



Workflow Manager 2016

Installation Guide

Legal Information

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Workflow Manager 2016 Installation Guide

Information about installing Workflow Manager is presented in the following sections:

Table 1-1 • Installing Workflow Manager

Topic	Content
System Requirements	Lists the hardware and software requirements for the components of Workflow Manager.
Installing Workflow Manager	Explains how to perform installation preparation tasks, and how to install Workflow Manager.
Configuring Workflow Manager	Performing post-installation configuration tasks, including how to use the AdminStudio Configuration Wizard.

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 Workflow Manager / AdminStudio Enterprise Server Help Library, which is the complete user's guide for using the product.

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 and Workflow Manager documentation is also available as a PDF. Visit the Flexera Software Documentation Center at:

<https://flexeracommunity.force.com/customer/CCDocumentation>

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System Requirements

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

- [System Requirements](#)
- [Installing Internet Information Services \(IIS\)](#)

System Requirements



This section lists the system requirements for Workflow Manager.

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

Workflow Manager Web Server

The 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.

Table 2-1 • Workflow Manager Web Server

Item	Description
Processor	32-bit or 64-bit processor at 2 GHz or greater.  Note • <i>Workflow Manager runs in 32-bit mode on a 64-bit OS.</i>
RAM	4 GB or greater (8 GB preferred)
Hard Disk Space	100 GB or greater
Operating System	Windows Server 2008 R2 or later / English base language (Windows Server 2012 preferred)
IIS	IIS 7.0 or later
.NET Framework	.NET Framework 4.6.1 or later
ASP.NET	ASP.NET 4.0.30319 or later
MSXML	MSXML 6.0  Note • <i>MSXML is installed by the Workflow Manager installer.</i>

Workflow Manager / AdminStudio Database Server

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

Table 2-2 • Workflow Manager / AdminStudio Database Server

Item	Description
Processor	32-bit or 64-bit processor at 2 GHz or greater
RAM	4 GB or greater (8 GB preferred)
Hard Disk Space	80 GB or greater
Operating System	Windows Server 2008 R2 or later (Windows Server 2012 preferred)
Database Software	SQL Server 2008 R2 or later databases, including SQL Server 2012 and SQL Server 2014 (latest version preferred)

- **Dictionary sort order**—SQL Server must be installed with case-insensitive dictionary sort order 52 on Code Page 1252 for non-Unicode data. For more information, use the `sp_helpsort` T-SQL command, which returns the following:

Latin1-General, case-insensitive, accent-sensitive, kanatype-insensitive, width-insensitive for Unicode Data, SQL Server Sort Order 52 on Code Page 1252 for non-Unicode data

- **Collation setting**—SQL_Latin1_General_CP1_CI_AS is the required collation setting for AdminStudio database server. It is the only supported collation.



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:

Table 2-3 • File Share Server

Item	Description
Processor	2 GHz or greater
RAM	2 GB or greater
Hard Disk Space	1 TB or greater
Operating System	Windows Server 2008 R2 or later

Workflow Manager End User Computers

This following table lists the recommended system configuration for a Workflow Manager 2016 end user machine:

Table 2-4 • Workflow Manager End User Computers

Item	Description
Browser	<ul style="list-style-type: none"> • Microsoft Internet Explorer 9.0 or later • Chrome for Windows 33.0 or later • Firefox for Windows 25.0 or later • Safari for Mac OS X and iOS

Portal Web Server for Intranet Clients

A portal is not required to support Windows NT authentication. You can enable Windows NT authentication directly on the web site.

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](#).

Portal Web Server for Internet Clients

For better security and to manage access to the Workflow Manager Web Server, it is recommend to also set up a portal Web server for Internet clients.

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

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

You can configure the Workflow Manager 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 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 Web Server](#).

Workflow Manager System Account Requirements

The AMS_SYSTEM account on the Workflow Manager server requires the following privileges:

- **IIS_WPG group member**—Must be a member of the local IIS_WPG group (or IIS_USRS) on the web server.
- **Modify permissions on file share**—Must have “modify” permissions on the Workflow Manager file share.
- **Email permissions**—Must have permission to send e-mail through the SMTP server.
- **Active Directory query permission**—Must have permission to query Active Directory.
- **Local Administrators group member**—If Workflow Manager will be calling any of the AdminStudio Platform APIs in the iPlugin DLL, the AMS_SYSTEM account must be a member of the local Administrators group.

Installing Internet Information Services (IIS)

Internet Information Services (IIS) Version 7 or later is required to be installed on the machine on which you are installing Workflow Manager.

For instructions on how to install IIS, see the following information on the Microsoft web site:

- **Installing IIS 7 on Windows Server 2008 or Windows Server 2008 R2**
<http://www.iis.net/learn/install/installing-iis-7/installing-iis-7-and-above-on-windows-server-2008-or-windows-server-2008-r2>
- **Installing IIS 8 on Windows Server 2012**
<http://www.iis.net/learn/get-started/whats-new-in-iis-8/installing-iis-8-on-windows-server-2012>

Installing Workflow Manager

This chapter explains how to install Workflow Manager, and also how to use scripts to either create or upgrade an existing database.

- [Preparing to Install](#)
- [Running the Workflow Manager Installer](#)
- [Installing a Web Portal on a Different Server](#)
- [Using Scripts to Create or Update a Workflow Manager Database](#)



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



Note • Workflow Manager 2016 can be installed side-by-side an earlier version of Workflow Manager. If you already have Workflow Manager installed, the Workflow Manager 2016 installer will install the application to the next available port.

Preparing to Install

Before running the Workflow Manager installation, perform these tasks:

- [Checking System Requirements](#)
- [Checking Workflow Manager System Account Requirements](#)
- [Obtaining Your License File](#)
- [Gathering Required Information](#)
- [Enabling Roles and Features in Windows Server 2012](#)

Checking System Requirements

Workflow Manager 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 3-1 • 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 database on.
Workflow Manager	The machine on which you will be installing Workflow Manager must meet the hardware and software requirements specified in Workflow Manager Web 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 .
Internet Information Services (IIS)	Internet Information Services (IIS) must be installed on the machine on which you will be installing Workflow Manager before you will be permitted to run the installation. See Installing Internet Information Services (IIS) .
.NET Framework	The .NET framework is required to be installed on the machine on which you will be installing Workflow Manager. However, if the .NET framework has not yet been installed on that machine, it will be installed as part of the installation.
Domain Account	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. You can set the name of this Domain Account or specify an existing user as the Domain Account on the Logon Information Panel.
Static IP Addresses	Two static IP addresses need to be specified during installation—one for the Workflow Manager and the other for the Web Portal. For instructions on assigning static IP addresses to a machine, see Assigning Static IP Addresses to a Server .

Checking Workflow Manager System Account Requirements

The AMS_SYSTEM account on the Workflow Manager server requires the following privileges:

- **IIS_WPG group member**—Must be a member of the local IIS_WPG group (or IIS_USRS) on the web server.
- **Modify permissions on file share**—Must have “modify” permissions on the Workflow Manager file share.
- **Email permissions**—Must have permission to send e-mail through the SMTP server.
- **Active Directory query permission**—Must have permission to query Active Directory.
- **Local Administrators group member**—If Workflow Manager will be calling any of the AdminStudio Platform APIs in the iPlugin DLL, the AMS_SYSTEM account must be a member of the local Administrators group.

Obtaining Your License File

Workflow Manager is activated by uploading a license file. The number of items listed in the Workflow Manager navigation bar depend upon which products are activated.

Workflow Manager is activated by uploading a license file using the AdminStudio Configuration Wizard. When that license expires, or if you purchase additional functionality, you will need to upload an updated license file.

- [Obtaining Your License File](#)
- [Uploading a License File Using the AdminStudio Configuration Wizard](#)

Obtaining Your License File

License files are attached to your order confirmation email that you received from Flexera Software Orders Department. You can also obtain your license file from the Flexera Software Product and License Center. To obtain your Workflow Manager license file, perform the following steps:



Task

To obtain a Workflow Manager license file:

1. Log on to the **Flexera Software Product and License Center**:
<https://flexerasoftware.flexnetoperations.com>
2. In the left navigation, under **Entitlements**, click **Product List**.
 - If you have access to multiple products, the **Product List** page opens and lists all of the products to which your account is entitled. Click the **Workflow Manager** link to proceed to the **Product Information** page.
 - If you do not have access to multiple products, clicking the **Product List** link opens the **Product Information** page directly.
3. In the **Product and File Downloads** column, click the Workflow Manager link for the version that you want to download a license file for. The **Product Download** page opens.
4. Open the **Licenses** tab.
5. Click the download button next to the license file.

Uploading a License File Using the AdminStudio Configuration Wizard

After installation, the AdminStudio Configuration Wizard automatically opens and you are prompted to upload a license file. Until you upload the license file, you will be unable to open the Workflow Manager website. Also, when your license file is nearing its expiration date, you will need to use the AdminStudio Configuration Wizard to upload an updated license file. For instructions, see [Configuring Using the AdminStudio Configuration Wizard](#).

Gathering Required Information

To complete the installation of Workflow Manager, 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.

Table 3-2 • SQL Server Database Information

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

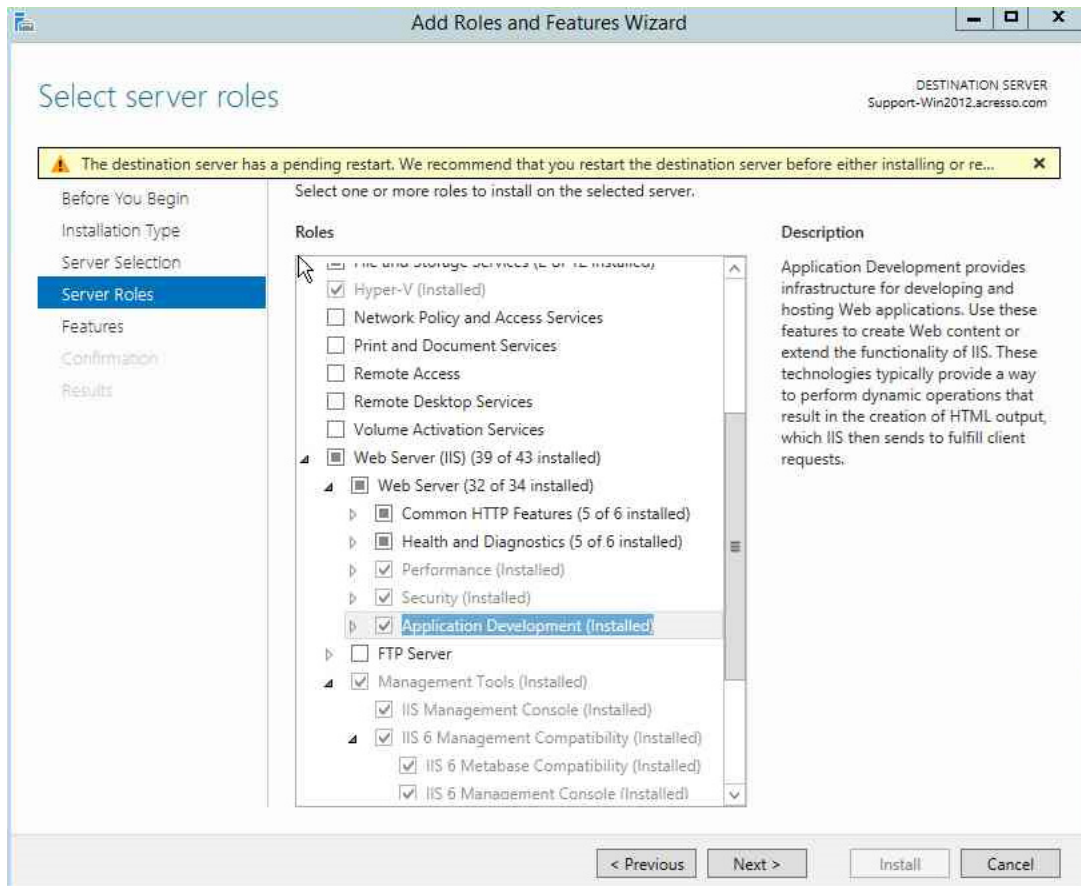
Enabling Roles and Features in Windows Server 2012

If you are installing Workflow Manager on Windows Server 2012, it is recommended that you perform the following steps to enable roles and features.



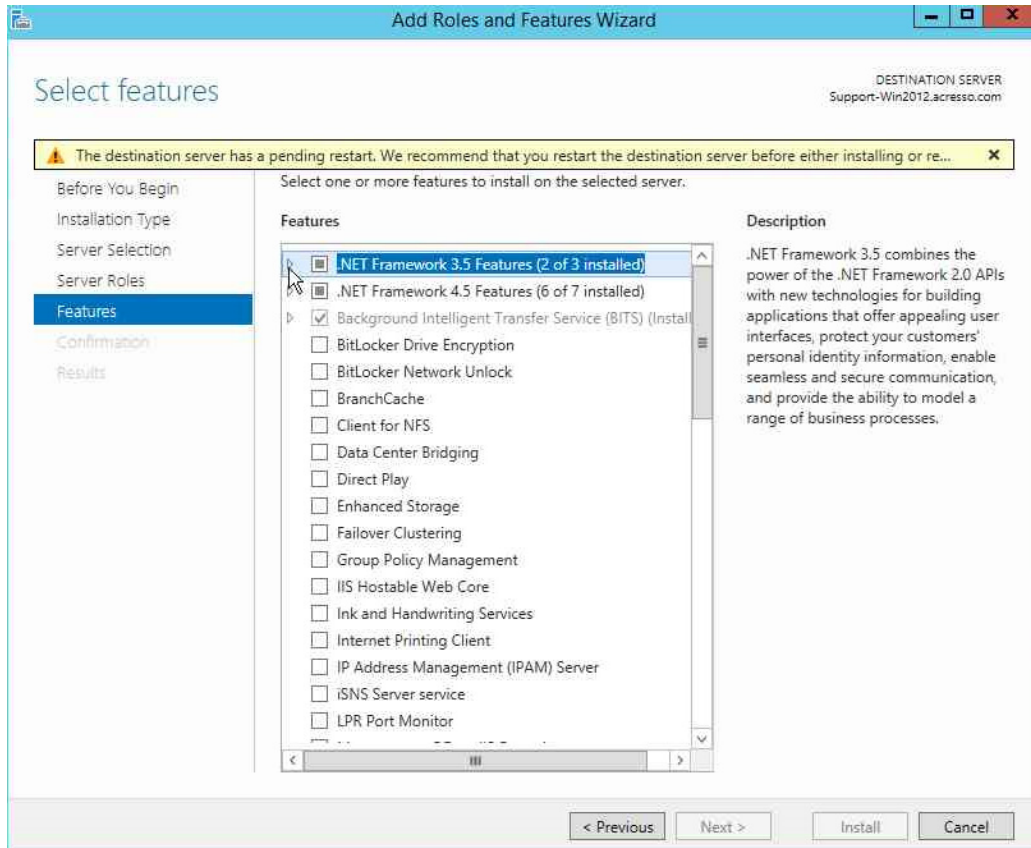
Task *To enable roles and features in Windows Server 2012:*

1. Open the Windows Server 2012 Server Manager.
2. Open the **Add Roles and Features** wizard.
3. Select **Server Roles** in the tree. A list of roles is displayed.



4. Under **Server Roles**, expand **Web Server (IIS) > Web Server**, and select all of the roles in the following subsections (except where noted):
 - **Application Development**
 - **Security**
 - **Performance**
 - **Health and Diagnostics** (select all subroles except **ODBC Logging**)
 - **Common HTTP Features** (select all subroles except **WebDAV Publishing**)

5. Select **Features** in the tree. A list of features is displayed.



6. Under **Features**, select the following features:
 - **.NET Framework 3.5 Features**
 - **.NET Framework 3.5 (includes .NET 2.0 and 3.0)**
 - **HTTP Activation**
 - **.NET Framework 4.5 Features**
 - **.NET Framework 4.5**
 - **ASP.NET 4.5**
 - **WCF Services** (select all subfeatures except **Message Queuing (MSMQ Activation)**)
 - **Background Intelligent Transfer Service**
 - **IIS Server Extension**
 - **Compact Server**
 - **SMB 1.0/CIFS File Sharing Support**
 - **Windows Process Activation Service**
 - **Remote Server Administration Tools > Feature Administration Tools > BITS Server Extensions Tools**
 - **WoW64 Support**

Running the Workflow Manager Installer

This section explains how to run the Workflow Manager installer.



Note • Workflow Manager 2016 can be installed side-by-side an earlier version of Workflow Manager. If you already have Workflow Manager installed, the Workflow Manager 2016 installer will install the application to the next available port.

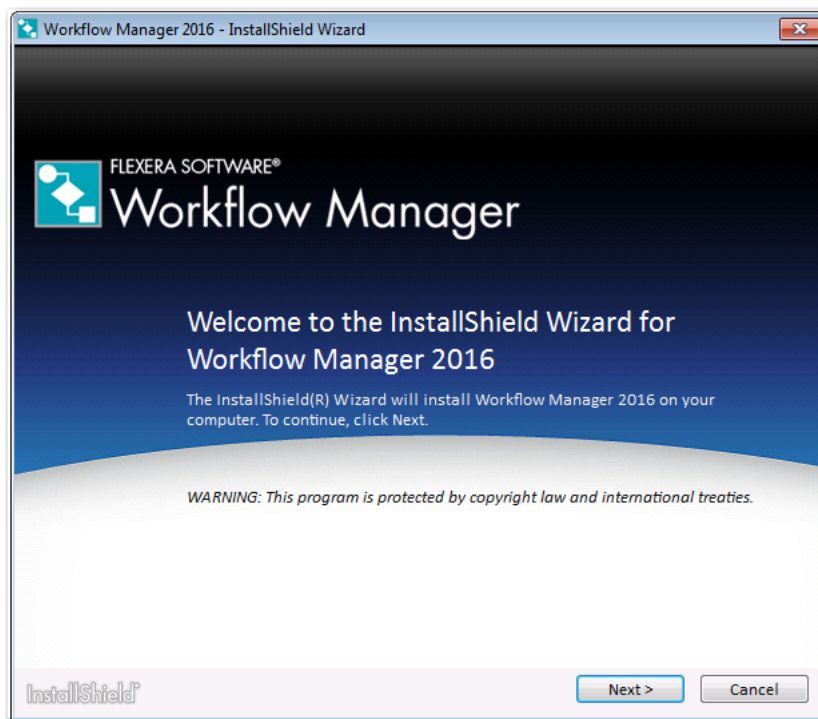
To install Workflow Manager, perform the following steps.



Task

To install Workflow Manager:

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



Note • If you are installing Workflow Manager on a Windows Server 2012 R2 x64 machine and you have not already installed Windows Update for Microsoft KB2919355, you will first see a panel that prompts you to make sure that your machine is up-to-date on all Windows updates before proceeding.

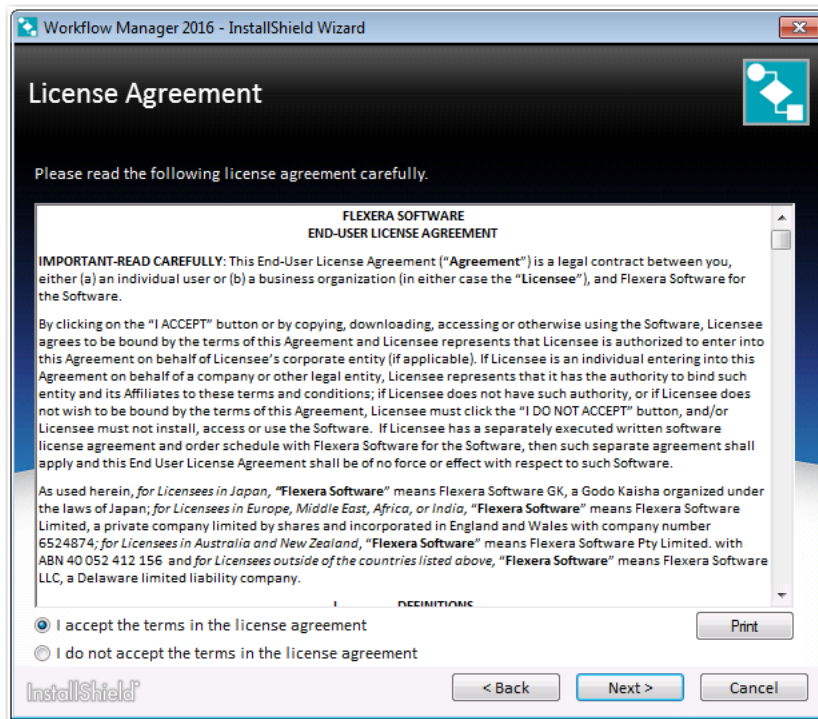


Note • If installing from a compressed version of the installation software, you may be prompted for a password when you attempt to extract the installation program. This password can be found in the Order Confirmation email you received when you purchased this product.

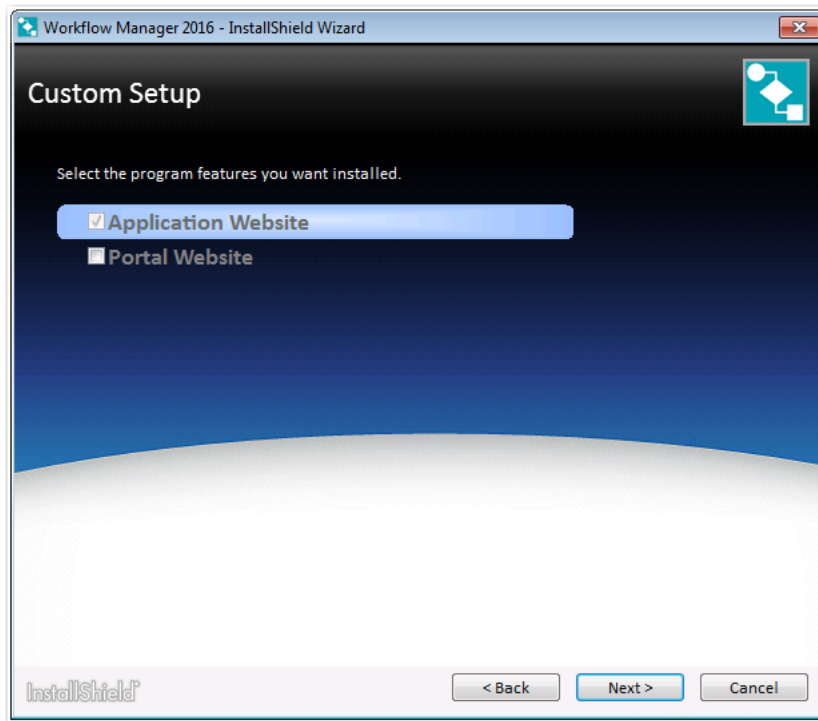


Note • If not already installed, before the **Welcome** panel opens, you will be first prompted to install MSXML, Microsoft .NET Framework Component, and Microsoft ReportViewer.

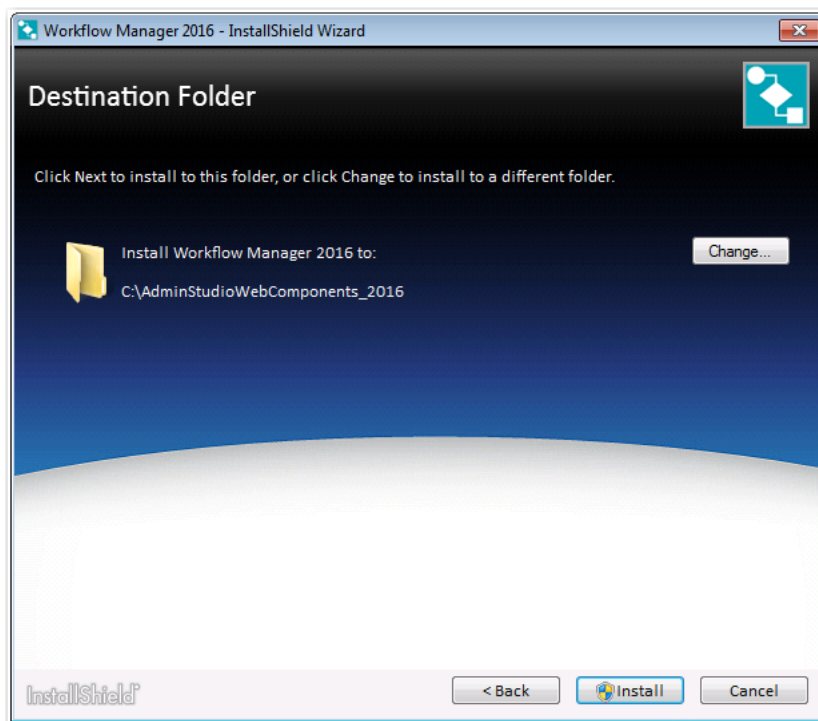
2. Click **Next**. The **License Agreement** panel opens.



3. Select the **I accept the terms of the license agreement** option and click **Install**. The **Custom Setup** panel opens.



4. Select **Application Website** and click **Next**. The **Destination Folder** panel opens.



5. If you want to change the default installation directory of Workflow Manager, click the **Change** button and select a different directory.



Important • It is recommended that you do not install Workflow Manager in the Program Files or Program Files (x86) directory.

6. Click **Install**. The **Installing Workflow Manager** panel opens.



Note • A reboot may be required during installation.

When installation is complete, InstallShield Wizard Completed is displayed.

7. Click **Finish** to close the installer and launch the AdminStudio Configuration Wizard.
8. Continue with the steps in [Configuring Using the AdminStudio Configuration Wizard](#).

Installing a Web Portal on a Different Server

For better security and to manage access to the Workflow Manager Web Server, it is recommend to also set up a portal Web server for Internet clients.

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.

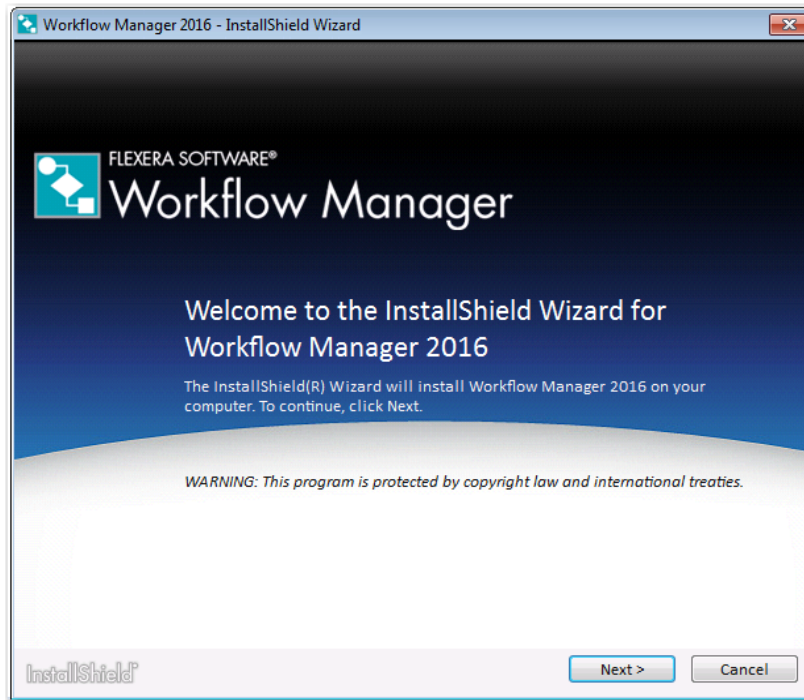


Note • Starting with Workflow Manager 5.6, a web portal is no longer required to support Windows NT authentication for intranet clients. You can enable Windows NT authentication directly on the web site. For more information, see [Portal Web Server for Intranet Clients](#).



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

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



Note • If you are installing Workflow Manager on a Windows Server 2012 R2 x64 machine and you have not already installed Windows Update for Microsoft KB2919355, you will first see a panel that prompts you to make sure that your machine is up-to-date on all Windows updates before proceeding.

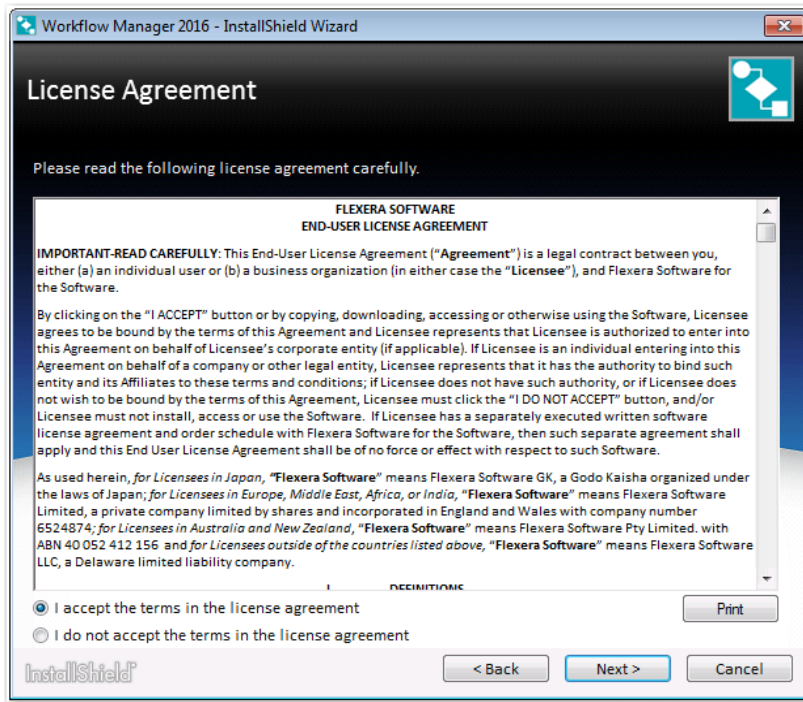


Note • If installing from a compressed version of the installation software, you may be prompted for a password when you attempt to extract the installation program. This password can be found in the Order Confirmation email you received when you purchased this product.

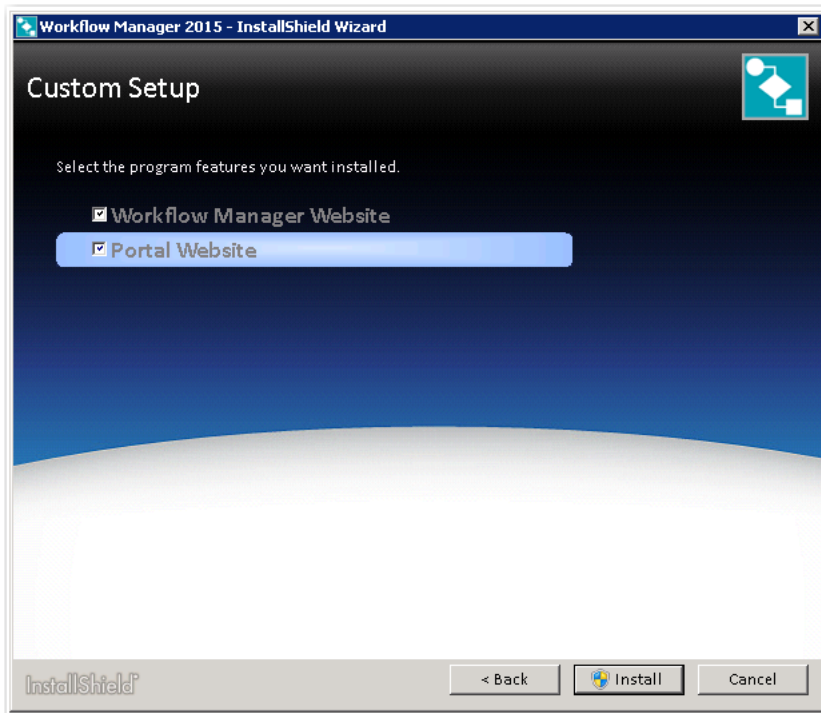


Note • If not already installed, before the **Welcome** panel opens, you will be first prompted to install MSXML, Microsoft .NET Framework Component, and Microsoft ReportViewer.

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



3. Click **Next**. The **License Agreement** panel opens.
4. Select the **I accept the terms of the license agreement** option and click **Next**. The **Custom Setup** panel opens.



5. Select **Portal Website** and click **Install**. The **Installing Workflow Manager 2016** panel opens.



When installation is complete, InstallShield Wizard Completed is displayed.

6. Click **Finish** to close the installer and launch the AdminStudio Configuration Wizard.
7. In order to set the system account, locate the following file on the machine where you installed the web portal:
[WorkflowManagerWebPortalInstallDirectory]\web.config
8. Open the **web.config** file and locate the keys:

```
<add key="RemoteServer" value="IP_Address" />  
<add key="AMS_SystemUsername" value="User_Name" />  
<add key="AMS_SystemPassword" value="Pasword" />  
<add key="AMS_SystemDomain" value="Domain_Name" />
```



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

9. Enter the following values:

Key	Value
RemoteServer	Enter the IP address and port (if necessary) of the machine where the Workflow Manager website is installed.
AMS_SystemUsername AMS_SystemPassword	Enter the user account and password of an account that has permissions on the Workflow Manager website machine.
AMS_System Domain	Enter the domain of the user account name listed above.

Using Scripts to Create or Update a Workflow Manager Database

Because of security concerns, some database administrators may be hesitant to grant to Workflow Manager or AdminStudio users the database rights necessary to create or upgrade an Application Catalog database using SQL Server. Consequently, the database administrator must manually create or upgrade the database using scripts and provide the necessary read and write access for users to that database.

Workflow Manager and AdminStudio are shipped with database creation and upgrade SQL scripts to make it easy for database administrators to manually create or upgrade Workflow Manager / AdminStudio databases.

- [Using Scripts to Create the Workflow Manager Database](#)
- [Using Scripts to Upgrade Existing AdminStudio/Workflow Manager Tables](#)

Using Scripts to Create the Workflow Manager Database

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

Scripts to Run

When creating a Workflow Manager / AdminStudio database using scripts, you need to execute both standard scripts and scripts for plug-ins:

- [Standard Scripts](#)
- [Plug-In Scripts](#)

Standard Scripts

Workflow Manager and AdminStudio are shipped with the following database creation SQL scripts:

Table 3-3 • Scripts to Create Workflow Manager / AdminStudio Databases on SQL Server

```
AMS_System_Schema.SQL
WFM_System_Data.SQL
AMSCreateIndex.SQL
WFM_SampleTemplates.SQL
AS_System_Schema.SQL
AS_ApplicationModel.SQL
OsSecurityPatch.SQL
MergeModule.SQL
PredeploymentTest.SQL
SystemManagementServer.sql
WFM_JobManager.SQL
AS_TestCenter_Schema.SQL
Seed_Data.SQL
AS_ApplicationModelSeedData.SQL
AS_TestCenter_SeedData.SQL
CustomReportWizard.SQL
AS_StoredProcedures.SQL
VirtualizationReadiness.SQL
AS_UI_Support.sql
GroupPackageTree.SQL
AS_TestCenter_StoredProcedures.SQL
Reporting.StoredProcedures.SQL
ApplicationExtendedAttributes.SQL
MobileTables.sql
MobileProgrammability.sql
MobileSeedData.sql
DAR_Schema.sql
AS_ShimDB_Schema.sql
AS_ShimDB_SeedData.sql
```

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 Client Tools	[AdminStudioInstallDirectory]\Support\SQL_Scripts
Workflow Manager	C:\AdminStudioWebComponents_2016\Support\SQL_Scripts



Note • You can also find the list of the standard scripts that you are required to run to create a new database in the following nodes of the **upgrade.xml** file (in the AdminStudio **Support** folder):

```
//AdminStudioUpgrade/WorkflowManager/Create/SQLServer
//AdminStudioUpgrade/AdminStudio/Create/SQLServer
```

Plug-In Scripts

In addition to the standard scripts, you also need to run all of the SQL script files for plug-ins, which are found in the following directories:

Table 3-5 • Location of Plug-in Scripts

Installation	Default Location
AdminStudio Client Tools	[AdminStudioInstallDirectory]\Common\Plugins
Workflow Manager	C:\AdminStudioWebComponents_2016\Support\SQL_Scripts

Because AdminStudio provides extensible plug-in functionality, the list of SQL scripts in this directory is not fixed. However, the following table lists the plug-in scripts that are shipped with the product:

Table 3-6 • Plug-In Scripts

```
AirWatch.sql
Altiris.sql
ApkDeepLink.sql
AppV.sql
AppV5Conversion.sql
AppvServer.sql
AutomatedApplicationConv
enter.sql
Casper.sql
IpaDeepLink.sql
Msi.sql
WebDeploy.sql
XenApp.sql
Xpf.sql
```



Important • The order in which these scripts are run is not important; however, they must be run after the set of scripts listed in *Standard Scripts*.

Creating an Application Catalog Using Scripts

To create a Workflow Manager / AdminStudio Application Catalog database on SQL Server, perform the following steps:



Task

To use scripts to create a Workflow Manager / AdminStudio Application Catalog database:

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 this order**:

```
AMS_System_Schema.SQL
WFM_System_Data.SQL
AMSCreateIndex.SQL
WFM_SampleTemplates.SQL
AS_System_Schema.SQL
AS_ApplicationModel.SQL
OsSecurityPatch.SQL
MergeModule.SQL
PredeploymentTest.SQL
SystemManagementServer.sql
WFM_JobManager.SQL
AS_TestCenter_Schema.SQL
Seed_Data.SQL
AS_ApplicationModelSeedData.SQL
AS_TestCenter_SeedData.SQL
CustomReportWizard.SQL
AS_StoredProcedures.SQL
VirtualizationReadiness.SQL
AS_UI_Support.sql
GroupPackageTree.SQL
AS_TestCenter_StoredProcedures.SQL
Reporting.StoredProcedures.SQL
ApplicationExtendedAttributes.SQL
MobileTables.sql
MobileProgrammability.sql
MobileSeedData.sql
DAR_Schema.sql
AS_ShimDB_Schema.sql
AS_ShimDB_SeedData.sql
```

6. Execute all of the SQL [Plug-In Scripts](#). By default, the following plug-in scripts are shipped with the product:

```
AirWatch.sql
Altiris.sql
ApkDeepLink.sql
AppV.sql
AppV5Conversion.sql
AppvServer.sql
AutomatedApplicationConverter.sql
Casper.sql
IpaDeepLink.sql
Msi.sql
WebDeploy.sql
XenApp.sql
Xpf.sql
```

Using Scripts to Upgrade Existing AdminStudio/Workflow Manager Tables

Before running the setup, if you created the database manually in a previous release, perform these steps to upgrade the database to the existing AdminStudio/Workflow Manager tables.



Note • It is recommended that you use the AdminStudio Configuration Wizard to upgrade your database. However, if you created it manually in a previous release, and want to continue to do so, perform these steps.



Important • This is an advanced method of upgrading a database which requires running scripts manually on a database server.



Task **To upgrade an existing Application Catalog database:**

1. Open the CSSYSSCHEMAINFO table of your existing Application Catalog database, and locate the record with the highest **SchemaVersion** value. This is the **SchemaVersion** that you are upgrading from.
2. Locate the same **SchemaVersion** number in the table below, and note the corresponding **Product Version** number.
3. Run all of the scripts listed in the **Scripts to Run** column for that **Product Version**, in order.

4. Next, run all of the scripts listed in the **Scripts to Run** column for subsequent product versions. If a script listed in a subsequent product version has already been run, it does not need to be run again.

For example, if you are upgrading from **SchemaVersion** 13286609, first run all of the scripts in the **14.0** row of the table, and then run all of the scripts in the **14.01** row of the table that have not already been run.

Product Version (SchemaVersion) Upgrading From	Product Version Upgrading To	Scripts to Run
12.00 (13286602)	12.01	1201Upgrade.sql
12.01 (13286603)	12.02	DarwinFixes.sql 1202Upgrade.sql 1202UpgradewFM.sql 1202UpgradewFMEmailTemplate1.sql 1202UpgradewFMEmailTemplate2.sql
12.02 (13286605)	13.00	AS_System_Schema.sql AS_ApplicationModel.sql OsSecurityPatch.sql MergeModule.sql PredeploymentTest.sql SystemManagementServer.sql WFM_JobManager.sql AS_TestCenter_Schema.sql CustomReportWizard.sql AS_StoredProcedures.sql VirtualizationReadiness.sql GroupPackageTree.sql AS_TestCenter_StoredProcedures.sql Reporting.StoredProcedures.sql ApplicationExtendedAttributes.sql MobileTables.sql MobileProgrammability.sql 1300Upgrade.sql MobileSeedDataEUCLID.sql 1301UpgradeWFM.sql 1302UpgradeWFM.SQL You also need to run any SQL scripts that are found in the Common\Plugins directory. The following plug-in scripts are shipped with the product: AirWatch.sql Altiris.sql AppV.sql AppvServer.sql Msi.sql XenApp.sql Xpf.sql

Product Version (SchemaVersion) Upgrading From	Product Version Upgrading To	Scripts to Run
13.00 (13286607)	14.00	<p>AS_System_Schema.sql AS_ApplicationModel.sql OsSecurityPatch.sql MergeModule.sql PredeploymentTest.sql SystemManagementServer.sql WFM_JobManager.sql AS_TestCenter_Schema.sql CustomReportWizard.sql AS_StoredProcedures.sql VirtualizationReadiness.sql AS_UI_Support.sql GroupPackageTree.sql AS_TestCenter_StoredProcedures.sql Reporting.StoredProcedures.sql ApplicationExtendedAttributes.sql MobileTables.sql MobileProgrammability.sql 1400Upgrade.sql DARSchemaUpdate.sql</p> <p>You also need to run any SQL scripts that are found in the Common\Plugins directory. The following plug-in scripts are shipped with the product:</p> <p>AirWatch.sql Altiris.sql AppV.sql AppvServer.sql Msi.sql XenApp.sql Xpf.sql</p>

Product Version (SchemaVersion) Upgrading From	Product Version Upgrading To	Scripts to Run
14.0 (13286609)	14.01	<p>AS_System_Schema.sql AS_ApplicationModel.sql OsSecurityPatch.sql MergeModule.sql PredeploymentTest.sql SystemManagementServer.sql WFM_JobManager.sql AS_TestCenter_Schema.sql CustomReportWizard.sql AS_StoredProcedures.sql VirtualizationReadiness.sql AS_UI_Support.sql GroupPackageTree.sql AS_TestCenter_StoredProcedures.sql Reporting.StoredProcedures.sql ApplicationExtendedAttributes.sql MobileTables.sql MobileProgrammability.sql AS_ShimDB_Schema.sql AS_ShimDB_SeedData.sql 1401Upgrade.sql 1401UpgradewFM.sql 1401UpgradeAIR.sql 1401UpgradeAIRProjectData.sql</p> <p>You also need to run any SQL scripts that are found in the Common\Plugins directory. The following plug-in scripts are shipped with the product:</p> <p>AirWatch.sql Altiris.sql AppV.sql AppvServer.sql Msi.sql WebDeploy.sql XenApp.sql Xpf.sql</p>

Product Version (SchemaVersion) Upgrading From	Product Version Upgrading To	Scripts to Run
14.01 (13286611)	15.00	<p>AS_System_Schema.sql AS_ApplicationModel.sql OsSecurityPatch.sql MergeModule.sql PredeploymentTest.sql SystemManagementServer.sql WFM_JobManager.sql AS_TestCenter_Schema.sql CustomReportWizard.sql AS_StoredProcedures.sql VirtualizationReadiness.sql AS_UI_Support.sql GroupPackageTree.sql AS_TestCenter_StoredProcedures.sql Reporting.StoredProcedures.sql ApplicationExtendedAttributes.sql MobileTables.sql MobileProgrammability.sql 1500Upgrade.sql 1500UpgradeWFM.sql 1500UpgradeAIR.sql</p> <p>You also need to run any SQL scripts that are found in the Common\Plugins directory. The following plug-in scripts are shipped with the product:</p> <p>AirWatch.sql Altiris.sql ApkDeepLink.sql AppV.sql AppV5Conversion.sql AppvServer.sql AutomatedApplicationConverter.sql Casper.sql IpaDeepLink.sql Msi.sql WebDeploy.sql XenApp.sql Xpf.sql</p>



Note • All of the information in this table can be found in the **Upgrade.xml** file, which is installed in the **Support** subdirectory of the AdminStudio installation directory. This file also includes information on upgrading from versions prior to version 12.0 (AdminStudio 2013).

Configuring Workflow Manager

This chapter explains how to perform post-installation Workflow Manager configuration.

- [Configuring Using the AdminStudio Configuration Wizard](#)
- [Launching Workflow Manager](#)
- [Performing Other Configuration Tasks](#)



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

Configuring Using the AdminStudio Configuration Wizard

The AdminStudio Configuration Wizard automatically opens after you close the installer and prompts you to set Workflow Manager's mandatory configuration settings: SQL Server database information, default connection, and location of your license file.

You can also open the AdminStudio Configuration Wizard at any time to update mandatory configuration settings, connect to the Flexera Service Gateway or set optional advanced configuration settings.

- [Specifying Mandatory Configuration Settings](#)
- [Connecting to the Flexera Service Gateway](#)
- [Setting Advanced Configuration Settings](#)

Specifying Mandatory Configuration Settings

After running the installer, as described in [Running the Workflow Manager Installer](#), the AdminStudio Configuration Wizard automatically opens. You will be prompted to enter the information described in [Gathering Required Information](#), and you will be prompted to upload your license file.



Note • You are required to specify these mandatory settings immediately after installation. You can also update these settings at any time by launching the AdminStudio Configuration Wizard manually and selecting **Create/update AdminStudio database** and/or **Activate AdminStudio license** on the **Welcome** panel of the wizard. To manually launch the AdminStudio Configuration Wizard, open the following file:

C:\AdminStudioWebComponents_2016\Support\Config\Config.exe




Task **To specify settings in the AdminStudio Configuration Wizard:**

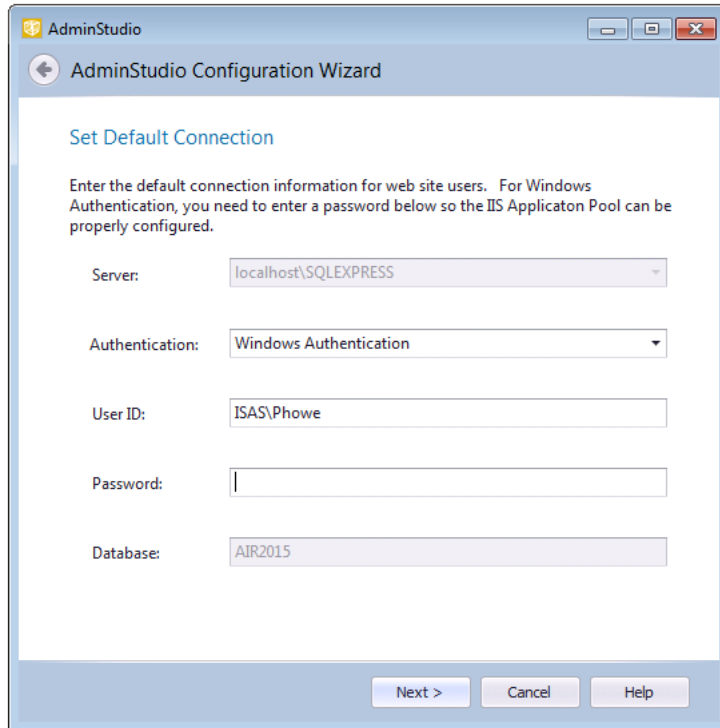
1. When installation is complete, the AdminStudio Configuration Utility will automatically launch. The **Create or Update an AdminStudio** database panel opens.

The screenshot shows the 'AdminStudio Configuration Wizard' window. The title bar reads 'AdminStudio' and 'AdminStudio Configuration Wizard'. The main content area is titled 'Create or Update an AdminStudio database'. There are two radio buttons: 'Create a new database' (selected) and 'Update/connect to an existing Workflow Manager or AdminStudio database'. Below the radio buttons are five input fields: 'Server:' (a dropdown menu), 'Authentication:' (a dropdown menu showing 'Windows Authentication'), 'User ID:' (a text box containing 'ISAS\Phowe'), 'Password:' (a text box), and 'Database:' (a text box). At the bottom of the window are three buttons: 'Next >', 'Cancel', and 'Help'.

2. On the **Create or Update an AdminStudio Database** panel, you are prompted to enter the database server and database name of the database where you will be storing your Workflow Manager data, and login the credentials to that database. Enter the following information:

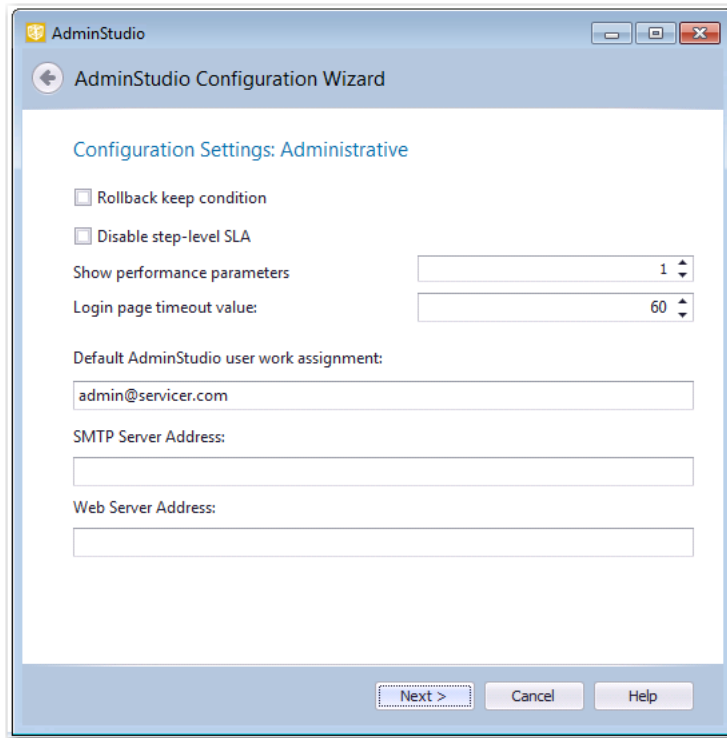
Property	Description
Option	Select one of the following options: <ul style="list-style-type: none"> ● Create a new database ● Update/connect to an existing Workflow Manager or AdminStudio database
Server	Either select a server from the list of available SQL Servers on the network, or manually enter the name of the SQL Server to which you want to connect.
Authentication	Select one of the following options: <ul style="list-style-type: none"> ● Windows Authentication—Choose to use Windows network authentication (your network login ID) to log into this database. ● Server Authentication—Choose to use SQL Server login identification for authentication. If you choose this option, you need to also enter the appropriate User ID and Password.  <p>Note • Workflow Manager / App Portal integration only—If you plan to integrate Workflow Manager with App Portal, you must use Windows Authentication. Also, anonymous and forms authentication needs to be turned off for the site in IIS.</p>
Database	If creating a new database, enter its name. If connecting to an existing database, enter its name or select the database name from the list.

3. Click **Next**. The **Set Default Connection** panel opens, prompting you to enter the default connection information for web site users.



4. Do one of the following based upon the Authentication selection you made on the previous panel:
 - **Windows Authentication**—Enter the **User ID** and **Password** that the Web Sites Application Pool will run as in order to access the database.
 - **SQL Server Authentication**—Confirm that the **User ID** and **Password** that you entered in the previous panel are displayed here.

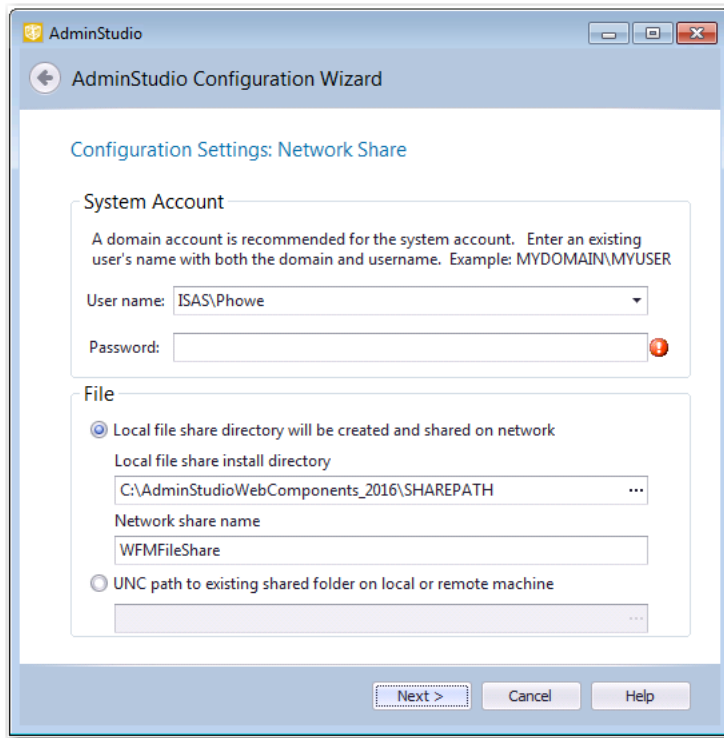
- Click **Next**. The **Configuration Settings: Administrative** panel opens.



- Specify the following settings:

Property	Description
Rollback keep condition	Not currently used.
Disable step-level SLA	If this option is selected, the Track for Workflow SLA option on the Template Details view is not available. That means that all workflow steps will be included in SLA calculations.
Show performance parameters	Not currently used.
Login page timeout value	Identifies the length of time that you can leave the login page open before it times out.
Default AdminStudio user work assignment	Specify which AdminStudio user is automatically assigned to an AdminStudio project that is created as part of a Workflow Manager phase.
SMTP Server Address	Enter the address of your email server.
Web Server Address	Edit to modify the Workflow Manager website IP address. By default, it is http://localhost/.

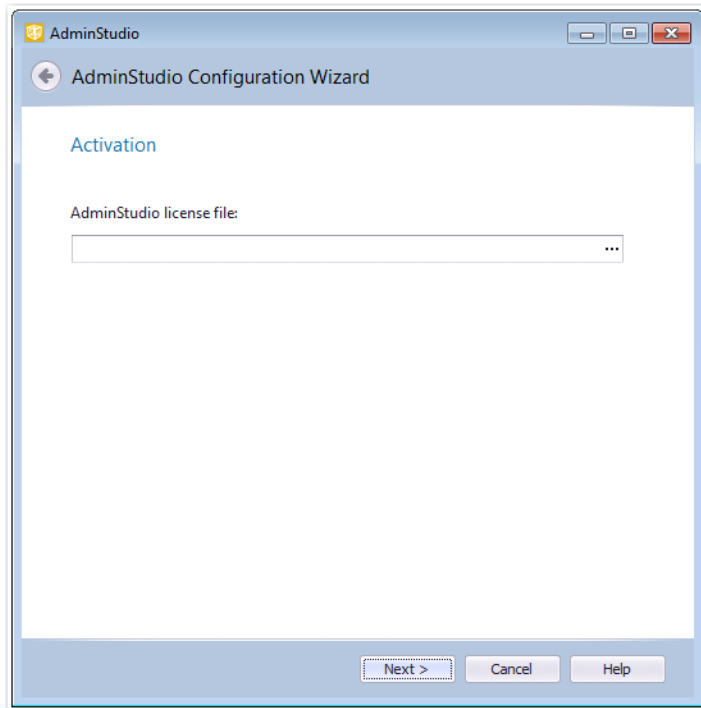
- Click **Next**. The **Configuration Settings: Network Share** panel opens.



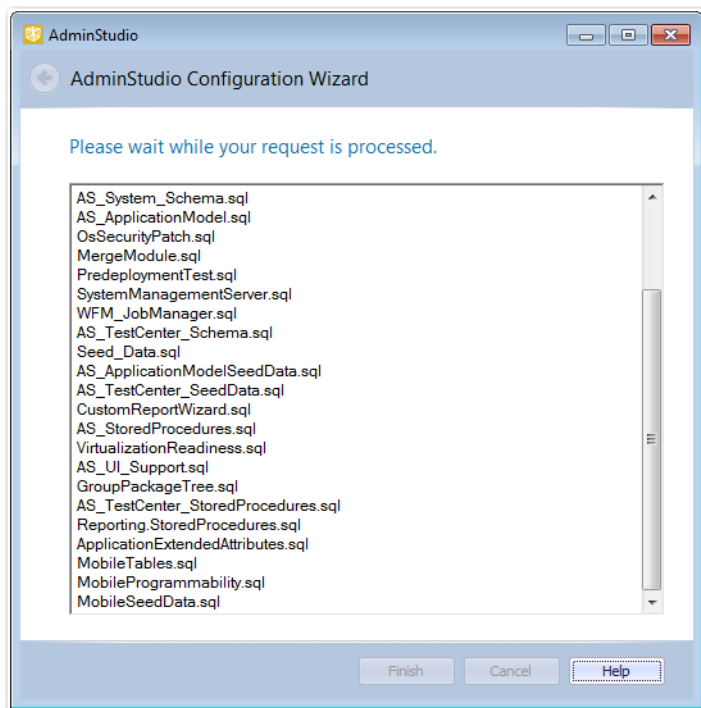
- Enter the following information:

Property	Description
User name	Enter a user name and password for the system account. Enter the user name in DOMAIN_NAME\USER_NAME format.
Password	
Local file share directory will be created and shared on network	Select this option if your file share location is on the local machine.
Local file share install directory	Enter the local file share directory path.
Network share name	Specify the name of the shared directory when it is viewed from other machines in the network.
UNC path to existing shared folder on local or remote machine	Select this option if your file share location is in a shared folder on a local or remote machine, and enter the location in UNC path format.

9. Click **Next**. The **Activation** panel opens.



10. Click the browse button and upload your license file, and then click **Next**. The configuration begins and messages are displayed.



11. When the configuration steps are complete, click **Finish** to close the wizard.

Connecting to the Flexera Service Gateway

The Flexera Service Gateway is a component that enables AdminStudio, Workflow Manager, App Portal, and FlexNet Manager Platform to communicate. When Workflow Manager is connected to the Flexera Service Gateway, you can connect an App Portal catalog item to a Workflow Manager workflow request.

In App Portal, you select an event that you want to trigger a Workflow Manager workflow (such as **On Submit Approval**) and the Workflow Manager project that you want to use. A workflow request is then created in Workflow Manager. When Workflow Manager completes the workflow request, the status in App Portal changes to **Complete**.

To connect Workflow Manager to the Flexera Service Gateway, perform the following steps:

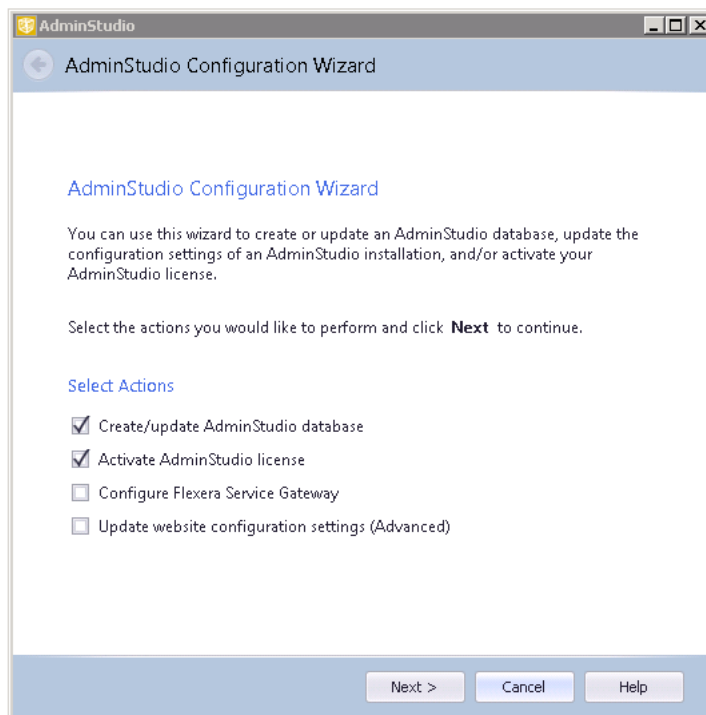


Task *To connect to the Flexera Service Gateway:*

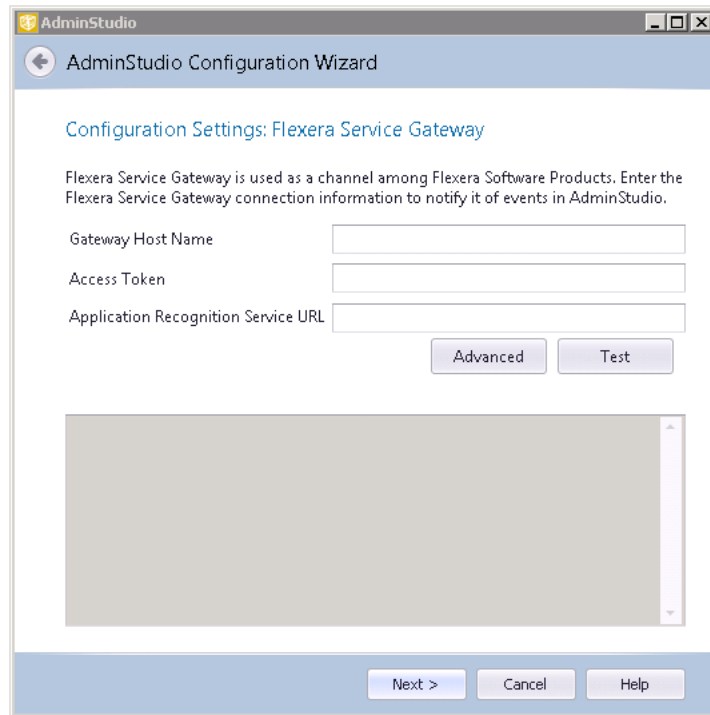
1. Launch the following file on the machine where you installed Workflow Manager:

C:\AdminStudioWebComponents_2016\Support\Config\Config.exe

The AdminStudio Configuration Wizard Welcome panel opens.



2. Select **Configure Flexera Service Gateway** and click **Next**. The **Configuration Settings: Flexera Service Gateway** panel opens.



3. In the **Gateway Host Name** field, enter the name of your Flexera Service Gateway Server.
4. By default, the user name and login to the Flexera Service Gateway is `admin / admin`. If your organization is using a different user name and password, click **Advanced** and enter the appropriate credentials.
5. Leave the **Access Token** and **Application Recognition Service URL** fields blank.



Note • These fields are used if you have also purchased AdminStudio Inventory and Rationalization.

6. Click **Test** to test the connection. You should receive the following message:
Connection to Flexera Service Gateway successful!
7. Click **Next**. The configuration begins and messages are displayed.
8. When the configuration steps are complete, click **Finish** to close the wizard.

Setting Advanced Configuration Settings

To set advanced Workflow Manager settings, perform the following steps:

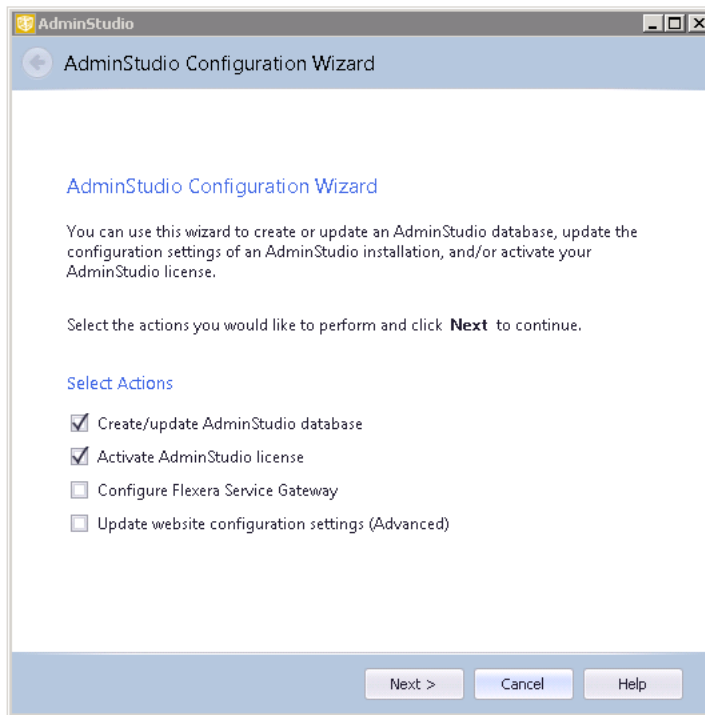


Task **To set advanced configuration settings:**

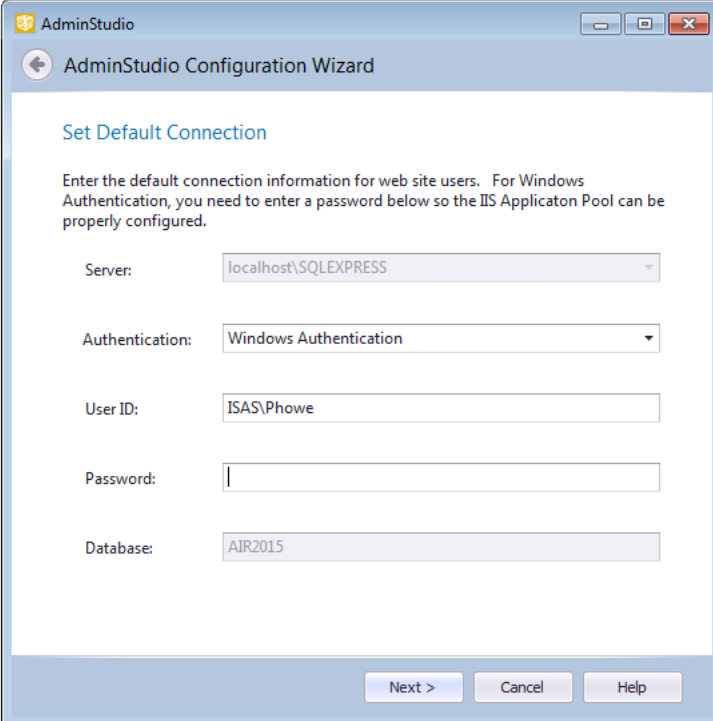
1. Launch the following file on the machine where you installed Workflow Manager:

C:\AdminStudioWebComponents_2016\Support\Config\Config.exe

The AdminStudio Configuration Wizard Welcome panel opens.



2. Select **Update website configuration settings (Advanced)** and click **Next**. The **Set Default Connection** panel opens, prompting you to enter the default connection information for web site users.



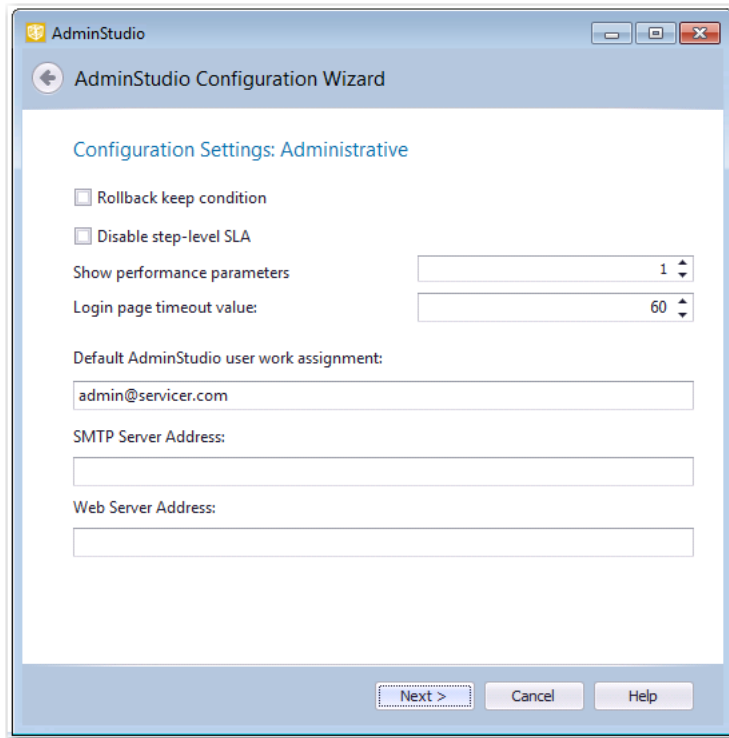
The screenshot shows the 'Set Default Connection' panel in the AdminStudio Configuration Wizard. The window title is 'AdminStudio Configuration Wizard'. The panel contains the following fields and instructions:

- Server:** localhost\SQLEXPRESS
- Authentication:** Windows Authentication
- User ID:** ISAS\Phowe
- Password:** (empty field)
- Database:** AIR2015

At the bottom of the panel, there are three buttons: 'Next >', 'Cancel', and 'Help'. The instructions state: 'Enter the default connection information for web site users. For Windows Authentication, you need to enter a password below so the IIS Application Pool can be properly configured.'

3. Do one of the following based upon whether you are using Windows authentication or server authentication when connecting to the Workflow Manager database:
 - **Windows Authentication**—Enter or edit the **User ID** and **Password** that the Web Sites Application Pool will run as in order to access the database.
 - **SQL Server Authentication**—Confirm that the **User ID** and **Password** that you entered when you configured the database connection are displayed here.

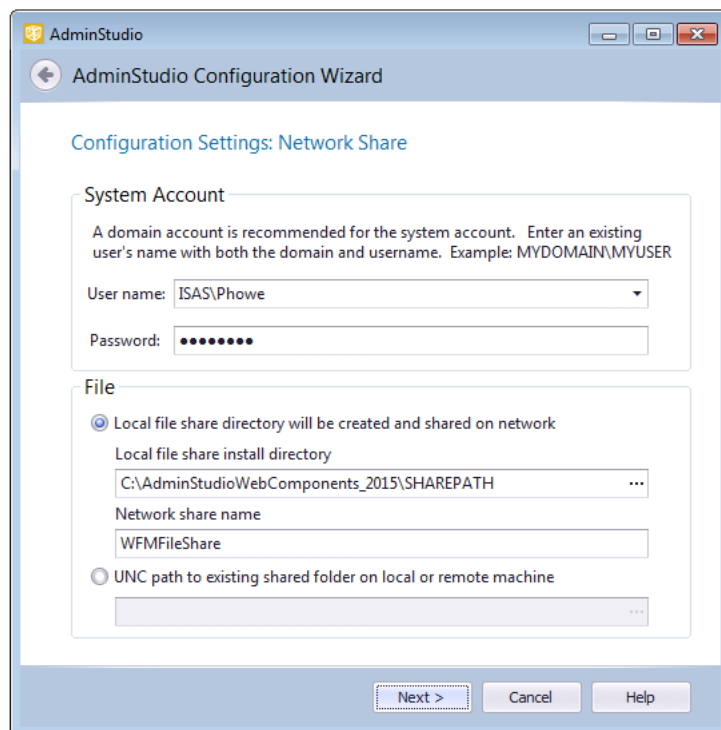
4. Click **Next**. The **Configuration Settings: Administrative** panel opens.



5. Specify the following options:

Property	Description
Rollback keep condition	When a workflow request that contains branching is rolled back, the selections of the branching condition will be cleaned up. If this option is selected, the selection will be preserved and the workflow request will move forward through the same branches as it did before the rollback.
Disable step-level SLA	If this option is selected, the Track for Workflow SLA option on the Template Details view is not available. That means that all workflow steps will be included in SLA calculations.
Show performance parameters	Select this option to prevent individual user account names to be displayed in summary reports.
Login page timeout value	Identifies the length of time that you can leave the login page open before it times out.
Default AdminStudio user work assignment	Specify which AdminStudio user is automatically assigned to an AdminStudio project that is created as part of a Workflow Manager phase.

6. Click **Next**. The **Configuration Settings: Network Share** panel opens.



7. Specify the following options:

Property	Description
User name Password	Enter a user name and password for the system account. Enter the user name in DOMAIN_NAME\USER_NAME format.
Local file share directory will be created and shared on network	Select this option if your file share location is on the local machine.
Local file share install directory	Enter the local file share directory path.
Network share name	Specify the name of the shared directory when it is viewed from other machines in the network.
UNC path to existing shared folder on local or remote machine	Select this option if your file share location is in a shared folder on a local or remote machine, and enter the location in UNC path format.

8. Click **Next**. The configuration begins and messages are displayed.
9. When the configuration steps are complete, click **Finish** to close the wizard.

Launching Workflow Manager

After you perform the steps in [Specifying Mandatory Configuration Settings](#), you are now ready to launch Workflow Manager.

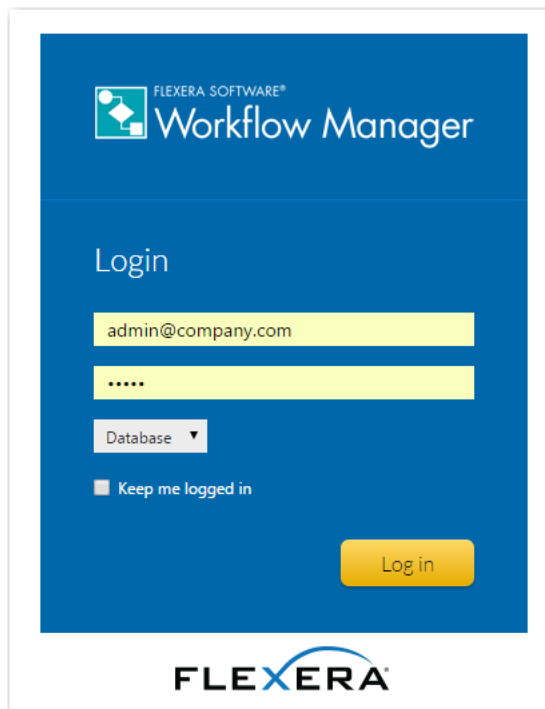


Task **To launch Workflow Manager:**

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. You can log on using the default administrator account of the default workflow administrator company.
 - **User Name:** admin@company.com
 - **Password:** admin
3. Continue with the steps described in [Getting Started](#) in the Workflow Manager Help Library.

Performing Other Configuration Tasks

You may want to perform some of the following configuration tasks:

- [Additional Verification Steps After Installation](#)
- [Enabling Login to Workflow Manager Using Windows NT Authentication \(Without Portal\)](#)
- [Assigning Static IP Addresses to a Server](#)

Additional Verification Steps After Installation

You may want to perform these additional verification steps after the installation is complete to ensure that Workflow Manager was installed properly.



Task *To verify that installation was successful:*

You may want to perform these additional verification steps after the installation is complete to ensure that Workflow Manager was installed properly.



Task *To verify that installation was successful:*

1. Open **Internet Information Services (IIS) Manager**.
2. Select your server name in the tree. The **Home** view opens.
3. Under **IIS**, select **ISAPI and CGI Restrictions** and select **Open Feature** from the context menu.
4. Make sure that all ASP.NET features have **Allowed** listed in the **Restriction** column.
5. In the tree under **Sites**, make sure that there is a node named **AdminStudio Web Components 2016 Application**.
6. In the tree, select **Application Pools**. The **Application Pools** view opens.
7. Make sure that **AdminStudioWebComponents2016** is listed and that its **Status** is set to **Started**.
8. Open the Windows **Services** dialog box.
9. In the **Services (Local)** list, make sure that the **Status** of **ASP.NET State Service** is set to **Started**.

Enabling Login to Workflow Manager Using Windows NT Authentication (Without Portal)

To enable login to the Workflow Manager website using Windows NT authentication (without installing the Workflow Manager portal), perform the following steps:



Task

To enable Windows NT Authentication without using a portal:

1. On the Workflow Manager web server, open the **Control Panel**.
2. Click **Administrative Tools**. The **Administrative Tools** dialog box opens.
3. In the list, select **Internet Information Services (IIS) Manager** and select **Open** from the context menu. The **Internet Information Services (IIS) Manager** dialog box opens.
4. Expand the nodes in the tree, and under **Sites**, select **AdminStudio Web Components 2016 Application**. The **Workflow Manager Application Home** view opens.
5. Under **IIS**, select **Authentication** and select **Open Feature** from the context menu. The **Authentication** view opens.
6. Set **Anonymous Authentication** to **Disabled**.
7. Set **Windows Authentication** to **Enabled**.

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 Workflow Manager web server.
2. Open the **Network and Sharing Center**.
3. Click **Change adapter settings**. The **Network Connections** dialog box opens.
4. Select your adapter and select **Properties** from the context menu. The **Local Area Connection Properties** dialog box opens.
5. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**. The **Internet Protocol Version 4 (TCP/IPv4) Properties** dialing box opens.
6. Enter the static IP address.
7. If installing the Workflow Manager Portal on the same machine, you may want to add additional IP addresses. To add additional IP addresses, click **Advanced**. The **Advanced TCP/IP Settings** panel opens.
8. Under **IP addresses**, click **Add**. The **TCP/IP Address** dialog box opens.
9. Enter the **IP address** for the portal and click **Add**.
10. Click **OK** to close the remaining dialog boxes.

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