete group is imported, then all the members of the group can be logged into Workflow Manager using Single Sign On.

The system requirements for this machine are the same as for the [Workflow Manager Web Server / AdminStudio Enterprise Server](#).

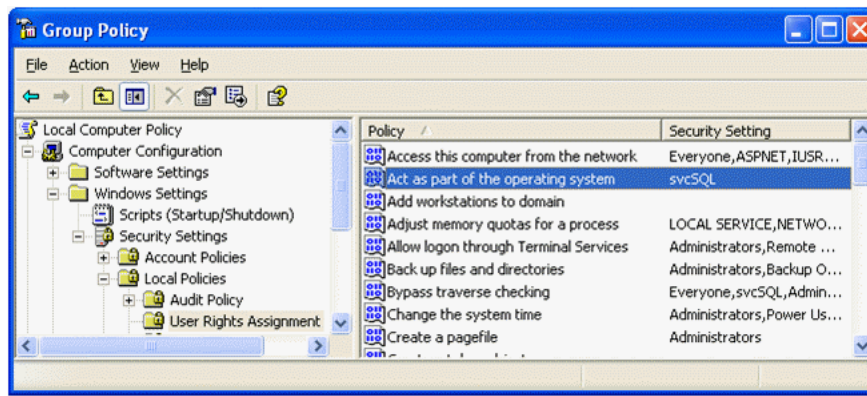
Required User Rights Assignment for Windows 2000 Server

If you are installing Workflow Manager / AdminStudio Enterprise Server on a Windows 2000 server, you must grant the **Act as part of the operating system privilege** to the aspnet account.



Task: To grant the “Act as part of the operating system” privilege to the ASPNET account:

1. In the **Run** dialog box, enter `gpedit.msc` and click **Open**. The Group Policy Editor dialog box opens.



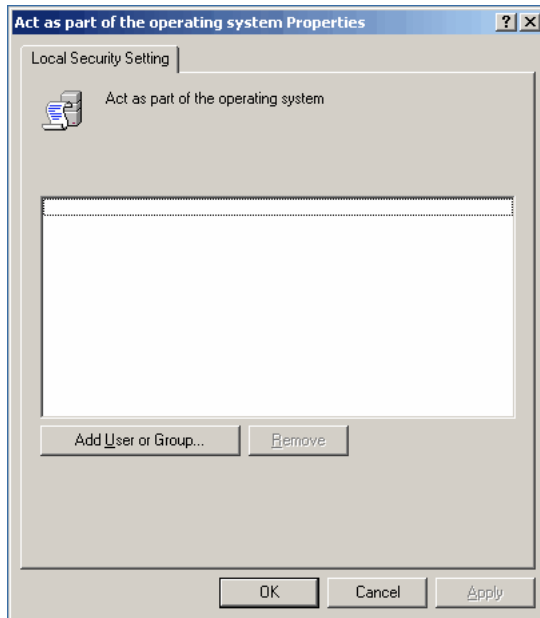
2. In the Group Policy dialog box, expand the Local Computer Policy and select the **User Rights Assignment** folder, which can be found in the following location:

Computer Configuration\Windows Settings\Security Settings\
Local Policies\User Rights Assignment

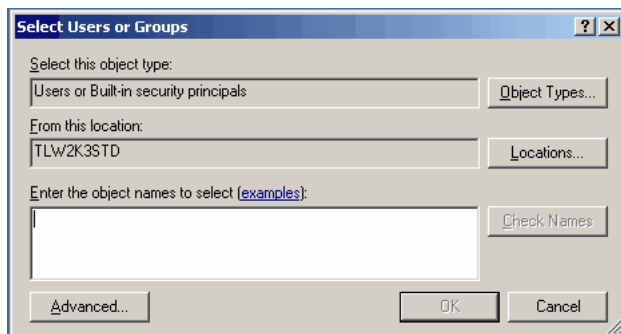
Chapter 2: System Requirements

Required User Rights Assignment for Windows 2000 Server

3. In the **Policy** list on the right side of the dialog box, locate the **Act as part of the operating system** item and double-click on it. The **Properties** dialog box opens.



4. Click **Add User or Group**. The **Select Users or Groups** dialog box opens.



5. In the **Enter the object names to select**, enter **aspnet** and click **OK**.
6. Click **OK** to close the **Properties** dialog box.
7. Restart Windows so that Workflow Manager / AdminStudio Enterprise Server can be launched with the correct privileges.

Installing Internet Information Services (IIS)

Internet Information Services (IIS) is required to be installed on the machine on which you are installing AdminStudio Enterprise Server / Workflow Manager.

- [Windows Vista and Windows 7](#)
- [Windows XP and Windows Server 2003](#)

Windows Vista and Windows 7

To install IIS on a Windows Vista or Windows 7 machine, perform the following steps.



Task: *To install IIS, perform the following steps:*

1. From the **Control Panel**, select **Programs**.
2. Under **Programs and Features**, click **Turn Windows features on or off**. The **Turn Windows features on or off** dialog box opens.
3. Expand **Internet Information Services**. Three subcategories are listed: **FTP Server**, **Web Management Tools**, and **World Wide Web Services**.
4. Expand **Web Management Tools** and select all of the checkboxes in that category.
5. Under **World Wide Web Services**, expand **Application Development Features** and select the **ASP.NET** checkbox.
6. Click **OK**.

Windows XP and Windows Server 2003

To install IIS on a Windows XP or Windows Server 2003 machine, perform the following steps.



Task: *To install IIS, perform the following steps:*

1. From the **Control Panel**, select **Add or Remove Programs**. The **Add or Remove Programs** dialog box opens.
2. Select **Add/Remove Windows Components**. The **Windows Components Wizard** opens.
3. Perform one of the following steps, depending upon your operating system:
 - **Windows XP**—Select **Internet Information Services (IIS)** in the **Components List** and click **Next**.
 - **Windows Server 2003**—Select **Application Server** and click **Details** to open the **Application Server** dialog box. Then select **Internet Information Services (IIS)**, click **OK** to close the **Application Server** dialog box, and then click **Next**.

The **Configuring Components** dialog box opens, and the installation begins.

Chapter 2: System Requirements

Installing Internet Information Services (IIS)

4. If you are prompted to insert a Windows CD, do one of the following:
 - **If the Windows files were copied onto the hard drive**—In the **Copy file from** dialog box, enter C:\i386 or whatever the location of your i386 directory is, and then click **OK** to continue.
 - **If you have Windows installation CDs**—Insert the CD into the CD-ROM and click **OK** to continue.

You will be informed when installation is complete.

Installing Workflow Manager / AdminStudio Enterprise Server

This chapter explains how to install Workflow Manager / AdminStudio Enterprise Server.

Table 3-1 • Installing Workflow Manager / AdminStudio Enterprise Server

Section	Description
Preparing to Install	Lists the System Requirements, explains how to set up the required file share, and lets you know what database and server information you need to gather prior to running the installation.
Installing and Configuring Workflow Manager / AdminStudio Enterprise Server	Explains how to install the application for the first time.
Installing a Web Portal on a Different Server	Explains how to run the Web Portal setup separately. This allows you to install the Web Portal on a different machine than the application website.
Manually Installing Workflow Manager / AdminStudio Enterprise Server	Explains the steps you need to take to manually install Workflow Manager / AdminStudio Enterprise Server.
Configuring Windows Authentication for an SQL Server Database	Explains the manual steps you need to perform in order to use Windows Authentication for your database connection.
Using Scripts to Create the Workflow Manager / AdminStudio Enterprise Server Database	Explains how to use scripts to create the AdminStudio / Workflow Manager SQL Server database, and how to manually update the web.config file.

Table 3-1 • Installing Workflow Manager / AdminStudio Enterprise Server

Section	Description
Upgrade Procedures	Explains how to upgrade from previous releases of Workflow Manager, and also how upgrade databases from previous releases of AdminStudio and Workflow Manager.



Tip • For a complete list of known issues that pertain to the AdminStudio 11.0 and Workflow Manager 5.6 releases, see the [AdminStudio Support Knowledge Base](#).

Preparing to Install

Before running the Workflow Manager / AdminStudio Enterprise Server installation, perform these tasks:

- [Checking System Requirements](#)
- [Setting Up the File Share](#)
- [Gathering Required Information](#)

Checking System Requirements

Workflow Manager / AdminStudio Enterprise Server components should be installed on a dedicated server. To perform a successful installation, check the [System Requirements](#) to make sure that the following requirements have been met:

Table 3-2 • System Requirements Summary

Item	Requirement
Database Server	Make sure that you have an SQL Server which meets the requirements listed in Workflow Manager / AdminStudio Database Server . Check that this SQL Server is running properly by launching the Enterprise Manager and connecting to the server.
Database Server Account	Make sure you have a database owner account ID and password for the SQL Server that you are installing the Workflow Manager / AdminStudio Enterprise Server database on.
Workflow Manager / AdminStudio Enterprise Server	The machine on which you will be installing Workflow Manager / AdminStudio Enterprise Server must meet the hardware and software requirements specified in Workflow Manager Web Server / AdminStudio Enterprise Server .
File Share Server	The machine which you will designate as the file share server must meet the hardware and software requirements specified in File Share Server .

Table 3-2 • System Requirements Summary (cont.)

Item	Requirement
Internet Information Services (IIS)	Internet Information Services (IIS) must be installed on the machine on which you will be installing Workflow Manager / AdminStudio Enterprise Server before you will be permitted to run the installation.
.NET Framework	The .NET framework is required to be installed on the machine on which you will be installing Workflow Manager / AdminStudio Enterprise Server. However, if the .NET framework has not yet been installed on that machine, it will be installed as part of the installation.
Domain Account	<p>The Domain Account is used for uploading and downloading files and for sending emails. Any operation that needs higher privileges is performed by impersonating the Domain Account.</p> <p>You can set the name of this Domain Account or specify an existing user as the Domain Account on the Logon Information Panel.</p>
Static IP Addresses	Two static IP addresses need to be specified during installation—one for the Workflow Manager / AdminStudio Enterprise Server and the other for the Web Portal. For instructions on assigning static IP addresses to a machine, see Appendix A: Special Configuration Tasks .

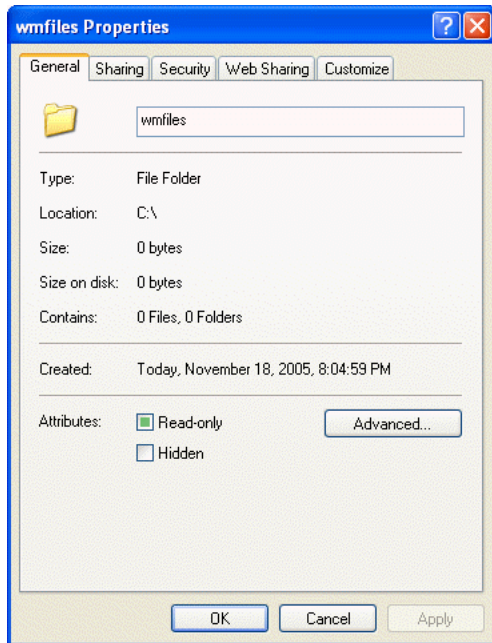
Setting Up the File Share

The file share is the location where files that are uploaded to the Workflow Manager are stored. When you run the installation, you can automatically create a File Share folder on the local machine. However, if you want to specify a File Share location on another machine in the network, you need to create a shared folder on that machine before you run the installation.

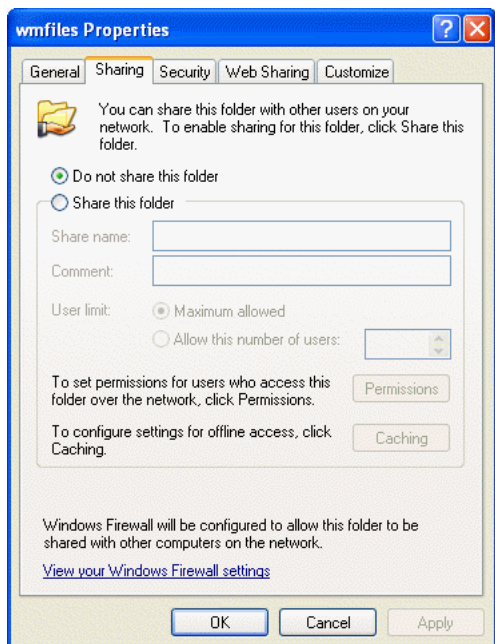


Task: *To set up the file share:*

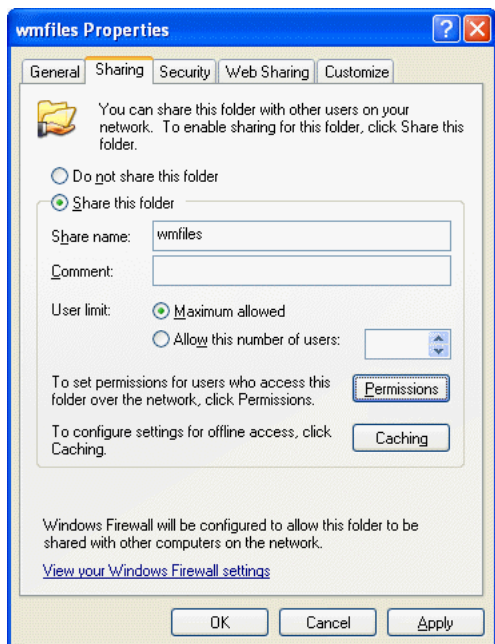
1. On the desired machine, either create a new folder or select an existing folder.
2. Select that folder and select **Properties** from the context menu. The **Properties** dialog box opens.



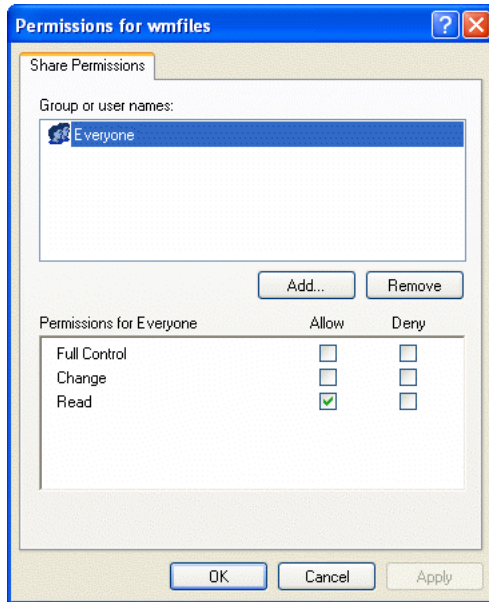
3. Click **Sharing**. The **Sharing** tab opens.



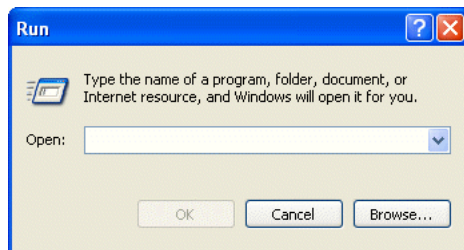
4. Select the **Share this folder** option. The **Share name** field is enabled and the name of the selected folder is automatically entered.



5. Click **Permissions**. The **Permissions** dialog box opens.



6. Assign **Change** and **Read** permissions to the user account that you want to use as the Domain Account for the Workflow Manager / AdminStudio Enterprise Server installation. (You will specify this Domain Account on the **File Server Domain and User Account** panel of the Workflow Manager / AdminStudio Enterprise Server installation.)
7. Click **OK** to close the **Permissions** dialog box and then click **OK** to close the **Properties** dialog box.
8. Test whether you can connect to the shared folder from the machine where you will install the Workflow Manager / AdminStudio Enterprise Server application by performing the following steps:
 - a. On the machine where you will install the Workflow Manager / AdminStudio Enterprise Server application, select **Run** on the **Start** menu. The Run dialog box opens.



- b. Enter the path to the shared folder in the following format:
`\\FileServerName\SharedFolderName`
For example:
`\\111.22.333.44\ASESFiles`
- c. Click **OK**.

Gathering Required Information

To complete the installation of Workflow Manager / AdminStudio Enterprise Server, you will need the following information. Please print this page and fill in the blanks below for use during the setup. You may need to consult with your network administrator to determine some of this information. Details on this information can be found on the following pages.

Enter the following information specific to the SQL Server database that you are going to use for the Workflow Manager / AdminStudio Enterprise Server.

Table 3-3 • SQL Server Database Information

Item	Description
SQL Server Name:	
SQL Database Name:	
Database Owner User ID and Password for this SQL Database:	
File Server Domain (UNC Path):	
Workflow Manager / AdminStudio Enterprise Server Static IP Address:	
Portal IP Address:	

Using Windows Authentication Instead of Standard Microsoft SQL Server Database Authentication

If you connect to a Microsoft SQL Server database using standard database server authentication, Workflow Manager / AdminStudio Enterprise Server stores the clear text SQL connection strings in the configuration file `web.config`. This could be considered a security risk.

Therefore, if you are connecting to a Microsoft SQL Server database, you may want to consider setting up Windows Authentication (trusted connection) to connect to the SQL Server database instead of standard database server authentication.

When, during Workflow Manager / AdminStudio Enterprise Server installation, you select Windows Authentication for your database connection, you will need to perform some manual steps after the installation is finished. For instructions on how to manually set up Windows Authentication for an SQL Server database, see [Configuring Windows Authentication for an SQL Server Database](#).

Installing and Configuring Workflow Manager / AdminStudio Enterprise Server

This section explains how to run the Workflow Manager / AdminStudio Enterprise Server installation, how to configure it on Windows Server 2008, and how to launch Workflow Manager / AdminStudio Enterprise Server after installation is complete.

- [Running the Workflow Manager / AdminStudio Enterprise Server Installation](#)
- [Additional Configuration Steps When Using Windows Server 2008](#)
- [Launching Workflow Manager](#)



Important • The instructions in this section assume you are performing the installation from a DVD. If, instead, you downloaded a compressed version of the installation software, you may be prompted for a password when you attempt to extract the installation program. This password can be found in the Order Confirmation email you received when you purchased this product (the same email that contains the Serial Number).



Note • If you are upgrading from a previous release, note the following:

- **Upgrading an Existing Installation of Workflow Manager 3.0, 3.5, 4.0 to 5.6**—Follow the instructions in [Using the Workflow Manager / AdminStudio Enterprise Server Installation to Upgrade an Existing Version of Workflow Manager](#).
- **Upgrading AdminStudio Enterprise Server 7.x to 11.0**—Perform the steps in this section, and then perform the steps in [Migrating User/Role Data from AdminStudio Enterprise Server 7.x or 8.x to AdminStudio Enterprise Server 11.0](#)



Note • Depending upon the features you are installing, you may see all or a subset of the panels included in this procedure.

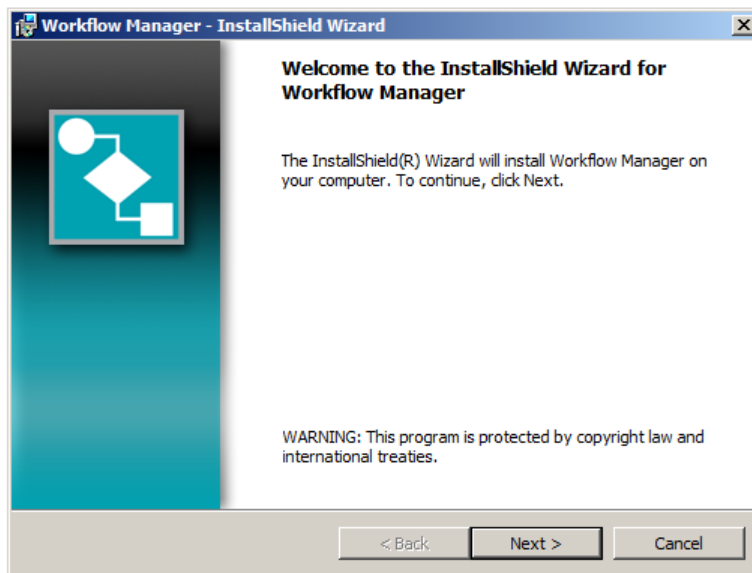
Running the Workflow Manager / AdminStudio Enterprise Server Installation

To install the Workflow Manager / AdminStudio Enterprise Server, perform the following steps.

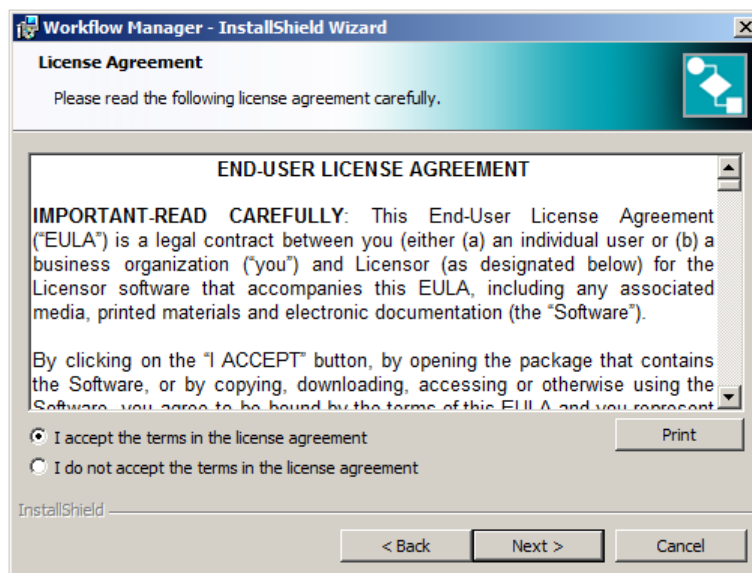


Task: *To install Workflow Manager / AdminStudio Enterprise Server:*

1. Launch the installation program. The **Welcome** panel opens.



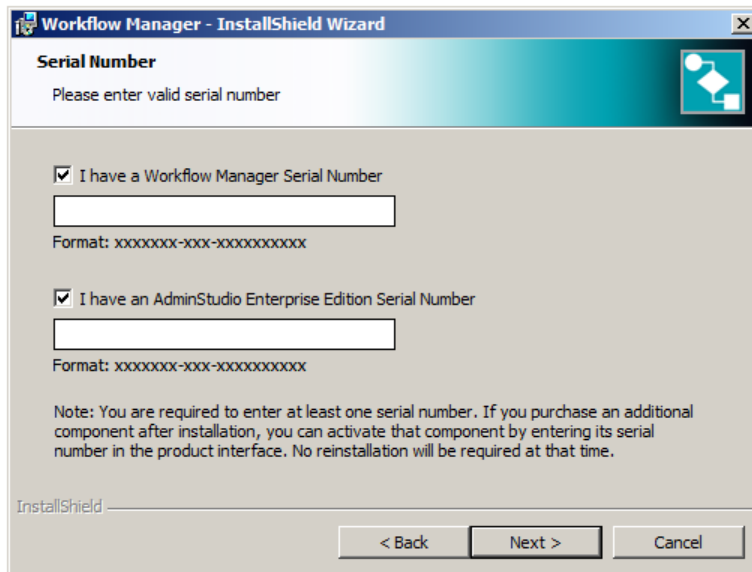
2. Click **Next**. The **License Agreement** panel opens.



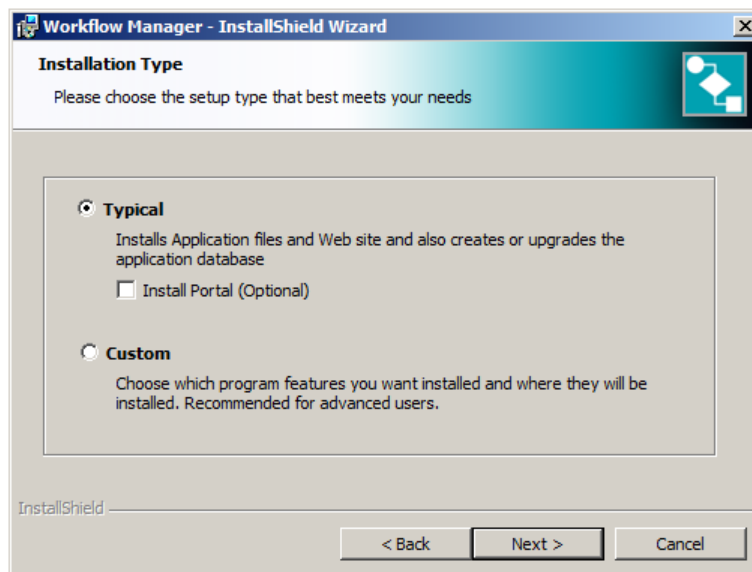
Chapter 3: Installing Workflow Manager / AdminStudio Enterprise Server

Installing and Configuring Workflow Manager / AdminStudio Enterprise Server


3. Select the **I accept the terms of the license agreement** option and click **Next**. The **Serial Number** panel opens.



4. Select and enter the serial numbers of the product or products you purchased – Workflow Manager and /or AdminStudio Enterprise Edition – and click **Next**. The **Installation Type** panel opens:

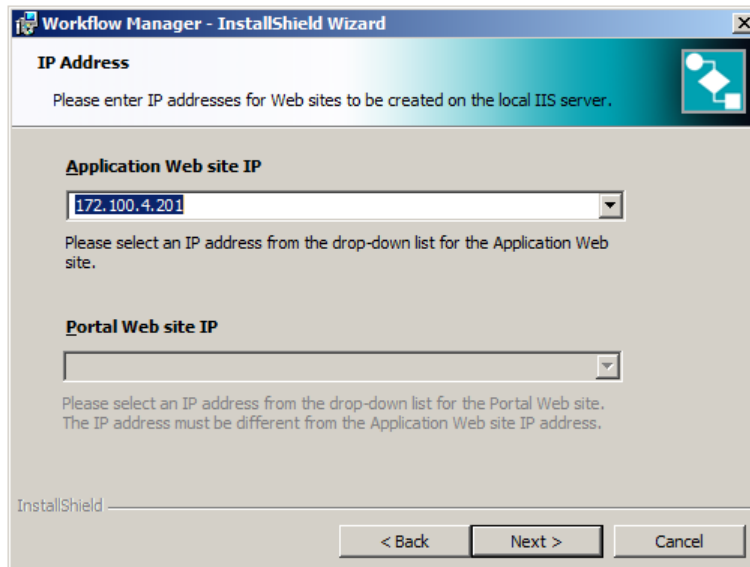


5. On the **Installation Type** panel, select whether you want to perform a **Typical** or **Custom** Workflow Manager / AdminStudio Enterprise Server installation and whether you want to install the Portal:

Option	Description
Typical	Select this option if you want to install the Workflow Manager / AdminStudio Enterprise Server and create or upgrade an SQL Server database.
Install Portal (Optional)	Select this option to install a Web Portal, a website that provides access to Workflow Manager functionality, but is on a different machine and/or network than the machine where the Workflow Manager application files are installed.  Note • For increased security and the convenience of single sign-on, it is recommended that everyone (including both workflow consumers and workflow administrators) connect to Workflow Manager through a Web Portal.
Custom	Select this option if you want to choose the program features that you want to install and choose the location installation. The following features will can be chosen: <ul style="list-style-type: none">• Application Files• Application Web site• Application Database• Portal Web site

6. Click **Next**.

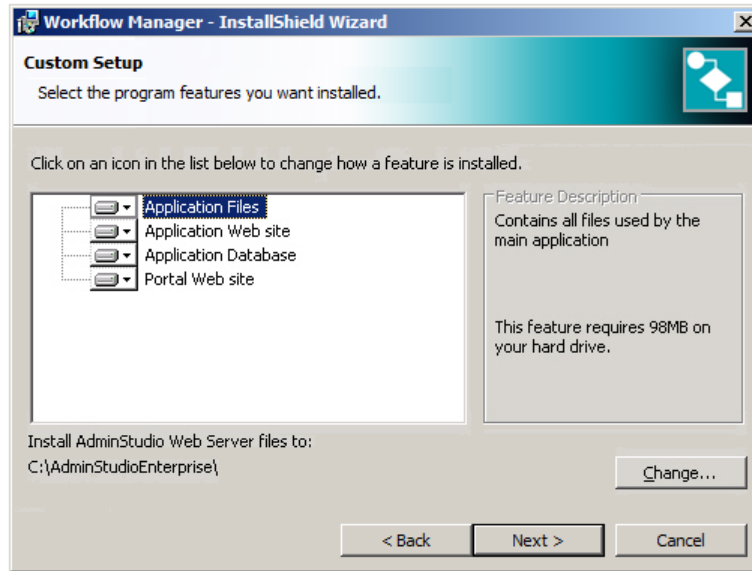
- If you chose **Typical**, the **IP Address** panel opens. Skip to [Step 8](#).




Chapter 3: Installing Workflow Manager / AdminStudio Enterprise Server



Installing and Configuring Workflow Manager / AdminStudio Enterprise Server

- If you chose **Custom**, the **Custom Setup** panel opens. Continue with **Step 7**.






7. On the **Custom Setup** panel, select the features that you want to install. Workflow Manager / AdminStudio Enterprise Server consists of four major features:

Feature	Description
<p>Application Files</p>	<p>Select this option to install the Workflow Manager / AdminStudio Enterprise Server application files. Unless you are running this setup only to upgrade an existing database, this option should always be selected.</p> <p></p> <p>Note • If you select this option but do not select the Application Web Site option, you then have to open IIS (Internet Information Services) and manually create the main Workflow Manager / AdminStudio Enterprise Server Web Site and virtual directories. For more information, see Manually Installing Workflow Manager / AdminStudio Enterprise Server.</p>
<p>Application Web Site</p>	<p>Select this option to install the main Workflow Manager / AdminStudio Enterprise Server website and the required virtual directories.</p>

Feature	Description
Application Database	<p>Select this option to create a new SQL Server database, which is required to run Workflow Manager / AdminStudio Enterprise Server.</p> <p>If you do not select this option, you will have to create the database manually. See Create the Workflow Manager / AdminStudio Enterprise Server Database Manually for more information.</p>  <p>Important • Even if you do not choose this option, you will be prompted on the SQL Database panel of this installation to enter the connection information for the existing or new database you will be connecting to so that this information can be saved in the Workflow Manager configuration files. Therefore, even if you are going to connect Workflow Manager to a database that you will create later using scripts, you must enter the connection information that you will be using when you create that database.</p>
Portal Web Site	<p>Select this option to install a Web Portal, a website that provides access to Workflow Manager / AdminStudio Enterprise Server functionality, but is on a different machine and/or network than the machine where the Workflow Manager / AdminStudio Enterprise Server application files are installed.</p>  <p>Note • Usually Workflow Manager consumers access the Workflow Manager via a Web Portal, while Workflow Manager administrators access it directly from the Workflow Manager server machine.</p>

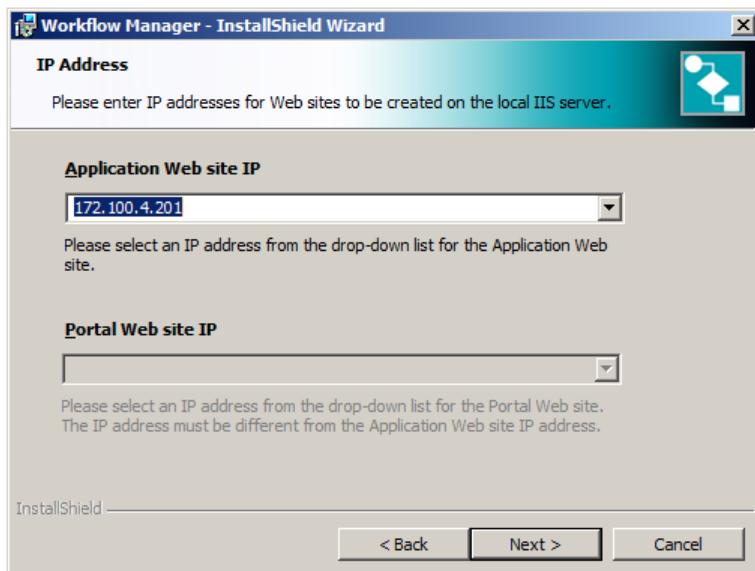
As you select each feature, information about it is listed in the **Feature Description** area, and the location where the selected feature will be installed is listed under the feature tree box.

The icon next to the feature name indicates whether that feature is selected for installation. You have the following options:

Icon	Install State	Description
	This feature will be installed on local hard drive	This feature will be installed on the local computer.
	This feature, and all subfeatures, will be installed on local hard drive	All of the features in the selected group will be installed on the local computer.
	This feature will not be available	This feature will not be installed even if it is required by one of the other features that are being installed.

By default, all features are selected to be installed on the local hard drive. Click on the icon next to each feature and set its installation status so that only those features that you want to install are selected.

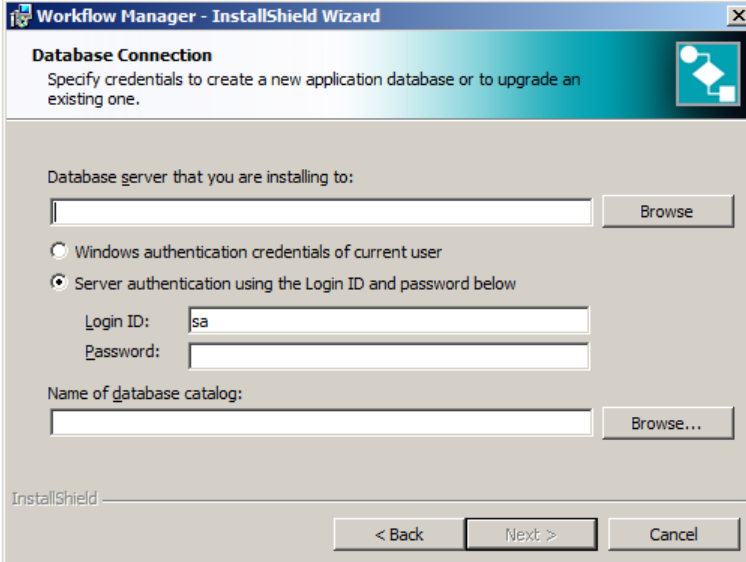
8. Click **Next**. The **IP Address** panel opens:



Note • The following steps assume that all features are being installed. However, if you did not select to install all of the features on the **Custom Setup** panel, some panels will not be displayed. Skip the steps related to panels which are not displayed.

9. In the **Application Web Site IP** field, enter the IP address of the machine where the Workflow Manager / AdminStudio Enterprise Server website will be created, the main web server of the AdminStudio Enterprise Server tools and Workflow Manager. This IP address should not be the same as the Web Portal IP address. By default, this field is populated with the IP address of the current machine.
10. In the **Portal Web site IP** field, if you chose to install the Portal Web Site, enter the IP address of the machine where the Web Portal will be created. This IP address should not be the same as the **Application Web Site IP** address.

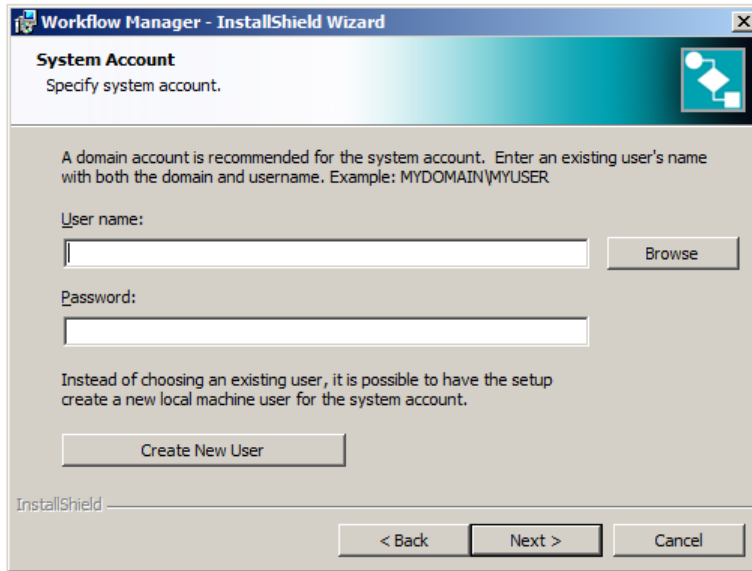
11. Click **Next**. The **Database Connection** panel opens.



Important • Even if you did not choose to install the **Application Database** during installation, you still need to enter the connection information for the existing or new database you will be connecting to so that this information can be saved in the Workflow Manager / AdminStudio Enterprise Server configuration files. Therefore, even if you are going to connect Workflow Manager / AdminStudio Enterprise Server to a database that you will create later using scripts, you must enter the connection information that you will be using when you create that database.

12. In the **Database server that you are installing to** field, enter the name of the new SQL database that you want to create or the name of an existing Workflow Manager database which you want to upgrade.
13. Select the authentication method you want to use by selecting either **Windows authentication credentials of current user** or **Server authentication using the Login ID and password below**. If you selected the **Server authentication** method, you also need to enter a **Login ID** and **Password** for that server.

14. Click **Next**. The **System Account** panel opens:



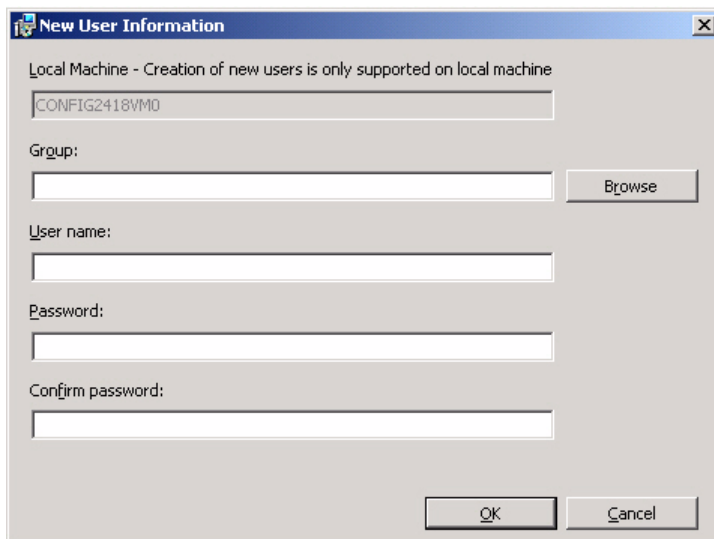
Workflow Manager performs many operations, such as sending emails and uploading/downloading files, by impersonating the user specified on this panel. This user is known as the System Account. Any operation that needs higher privileges is performed in Workflow Manager by impersonating the System Account.

15. On the **System Account** panel, enter the **User Name** and **Password** of the Workflow Manager system account. You can specify an existing user as the System Account or create a new user:

- **To specify an existing user as the Domain Account**—Enter the **User name** and **Password** of an existing user. When entering the **User name**, precede it with the Domain name:

MYDOMAIN\MYUSER

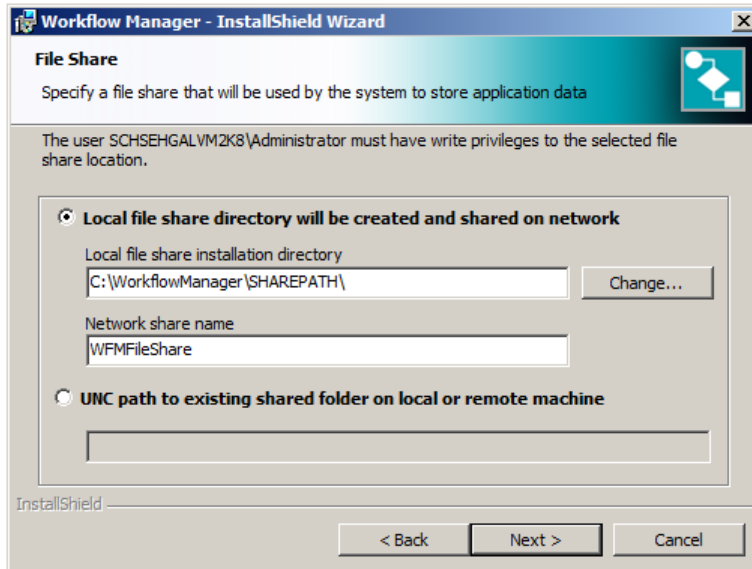
- **To create a new user to serve as the Domain Account**—Click **Create New User** and enter information on the **New User Information** dialog box.



It is important to note the following:

- The System Account must have Read and Change permission on the shared folder on the File Server. See [Setting Up the File Share](#).
- If you are installing Workflow Manager on a Windows 2000 server, you also need to assign user rights to the aspnet user. See [Required User Rights Assignment for Windows 2000 Server](#).
- Because Workflow Manager automatically generates and sends emails, you must assign permission to the System Account on the SMTP Server to send emails.
- The Workflow Manager administrator can change this user information from within the Workflow Manager interface by opening the **Administration** tab and clicking the **System Settings** subtab.

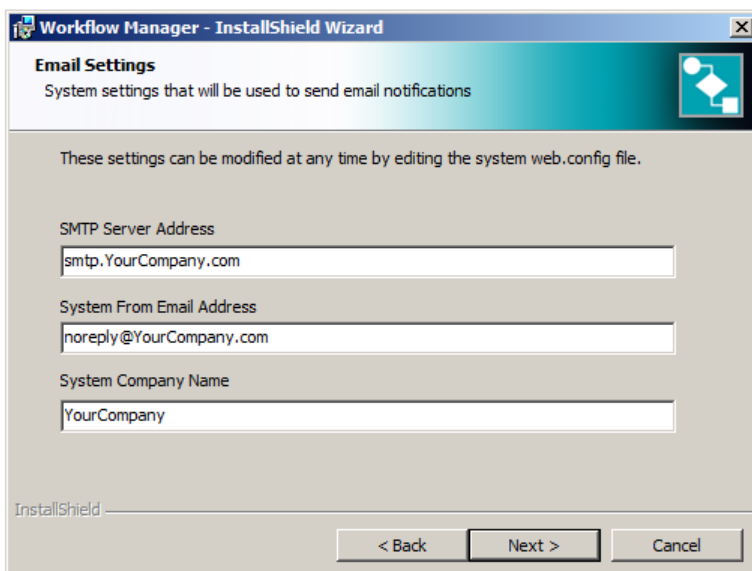
16. Click **Next**. The **File Share** panel opens:



17. The File Server is the location where files that are uploaded to Workflow Manager are stored. Select one of the following options:

- **Local file share directory will be created and shared on network**—Select this option to automatically create a File Share folder on the local machine. You can either accept the default values for the **Local file share installation directory** and the **Network share name** or enter new information.
- **UNC path to existing shared folder on local or remote machine**—If you have already created a File Share location on another machine in the network (as described in [Setting Up the File Share](#)), select this option and enter the UNC path.

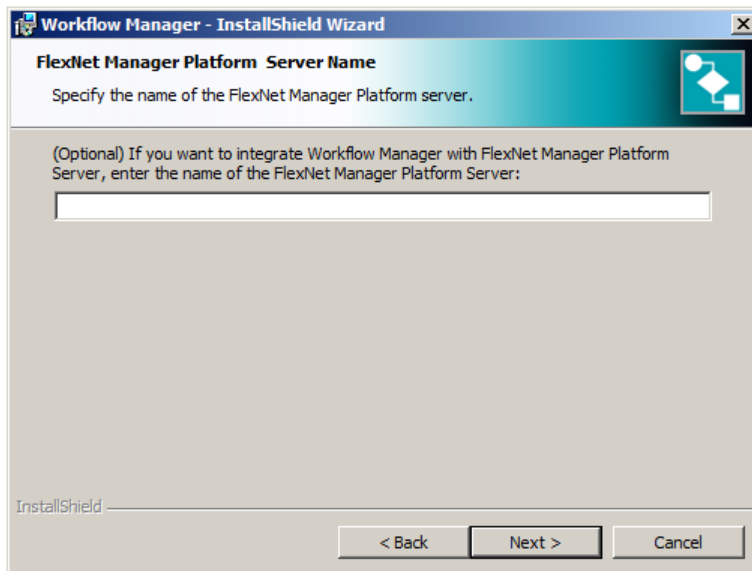
18. Click **Next**. The **Email Settings** panel opens.



19. On the **Email Settings** panel, enter the following information:

Option	Description
SMTP Server Address	Enter the name of an SMTP server that will be used by Workflow Manager to send emails, such as: smtp.xyzco.com.
System “From” Email Address	Enter an email address that will be used as the Reply-to email address by Workflow Manager when sending emails. For example, address@xyzco.com.
System Company Name	Enter your company name.

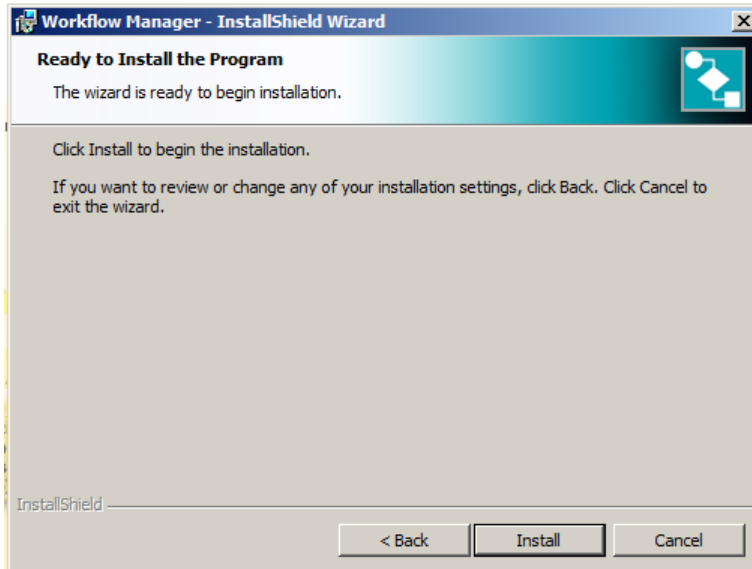
20. Click **Next**. The **FlexNet Manager Platform Server Name** panel opens.



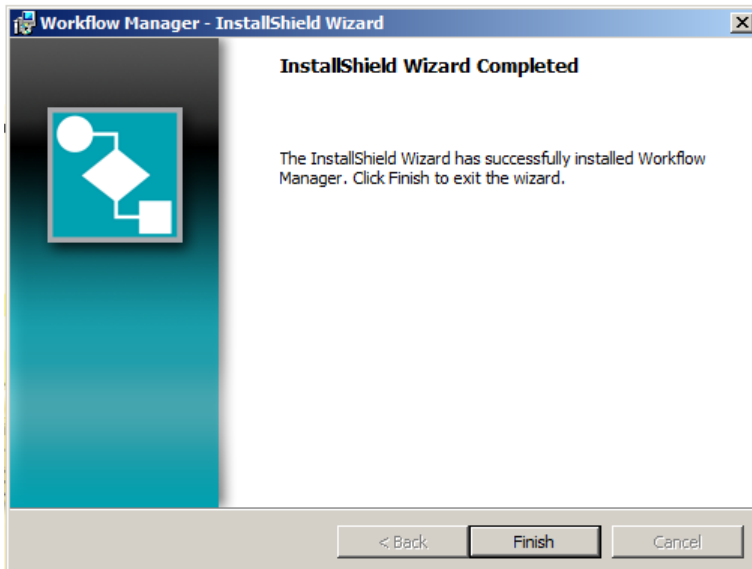
21. If you are a FlexNet Manager Platform Server customer, enter the name/IP address of the FlexNet Manager Platform Server. This will integrate Workflow Manager with the FlexNet Manager Platform.

If you are not a FlexNet Platform Server customer, leave this field blank.

22. Click **Next**. The **Ready to Install the Program** panel opens.



23. Click **Install** to begin the installation. The **Installing Workflow Manager** panel opens. When installation is complete, the **InstallShield Wizard Complete** panel will open.



24. Click **Finish**.

Additional Configuration Steps When Using Windows Server 2008

If you are installing the Workflow Manager application or portal on Windows Server 2008, you need to perform several additional configuration steps:

- [Configuring Workflow Manager Portal on Windows Server 2008](#)
- [Configuring Workflow Manager Application on Windows Server 2008](#)

Configuring Workflow Manager Portal on Windows Server 2008

If you have installed the Workflow Manager Portal on Windows Server 2008, perform the following additional configuration steps.



Note • *If you are using an earlier version of Windows Server, these steps are not necessary.*



Task: ***To configure the Workflow Manager Web Server Portal on Windows Server 2008:***

1. Open Microsoft Internet Information Services (IIS).
2. Go to the **Handler Mappings** view for the Workflow Manager Portal website.
3. Remove all of the mappings except for the "*" mapping. The "*" mapping should map to `aspnet_isapi.dll`.
4. On the **Request Restrictions** dialog box, clear the check box labeled **Invoke handler only if request is mapped to**.

Configuring Workflow Manager Application on Windows Server 2008

If you have installed the Workflow Manager application on Windows Server 2008, perform the following additional configuration steps.



Note • *If you are using an earlier version of Windows Server, these steps are not necessary.*



Task: **To configure the Workflow Manager Portal on Windows Server 2008:**

1. Change the **Managed Pipeline Mode** setting for the **DefaultAppPool** from **Integrated** to **Classic**.
2. Create the CommonLibrary virtual directory in the Application Web site, and point it to:
C:\WorkflowManager\CommonLibrary
3. Self-register the following file:
C:\Windows\System32\msscript.ocx
4. Launch Workflow Manager to confirm that it is working properly.

Launching Workflow Manager

You are now ready to launch Workflow Manager.

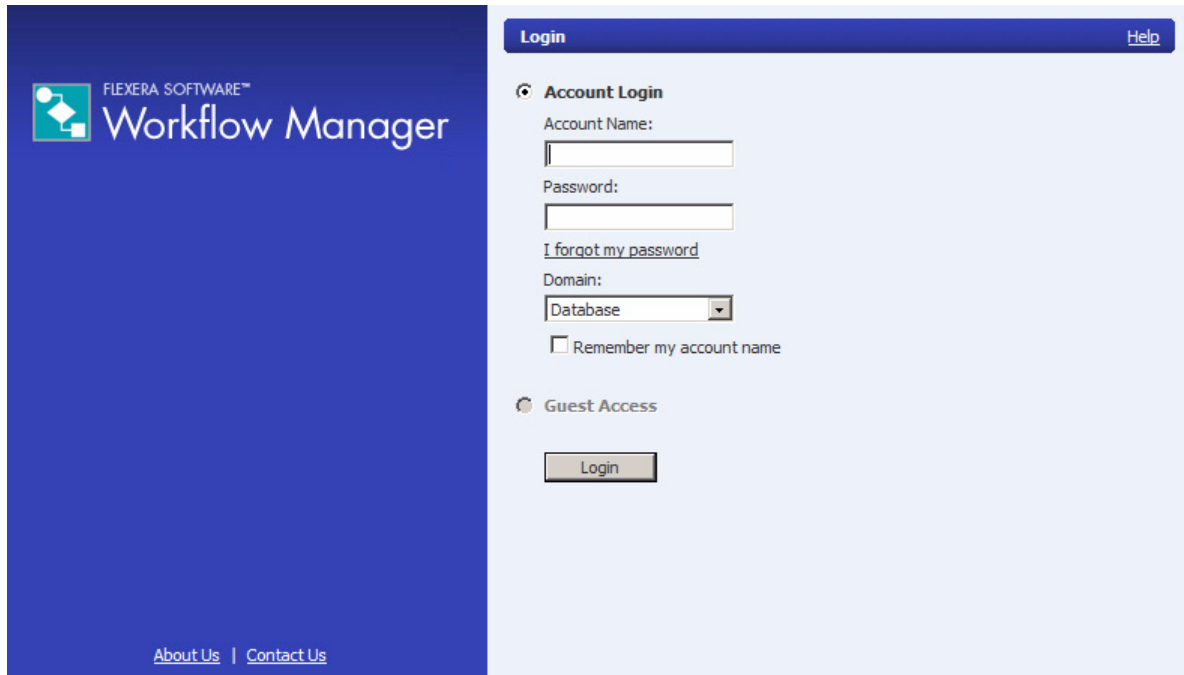


Task: *To launch Workflow Manager:*

1. Do one of the following:
 - a. If you are on the machine where you installed Workflow Manager, select **Workflow Manager** from the Start menu.
 - b. If you are on another machine in the network, open a browser window and enter the **Web Site IP Address** you specified on the **IP Address** panel, such as:

`http://111.22.333.44`

The **Workflow Manager Login** page opens:



2. Log on to Workflow Manager as one of the following users:

If you want to ...	Log on as ...
Start Using the Application	Logon using the default administrator account of the default workflow administrator company. <ul style="list-style-type: none">• User Name: admin@company.com• Password: admin
Create a New Company or Customize Terminology	Logon using the Super User account: <ul style="list-style-type: none">• User Name: suams• Password: suams

Installing a Web Portal on a Different Server

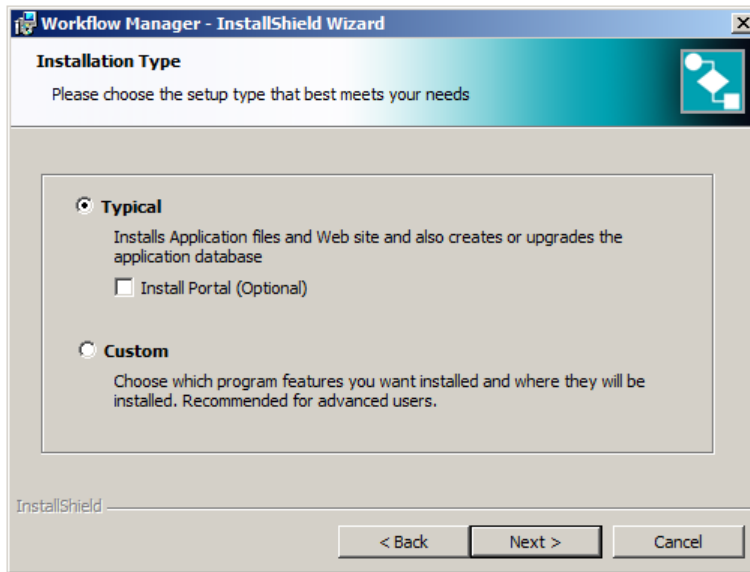
When you run the main Workflow Manager setup, you have options to set up a Web Portal (used to access the Workflow Manager website) on the same machine that you have installed the Workflow Manager website. However, if you want to install a Web Portal on a separate machine (typically in an Internet scenario), you can run the Web Portal setup separately.



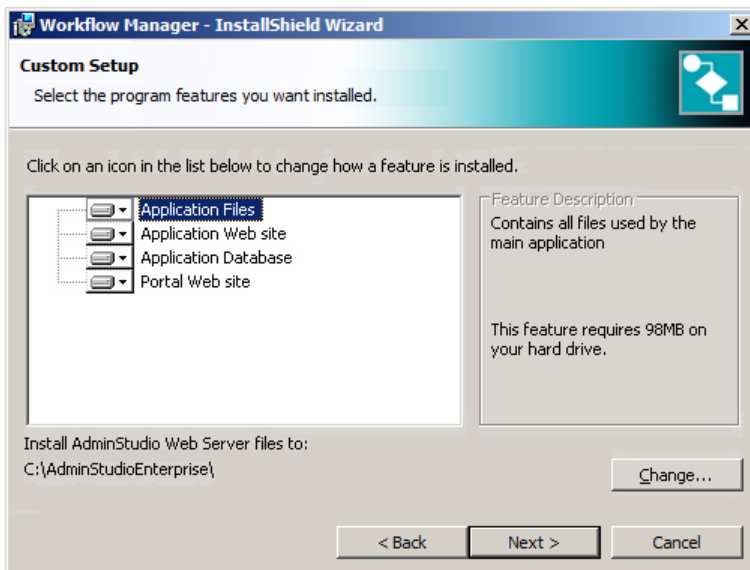
Task: *To install a Workflow Manager Web Portal:*


1. Launch the Workflow Manager / AdminStudio Enterprise Server installation program. The **Welcome** panel opens.
2. Click **Next**. The **License Agreement** panel opens.
3. Select the **I accept the terms of the license agreement** option and click **Next**. The **Serial Number** panel opens.

4. Select and enter the serial numbers of the product or products you purchased – Workflow Manager and /or AdminStudio Enterprise Edition – and click **Next**. The **Installation Type** panel opens:



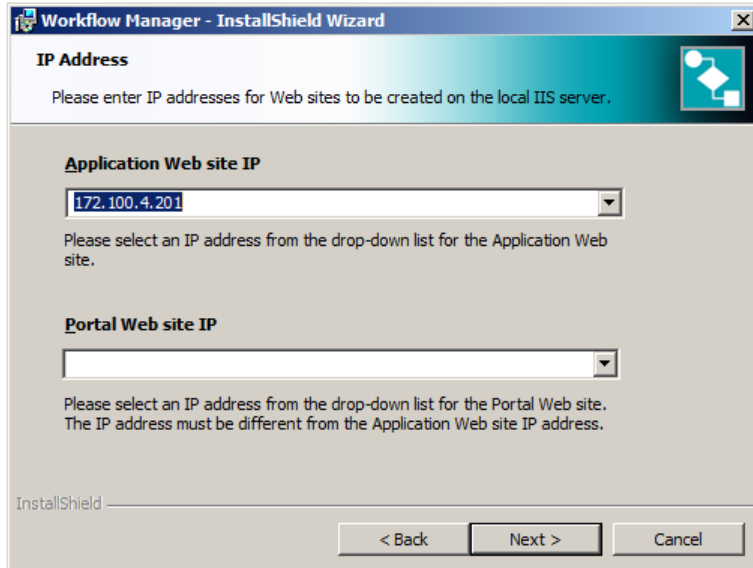
5. Select **Custom** and click **Next**. The **Custom Setup** panel opens, and by default, all four features are selected.



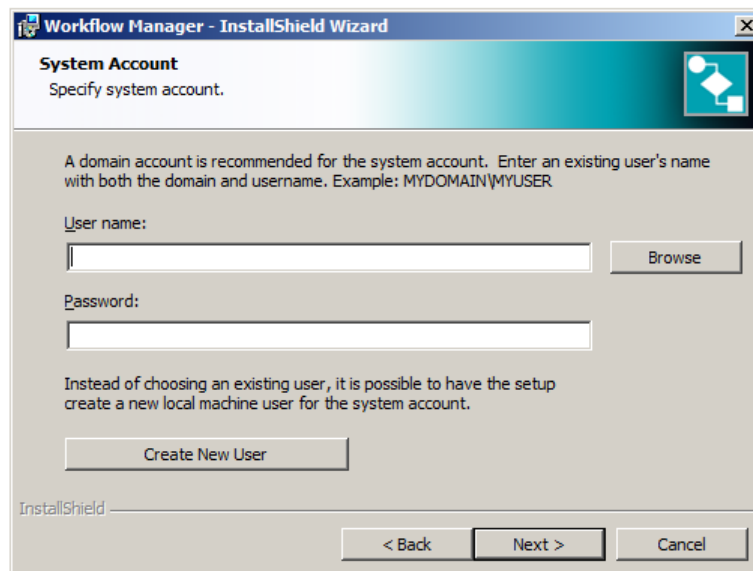
6. Click the  icon next to **Application Files**, **Application Web site**, and **Application Database**, and select **This feature will not be available**. The feature list should now look like this:



7. Click **Next**. The **IP Address** panel opens.



8. On the **IP Address** panel, fill in the following information:
 - a. **Web Portal IP address**—The IP address you want to use for this Web Portal.
 - b. **Intranet Web Portal IP**—The IP address where the Workflow Manager website is installed.
9. Click **Next**. The **System Account** panel opens.



Workflow Manager performs many operations, such as sending emails and uploading/downloading files, by impersonating the user specified on this panel. This user is known as the System Account. Any operation that needs higher privileges is performed in by impersonating the System Account.

10. On the **System Account** panel, enter the **User Name** and **Password** of the Workflow Manager / AdminStudio Enterprise Server system account. You can specify an existing user as the System Account or create a new user:

- **To specify an existing user as the Domain Account**—Enter the **User name** and **Password** of an existing user. When entering the **User name**, precede it with the Domain name:

MYDOMAIN\MYUSER

- **To create a new user to serve as the Domain Account**—Click **Create New User** and enter information on the **New User Information** dialog box.

It is important to note the following:

- The System Account must have Read and Change permission on the shared folder on the File Server. See [Setting Up the File Share](#).
 - If you are installing Workflow Manager / AdminStudio Enterprise Server on a Windows 2000 server, you also need to assign user rights to the aspnet user. See [Required User Rights Assignment for Windows 2000 Server](#).
 - Because Workflow Manager automatically generates and sends emails, you must assign permission to the System Account on the SMTP Server to send emails.
 - The Workflow Manager / AdminStudio Enterprise Server administrator can change this user information from within the product interface by opening the **Administration** tab and clicking the **System Settings** subtab.
11. Click **Next**. The **Ready to Install the Program** panel opens.
12. Click **Install** to begin the installation.

Manually Installing Workflow Manager / AdminStudio Enterprise Server

If you want to manually configure Workflow Manager / AdminStudio Enterprise Server instead of configuring it using the installation program, you need to perform the following tasks:

- [Install Workflow Manager / AdminStudio Enterprise Server Application Files](#)
- [Set Up the Virtual Directories](#)
- [Enable Buffering and Session State](#)
- [Create the Workflow Manager / AdminStudio Enterprise Server Database Manually](#)

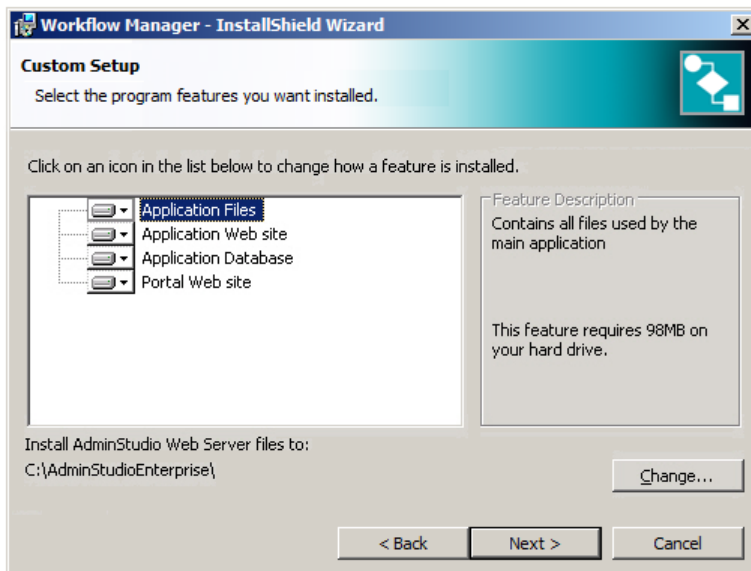
Install Workflow Manager / AdminStudio Enterprise Server Application Files

To install the Workflow Manager / AdminStudio Enterprise Server application files, perform the following steps:



Task: *To install the Workflow Manager / AdminStudio Enterprise Server application files:*

Run the installation program as described in [Installing and Configuring Workflow Manager / AdminStudio Enterprise Server](#) and choose **Custom** on the **Installation Type** panel. On the **Custom Setup** panel, select only the first option, **Application Files**.



Set Up the Virtual Directories

Workflow Manager / AdminStudio Enterprise Server is a Web application which uses virtual directories. When you run the installation, these virtual directories will automatically be created. However, if you want to set up Workflow Manager / AdminStudio Enterprise Server manually, you will need to set up the virtual directories using the following procedure.



Task: *To set up the virtual directories manually:*

1. Open the **Internet Information Services (IIS) Manager** on the Web Server where Workflow Manager / AdminStudio Enterprise Server is installed.
2. To set up the Workflow Manager / AdminStudio Enterprise Server web site virtual directory, perform the following steps:
 - a. Create a new website named **Workflow Manager Application** or **AdminStudio Enterprise Server Application**.
 - b. Select the **Workflow Manager Application** or **AdminStudio Enterprise Server Application** web site icon in the tree and select **Properties** from the context menu. The **Properties** dialog box opens.
 - c. On the **Web Site** tab, set the **IP address** to the IP address of the machine where the Workflow Manager / AdminStudio Enterprise Server website will be created, the main Web server of the Workflow Manager / AdminStudio Enterprise Server application.
 - d. Click the **Home Directory** tab.
 - e. Set the **Local path** to the root directory of Workflow Manager / AdminStudio Enterprise Server, which is by default:
`C:\AdminStudioEnterprise\wwwroot`
or
`C:\WorkflowManager\wwwroot`
 - f. Click **OK** to close the **Properties** dialog box.
 - g. Create another virtual directory under the **Workflow Manager Application** or **AdminStudio Enterprise Server Application** website in the tree named **CommonLibrary**, and point it to:
`C:\AdminStudioEnterprise\CommonLibrary`
or
`C:\WorkflowManager\CommonLibrary`
3. To set up the Workflow Manager / AdminStudio Enterprise Server Portal virtual directory, perform the following steps:
 - a. Create a new web site named **Workflow Manager Portal** or **AdminStudio Enterprise Server Portal**.
 - b. Select the **Workflow Manager Portal** or **AdminStudio Enterprise Server Portal** icon in the tree and select **Properties** from the context menu. The **Properties** dialog box opens.

Enable Buffering and Session State

Enable Buffering and **Enable Session State** are required options for the Workflow Manager / AdminStudio Enterprise Server Application website and the Portal website on IIS. The Workflow Manager / AdminStudio Enterprise Server installation program automatically enables these features, but if you want to perform this task manually, perform these steps.



Task: *To select the **Enable Buffering** and **Enable Session State** options:*

1. In the **IIS Internet Service Manager**, open the **Web Sites** folder and select **Workflow Manager Application** or **AdminStudio Enterprise Server Application**.
2. Right-click and select **Properties** from the context menu. The **Properties** dialog box appears.
3. On the **Home Directory** tab, click the **Configuration** button. The **Application Configuration** dialog box appears.
4. On the **Options** tab, select the **Enable Session State** checkbox, and accept the default session timeout value of **20 minutes**.
5. On the **Options** tab, select the **Enable Buffering** checkbox.
6. Close the **Application Configuration** dialog and the **Options** dialog.
7. Return to the **Web Sites** folder, select **Workflow Manager Portal** or **AdminStudio Enterprise Server Portal** and repeat Steps 1-5.

Create the Workflow Manager / AdminStudio Enterprise Server Database Manually

You can create the Workflow Manager / AdminStudio Enterprise Server database manually using scripts. You can install it on either the same server as you installed the Web application or on a different server.

For complete instructions, see [Using Scripts to Create the Workflow Manager / AdminStudio Enterprise Server Database](#).

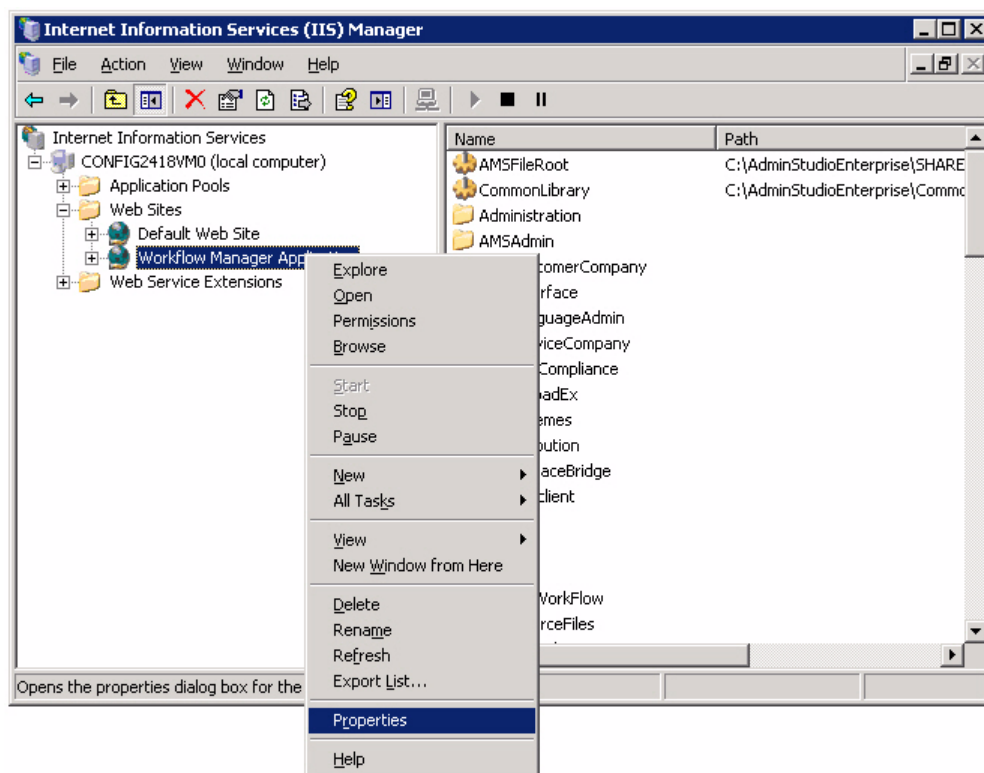
Configuring Windows Authentication for an SQL Server Database

When, during Workflow Manager / AdminStudio Enterprise Server installation, you select Windows Authentication for your database connection, you will need to perform the following manual steps after the installation is finished.



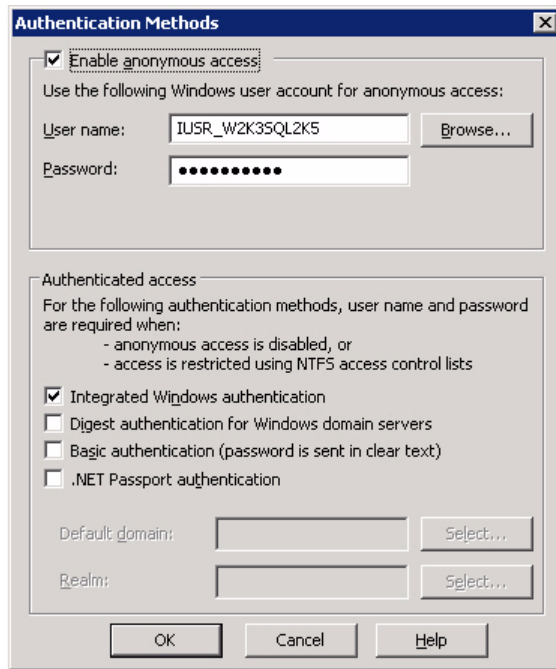
Task: *To configure Windows Authentication:*

1. When you run the Workflow Manager / AdminStudio Enterprise Server installation (as described in [Installing and Configuring Workflow Manager / AdminStudio Enterprise Server](#)), choose **Windows Authentication** in the **SQL Login** dialog.
2. When installation is complete, open Internet Information Services (IIS) Manager.
3. On the local computer, select **Workflow Manager Application** and click **Properties** on the context menu.



The **Workflow Manager Application Properties** dialog box opens.

4. Open the **Directory Security** tab and click **Edit** next to **Authentication and access control**. The **Authentication Methods** dialog box opens.



5. Determine the anonymous user being used. In this example, the anonymous user account is the local machine user IUSR_W2K3SQ_2K5.
6. Open SQL Server and add this user in the **Security – Login** section if the user does not already exist there.
7. Assign this user db_owner and optionally db_securityadmin privileges to the database that was just created during the installation.
8. Launch Workflow Manager / AdminStudio Enterprise Server and login using your Windows Authentication network credentials.

Using Scripts to Create the Workflow Manager / AdminStudio Enterprise Server Database

You can choose to create the Workflow Manager / AdminStudio Enterprise Server database as part of the main installation, or you can choose to create an SQL Server database manually using scripts.

The scripts that you can use to create databases can be found in subdirectory called SQL_Scripts in the following locations:

Table 3-4 • Location of Database Creation Scripts

Installation	Default Location
AdminStudio 11.0 Client Tools	C:\Program Files\AdminStudio\11.0\Support
AdminStudio Enterprise Server 11.0 / Workflow Manager 5.6	C:\AdminStudioEnterprise\Support or C:\WorkflowManager\Support

For detailed instructions, see the following procedures:

- [Using Scripts to Create Application Catalog Databases on SQL Server](#)
- [Updating web.config File](#)

Using Scripts to Create Application Catalog Databases on SQL Server

Typically, users with administrative privileges in AdminStudio use **Create** on the **Catalog** menu to create a new Application Catalog.

However, because of security concerns, some database administrators may be hesitant to grant the database creation rights that are necessary to create an Application Catalog database using SQL Server to AdminStudio users. Consequently, the database administrator must manually create the database and provide the necessary read and write access for users to that database.

AdminStudio is shipped with database creation SQL scripts to make it easy for database administrators to create new Application Catalogs:

Table 3-5 • Scripts to Create Application Catalog Databases on SQL Server

Script File	Description
AMS_System_Schema.SQL	Primary Workflow Manager tables
AMSCreateIndex.SQL	Indexes for Workflow Manager tables
AMS_SamplePackagingTemplate.SQL	Sample Workflow Manager template data
AS_System_Schema.SQL	Primary AdminStudio client tools data
Seed_Data.SQL	Seed data required by AdminStudio
CustomReportWizard.SQL	Report Center data
Reporting.StoredProcedures.SQL	Application Catalog enhanced reporting data

These SQL scripts are located in the following directory:

AdminStudio Installation Directory\Support\SQL_Scripts

To create an Application Catalog database on SQL Server, perform the following steps:



Task: *To use scripts to create an AdminStudio Application Catalog on SQL Server:*

1. Log on to your SQL Server.
2. Launch the Enterprise Manager and Query Analyzer.
3. In Query Analyzer, execute a CREATE DATABASE command to create and identify the new Application Catalog database.
4. Select the newly created database in Query Analyzer.

5. Execute the following scripts in order:
 - a. AMS_System_Schema.SQL
 - b. AMSCreateIndex.SQL
 - c. AMS_SamplePackagingTemplate.SQL
 - d. AS_Schema.SQL
 - e. Seed_Data.SQL
 - f. CustomReportWizard.SQL
 - g. Reporting.StoredProcedures.SQL

Updating web.config File

After you manually create the Workflow Manager / AdminStudio Enterprise Server database, you also need to update the web.config file to provide connection-specific information and enable to storing of session information in the ASP.NET State Server.

- [Enter Connection Information in the web.config File](#)
- [Enable the Storing of Session Information in the ASP.NET State Server](#)

Enter Connection Information in the web.config File

After you manually create the Workflow Manager / AdminStudio Enterprise Server database, you need to update the web.config file in the wwwroot folder of the Workflow Manager / AdminStudio Enterprise Server application and portal to make sure it has correct database connection string parameters, share names, Web services URLs, email and other settings. The following is an example of connectionStrings information:

Table 3-6 • Example of connectionStrings information in web.config file

```
<connectionStrings>
  <add name="DefaultConnectionString" connectionString="Data Source=TESTLABSQL2K;
    Initial Catalog=WM31T035;Persist Security Info=True;User ID=sa;Password=sa"
    providerName="System.Data.SqlClient"/>
</connectionStrings>
```



Task: *To enter connection information in the web.config file:*

1. Locate the web.config file in the wwwroot folder of the Workflow Manager or AdminStudio Enterprise Server application and open it in a text editor.
2. Set the connectionString variable to the following values for both add elements: DefaultConnectionString and StandardConnectionString:

Attribute	Value
connectionString	Enter the name of the database server in the following format: Data Source=MYSQLSERVER
Initial Catalog	Enter the name of the Application Catalog in the following format: Initial Catalog=MYCATALOG
User ID	Enter the User ID of that database in the following format: User ID=USERNAME
Password	Enter the password of that database in the following format: Password=PASSWORD
providerName	Enter the providerName of that database in the following format: providerName="System.Data.SqlClient"

Enable the Storing of Session Information in the ASP.NET State Server

It is recommended that you store the session state information for AdminStudio Enterprise Server / Workflow Manager in the ASP.NET State Server instead of in process. The installation program will do this automatically as long as the Application Web Site feature is chosen to be installed. Otherwise, this can be done manually by performing the following steps:



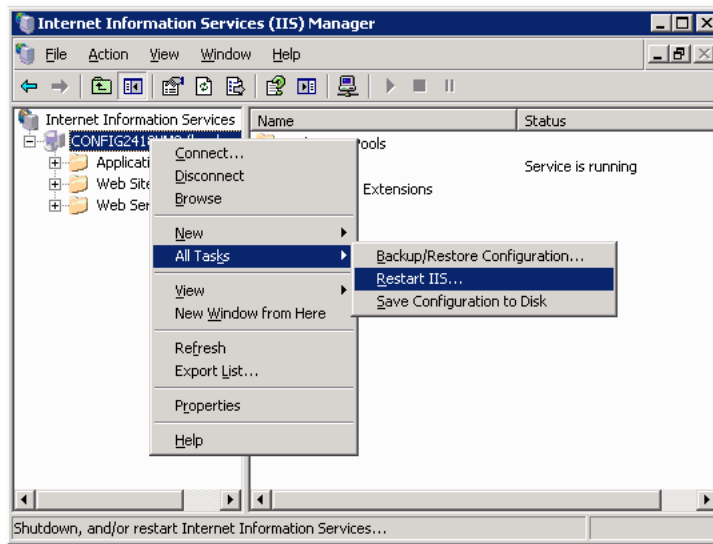
Task: *To enable the storing of session information in the ASP.NET State Server:*

1. Open the Windows Control Panel.
2. Open the **Administrative Tools**.
3. Open **Services**.
4. From the list of services, select **ASP.NET State Service**.
5. Right-click and select **Start** from the context menu. The service is started.
6. Right-click **ASP.NET State Service** again and select **Properties** from the context menu. The **ASP.NET State Service Properties** dialog box opens.

7. Set the **Startup type** to **Automatic**.
8. Click **OK** to save your edits and close the dialog box.
9. Locate the web.config file in the wwwroot folder of the Workflow Manager / AdminStudio Enterprise Server application and open it in a text editor.
10. Verify that the associated mode attribute in the sessionState element in the web.config file is set to StateServer instead of InProc, as shown here:

```
<sessionState timeout="20" mode="StateServer" stateConnectionString="tcpip=127.0.0.1:42424"
  sqlConnectionString="data source=127.0.0.1;Trusted_Connection=yes" cookieless="false"/>
```

11. Restart Internet Information Services (IIS) by performing the following steps:
 - a. Open **Windows Control Panel**.
 - b. Point to **Administrative Tools** and click **Internet Information Services (IIS) Manager**. **Internet Information Services (IIS) Manager** opens.
 - c. Under **Internet Information Services**, right-click on the computer name, point to **All Tasks**, and click **Restart IIS**.



IIS is restarted.

Upgrade Procedures

This section lists procedures relating to upgrading previous installations of Workflow Manager / AdminStudio Enterprise Server:

- [Using the Workflow Manager / AdminStudio Enterprise Server Installation to Upgrade an Existing Version of Workflow Manager](#)
- [Migrating User/Role Data from AdminStudio Enterprise Server 7.x or 8.x to AdminStudio Enterprise Server 11.0](#)
- [Upgrading Data that is Split Across Multiple AdminStudio Enterprise Server 7.x and Workflow Manager 3.x Databases](#)
- [Using Scripts to Unify and Upgrade Workflow Manager and AdminStudio Databases](#)

Using the Workflow Manager / AdminStudio Enterprise Server Installation to Upgrade an Existing Version of Workflow Manager

To upgrade an existing installation of Workflow Manager 3.0, 3.5, or 4.0 to Workflow Manager 5.6, perform the following steps.



Note • For Workflow Manager 5.6 to be integrated with AdminStudio, and to use an integrated Application Catalog database, you need to also upgrade the AdminStudio client tools to Version 11.0, as described in the AdminStudio 11.0 Client Tools Installation Guide.



Important • The instructions in this section assume you are performing the installation from a DVD. If, instead, you downloaded a compressed version of the installation software, you may be prompted for a password when you attempt to extract the installation program. This password can be found in the Order Confirmation email you received when you purchased this product (the same email that contains the Serial Number).



Important • Beginning with the AdminStudio 9.01 / Workflow Manager 5.0 release, Oracle databases are no longer supported. If you are upgrading an installation of Workflow Manager that used an Oracle database, you will be alerted that Oracle is no longer supported. You will then have the opportunity to continue the install and specify the location of a new SQL Server database or to exit the installation.



Task: *To upgrade from Workflow Manager 3.0, 3.5, or 4.0 to 5.6:*

1. On the server where the previous version of Workflow Manager is installed, launch the installation program on the Workflow Manager / AdminStudio Enterprise Server installation DVD. The Browser page opens.
2. Click **Install Workflow Manager**. The installation program starts and detects that a previous version of the Workflow Manager / AdminStudio Enterprise Server database has been installed on this machine. The **Welcome** panel of the Workflow Manager / AdminStudio Enterprise Server installation program opens, informing you that you are upgrading a previous version.



Important • If the upgrade process detects a version of Workflow Manager 2.5 or earlier on the machine, you will be prompted to first upgrade to Workflow Manager 3.0 before upgrading to Workflow Manager 5.6. However, you can upgrade Workflow Manager 2.5 or earlier manually by running scripts, as described in [Using Scripts to Unify and Upgrade Workflow Manager and AdminStudio Databases](#).



Note • If you are installing Workflow Manager / AdminStudio Enterprise Server on a machine that does not have a previous version of the Workflow Manager / AdminStudio Enterprise Server database installed on it, but then you specify connection information for an existing database from a previous version that exists on a different machine, the installation program will automatically upgrade the specified database.

3. Click **Next**. The **License Agreement** panel opens.
4. Select the **I accept the terms of the license agreement** option and click **Next**. The **Serial Number** panel opens.
5. Enter the **Workflow Manager Serial Number** and the **AdminStudio Enterprise Edition Serial Number** (if you have purchased AdminStudio 11.0 Enterprise Edition) and click **Next**. The **Ready to Upgrade the Program** panel opens:



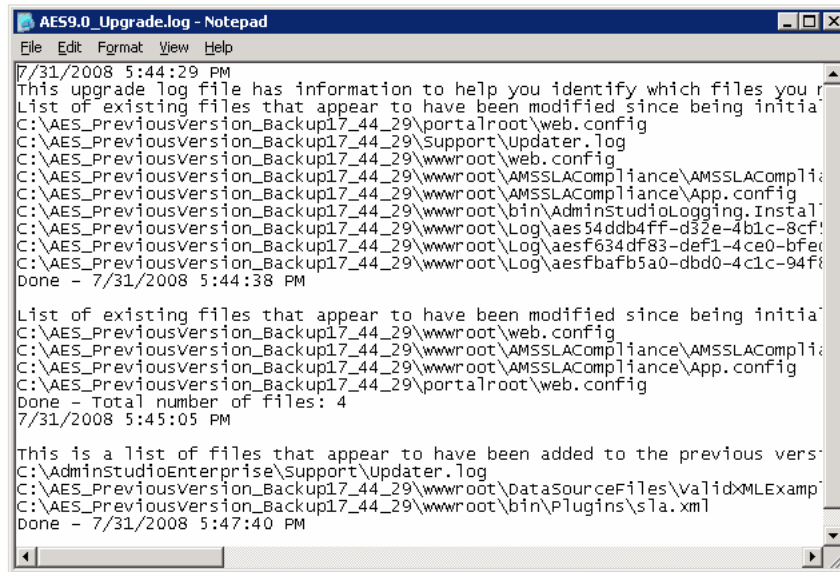
Note • Only product features that were previously installed will be upgraded. All necessary configuration information pertaining to these features was read from the existing `web.config` file and the registry. If you wish to install additional features, run this installation again, after completing the upgrade.

6. Click **Install** to begin the installation. First, the installation program will uninstall the previous version of Workflow Manager. It will then proceed to install Workflow Manager. When installation is complete, the **InstallShield Wizard Complete** panel opens.
7. If you want to view a log file that would help you to identify which files you may have modified since the original installation of your earlier version of Workflow Manager/AdminStudio Enterprise Server, leave the **Show the upgrade log file** option selected.



Note • If you want to view this log file at a later time, you can find it in the root directory of the installation,

8. Click **Finish**. If you selected the **Show the upgrade log file** option, the log file opens. If files are identified as having been modified, then you will need to manually resolve each such instance.



```
AES9.0_Upgrade.log - Notepad
File Edit Format View Help
7/31/2008 5:44:29 PM
This upgrade log file has information to help you identify which files you r
List of existing files that appear to have been modified since being initia
C:\AES_PreviousVersion_Backup17_44_29\portalroot\web.config
C:\AES_PreviousVersion_Backup17_44_29\Support\Updater.log
C:\AES_PreviousVersion_Backup17_44_29\wwwroot\web.config
C:\AES_PreviousVersion_Backup17_44_29\wwwroot\AMSSSLACompliance\AMSSSLACompli
C:\AES_PreviousVersion_Backup17_44_29\wwwroot\AMSSSLACompliance\App.config
C:\AES_PreviousVersion_Backup17_44_29\wwwroot\bin\AdminStudioLogging.Install
C:\AES_PreviousVersion_Backup17_44_29\wwwroot\Log\aes54ddb4ff-d32e-4b1c-8cf
C:\AES_PreviousVersion_Backup17_44_29\wwwroot\Log\aesf634df83-def1-4ce0-bfer
C:\AES_PreviousVersion_Backup17_44_29\wwwroot\Log\aesfba5a0-dbd0-4c1c-94f
Done - 7/31/2008 5:44:38 PM

List of existing files that appear to have been modified since being initia
C:\AES_PreviousVersion_Backup17_44_29\wwwroot\web.config
C:\AES_PreviousVersion_Backup17_44_29\wwwroot\AMSSSLACompliance\AMSSSLACompli
C:\AES_PreviousVersion_Backup17_44_29\wwwroot\AMSSSLACompliance\App.config
C:\AES_PreviousVersion_Backup17_44_29\portalroot\web.config
Done - Total number of files: 4
7/31/2008 5:45:05 PM

This is a list of files that appear to have been added to the previous vers
C:\AdminStudioEnterprise\Support\Updater.log
C:\AES_PreviousVersion_Backup17_44_29\wwwroot\DataSourceFiles\ValidXMLExamp
C:\AES_PreviousVersion_Backup17_44_29\wwwroot\bin\Plugins\s1a.xml
Done - 7/31/2008 5:47:40 PM
```

9. You can now launch Workflow Manager / AdminStudio Enterprise Server by opening the **Start/All Programs** menu, pointing at **AdminStudio** and selecting **Workflow Manager** or **AdminStudio Enterprise Server**.



Note • Another way to open the **Workflow Manager / AdminStudio Enterprise Server Login** page is to open a browser window and enter the **Web Site IP Address** you specified on the **IP Address** panel, such as:

`http://111.22.333.44`

The **Workflow Manager / AdminStudio Enterprise Server Login** page opens.

When you login, you will see that all of the data that was in your previous version has been preserved.

Migrating User/Role Data from AdminStudio Enterprise Server 7.x or 8.x to AdminStudio Enterprise Server 11.0

In AdminStudio Enterprise Server 7.0 and 7.5, custom users and roles and other administrative data was stored in a separate Cloudscape database (a small-footprint Java database server). Since AdminStudio Enterprise Server 8.x, all data is stored in a single SQL Server database. When you upgrade an AdminStudio 7.x Application Catalog to AdminStudio 11.0, the administrative data in the Java database server does not get migrated by default.

To migrate this data into the AdminStudio Enterprise Server 11.0 database, perform the following steps.



Task: *To migrate existing User/Role data:*

1. On the machine where you have AdminStudio Enterprise Server 7.x installed, stop the AdminStudio Enterprise service, if it is still running.
2. Install AdminStudio 11.0 Enterprise Server, as described in [Installing and Configuring Workflow Manager / AdminStudio Enterprise Server](#).

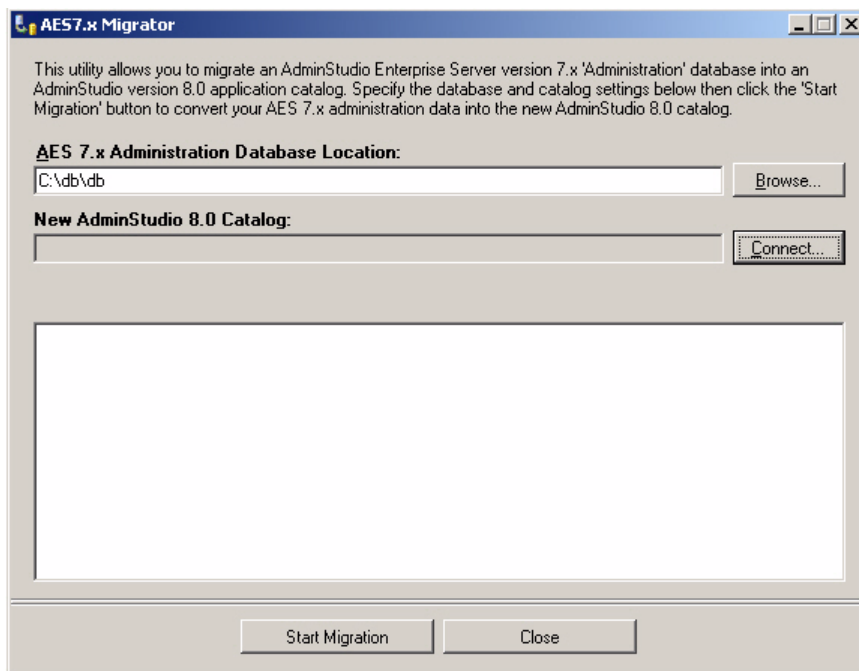


Note • You can install AdminStudio Enterprise Server on the same machine that you installed the AdminStudio client tools, but it is not a requirement. The Enterprise Server requires a Windows Server operating system, while the client tools do not.

3. On the server where you installed AdminStudio 11.0 Enterprise Server, launch the **AdminStudio Enterprise Server 7.x Migrator** utility located in the following folder:

C:\AdminStudioEnterprise\Support\Migrator\AES7Migrator.exe

The **AES7.x Migrator** dialog box opens:



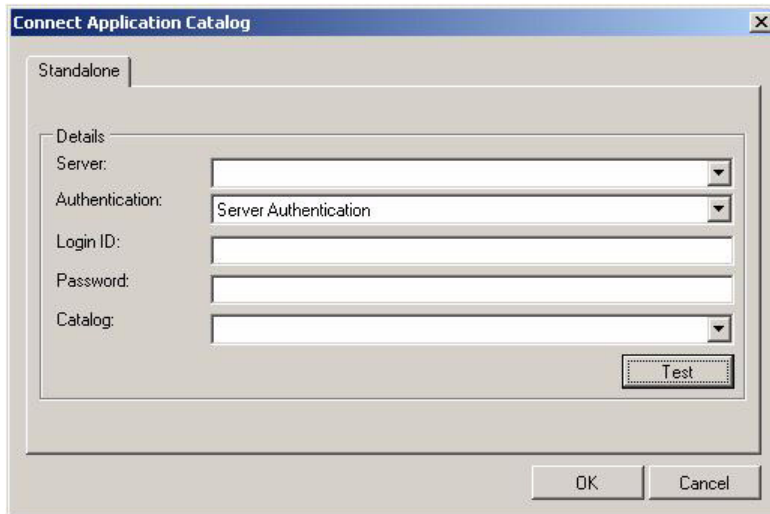
4. Next to the **AES 7.x Administration Database Location** field, click **Browse** and select the directory where the AdminStudio 7.x Enterprise Server Java database server was installed. By default, this database was installed in the following location:

C:\Program Files\InstallShield\AdminStudio\7.x\AES\db



Note • This is the default installation path; this location may vary based on what was selected during the initial installation.

5. Next to the **New AdminStudio Catalog** field, click **Connect**. The **Connect Application Catalog** dialog box opens, prompting you to logon to an Application Catalog.



6. Logon to the AdminStudio Enterprise Server 11.0 Application Catalog database using the SQL Server User Name, Password, and Catalog Name defined in [Running the Workflow Manager / AdminStudio Enterprise Server Installation](#).

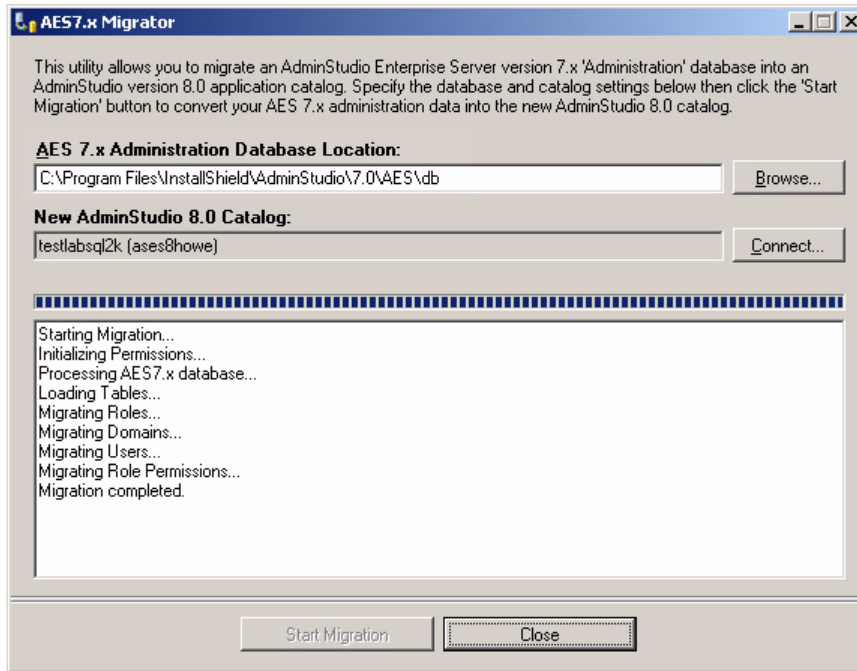
After you have successfully logged on, the AdminStudio 11.0 Application Catalog is listed in the **New AdminStudio Catalog** field.

7. Click the **Start Migration** button to migrate your AdminStudio Enterprise Server 7.x data.



Note • This requires the Java 2 Runtime Environment. If your computer does not have this application, you will be prompted to install it.

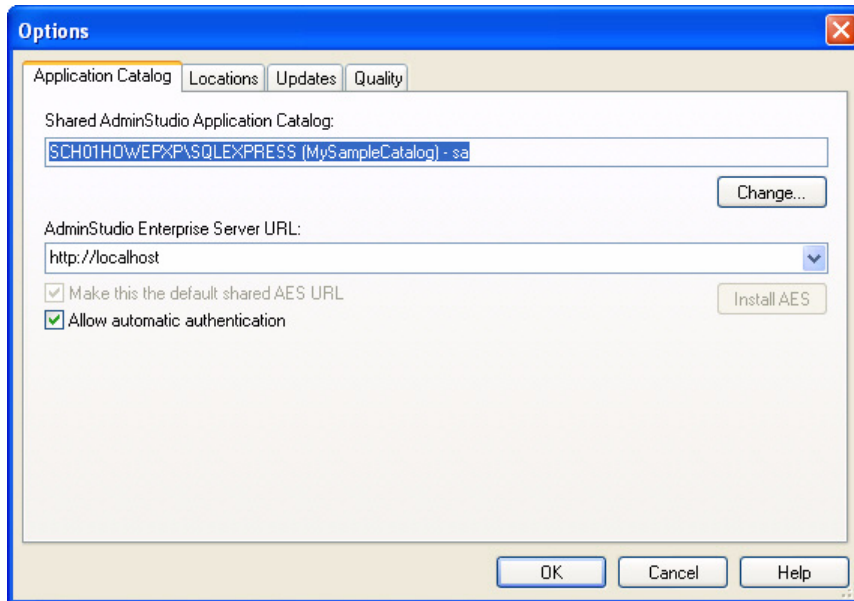
Progress messages are displayed as the migration is performed.



Caution • When migrating Users and Roles from AdminStudio Enterprise Server 7.x to 11.0, each User and Role must be associated with a Service company. When you use the `AES7Migrator.exe` tool to migrate this data, all Users and Roles are added to the default Servicer company called Servicer (`servicer.com`). The user's login ID will remain the same (for example `ASAdmin`). If you want to migrate this User and Role data to a different Servicer company, you can download an updated version of `AES7Migrator.exe` tool that provides an option to select a Servicer company before the data is migrated. For information, on how to obtain the updated version of `AES7Migrator.exe`, open the [AdminStudio Knowledge Base](#) and search on `AES7Migrator.exe`.

8. When migration is complete, click **Close**.

9. In the AdminStudio interface, select **Options** on the **Tools** menu. The **Application Catalog** tab of the **Options** dialog box opens.



10. In the **AdminStudio Enterprise Server URL** field, enter the URL of the AdminStudio 8.0 Enterprise Server that you installed. This URL is the IP address you defined on the [IP Address panel](#) of the installation on page 36.
11. Click **OK**. The **Enterprise Server** tab should now be available in the AdminStudio interface.
12. Open the **Enterprise Server** tab and confirm that the Users and Roles from your AdminStudio Enterprise Server 7.x database have been migrated.

Upgrading Data that is Split Across Multiple AdminStudio Enterprise Server 7.x and Workflow Manager 3.x Databases

If you are an existing user of both Workflow Manager 3.x and AdminStudio 7.x, you may have data (such as package data, conflict analysis data, application requests, projects, etc.) split across more than one database.

Starting with AdminStudio Enterprise Server 8.0, both AdminStudio and Workflow Manager use a unified database schema. Therefore, it could be necessary to combine this data into a single database in order to experience full AdminStudio / Workflow Manager integration.



Task: *To combine and upgrade data from AdminStudio 7.x and Workflow Manager 3.x databases:*

1. Upgrade each database using one of the following standard upgrade procedures:

Task	Method
Upgrading an AdminStudio 7.x Application Catalog	<p>Upgrade each AdminStudio Application Catalog database using one of the following methods:</p> <ul style="list-style-type: none"> ● Using the AdminStudio interface—Upgrade the Application Catalog database as described in <i>Upgrading an Existing Application Catalog to AdminStudio 11.x</i> in the <i>AdminStudio 11.0 Client Tools Installation Guide</i>. ● Using scripts—Upgrade the Application Catalog database as described in Using Scripts to Unify and Upgrade Workflow Manager and AdminStudio Databases.
Upgrading a Workflow Manager 3.x Application Catalog	<p>Upgrade the Workflow Manager 3.x database using one of the following methods:</p> <ul style="list-style-type: none"> ● Using the AdminStudio Enterprise Server / Workflow Manager installation—Upgrade the Workflow Manager database as described in Using the Workflow Manager / AdminStudio Enterprise Server Installation to Upgrade an Existing Version of Workflow Manager. ● Using scripts—Upgrade the Workflow Manager database as described in Using Scripts to Unify and Upgrade Workflow Manager and AdminStudio Databases.

2. Examine each database, using your database server management application, to find out if any of the databases includes a mix of both AdminStudio and Workflow Manager data:
 - If the AMS_Application table has any entries, then you know you have Workflow Manager data.
 - If the cstb1Package table has any entries, then you have AdminStudio data.

3. Then perform one or more of the following tasks, depending upon your situation:
 - a. **If no databases have mixed data**—If both of the databases have distinct separate data types, use your database server tools to combine the AdminStudio 7.x data into the AdminStudio Enterprise Server database.
 - b. **If both databases contain Workflow Manager data**—Use your database server tools to append the data between the AMS_ prefixed data tables from the AdminStudio 7.x database into the AdminStudio Enterprise Server database.
 - c. **If both databases contain AdminStudio data**—Use the AdminStudio **Merge Wizard** (which is available as part of Application Manager in the AdminStudio client tools) to merge the AdminStudio 7.x data into the AdminStudio Enterprise Server database.
 - d. **If both databases contain both AdminStudio and Workflow Manager data**—In this scenario, you would need to perform both [Step b](#) and [Step c](#).

Using Scripts to Unify and Upgrade Workflow Manager and AdminStudio Databases

If you use the Workflow Manager / AdminStudio Enterprise Server installation to install it on a machine where a previous version of Workflow Manager is installed, the database will automatically be upgraded, as described in [Using the Workflow Manager / AdminStudio Enterprise Server Installation to Upgrade an Existing Version of Workflow Manager](#). This same upgrade process occurs when the AdminStudio client tools connect to a database from a previous version.



Note • *Using the Workflow Manager / AdminStudio Enterprise Server installation, you can upgrade Workflow Manager versions 3.0 and higher to Workflow Manager 5.6. However, if the upgrade process detects a version of Workflow Manager 2.x or earlier on the machine, you will be prompted to first upgrade to Workflow Manager 3.0 before upgrading to Workflow Manager 5.6. You can do this by either using the Workflow Manager 3.0 installation or by manually running scripts, as described in this section.*

However, if your organization's database security policies prohibit you from performing the tasks described in [Using the Workflow Manager / AdminStudio Enterprise Server Installation to Upgrade an Existing Version of Workflow Manager](#), you can instead perform the upgrade by manually running scripts. Instructions for manually running scripts is described in the following sections:

- [Location of the Scripts](#)
- [Determining the Scripts to Run](#)
- [Updating Databases Using Scripts](#)

Location of the Scripts

The scripts that you can use to upgrade databases can be found in the main Support folder for AdminStudio Enterprise Server in a subdirectory called SQL_Scripts. The default location of the Support folder is C:\AdminStudioEnterprise\Support, as shown in the following graphic:

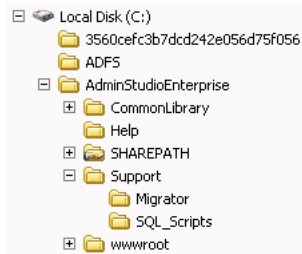


Figure 3-1: Location of Upgrade Scripts

Determining the Scripts to Run

In the past, Workflow Manager and AdminStudio databases possessed distinctly different tables. Starting with AdminStudio Enterprise Server 8.0 / Workflow Manager 4.0, these database schemas have been unified. Therefore, the scripts that you would run to perform a manual upgrade is determined by:

- **Unification status**—Whether or not the database has already been unified (whether or not it contains any AdminStudio tables).
- **Workflow Manager version**—The version of the Workflow Manager database.

When the Workflow Manager / AdminStudio Enterprise Server installation automatically upgrades a database, it uses the information in a file named `upgrade.xml` file to determine what scripts to execute. You can also refer to this file to determine which scripts are necessary to run in your upgrade scenario. The `upgrade.xml` file can be found in the following locations:

Table 3-7 • Location of `upgrade.xml` File

Application	Location of <code>upgrade.xml</code> File
AdminStudio Enterprise Server	C:\AdminStudioEnterprise\Support\upgrade.xml
AdminStudio Client Tools	C:\Program Files\AdminStudio\11.0\Support\upgrade.xml

Updating Databases Using Scripts

To manually upgrade a database using scripts, perform the following steps.

- **Step 1: Determine if Workflow Manager Tables Exists**
- **Step 2: Upgrade Existing Workflow Manager Tables**
- **Step 3: Determine if AdminStudio Tables Exist**
- **Step 4: Upgrade Existing AdminStudio Tables**

Step 1: Determine if Workflow Manager Tables Exists

To determine if Workflow Manager tables exist, perform the following steps:



Task: *To determine if Workflow Manager tables exist:*

1. Open up the existing database.
2. Determine if a table named AMS_SCHEMAINFO exists.
3. **If the AMS_SCHEMAINFO table is present**, proceed to [Step 2: Upgrade Existing Workflow Manager Tables](#).
4. **If the AMS_SCHEMAINFO table is not present**, perform the following set of scripts to create Workflow Manager tables:

AMS_System_Schema.SQL
 AMSCreateIndex.sql
 AMS_SamplePackagingTemplate.sql

5. Proceed to [Step 2: Upgrade Existing Workflow Manager Tables](#).

Step 2: Upgrade Existing Workflow Manager Tables

To upgrade existing Workflow Manager tables perform the following steps:



Task: *To upgrade existing Workflow Manager tables:*

1. Open up the AMS_SCHEMAINFO table.
2. Check the value in the SchemaVersion column.
3. Run the script(s) listed for the SchemaVersion found and all of the scripts for subsequent versions, in order. For example, if your AMS_SCHEMAINFO table's SchemaVersion column has a value of 2.5000, run AMS25UpgradeToAMS25SP1.SQL and then run all of the scripts listed for subsequent versions (2.5100, 3.0000, and 3.1000)

Schema Version You are Upgrading	Database Type	Scripts to Run to Upgrade to Next Higher Version
2.0060	SQLServer	AMS2SP1Upgrade.SQL
2.0122	SQLServer	UpgradeAMS20SP1.sql
2.0216 - 2.0217	SQLServer	AMS2SP2UpgradeToAMS25.SQL
2.5000	SQLServer	AMS25UpgradeToAMS25SP1.SQL
2.5100	SQLServer	AMS25SP1UpgradetoAMS30.sql
3.0000	SQLServer	AMS30UpgradeToAMS31.SQL

Schema Version You are Upgrading	Database Type	Scripts to Run to Upgrade to Next Higher Version
3.1000	SQLServer	AMS31UpgradeToAMS35.SQL AMS31UpgradetoAMS35.UTC.sql AMSCreateIndex.sql
3.5000	SQLServer	StoredProcedure_Cleanup.sql AMS40Reconcile.sql AMS35UpgradeToAMS40.SQL 80VP1Upgrade.sql 50Reconcile.sql
4.0000	SQLServer	80VP1Upgrade.sql 901Upgrade.sql  Note • These are the same scripts that are run to upgrade from AdminStudio 8.x to 10.0.  Note • Oracle databases are no longer supported. If you are upgrading an installation of Workflow Manager that used an Oracle database, you will be alerted that Oracle is no longer supported. You will then have the opportunity to continue the install and specify the location of a new SQL Server database or to exit the installation.
5.0000	SQLServer	10Upgrade.sql Reporting.StoredProcedures.sql

- Proceed to [Step 3: Determine if AdminStudio Tables Exist](#).

Step 3: Determine if AdminStudio Tables Exist

To determine if AdminStudio tables exist, perform the following steps:



Task: *To determine if AdminStudio tables exist:*

- Open up the existing database.
- Determine if a table named CSSYSSCHEMAINFO exists.
- If the CSSYSSCHEMAINFO table is present**, proceed to [Step 4: Upgrade Existing AdminStudio Tables](#).
- If the CSSYSSCHEMAINFO table is not present**, perform the following set of scripts to create AdminStudio tables:

AS_System_Schema.SQL
Seed_Data.SQL
CustomReportWizard.SQL
- Proceed to [Step 4: Upgrade Existing AdminStudio Tables](#).

Step 4: Upgrade Existing AdminStudio Tables

To upgrade existing AdminStudio tables perform the following steps:



Task: *To upgrade existing AdminStudio tables:*

1. Open up the CSSYSSCHEMAINFO table.
2. Determine the value of the target attribute of the Upgrade element.
3. Run the script(s) listed for the target value found and all of the scripts for subsequent versions, in order.

For example, if your CSSYSSCHEMAINFO table's target attribute of the Upgrade element is 13286589, first run 80VP1Upgrade.sql and CustomReportWizard.SQL, and then run all of the scripts listed for subsequent versions:

Schema Version You are Upgrading To	Target	Database Type	Scripts to Run to Upgrade to Listed Version
4.99 5.00	13286574 13286580	SQL Server	AS50VP1Upgrade.SQL PIM_SQLServer.sql
5.00 VP1	13286584	SQL Server	Upgrade50Vp1to55.SQL SMSSchema.SQL
5.5	13286586	SQL Server	SMSSchema.SQL PIM_SQLServer.sql PreDeployTest.sql 60Upgrade.sql
6.0	13286587	SQL Server	70Upgrade.sql
7.0	13286588	SQL Server	StoredProcedure_Cleanup.sql SMSSchema.SQL 80ReconcileSchema.sql 80Upgrade.sql
8.0	13286589	SQL Server	80VP1Upgrade.sql CustomReportWizard.SQL
9.x	13286590	SQL Server	80VP1Upgrade.sql 901Upgrade.sql



Note • For AdminStudio Upgrade target values of 1328657 (Version 3.01) and 13286572 (Version 3.5), use the LegacyUpgradeWizard.exe.

Appendix A: Special Configuration Tasks

This section includes configuration tasks which may need to be performed under certain circumstances. The following topics are included:

- [Configuring a Directory Service and Importing a Directory Service Group](#)
- [Assigning Static IP Addresses to a Server](#)

Configuring a Directory Service and Importing a Directory Service Group

If you are planning on using Windows authentication to logon to the Enterprise Server, you need to set up Directory Services connections. Workflow Manager / AdminStudio Enterprise Server supports two types of Directory Services:

- Microsoft Active Directory
- Novell eDirectory

Adding a Directory Service Connection

Directory Services Connections are used to import users and groups into Workflow Manager / AdminStudio Enterprise Server, and to authenticate Active Directory or eDirectory users logging into Workflow Manager / AdminStudio Enterprise Server.

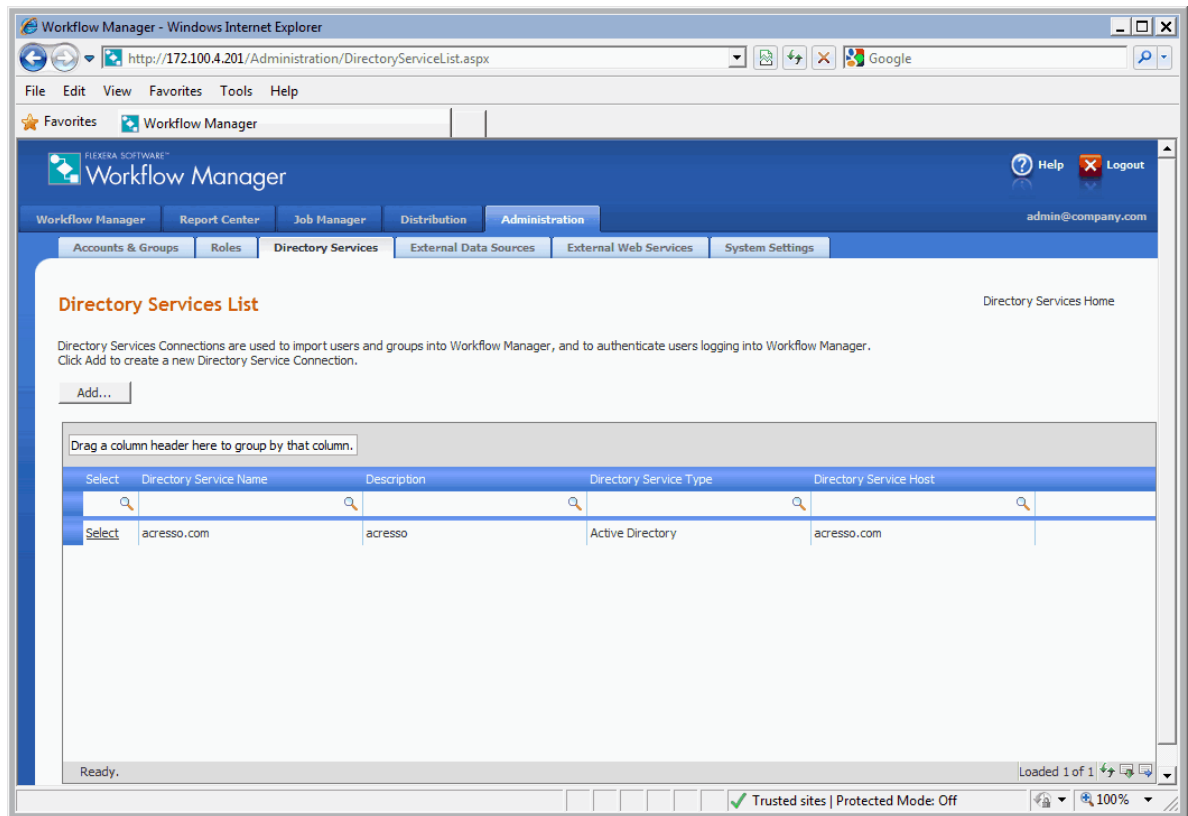
You can choose to have a Directory Service listed in the **Domain** list on the Workflow Manager / AdminStudio Enterprise Server login page. This enables users in this Directory Service to login using their enterprise network credentials.

To add a Directory Service connection, perform the following steps:

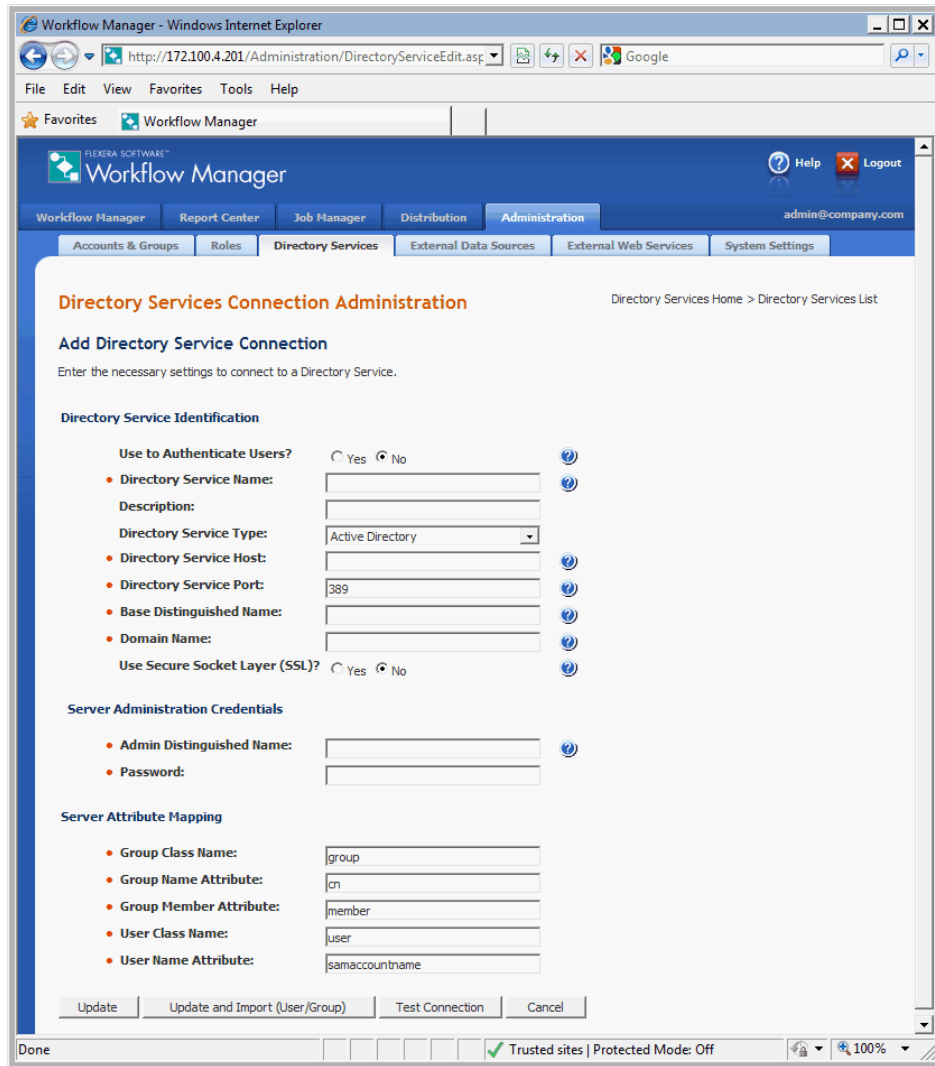


Task: *To add a Directory Service connection:*



1. Login to Workflow Manager / AdminStudio Enterprise Server using an administrative account. By default, an administrative user with the following credentials is created:
 - **User Name:** admin@company.com
 - **Password:** admin
2. Click on the **Administration** tab.
3. On the **Administration** tab, click **Directory Services**. The **Directory Services** page opens.
4. Click **Manage Directory Services Connections**. The **Directory Services List** page opens.



5. Click **Add**. The **Add Directory Service Connection** view opens.



6. Enter the following information specific to your environment:

Option	Description
<p>Use to Authenticate Users?</p>	<p>Select Yes to include this Directory Service in the Domain list on the Workflow Manager / AdminStudio Enterprise Server login page. This enables users to login using their enterprise network credentials.</p> <p>You can create many Directory Service connections, but only those connections that have this field checked will be listed in the Domain list on the Workflow Manager / AdminStudio Enterprise Server login page.</p>  <p>Note • <i>In an enterprise, there is usually only one Directory Service that is responsible for authenticating users. However, you can create additional Directory Service connections to import users and groups.</i></p>
<p>Directory Service Name</p>	<p>Enter a name to identify this Directory Service in the Domain list on the Workflow Manager / AdminStudio Enterprise Server login page. It is recommended that the Directory Service Name match the Domain Name.</p>
<p>Description</p>	<p>Enter a description of this Directory Service.</p>
<p>Directory Service Type</p>	<p>Identify the type of Directory Service that you are adding a connection to:</p> <ul style="list-style-type: none"> • Active Directory • Novell eDirectory
<p>Directory Service Host</p>	<p>Enter the name or IP address of the Server on which this Directory Service is running.</p>
<p>Directory Service Port</p>	<p>Enter the port number of the Server on which this Directory Service is running. By default, Workflow Manager / AdminStudio Enterprise Server uses Port 389.</p>  <p>Important • <i>The value for the Directory Service Port should be the port on the given server to which Workflow Manager / AdminStudio Enterprise Server should connect to send LDAP queries.</i></p>

Option	Description
Base Distinguished Name	<p>Enter the Base Distinguished Name (DN) to identify the root node of this Directory Service.</p> <p>For example, for MyCompany, the Base DN could be:</p> <pre>dc="MyCompany", dc="com"</pre> <p>There are multiple ways to determine the distinguished name:</p> <ul style="list-style-type: none"> ● Use the ADSIEDit.msc tool available with Windows 2003 Server ● Use the Open LDAP utility from Softerra. ● On Windows XP, run the following command from command line, and select the Distinguished name option to make it visible: <pre>rundll32 dsquery,OpenQueryWindow</pre>
Domain Name	<p>Enter the Domain Name of this Directory Service. This Domain Name is used to create the right credentials, along with the Admin User Name. For example, you would enter DomainName\AdminUserName to connect to the specified Directory Service.</p>
Use Secure Socket Layer (SSL)?	<p>Select Yes if this Directory Service is configured to use Secure Socket Layer (SSL).</p>
Admin Distinguished Name	<p>Enter the Distinguished Name of a user who has permission to retrieve users/groups information and authenticate any user against this Directory Service. Enter the Distinguished Name in the format of:</p> <pre>domainname\username</pre> <p>such as:</p> <pre>mycompany\jsmith</pre>
Password	<p>Enter the password for the Admin Distinguished Name.</p>
Group Class Name	<p>Enter the object class names for groups for this Directory Service. Default values are:</p> <ul style="list-style-type: none"> ● Active Directory: group ● eDirectory: groupofnames
Group Name Attribute	<p>Enter an attribute used by this Directory Service to name groups. The default value for both Active Directory and eDirectory is cn.</p>
Group Member Attribute	<p>Enter an attribute used by this Directory Service to define member groups. Default values are:</p> <ul style="list-style-type: none"> ● Active Directory: member ● eDirectory: uniquemember

Chapter 4: Appendix A: Special Configuration Tasks

Configuring a Directory Service and Importing a Directory Service Group

Option	Description
User Class Name	Enter the object class name used by this Directory Service for users. Default values are: <ul style="list-style-type: none">● Active Directory: user● eDirectory: inetorgperson
User Name Attribute	Enter the attribute used by this Directory Service to identify users. Default values are: <ul style="list-style-type: none">● Active Directory: samaccountname● eDirectory: uid

7. Click **Test Connection** test to see if the settings that you entered can be used to successfully connect to this Directory Service.
8. Click **Update**. The Directory Service Connection you created is now listed on the **Directory Services List** page.

Add Roles

Once the directory service configuration is complete, it is necessary to add roles relevant to your team structure. To add a role, perform the following steps:

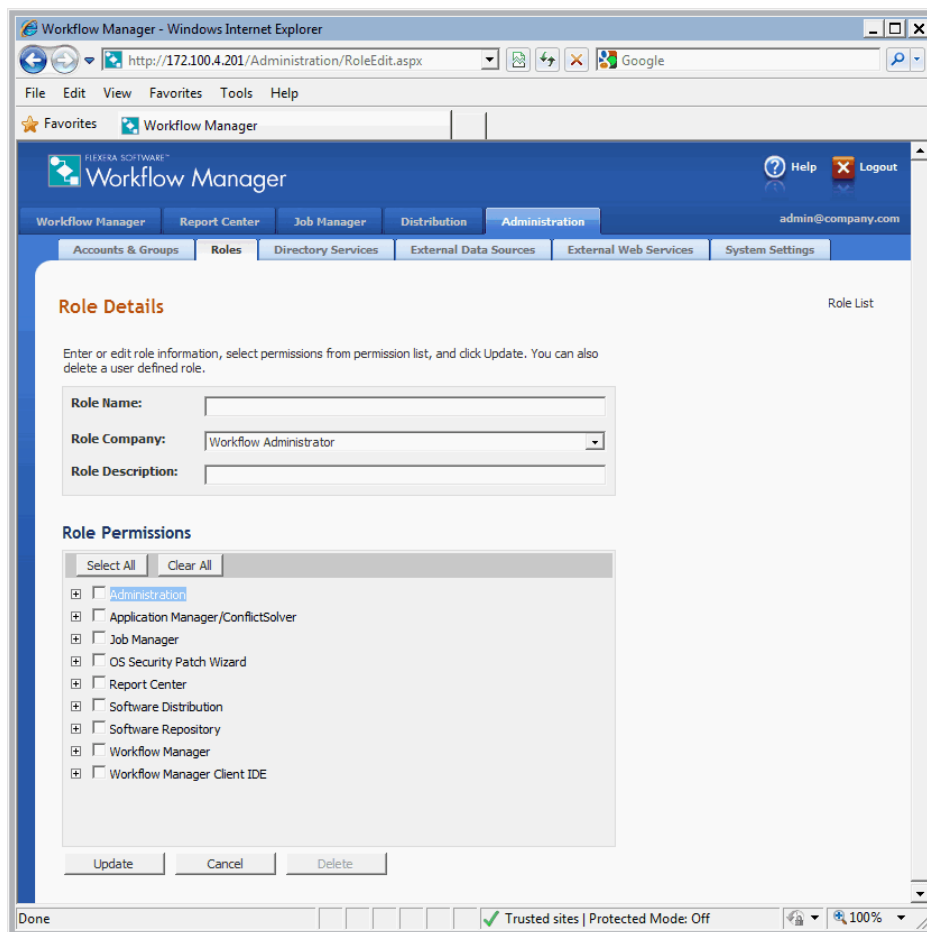
To create a new Role, perform the following steps.



Task: *To create a new Role:*

1. Login to Workflow Manager / AdminStudio Enterprise Server using an administrative account. By default, an administrative user with the following credentials is created:
 - **User Name:** admin@servicer.com
 - **Password:** admin
2. On the **Administration** tab, click **Roles**. The **Role Administration** page opens.

3. Click the **Add** button. The **Role Details View** opens.



4. Enter a name in the **Role Name** field to uniquely identify this Role.
5. From the **Role Company** list, select the name of the Company whose users can be assigned this Role.
6. In the **Role Description** text box, describe the purpose of this new Role.
7. In the **Role Permissions** list, select the permissions you want to assign to this Role. For a detailed list of the available permissions, see the *Role Permissions Lists* in the Workflow Manager / AdminStudio Enterprise Server help library.
8. Click the **Update** button. The new Role now appears in the list on the **Role Administration** page.

Add a a Directory Service Group

Directory Service Groups are added to enable automatic Windows Authentication to all the users of the group. The users are automatically logged in to the Workflow Manager / AdminStudio Enterprise Server based on their logged on credentials, without having to enter their credentials .

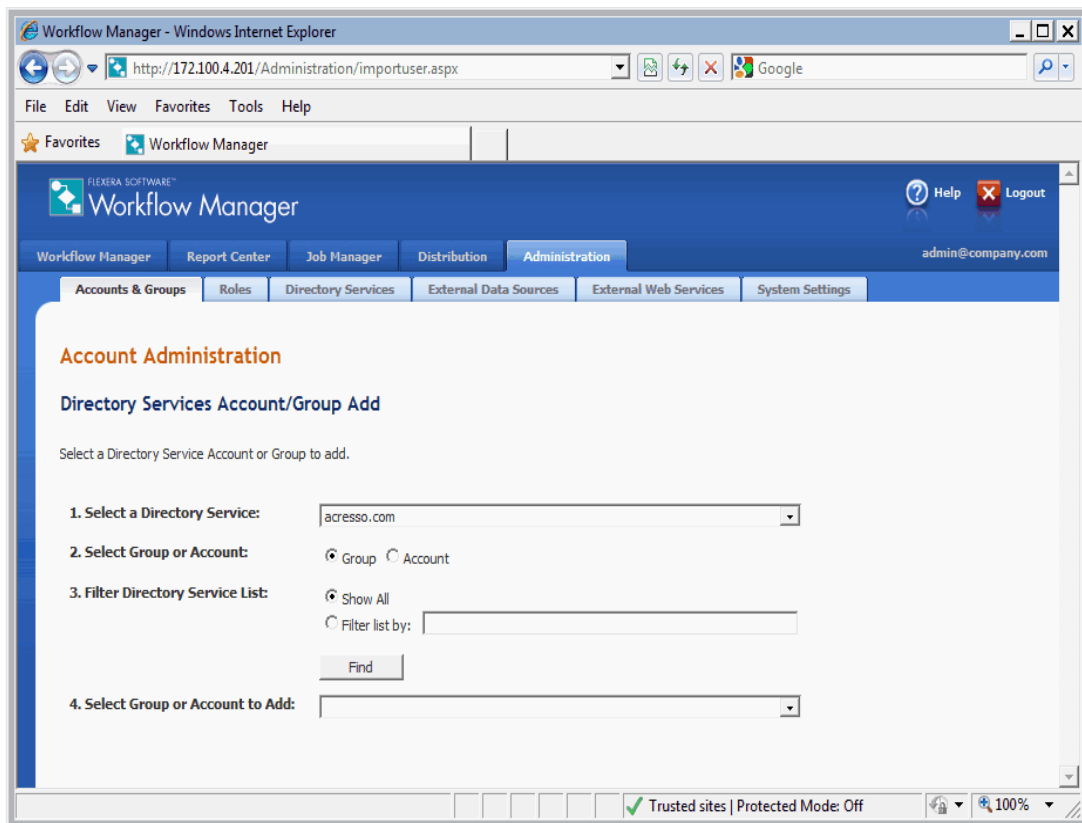
When a user is added from a Directory Service into Workflow Manager / AdminStudio Enterprise Server, only information that uniquely identifies the user in the Directory Service is stored in Workflow Manager / AdminStudio Enterprise Server. Information such as telephone number and email address will always be queried at run time, so that the most current information is obtained.

Workflow Manager / AdminStudio Enterprise Server supports Windows Active Directory and Novell eDirectory Directory Services.



Task: *To import users or groups from a Directory Service into Workflow Manager / AdminStudio Enterprise Server:*

1. Open Workflow Manager / AdminStudio Enterprise Server and open the **Administration** tab.
2. Open the **Users & Groups** tab. The **User Administration** page opens.
3. Click **Directory Service User/Group Import**. The **Directory Services User/Group Add** view opens.



4. From the **Select a Directory Service** list, select the Directory Service that you want to import users or groups from.
5. Next to **Select Group or User**, select the **Group** option.
6. Next to **Filter Directory Service** list, select one of the following options:
 - **Show All**—Select this option to include all Groups in the list.
 - **Filter list by**—Select this option, enter text in the box, and click **Find** to filter the list by the specified criteria.

For example, to search for all of the groups that start with the letter **P**, use the asterisk wildcard character (*) and enter **P*** in the **Filter list by** box.

7. From the **Select Group or User to Add** list, select the group to import to Workflow Manager / AdminStudio Enterprise Server. The **User Details** view opens, providing details of the imported group and a list of available Roles.
8. Assign Roles to the imported Group.
9. Click **Update** to save your entries and close the **User Details** view.

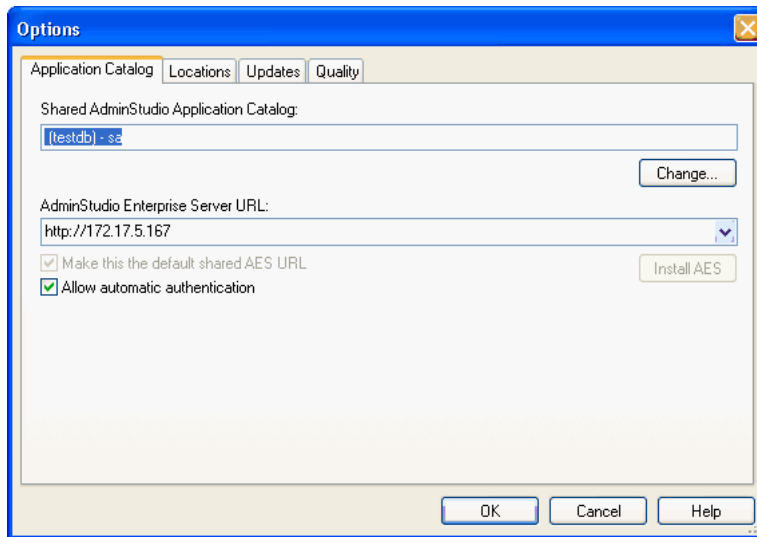
Enable Automatic Authentication

Automatic authentication allows you to automatically login to the Workflow Manager / AdminStudio Enterprise Server based on the logged on credentials without having to provide the login details. To activate this functionality, perform the following steps.



Task: *To enable automatic authentication:*

1. Open the AdminStudio interface.
2. On the **Tools** menu, select **Options**. The **Options** dialog box opens.
3. On the **Application Catalog** tab select the **Allow automatic authentication** option.



4. Close the AdminStudio Interface and re-launch it. If you have set up a Directory Services Connection and have imported a Directory Service Group, you should be logged on to the Workflow Manager / AdminStudio Enterprise Server Application Catalog automatically without having to provide the login credentials.

Assigning Static IP Addresses to a Server

Perform the following steps to assign static IP addresses to a Server.



Task: *To assign static IP addresses to a server*

1. Log on to the server.
2. Select **Start | Settings | Network** and **Dial-up Connections**.
3. In the **Network and Dial-up Connections** window, right-click **Local Area Connection** and select **Properties**.
4. In the **Local Area Connection Properties** dialog box, select **Internet Protocol (TCP/IP)**.
5. Click the **Properties** button.
6. In the **Internet Protocol (TCP/IP) Properties** dialog box, select the **Use the following IP address** option button.
7. If no IP address is specified, enter an IP address.
8. To enter another IP address, do the following:
 - a. Click the **Advanced** button.
 - b. In the **Advanced TCP/IP Settings** dialog box's **IP addresses** area, click the **Add** button.
 - c. In the **TCP/IP Address** dialog box, enter an IP address.
 - d. Click **OK** to close the **TCP/IP Address** dialog box.
 - e. Click **OK** to close the **Advanced TCP/IP Settings** dialog box.
9. Click **OK** to close the **Internet Protocol (TCP/IP) Properties** dialog box.
10. Click **OK** to close the **Local Area Connection Properties** dialog box.

Chapter 4: Appendix A: Special Configuration Tasks

Assigning Static IP Addresses to a Server

Appendix B: Installation and Configuration Tips

This chapter includes tips that will help you address specific issues regarding the installation and configuration of Workflow Manager / AdminStudio Enterprise Server.

When installing Workflow Manager / AdminStudio Enterprise Server, consider the following tips:

Table 5-1 • Tips for Installing and Configuring Workflow Manager / AdminStudio Enterprise Server

Section	Tips
Installation Tips	<ul style="list-style-type: none"> • Naming Tips • Open Several Ports Between the Workflow Manager / AdminStudio Enterprise Server and the AdminStudio Client • Configure Three Static IP Addresses
Directory Services Tips	<ul style="list-style-type: none"> • Configuring Directory Services • Configuring Directory Service Groups • Configuring Single Sign-On
Windows Tips	<ul style="list-style-type: none"> • Enable ASP Pages in Windows Server 2003 • Synchronize System Time on Workstations • Set All Workstations and Servers to the Same Authentication Settings
Troubleshooting Tips	<ul style="list-style-type: none"> • Verify That Data Service Web Site is Working • Install a Second Portal • Automatic Authentication Issues

Installation Tips

When installing and configuring Workflow Manager / AdminStudio Enterprise Server, consider the following tips:

- [Naming Tips](#)
- [Open Several Ports Between the Workflow Manager / AdminStudio Enterprise Server and the AdminStudio Client](#)
- [Configure Three Static IP Addresses](#)

Naming Tips

When installing Workflow Manager / AdminStudio Enterprise Server, consider the following naming tips:

- [Register the Workflow Manager / AdminStudio Enterprise Server DSN Name with Your DNS Server](#)
- [Do Not Use Spaces in Workflow Manager / AdminStudio Enterprise Server Installation Directory Name](#)
- [Change the Base Distinguished Name](#)
- [Do Not Use Exclamation Points in Account Name](#)

Register the Workflow Manager / AdminStudio Enterprise Server DSN Name with Your DNS Server

Make sure that the DNS name for the Workflow Manager / AdminStudio Enterprise Server is registered with your DNS server.

Do Not Use Spaces in Workflow Manager / AdminStudio Enterprise Server Installation Directory Name

Do not use spaces in the installation directory for Workflow Manager / AdminStudio Enterprise Server. If you put a space in the installation directory, several VBScripts will fail during the installation.

Change the Base Distinguished Name

If adding users and groups takes a long time, change the **Base Distinguished Name** to a more specific OU. Doing this seems to limit the number of groups or users that AES loads into the **Add a Group** page, which makes it faster. For example, if the **Base Distinguished Name** is

DC=ct, DC=chevrontexaco, DC=com

change it to something like

OU=North America, OU=chevrontexaco, DC=ct, DC=chevrontexaco, DC=com

You can also leave the **Base Distinguished Name** alone and change the **User** and **Group** search criteria.

Do Not Use Exclamation Points in Account Name

When installing Workflow Manager / AdminStudio Enterprise Server, make sure to log into the computer with an account that does not contain an exclamation point. An account named !a1an, for example, will cause the Workflow Manager / AdminStudio Enterprise Server installation to fail. This problem is only limited to the installer. Workflow Manager / AdminStudio Enterprise Server works fine with accounts that contain special characters.

Open Several Ports Between the Workflow Manager / AdminStudio Enterprise Server and the AdminStudio Client

You must open several ports on the Workflow Manager / AdminStudio Enterprise Server and the machine where the AdminStudio client tools are installed. The following table lists the default ports for Workflow Manager / AdminStudio Enterprise Server.

The reason that you should open several ports is because the server might be installed on a different machine than Workflow Manager / AdminStudio Enterprise Server. Therefore, Port 1433 would be used to communicate between the Workflow Manager / AdminStudio Enterprise Server machine and the SQL Server machine, while another port would be used to communicate between Workflow Manager / AdminStudio Enterprise Server machine and the AdminStudio client machine.

Table 5-2 • Default Ports for Workflow Manager / AdminStudio Enterprise Server

Port	Purpose
80	HTTP
1433	SQL Server connection (tcp & udp)
1434	SQL Server connection (tcp & udp)
8888	HTTP for Job Manager and Report Center, and the main Workflow Manager / AdminStudio Enterprise Server Web page.
8777	HTTPS (Not configurable.)

Configure Three Static IP Addresses

AdminStudio Predeployment Test, Workflow Manager / AdminStudio Enterprise Server, and the Workflow Manager / AdminStudio Enterprise Server Portal all require their own IP addresses. Therefore, the server that hosts these services and Web sites requires *three* static IP addresses.

Table 5-3 • Web Sites and Web Services that Require IP Addresses.

Web Site / Web Service	Notes
Predeployment Test (Web Service)	This Web Service needs its own IP address. The Predeployment Test Web Service and Results Web site are installed as virtual directories in the Default Web site. Usually this Web site is set up to use “all unassigned” IP addresses, but it needs at least one, and it cannot share an IP address with another Web site, like Workflow Manager / AdminStudio Enterprise Server.
Workflow Manager / AdminStudio Enterprise Server Application	This Web site needs its own IP address.
Workflow Manager / AdminStudio Enterprise Server Portal	This Web site needs its own IP address.

Directory Services Tips

When installing and configuring Directory Services for Workflow Manager / AdminStudio Enterprise Server, consider the following tips:

- [Configuring Directory Services](#)
- [Configuring Directory Service Groups](#)
- [Configuring Single Sign-On](#)

Configuring Directory Services

When configuring Directory Services, consider the following:

- [Use Only One Directory Service for Authentication](#)
- [Use LDAP Format for Base Distinguished Name](#)
- [Consider Case When Naming Directory Service](#)

Use Only One Directory Service for Authentication

Only one Directory Service can be used for authentication. All other Directory Services can only be used for user or group import.

Therefore, all users that will be authenticated via Active Directory must reside in the same OU (operational unit).



Note • Workflow Manager / AdminStudio Enterprise Server allows you to mark multiple domains to be used for authentication, but it only uses one to try to authenticate users, and if it picks the wrong one, authentication will fail.

Use LDAP Format for Base Distinguished Name

The Base Distinguished Name should be in LDAP format, such as DC=NORTHGRUM,DC=COM.

Consider Case When Naming Directory Service

The directory service name in Workflow Manager / AdminStudio Enterprise Server is *case sensitive*. Use UPPER CASE if you have a choice. If you have the case incorrect in the Directory Service, you will observe that the **Enterprise Server** tab in AdminStudio displays a blank page instead of showing Workflow Manager / AdminStudio Enterprise Server.

Configuring Directory Service Groups

Directory Service groups are mapped to Roles to allow the members of those groups to interact with Workflow Manager / AdminStudio Enterprise Server with different levels of permissions. In order for Directory Service groups to work properly within Workflow Manager / AdminStudio Enterprise Server, you must do the following:

- [Create Directory Service Groups as Universal Groups at the Directory Service Forest Root](#)
- [Specify the Global Port Number of 3268](#)

Create Directory Service Groups as Universal Groups at the Directory Service Forest Root

You must create Directory Service Groups as Universal Groups at the Directory Service forest root. This provides the ability to authenticate users even when members of the groups are in different (child) domains than the root of the Directory Service forest. If you do not do this, Workflow Manager / AdminStudio Enterprise Server will not recognize or authorize users who are members of a Directory Service Group that is in a different domain than the domain that holds their user account.

Specify the Global Port Number of 3268

When specifying the port number for the Directory Service forest root, you must specify the Global Port number which is, by default, 3268, instead of the default port of 389. When configuring a Directory Service, specify port 3268 for the Global Catalog in Active Directory, instead of 389.

Configuring Single Sign-On

To enable single sign-on to work properly, do the following:

- [Add the Workflow Manager / AdminStudio Enterprise Server Portal Web Site to List of Trusted Sites](#)
- [Configure the Domain Name Field With the Unqualified Domain Name](#)
- [For LDAP and Single Sign-On, Make AMS_SYSTEM a Domain-Level Account](#)

Add the Workflow Manager / AdminStudio Enterprise Server Portal Web Site to List of Trusted Sites

For single sign-on to work, you need to add the Workflow Manager / AdminStudio Enterprise Server portal Web site to the list of trusted sites in the **Internet Options** dialog. Internet Explorer only passes network credentials to trusted sites or sites on the local intranet.

Configure the Domain Name Field With the Unqualified Domain Name

To enable single sign-on, you must configure the **Domain Name** field in the **Directory Services Connection** with the unqualified domain name, not the fully-qualified domain name. For example, use `company` rather than `company.com`.

For LDAP and Single Sign-On, Make AMS_SYSTEM a Domain-Level Account

The AMS_SYSTEM account is used to query LDAP for the Directory Service attributes, so if you are using LDAP and single sign-on, you should make AMS_SYSTEM into a domain-level account instead of a local account.

Windows Tips

When installing and configuring Workflow Manager / AdminStudio Enterprise Server 8.0, consider the following Windows-related tips:

- [Enable ASP Pages in Windows Server 2003](#)
- [Synchronize System Time on Workstations](#)
- [Set All Workstations and Servers to the Same Authentication Settings](#)

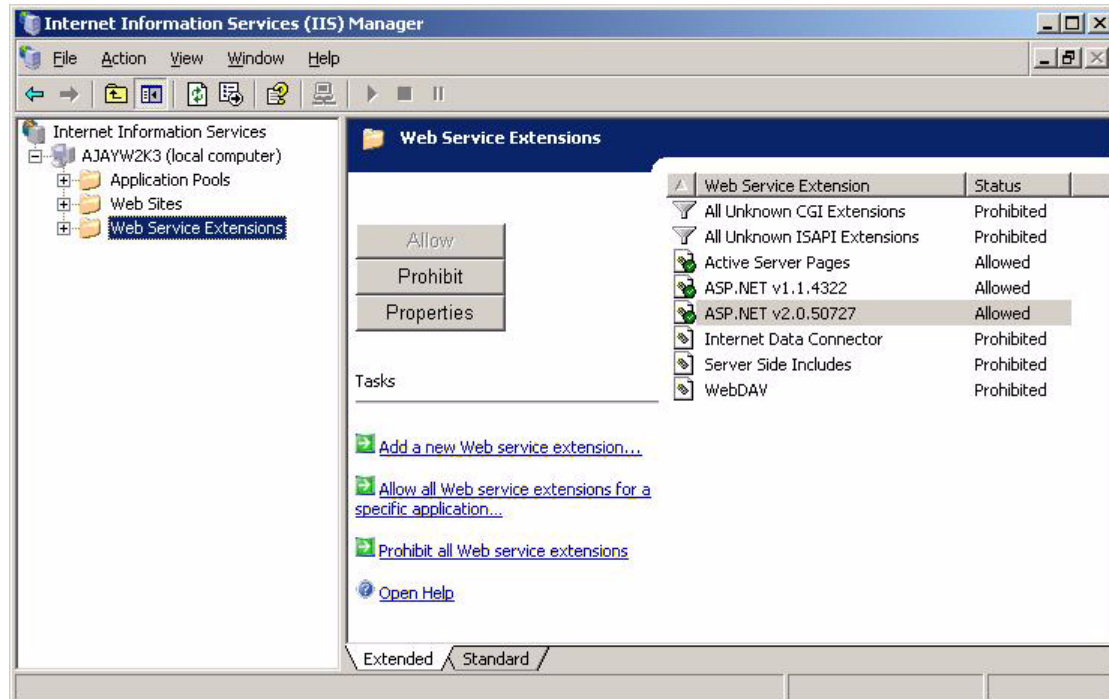
Enable ASP Pages in Windows Server 2003

To use Workflow Manager / AdminStudio Enterprise Server, you need to enable .asp pages in Windows Server 2003.



Task: *To enable ASP pages in Windows Server 2003*

1. Right-click on **My Computer** and choose **Manage**. The **Computer Management** dialog box opens.
2. At the bottom of the left window pane, expand **Internet Information Services (IIS)** and select **Web Service Extensions**.



3. In the right pane, select **Active Server Pages** and click the **Allow** button.
4. In the right pane, select **ASP.NET v2.0.50727** and click the **Allow** button.

Synchronize System Time on Workstations

If you are using Integrated Windows Authentication, make sure that the System time on the workstations is synchronized with the time on the domain controller. Also, make sure that the AdminStudio Enterprise Web Server, the File Share Server, and the Application Catalog Database Server all synchronize with the domain controller.

Set All Workstations and Servers to the Same Authentication Settings

Make sure that all of the workstations and servers all use the same authentication settings. The **Network Security: LAN Manager Authentication Level** must be set to the same value throughout the network, otherwise it may not be possible to log into a Workflow Manager portal that uses Windows authentication.

To change the authentication level, perform the following steps:



Task: *To change the authentication level on a machine:*

1. Run `gpedit.msc` (the Group Policy Editor).
2. Navigate to **Local Computer Policy > Computer Configuration**.
3. Navigate to **Windows Settings > Security Settings > Local Policies > Security Options**.
4. Set the **Network Security: LAN Manager Authentication Level** value.

Troubleshooting Tips

When installing Workflow Manager / AdminStudio Enterprise Server and Workflow Manager, consider the following troubleshooting tips:

- [Verify That Data Service Web Site is Working](#)
- [Install a Second Portal](#)
- [Automatic Authentication Issues](#)

Verify That Data Service Web Site is Working

Verify that the data service Web site is working. The address is:

`http://[ams data service website]/webservicesroot/AMSDataService/AMSDataService.asmx`

On that page, try out the `Get Table` method, and specify `AMS_Person` for the table name. If you get XML data back, and it looks like it might contain person information, then you know that the data service Web site works.

Install a Second Portal

Sometimes it is necessary to install a second portal on the Workflow Manager application server. One reason to do this is to make one portal use Integrated Windows Authentication, while the other portal uses Anonymous Authentication. The following steps describe how to create a second portal with IIS 6.0, which is part of Windows Server 2003.



Task: *To create a second portal with IIS 6.0:*

1. Open up the Internet Information Services Manager.
2. Locate the Workflow Manager Web Portal Web site.
3. Right-click on the Workflow Manager Web Portal Web site and choose **All Tasks > Save Configuration to a File**.
4. Enter an appropriate filename and save the Web site configuration.
5. Choose **Action > New > Web Site** (from file) from the menu.
6. In the **Import Configuration** dialog, browse to the file that you saved earlier.
7. Click the **Read File** button.
8. In the list box labeled **Select a configuration to import**, select **Workflow Manager Web Portal**.
9. Click **OK**. The IIS Manager dialog will appear indicating that the site already exists.
10. Choose **Create a new site** and click **OK**.
11. In the IIS Manager window, right-click on the new Web site (it will be the Web site that is stopped), and choose **Properties** from the context menu.
12. Enter a new IP address for the new portal.
13. Click **OK** to close the **Properties** dialog.
14. Right-click the new portal Web site and choose **Start** from the context menu.

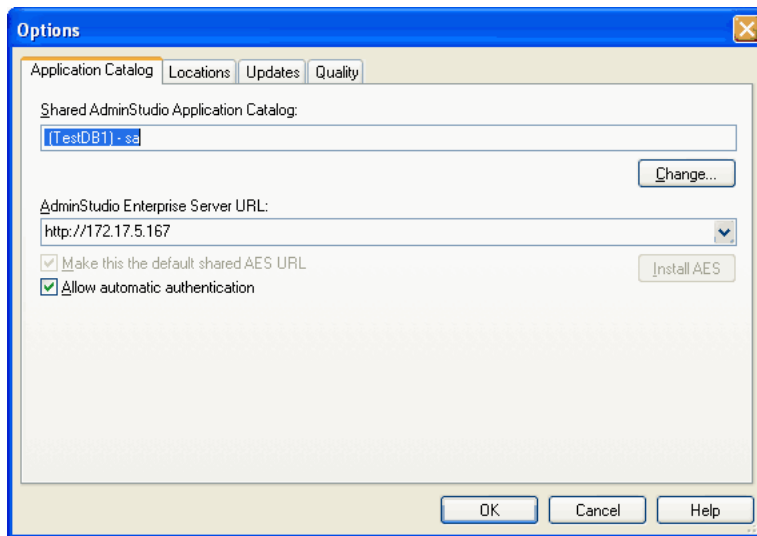
Automatic Authentication Issues

To determine why automatic authentication is not working, perform the following steps:



Task: *To troubleshoot automatic authentication:*

1. Ensure you have selected **Allow automatic authentication** on the **Application Catalog** tab of the AdminStudio **Options** dialog box.



2. In the login screen do you see the **Domain** name?

If you see the **Domain** name, this indicates that the Domain name does not match the Domain that you are logged onto. Check the case of the Domain name, and make sure that you have not added .com or .org or .net to the Domain name.

If your domain configuration is correct, you are logged on to the correct domain, and you have configured only one domain, then you should see only two items in on the Login page: **User Name** and **Password**.

3. Now select Windows authentication from the authentication list box and try to login. If this fails then proceed to the next step
4. If you have added a Group and you are member of that Group, then ensure that the user is not explicitly added and the status of the user is not set to Inactive.
5. Close AdminStudio interface. Go to registry and add the following registry
HKEY_LOCAL_MACHINE\SOFTWARE\InstallShield\AdminStudio
6. Set the value of the `DebugLogLevel` key to 3
7. Open AdminStudio and try authenticating using automatic or by selecting windows authentication
8. Check the log file at C:\Program Files\AdminStudio\9.0\AdminStudio.log

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