



PNMsoft Knowledge Base

Sequence Administrator Guides

Sequence Installation Guide

Version	Updated On	Document Changes	Updated By
1.0	May 3 rd , 2016	New guide, similar to v7.x with some small updates.	Eli Stutz
1.1	October 20 th 2016	Updated Guide to Version 8.2. Several updates.	Eli Stutz
1.2	March 19, 2017	Remove SharePoint Portal Ref	Alex Fiedler
1.3	July 5, 2017	Added post-installation step for disabling anonymous authentication for the <i>/_layouts virtual</i> directory.	Alex Fiedler
1.31	August 23, 2018	Fixed bug 20406: Subscriber Timeout value was wrong. It should be 20.	Tamara Katz

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Document Purpose

This document describes the steps involved in installing Sequence 8.x. While the majority of the installation is achieved simply by executing the install set, make sure you complete all the required tasks prior to the installation, as well as the required post-installation steps.

Introduction

An installation of Sequence can range from a single computer (Single-Server installation) to multiple servers (Distributed Installation). The installation requirements will depend on the availability and scaling requirements of your solution. This guide describes both the minimum and the recommended hardware requirements based on whether you are deploying a single-server installation or a distributed solution.

This guide does not provide advice on choosing a distributed topology or hardware setup based on availability or performance and capacity requirements.

Please see [this guide](#) for a description of Sequence topologies.

Portal Options

Sequence supports a variety of end user portal options. The end user portal is called Flowtime.

1. **Flowtime Website:** This is a standard HTML5 website with editing and branding options. This guide includes instructions for installing with this option.
2. **SharePoint App:** This is a SharePoint app which can be installed on SharePoint Online or On premises. It provides full Flowtime functionality inside SharePoint. For additional instructions, see the [SharePoint App Guide](#).

Instructions for Specific Versions

When installing Sequence for the first time or upgrading from a previous version, it's important to review the Release Notes of the version you are installing, in addition to this guide.

The installation section of the Release Notes includes specific guidelines for your version. Reading this section will help you perform a smooth installation.

You can find the Release Notes for the version you are installing in the [Downloads Library](#).

Hardware and Software Requirements

Single Server Installation

Hardware Requirements

The following table lists both the minimum and the recommended hardware requirements for deploying Sequence in a single server topology.

Component	Minimum	Recommended
Processor	2.5 gigahertz (GHz) , 64-bit four cores	Quad Core processors that are each 3.3 GHz or faster
RAM	4 GB	8 GB
Disk	NTFS file system–formatted partition with a minimum of 36 GB of free space.	NTFS file system–formatted partition with 72 GB of free space plus adequate free space for your Web sites.
Drive	DVD drive	DVD drive or the source copied to a local or network-accessible drive.
Display	1366 × 768	1366 × 768 or higher resolution monitor.
Network	256 kilobits per second (Kbps) connection between client computers and server.	512 Kbps or faster connection between client computers and server.

Software Requirements

Database

MS SQL 2008 R2 Standard Edition or higher.

Operating System

Windows Server 2008 64-bit SP2 or higher.

We recommend applying all Microsoft critical updates.

Windows Components

After you have installed the operating system and applied all critical updates, configure the server to be a Web Server by enabling the Internet Information Services (IIS) role, and including its built-in services:

- Common files
- WWW
- .NET Framework 3.5 features
 - .NET Framework 3.5 (includes .NET 2.0 and .NET 3.0)
- .NET Framework 4.5 features
 - All sub-features
 - WCF Services
 - All sub-features
- Windows Identity Foundation 3.5

.NET 4.6.2 is required. If the .NET version is not installed Sequence Installer will try to install this version from a web source.

Roles

Enable the following roles for the Web Server (IIS)

- Web Server
 - Common HTTP Features
 - Default Document
 - HTTP Errors
 - HTTP Redirection
 - Performance
 - Static Content Compression
 - Security
 - Request Filtering
 - Windows Authentication
 - Application Development
 - .NET Extensibility 4.5
 - Application Initialization
 - ASP.NET 4.5
 - ISAPI Extensions
 - ISAPI Filters
- Management Tools
 - IIS Management
 - Management Service

Distributed Server Installation

The primary difference between a single server and a distributed topology is that you can use one or more computers to host the following server roles:

- Application server
- Front-end Web server
- Database server

This section describes both the minimum and the recommended system requirements for each server role. If you install more than one role on a single computer, ensure that the computer meets the minimum requirements for all server roles.

Application Server

Hardware Requirements

The following table lists the minimum and recommended hardware requirements for deploying Sequence application server.

Component	Minimum	Recommended
Processor	2.5 gigahertz (GHz) , 64-bit four cores	Quad Core processors that are each 3.3 GHz or faster

Component	Minimum	Recommended
RAM	4 gigabyte (GB)	8 GB
Disk	NTFS file system–formatted partition with a minimum of 36 GB of free space.	NTFS file system–formatted partition with 72 GB of free space plus adequate free space for your Web sites.
Drive	DVD drive	DVD drive or the source copied to a local or network-accessible drive.
Display	1366 × 768	1366 × 768 or higher resolution monitor.
Network	256 kilobits per second (Kbps) connection between client computers and server.	512 Kbps or faster connection between client computers and server.

Software Requirements

Operating System

Windows Server 2008 64-bit SP2 or higher.

We recommend applying all Microsoft critical updates.

Windows Components

After you have installed the operating system and applied all critical updates, configure the server to be a Web Server by enabling Internet Information Services (IIS) role.

Front-end Web Server

Hardware Requirements

The following table lists the minimum and recommended hardware requirements for deploying the Front-end web server.

Component	Minimum	Recommended
Processor	2.5 gigahertz (GHz) , 64-bit four cores	Quad Core processors that are each 3.3 GHz or faster
RAM	4 GB	8 GB
Disk	NTFS file system–formatted partition with a minimum of 36 GB of free space.	NTFS file system–formatted partition with 72 GB of free space plus adequate free space for your Web sites.
Drive	DVD drive	DVD drive or the source copied to a local or network-accessible drive.
Display	1366 × 768	1366 × 768 or higher resolution monitor.
Network	256 kilobits per second (Kbps) connection between client computers and server.	512 Kbps or faster connection between client computers and server.

Software Requirements

Operating System

Windows Server 2008 64-bit SP2 or later.

We recommend applying all Microsoft critical updates.

Windows Components

After you have installed the operating system and applied all critical updates, configure the server to be a Web Server by enabling Internet Information Services (IIS) role.

Database Server

The computer that hosts the database server role must have Microsoft SQL Server 2008 R2 Standard Edition or higher.

Sequence Clients

Sequence Clients are developers using Sequence Administration and end-users using Flowtime.

- Flowtime supports any common browser.
- Sequence Administration requires IE 10.0 and above.

Required Accounts

Account	Description	Account Type	Needs	Usage in the installation process
Installation Account	Used to install Sequence.	A domain user account or Local Account	<p>Member of the Administrators group on each server on which Setup is run.</p> <p>A member of the SQL Server Logins, which grants login access to your SQL Server instance.</p> <p>A member of the SQL Server Database Creator server role, which grants permission to create and alter databases.</p>	Initiation of the installation application.
Application Pool Identity Account	Used to run Sequence Administration site and optionally the Flowtime website.	Windows domain or local user account	<p>It must have permission to run WMI query.</p> <p>It must be part of the IIS_IUSRS group.</p>	Application pools user setting window.
Sequence Database Account	SQL Server account that is used to create the Sequence database, and enables all the communications to the database server.	SQL account	<p>For the duration of the installation, the SQL account user must be a member of the system administrators group.</p> <p>It must belong to the Security Administrators and Database Creators roles.</p>	<p>Database setting window.</p> <p>After installation, the user should be set as db_owner on Sequence database.</p>
Sequence Windows Services Account	Used to run the Background Runtime Windows Service, Job Execution Service and optionally the Active directory synchronization windows service.	Windows domain or local user account.	<p>It must have permission to the SMTP server.</p> <p>It must be a domain account to query the active directory.</p> <p>Logon as a service rights on the machine.</p>	<p>Windows service account setting.</p> <p>After installation, it must be added as a valid Sequence user (otherwise it won't be able to move processes forward).</p>

Pre-Installation Tasks

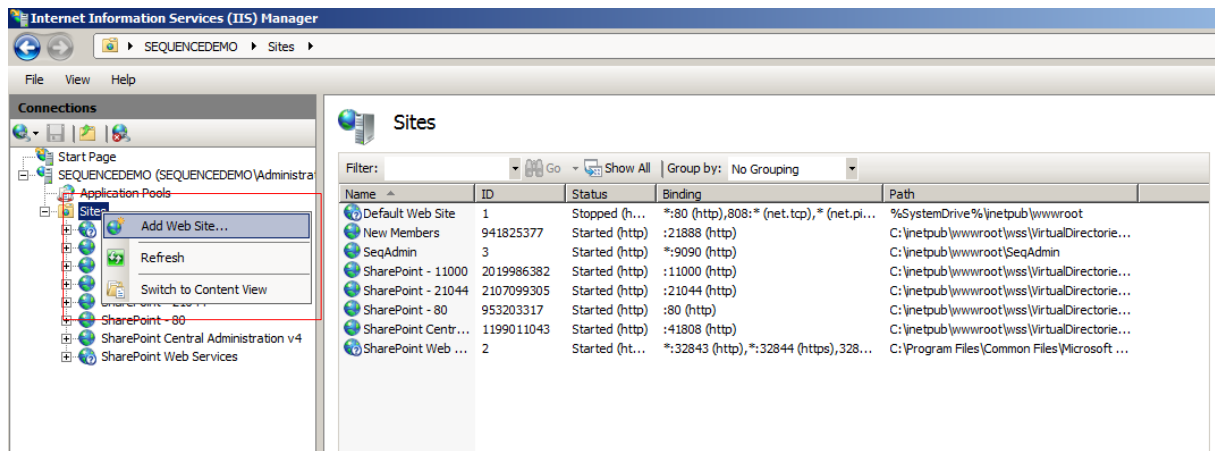
Prepare your Web Server

Create a new web site for the Administration and Flowtime sites

Usually, you will want to create the Administration site on a dedicated web site with a specific port.

To define new web site for the Administration application:

1. Click **Start**, and then click **Run**, type `inetmgr` and click **OK**. The IIS management console should open.
2. Right-click the local IIS server and click **Add Web Site**.



IIS – Add Web Site

The *Add Web Site* window opens.

Add Web Site Window

3. Insert the site name (e.g. *SeqAdmin*).
4. Browse to select or create a folder (i.e. *C:\inetpub\wwwroot\Administration*), and click **OK**.
5. Click **Test Settings** to verify that the IIS management has appropriate permissions to read/write into the chosen site folder.
If you receive a negative result, provide enough security permissions to the chosen site folder.
6. Set the **Binding Type** to **HTTPS**.
7. Insert a port number between 81 to 65535, and then click **Next**.

***Note:** Make sure you do not have conflict with other sites on the server.*

8. Click **OK**. A new web site has been created.

Use this web site for the Sequence Administration site and its installed SharePoint Services site IIS location (see the section Specifying the Component Installation Location below).

Repeat these steps to create a site for the Flowtime and Process^{TO GO}. Make sure to use a different port.

Prepare your Database Server

The database server must be running Microsoft SQL Server 2008 R2 Standard Edition or higher with the most recent service pack.

Optionally, you can preinstall the required databases if your IT environment or policies require this. Make sure the surface area settings are set to enable Local and Remote Connections.

SQL Server and Database Collation

The Sequence database collation is configured to be case-insensitive. If your server is configured differently, it is recommended to ensure there is no IT conflict with this setting. For more information about collations, see "Selecting a SQL Collation" or "Collation Settings in Setup" in SQL Server Books online.

Create an SQL User for Sequence

Sequence Services and sites work under SQL authentication, therefore you should prepare a dedicated SQL user as follows:

1. Open Security then right-click **Logins** and select **New Login**.

The screenshot shows the 'Login - New' dialog box. On the left, there is a 'Select a page' pane with 'General' selected. Below it, the 'Connection' section shows 'Server: SEQUENCEDEMO' and 'Connection: sa'. At the bottom left, the 'Progress' section shows a 'Ready' status. The main area contains the following fields and options:

- Login name:** YourSEQUENCEUserName
- Authentication:**
 - ☐ Windows authentication
 - ☒ SQL Server authentication
- Password:** [masked with dots]
- Confirm password:** [masked with dots]
- ☐ Specify old password
- Old password:** [empty]
- ☒ Enforce password policy
- ☒ Enforce password expiration
- ☒ User must change password at next login
- ☐ Mapped to certificate [dropdown]
- ☐ Mapped to asymmetric key [dropdown]
- ☐ Map to Credential [dropdown]
- Mapped Credentials:** [table with headers 'Credential' and 'Provider']
- Default database:** master
- Default language:** <default>

Buttons: Search..., Add, Remove, OK, Cancel.

Login – New

2. Choose a username, SQL Server authentication and password and click **OK**.
Use the account you have just created in the Database settings window

Pre-Installation Checklist

Verify the following before installing Sequence:

- ☐ You have created a new site for Sequence Administration and Sequence Flowtime in IIS.
- ☐ Your installation user is a local administrator on the server.
- ☐ Your SQL user is valid and available. For the duration of the installation, your SQL user must be a member of the system administrators group.
- ☐ The application pool user is valid and available.
- ☐ The Background Runtime Windows Service user is valid and available.
- ☐ You have a product key.
- ☐ You have enough disk space (at least 150 Mb).

Installation Steps

Visit the [Downloads site](#) to retrieve the latest Sequence installation file. This site includes additional helpful links and information that will assist you in your installation.

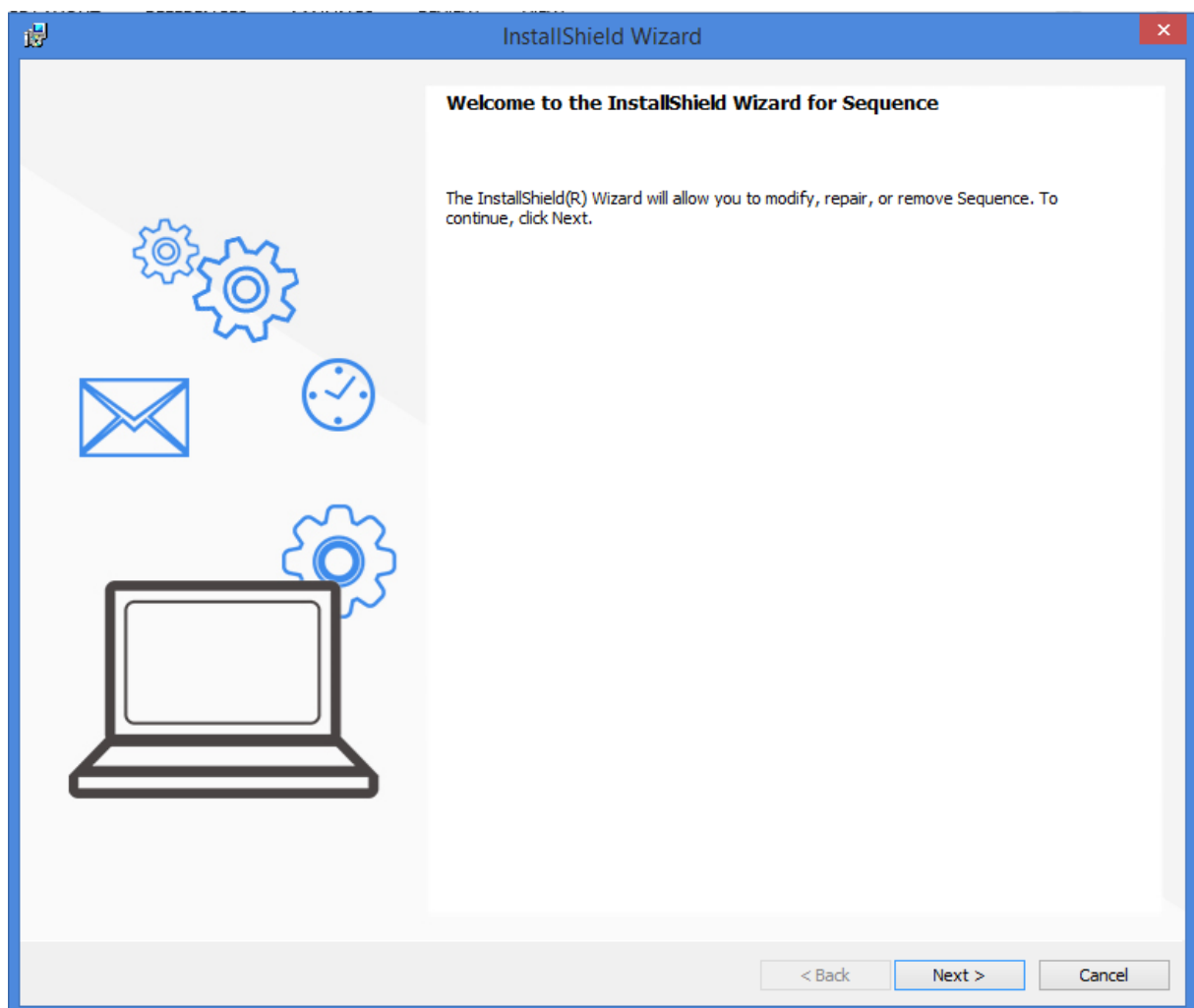
Starting Sequence Setup

1. Run the relevant *Setup.exe* file (for example *8.0.0_Setup.exe*) on all servers in your solution, starting with the Application server.

IMPORTANT: You must right-click the .exe file and select **Run As System Administrator**.

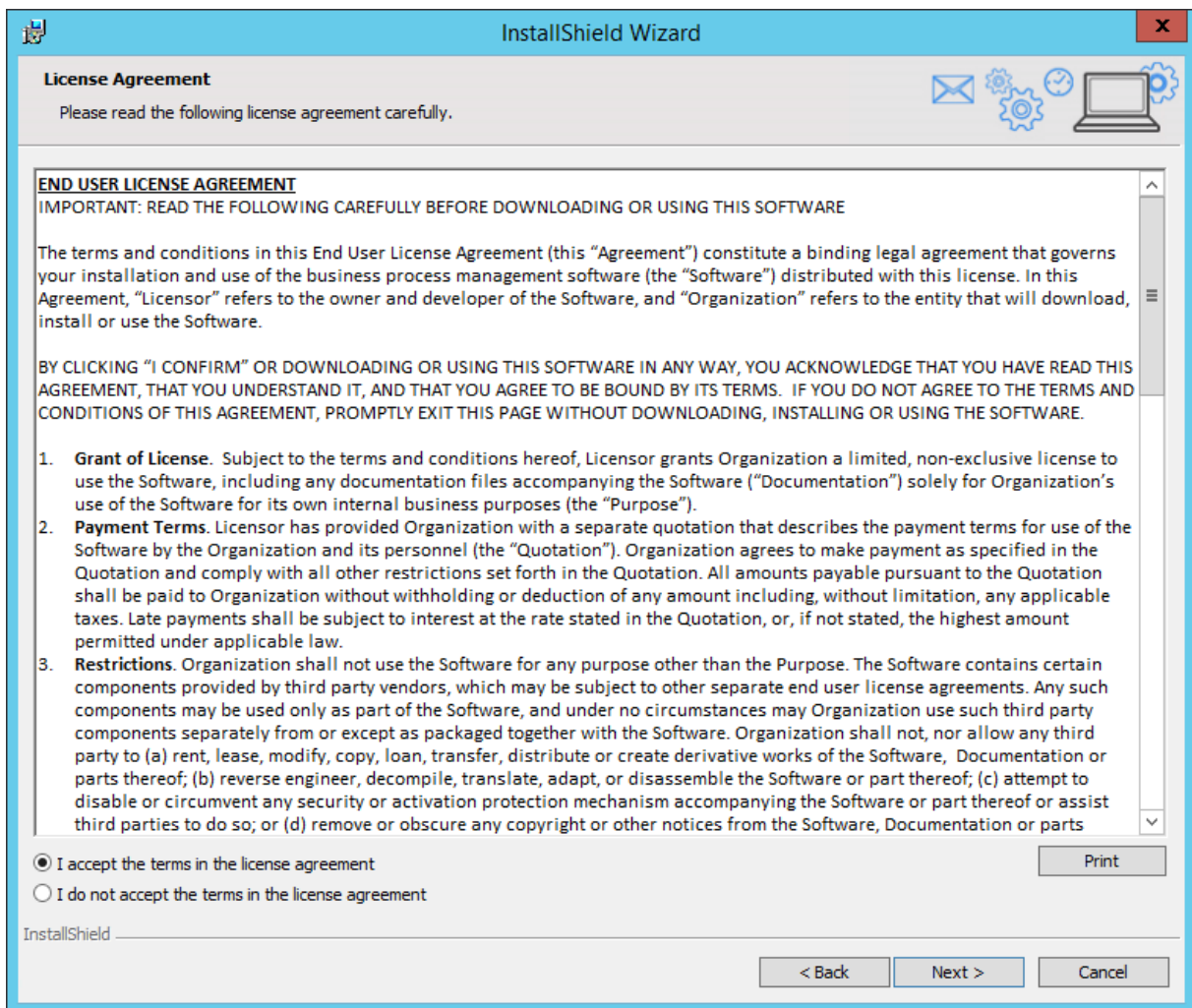
Note: The Sequence Database needs to be installed once. It can be done during the installation on the Application server. There is no need to run the installer on the Database server. If multiple application/web servers need to be installed, then the Database component should be enabled only during the first installation. The proceeding installations can have the Database component deselected (or select the skip option when prompted to create the Database).

The Sequence Installation Wizard opens.



Sequence Setup Welcome Page

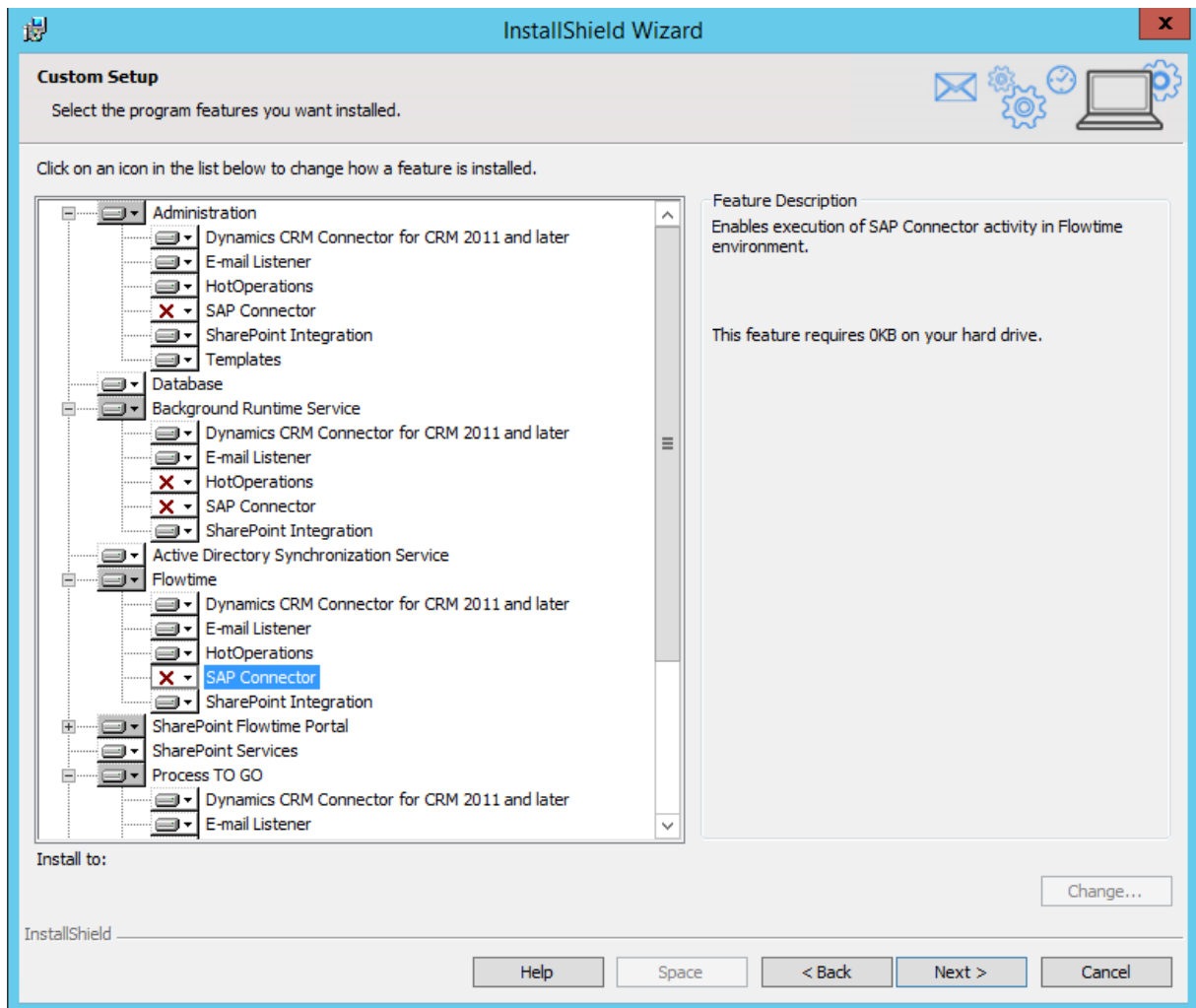
2. Click **Next** to continue. The End-User License Agreement screen opens.



End-User License Agreement

3. Select **I accept....**
4. Click **Next** to continue. The *Custom Setup* screen opens.

Choosing the Components to Install on this Server



InstallShield Wizard - Custom Setup

By default, the following components are selected and will be installed (to change a selection, click drop-down list beside each component):

- **Administration site:** On this site you will be able to create new workflows, define users and organization structure and much more.
- **Database:** Select this option to install a new Sequence database. If you are using a distributed topology, run the database installation separately on the Database server.

***Note:** If you cannot run the executable to configure the database, use the database scripts in the installation package. (See the section: 'Manually Installing Sequence Database with Scripts' below.)*

- **Background Runtime Windows Service:** This component is used for back office operations such as, e-mail sending, timer calculations, asynchronous redirect and more.
- **Active Directory Synchronization Service:** This component is used to synch Sequence organization structure with users from the domain Active directory.
- **Flowtime:** This component is the runtime end user portal, used to interact with the system to complete tasks, view processes and more.

- **SharePoint Service:** This component is used for integration with SharePoint, i.e. SharePoint Listener Activity.
- **Job Execution Service:** A service that manages Sequence jobs, such as Email Listener.

Select the following additional components (recommended):

- **Process^{TO GO}:** This is Sequence's Mobile BPM runtime environment (this component appears under each of the other components).

Components Features:

- **Dynamics CRM Connector:** This is Sequence CRM Edition (SCE)TM enabling BPM process integration with Microsoft Dynamics CRM. You can select the connector for CRM 4.0 or for CRM 2011 and later depending on your version of CRM.
- **E-mail Listener:** Enables you to kick off workflows when an email arrives in an inbox
- **HotOperations:** This is a new product (available from Sequence 8.0) and above, which provides enterprise-level real-time Work Allocation capabilities for operations centers. It adds new elements and features to both Administration and Flowtime sites.
- **SAP Connector:** This is Sequence SAProcessTM, enabling BPM process integration with SAP (this component appears under each of the other components).
- **SharePoint Integration:** Applicable where SharePoint actions are used within workflows. This enables SharePoint activities (such as upload file, create list item, etc.).
- **Templates:** Installs Sequence workflow templates and samples. These can be downloaded separately from the PNMSoft Knowledge Centre.

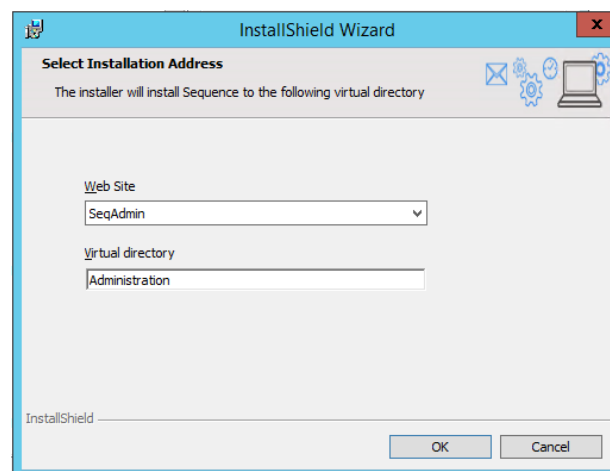
These additional components should be selected only if you have a license for them

Specifying the Component Installation Location

Each Sequence component can be configured for installation to your selected NTFS or IIS location as relevant.

Administration Site

5. Select **Administration Site** and click **Change**. The *Select Installation Address* screen opens.



Select Installation Address

6. From the drop-down list, select a **Web Site** other than the sites on which SharePoint is installed. It is recommended to install the Administration site on a dedicated web site.

See the section “Create a new web site for the Administration and Flowtime sites” on how to create a new web site for the Administration and Flowtime site.

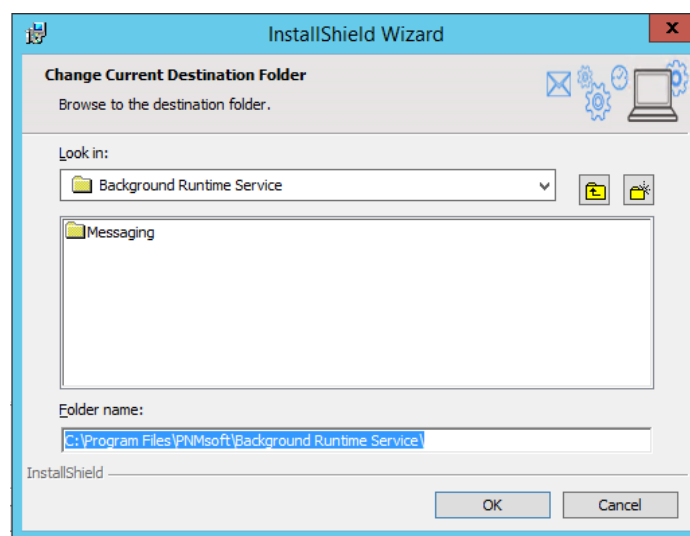
7. (Optional) change the virtual directory name to any selected name. We recommend not using spaces in the virtual directory name.
8. Click **OK**. You return to the *Custom Setup* screen.

Database

It is not applicable to change this component's location settings.

Background Runtime Windows Service

9. Select **Background Runtime Windows Service** and click **Change**. The *Change Current Destination Folder* screen opens.

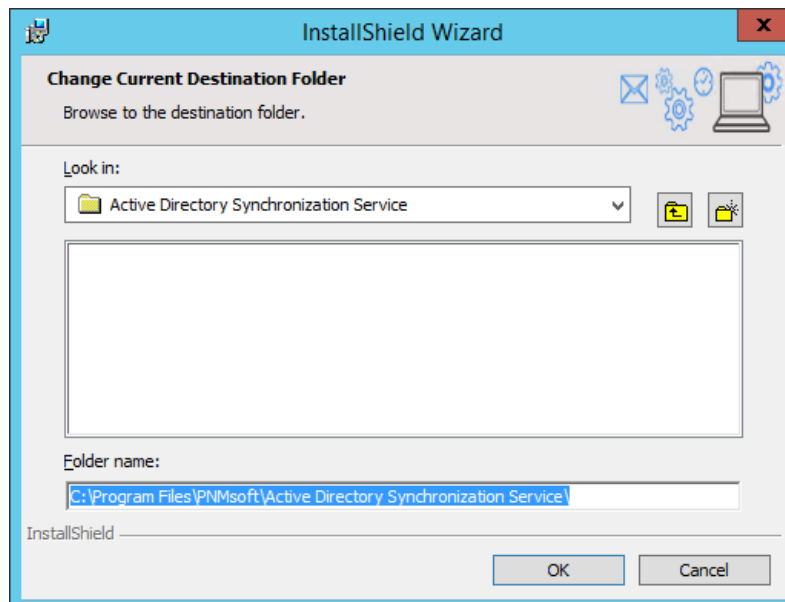


Change Current Destination Folder

10. Specify the NTFS location for the service installation folder (or you can leave the default location as is).
11. Click **OK**. You return to the *Custom Setup* screen.

Active Directory Synchronization Service

12. Select **Active Directory Synchronization Service** and click **Change**. The *Change Current Destination Folder* screen opens.

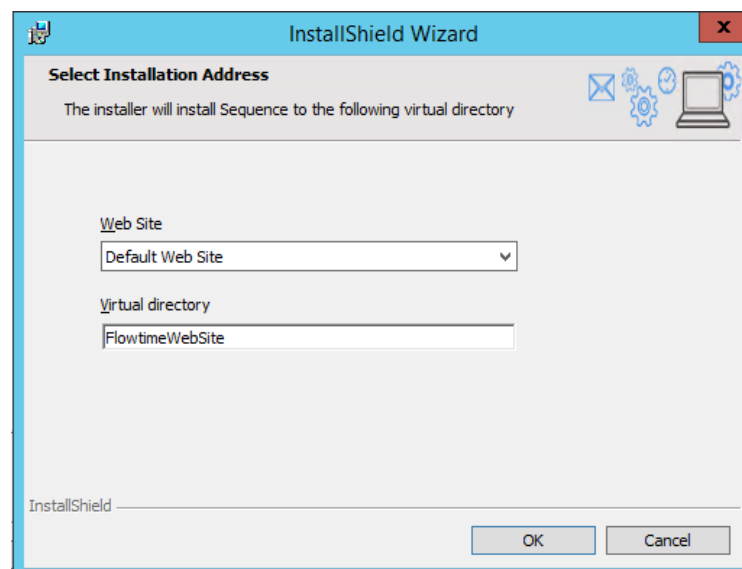


Change Destination Folder

13. Specify the NTFS location for the service installation folder (or you can leave the default location as is).
14. Click **OK**. You return to the *Custom Setup* screen.

Flowtime Website

15. Select **Flowtime Website** and click **Change**.



Create SharePoint Web Application

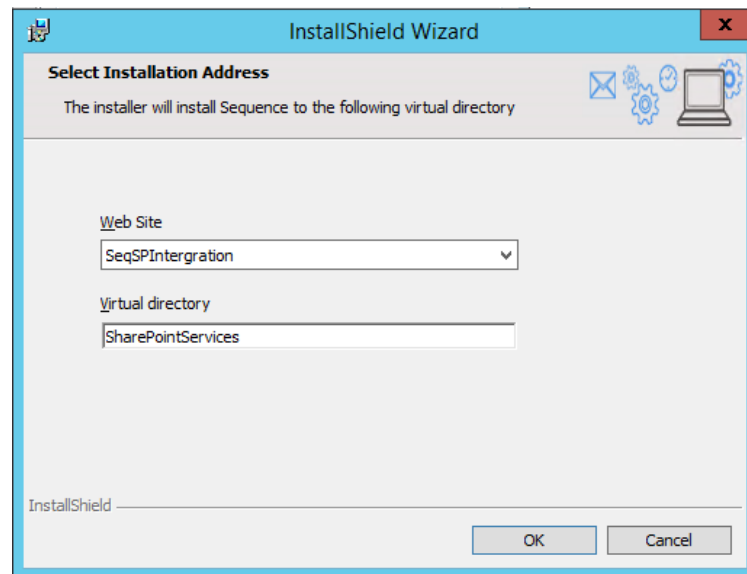
16. From the drop-down list, select a **Web Site** other than the sites on which SharePoint is installed. It is recommended to install the Administration site on a dedicated web site.

See the section “Create a new web site for the Administration and Flowtime sites” on how to create a new web site for the Administration and Flowtime site.

17. (Optional) change the virtual directory name to any selected name. We recommend not using spaces in the virtual directory name.
18. Click **OK**. You return to the *Custom Setup* screen.

SharePoint Services Site

19. Select **SharePoint Services** and click **Change**. The *Create SharePoint Web Application* screen opens.



SharePoint Installation Address

20. Select a web site which is different than the sites on which SharePoint is installed. It is recommended that you install the SharePoint Service under the same site in which the Administration site is configured.

Note: See section: “Create a new web site for the Administration and Flowtime sites” on how to create a new web site for the Management Console / Administration site).

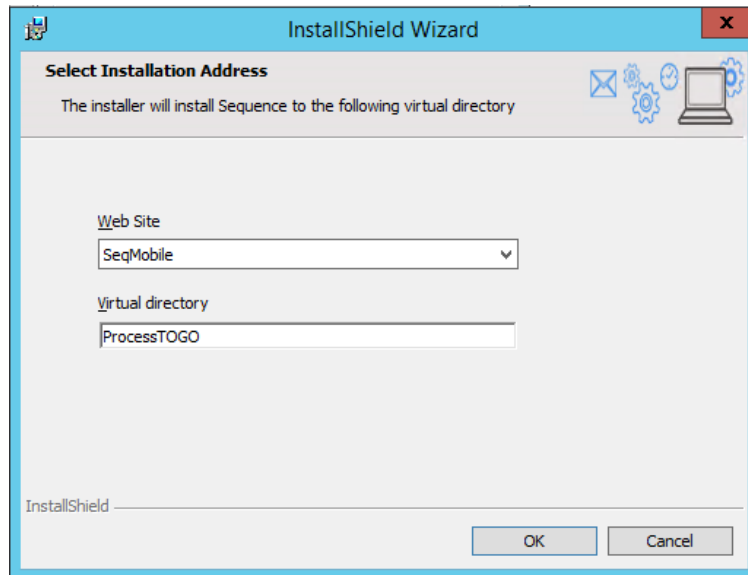
21. (Optional) Change the virtual directory name to the name of your choice.

Note: We recommend not using spaces in the virtual directory name.

22. Click **OK**. You return to the *Custom Setup* screen.

Process^{TO GO} (by subscription only)

23. Select **Process TOGO** and click **Change**. The *Select Installation Address* screen opens.



Process^{TO GO} Installation Address

24. Select a web site which is different than the sites on which SharePoint is installed. It is recommended that you install Process^{TO GO} under the same site in which the Administration site is configured.

Note: See section: “Create a new web site for the Administration and Flowtime sites” on how to create a new web site for the Management Console / Administration site).

25. (Optional) Change the virtual directory name to the name of your choice.

Note: We recommend not using spaces in the virtual directory name.

26. Click **OK**. You return to the *Custom Setup* screen.

27. Click **Next**. The *Database Server* screen opens.

Choosing Database Options

Choose the Server and Database Name

Database Server
Select database server and authentication method

Database server that you are installing to:
(local) Browse...

Connect using:
☐ Windows authentication credentials of current user
☒ Server authentication using the Login ID and password below

Login ID: sa
Password:

Name of database catalog:
Sequence Browse...

< Back Next > Cancel

Database Server

28. Enter the details of the SQL Database server, its authentication, and database catalog.
The name of the database catalog (by default Sequence) is the one that will be created or overwritten in SQL.

Notes:

For the duration of the installation the SQL Login ID user must be a member of the system administrators group.

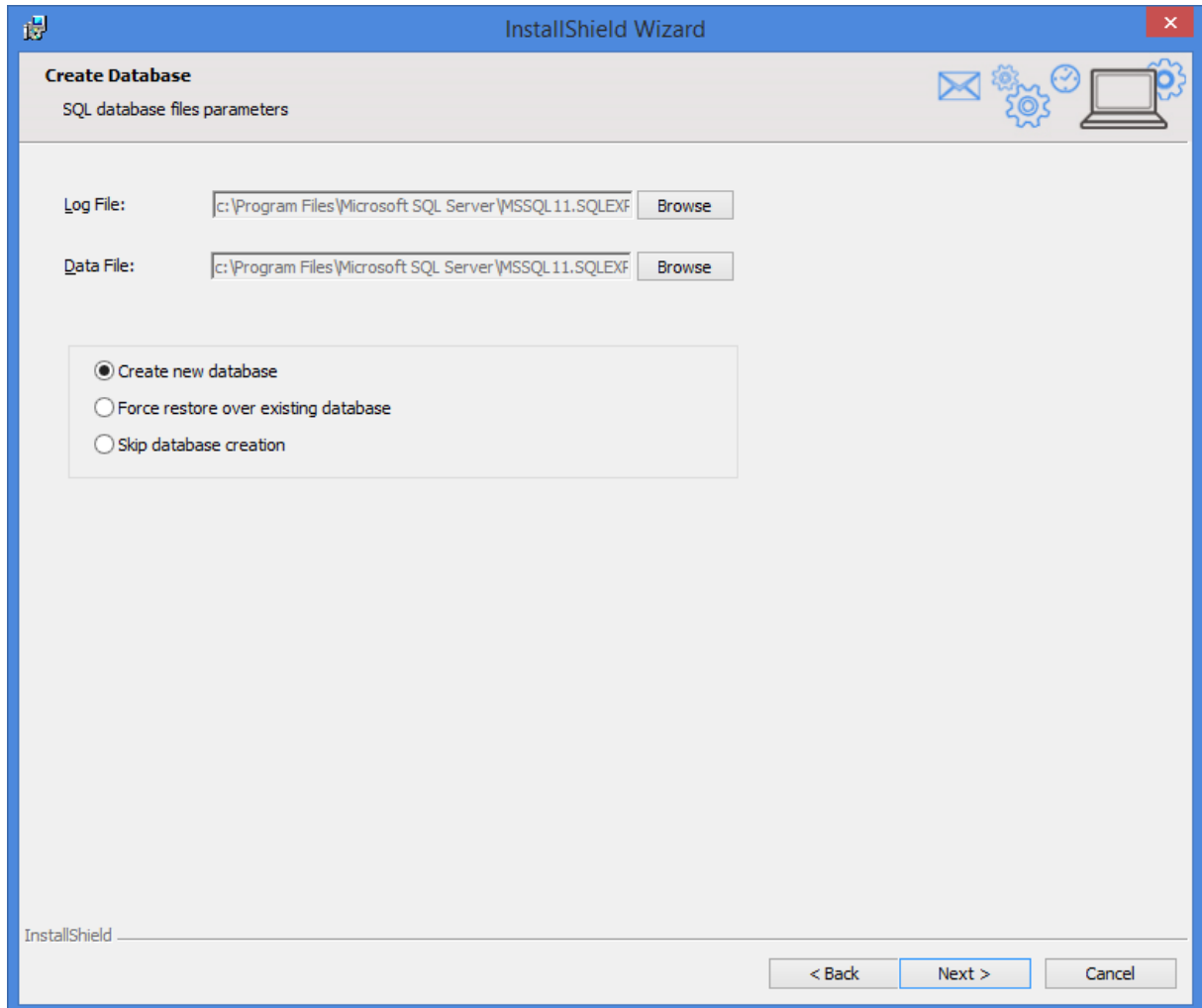
The authentication must be set to SQL authentication.

29. Click **Next**. The *Create Database* screen opens.

Define New / Existing Database and Choose Physical File Locations

In this step you define whether to create a new Sequence database, overwrite an existing Sequence database, or skip the database creation step.

The data and log files are placed in the default SQL data folder. You can choose a different location for one or both files.



Create Database

30. Use the supplied default SQL data folders or enter a different location for the **Log File** and/or **Data File**.

***Important Note:** In MS SQL the Sequence default folder path does not exist, therefore you should manually choose the file destination.*

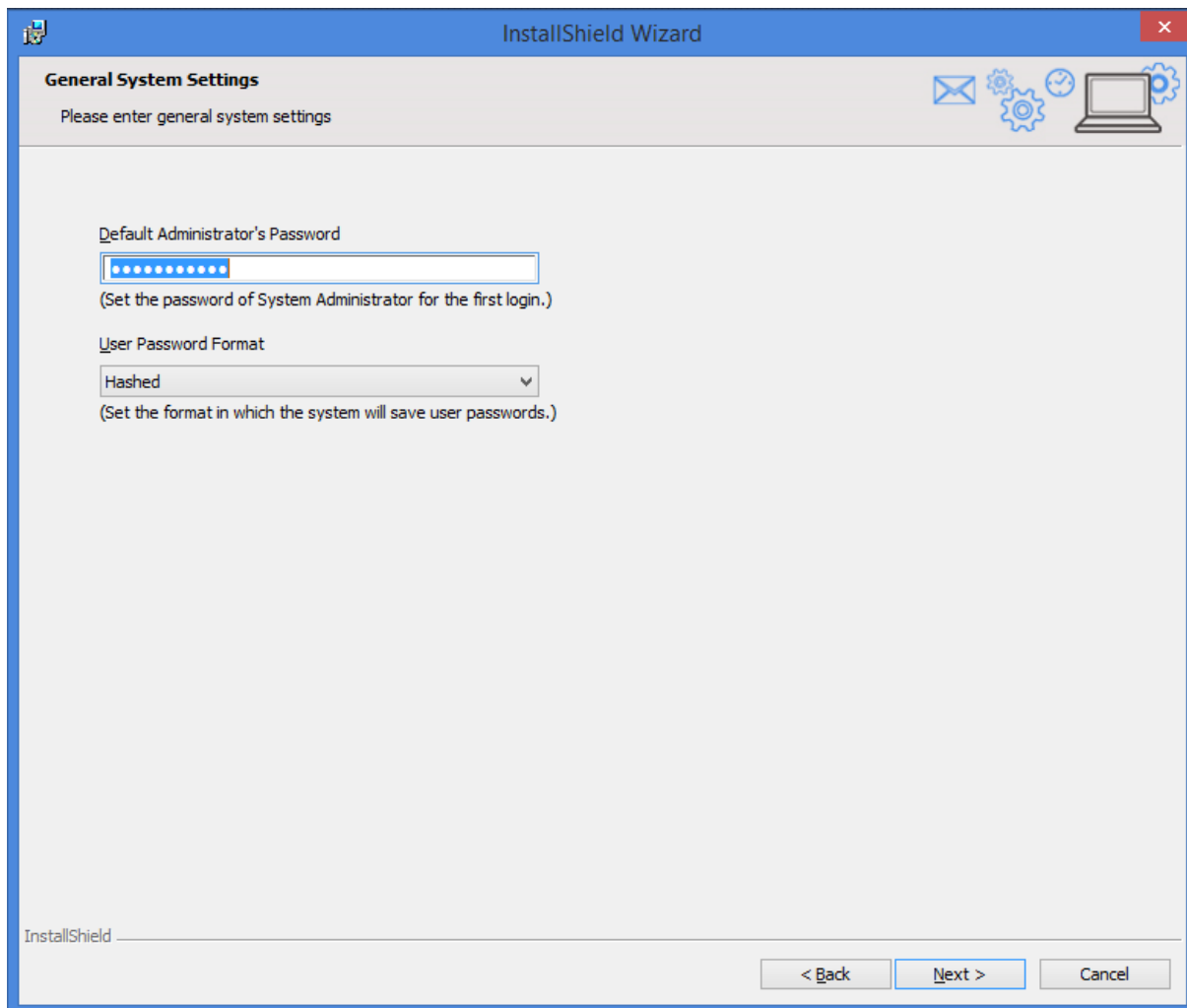
31. Select one of the following database creation options:

- Create new database
- Force restore over existing database
- Skip database creation

32. Click **Next**. The *Password Format* screen opens.

Password Format

In this step, you select in which format user passwords will be saved.



Select Password Format

33. Enter the default administrator password, make sure you enter a strong password which is combination of letters and numbers 8-10 Characters

Select the Password Format from the dropdown list. The following options are available:

- Clear – User passwords are saved in clear text
- Encrypted – User passwords are encrypted
- Hashed (most secure – recommended)

34. Click **Next**. The *Create Application Pool* screen opens.

Choosing Users

Choose the Sequence Application Pool User

Create Application Pool

Please configure account for the SequenceAppPool application pool. This application pool will be used in all the selected web applications.

Application pool identity

Select a security account for the application pool:

☐ Predefined Network Service

☒ Configurable

Username: HOTCHANGE\appadmin

Password: ••••••••

InstallShield

< Back Next > Cancel

Create Application Pool

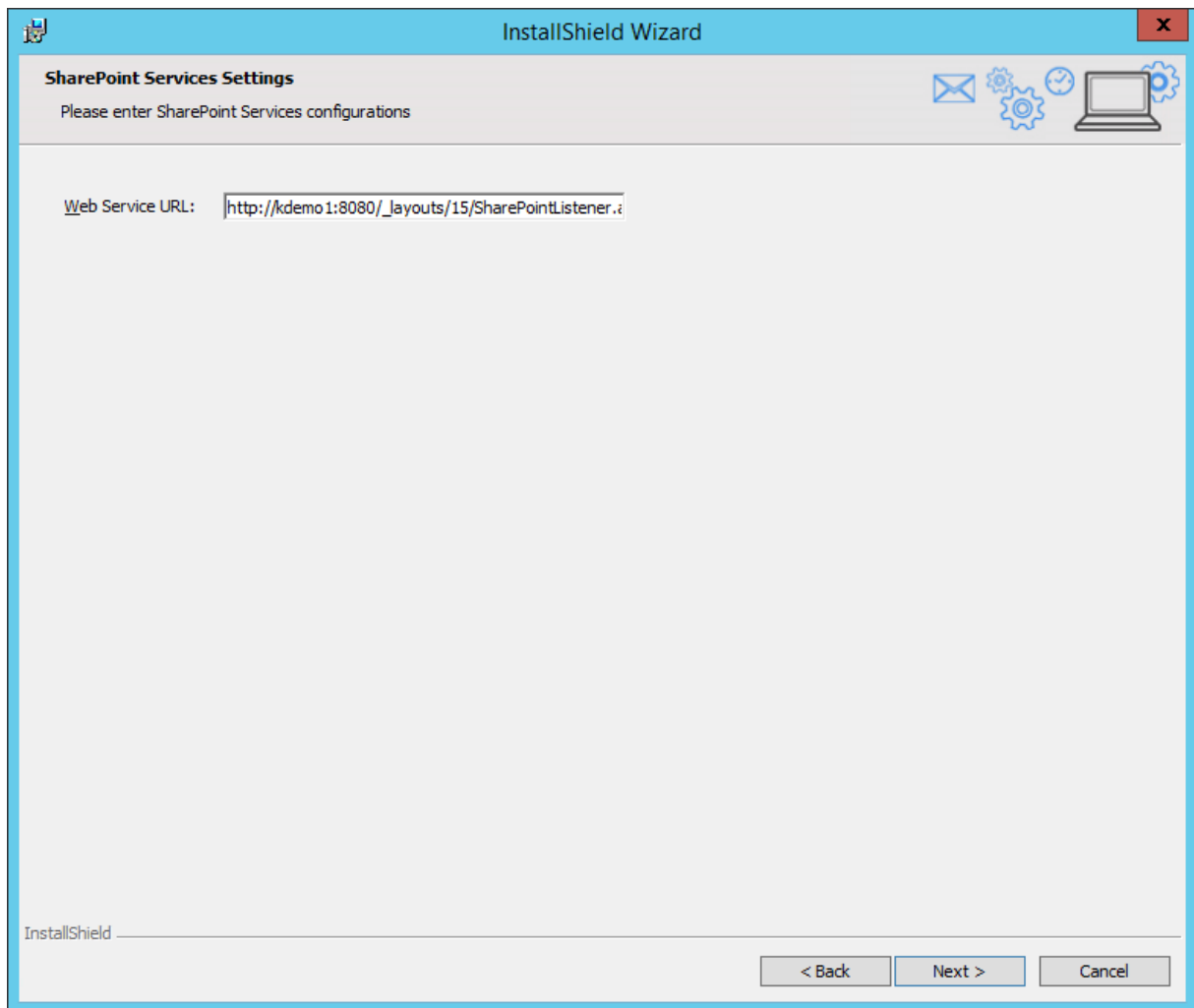
35. Select a security account for the application pool.

The user that runs the IIS application pool can be either a predefined user, or a configurable user of your choice.

Note: The user must be a member of the IIS_WPG group on the server and must be able to read the server's hardware configuration using Windows Management Instrumentation Commands. For more details, please see: [http://msdn.microsoft.com/en-us/library/aa394531\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/aa394531(VS.85).aspx)

36. Click **Next**. The *SharePoint Services Settings* screen opens.

SharePoint Services Settings



SharePoint Services Settings

37. Enter the **Web Service URL** to be used for Sequence SharePoint Listener activities. The port should be the same as the Flowtime port.

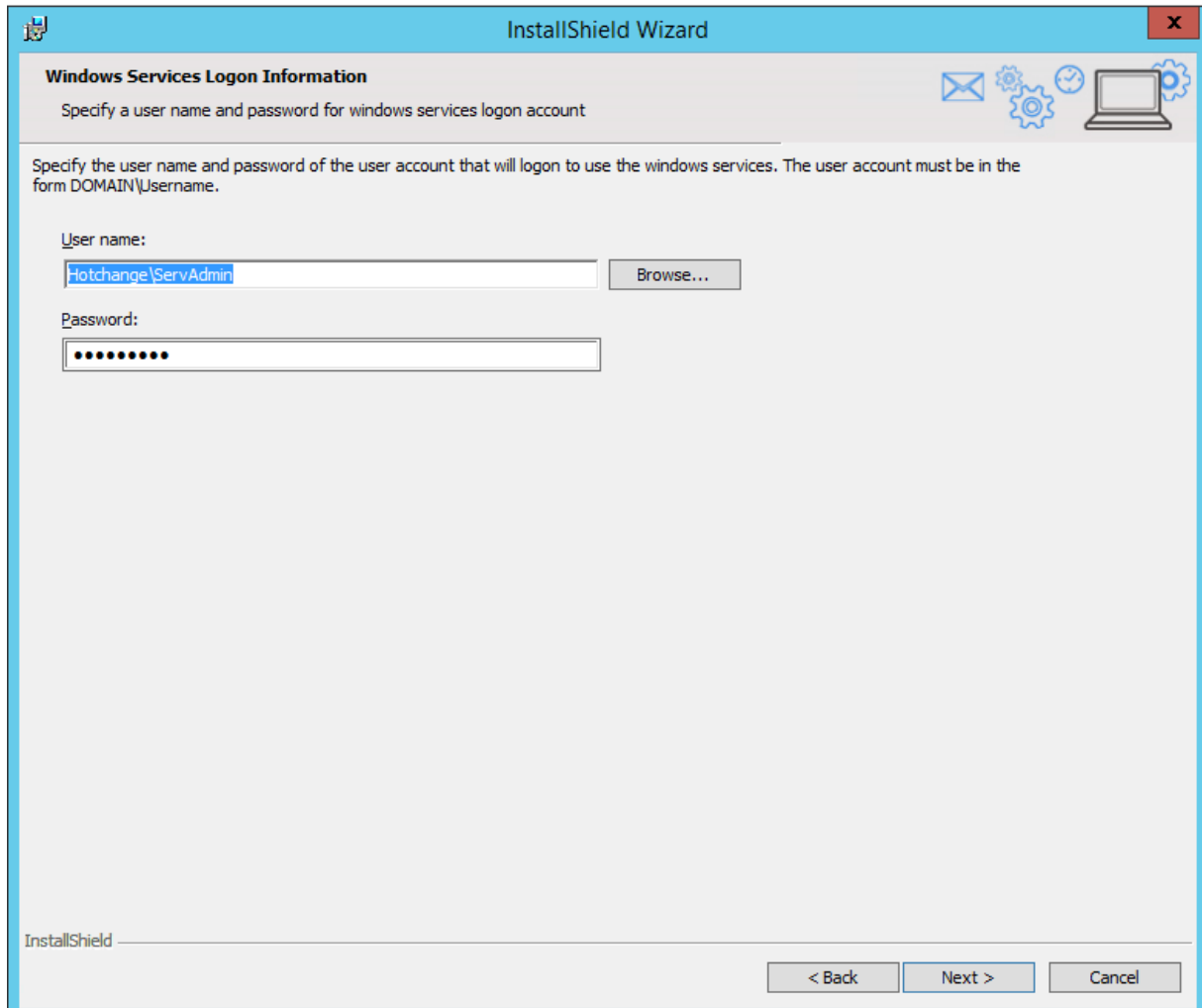
Note: it is not advisable to change the default URL unless you are an advanced Sequence user.

38. Click **Next**. The *Windows Service Logon Information* screen opens.

Choose the Windows Services User

39. Enter the username and password of the user account that will logon to use the windows services. The user account must be in the form DOMAIN\Username.

This account will be used in all Sequence Window services (BRS, JES, ADSS)



The screenshot shows the 'InstallShield Wizard' window with the title bar 'InstallShield Wizard' and a close button. The main heading is 'Windows Services Logon Information'. Below the heading is a sub-heading 'Specify a user name and password for windows services logon account'. A paragraph of instructions follows: 'Specify the user name and password of the user account that will logon to use the windows services. The user account must be in the form DOMAIN\Username.' There are two input fields: 'User name:' with the text 'Hotchange\ServAdmin' and a 'Browse...' button to its right, and 'Password:' with a masked password field (dots). At the bottom of the window are three buttons: '< Back', 'Next >', and 'Cancel'. The 'InstallShield' logo is in the bottom left corner.

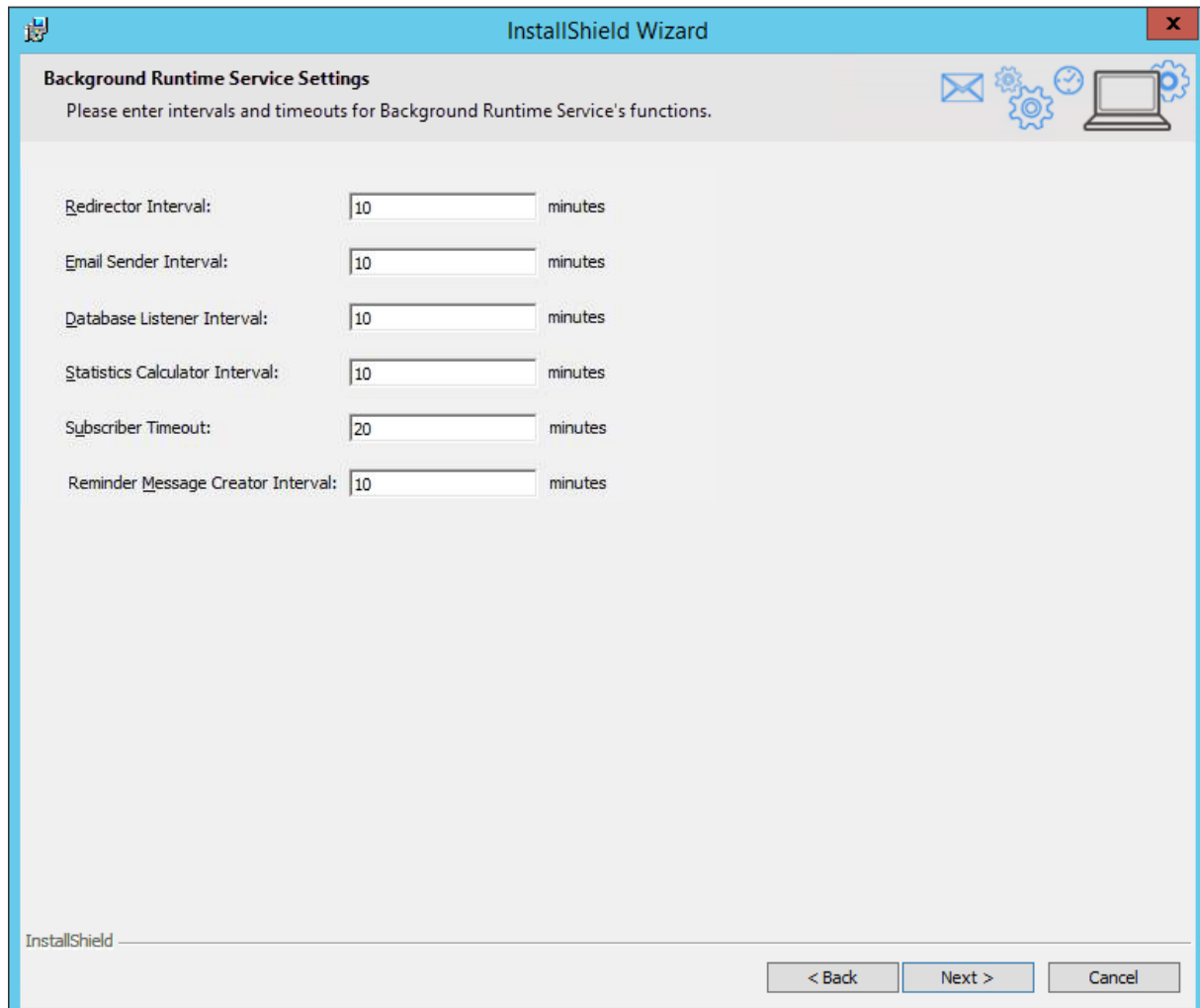
Windows Services Logon Information

***Note:** This user is the one that will be the creator of all workflows initiated by asynchronous events and must be a valid Sequence user and granted Read & Write access to the relevant workflows accordingly.*

40. Click **Next**. The *Background Runtime Windows Service Settings* screen opens.

Background Services Settings

Choose Background Runtime Windows Service Settings



The screenshot shows the 'InstallShield Wizard' window with the 'Background Runtime Service Settings' tab selected. The window title bar includes a close button (X). The settings are as follows:

Setting	Value	Unit
Redirector Interval:	10	minutes
Email Sender Interval:	10	minutes
Database Listener Interval:	10	minutes
Statistics Calculator Interval:	10	minutes
Subscriber Timeout:	20	minutes
Reminder Message Creator Interval:	10	minutes

At the bottom of the window, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted.

Background Runtime Windows Service Settings

41. Select the intervals and timeouts for the Background Runtime Windows Service's functions:

- **Redirector Interval:** The idle time between cycles of the workflow redirection thread. The time is measured from the completion of work to the beginning of the next cycle.
- **Email Sender Interval:** The idle time between cycles of the message and email sending thread.
- **Database Listener Interval:** The idle time between cycles of the database listener thread.
- **Statistics Calculator Interval:** The interval at which Sequence recalculates workflow statistics expressions and stores the results in the database.
- **Subscriber Timeout:** The interval at which the participating servers are sampled as OK when running the windows service load balanced.
- **Reminder Message Creator Interval:** The interval at which Sequence checks if there are reminder messages that need to be sent.

It is recommended to set to zero threads which will not be used.

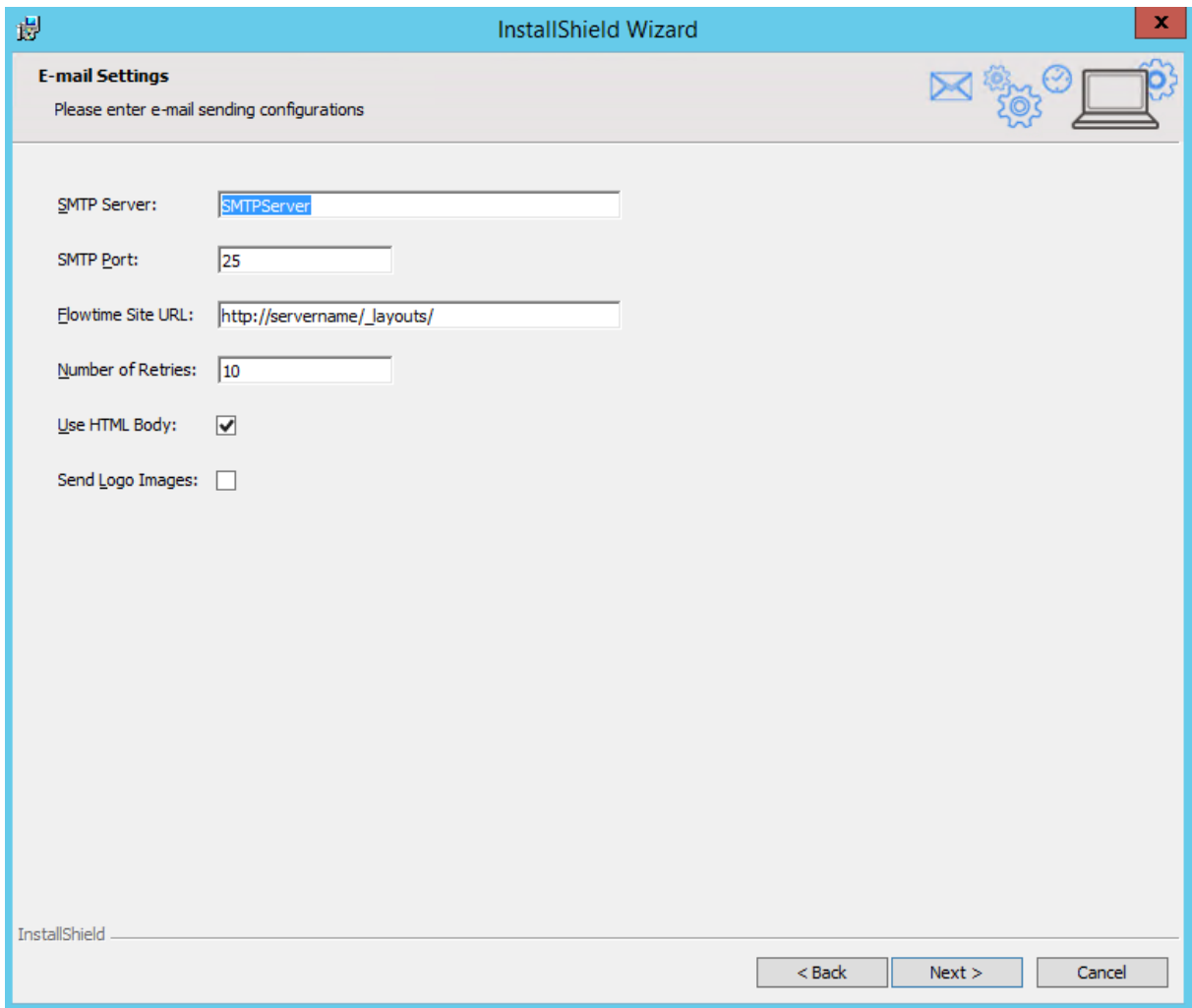
Notes:

The default settings are the recommended settings. The lower the value selected, the greater the load but the faster the response time.

A setting of zero disables the thread.

42. Click **Next**. The *Background Runtime Email Settings* screen opens.

Choose Background Service Email Settings



The screenshot shows the 'InstallShield Wizard' window with the 'E-mail Settings' tab selected. The window title is 'InstallShield Wizard'. The tab is labeled 'E-mail Settings' and has a subtitle 'Please enter e-mail sending configurations'. The settings are as follows:

- SMTP Server:
- SMTP Port:
- Flowtime Site URL:
- Number of Retries:
- Use HTML Body: ☒
- Send Logo Images: ☐

At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'. The 'Next >' button is highlighted.

E-mail Settings

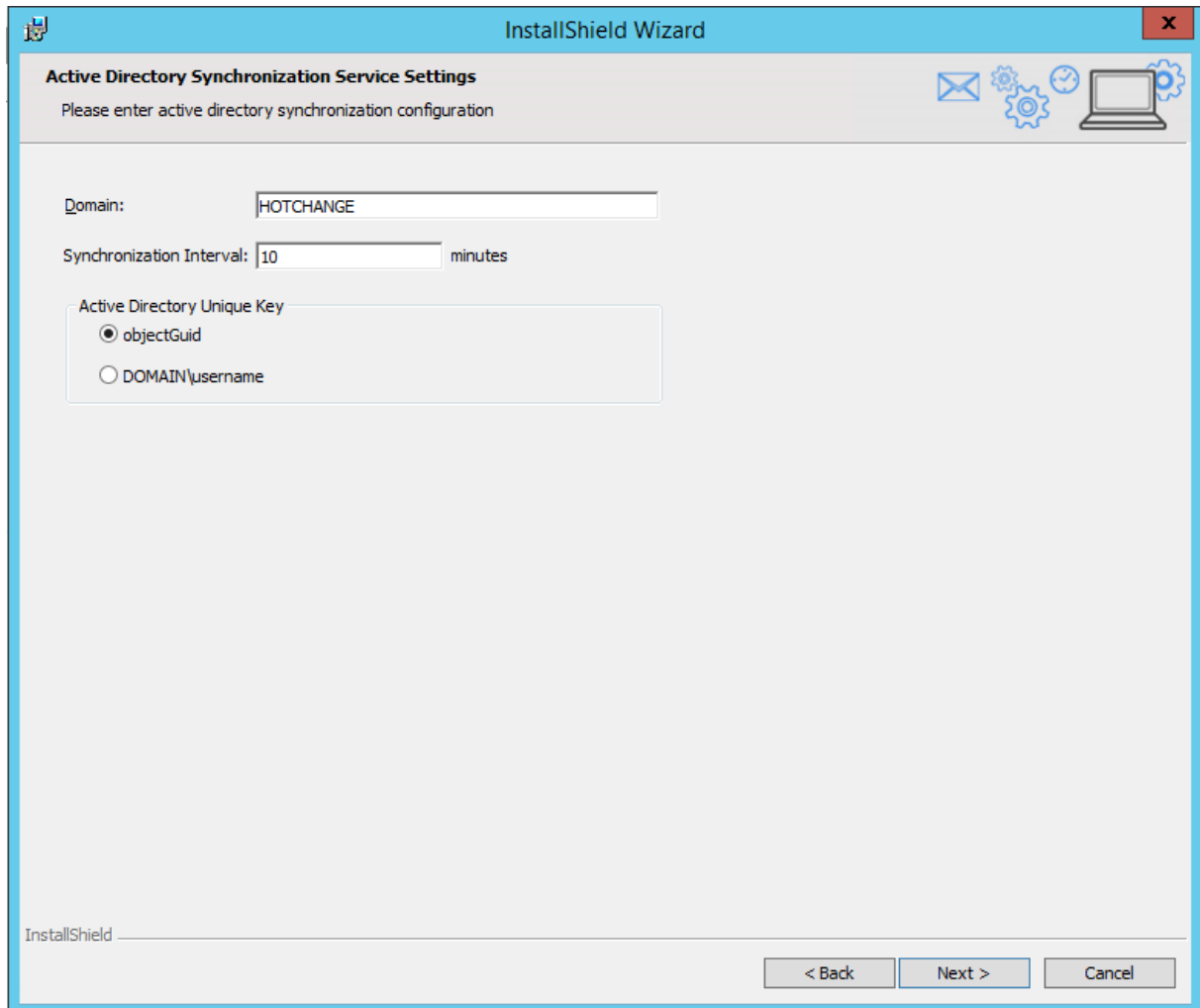
43. Select the email sending configuration options:

- **SMTP Server:** The name or IP of the SMTP server to which to direct outgoing messages.
- **SMTP Port:** The SMTP port number. The default SMTP port is 25. Change the value only if your SMTP is configured to a different port.
- **Flowtime Site URL:** The URL to be used as the base for return links in outgoing messages.
- **Number of Retries:** The number of rejects to allow from the SMTP server before ceasing to send emails to a specific user.

- **Use HTML Body:** Allow HTML in message body.
- **Send Logo Images:** Send images in outgoing messages.

44. Click **Next**. The *Active Directory Synchronization Service Settings* screen opens.

Choose Active Directory Service Settings



The screenshot shows the 'Active Directory Synchronization Service Settings' window within the 'InstallShield Wizard'. The window has a title bar with the wizard icon, the text 'InstallShield Wizard', and a close button. Below the title bar is a header area with the title 'Active Directory Synchronization Service Settings' and a subtitle 'Please enter active directory synchronization configuration'. To the right of the subtitle are icons for email, settings, a clock, and a laptop. The main area contains the following fields and options:

- Domain:** A text box containing 'HOTCHANGE'.
- Synchronization Interval:** A text box containing '10' followed by the label 'minutes'.
- Active Directory Unique Key:** A group box containing two radio buttons:
 - ☒ objectGuid
 - ☐ DOMAIN\username

At the bottom of the window, there is a status bar with the text 'InstallShield' and three buttons: '< Back', 'Next >', and 'Cancel'.

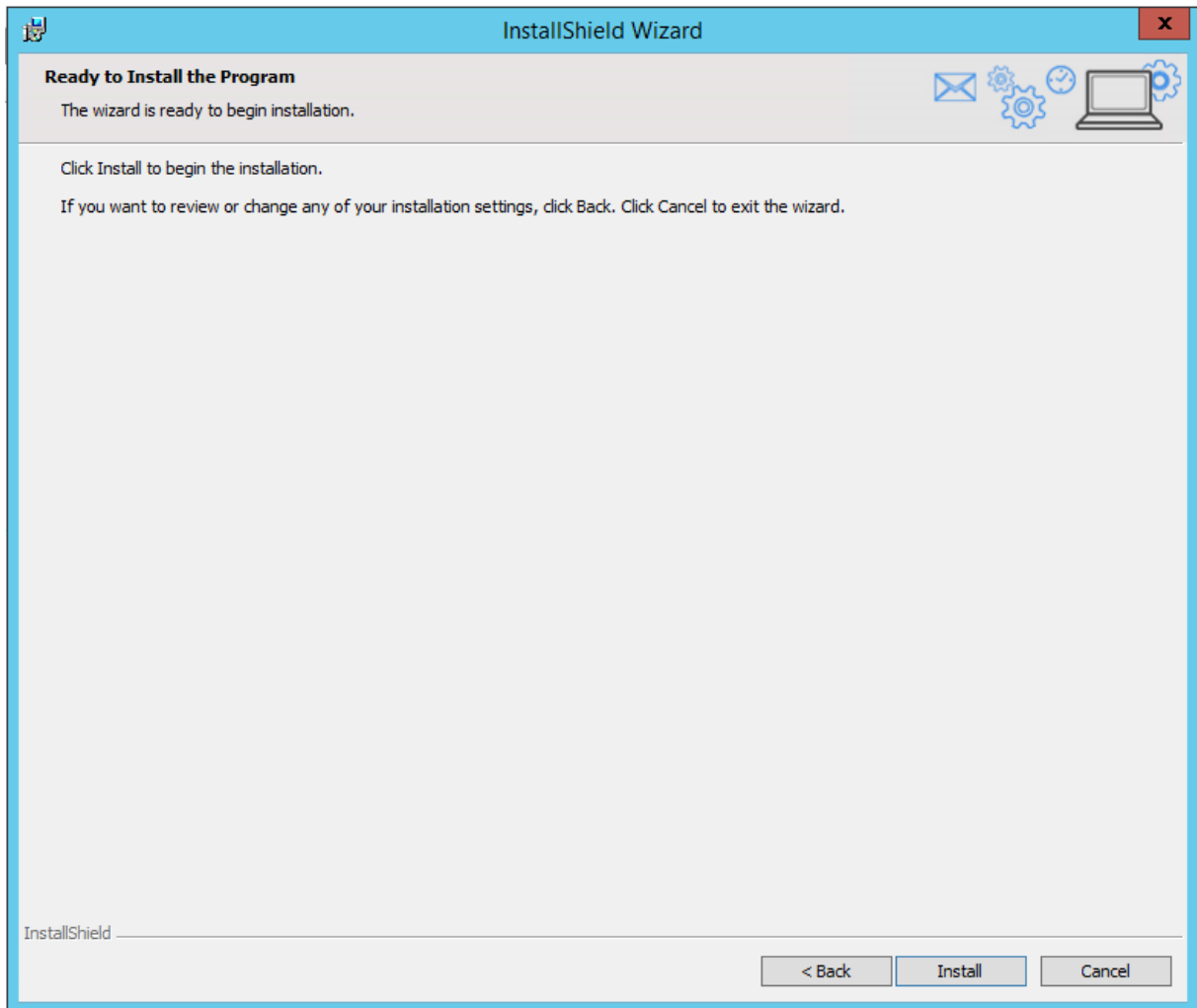
Active Directory Synchronization Service Settings

45. Enter the active directory synchronization configuration:

- **Domain:** Should be your Domain.
- **Synchronization Key:** Should be your Domain Controller.
- **Synchronization Interval:** A higher value is recommended, e.g. 1440 (once per day).
- **Active Directory Unique Key:** the comparison key for importing users from Active Directory to the Sequence.

46. Click **Next**. The *Ready to Install the Program* screen opens.

Ready to Install Sequence

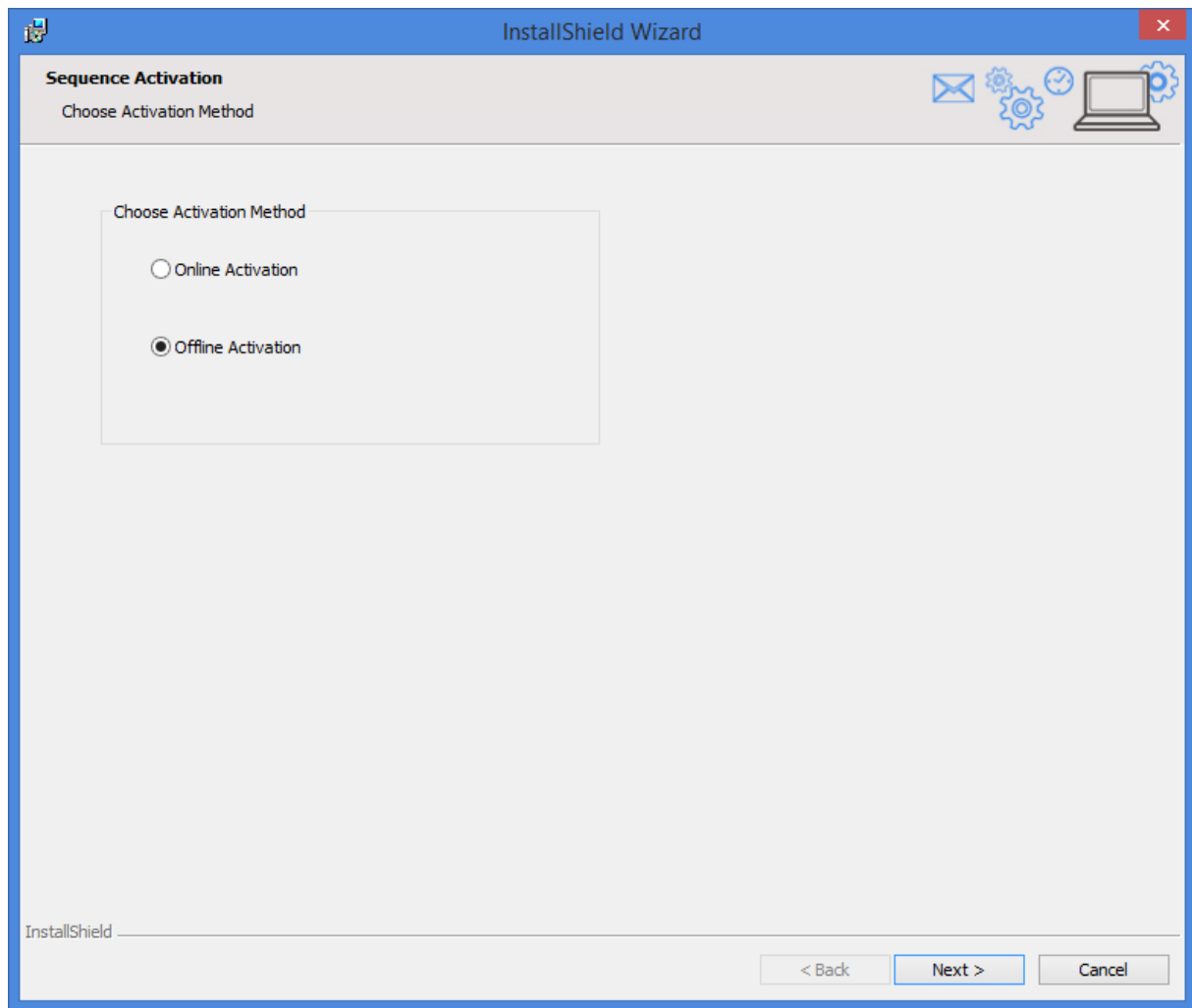


Ready to Install the Program

47. Click **Install**. The installation begins. It may take several minutes.

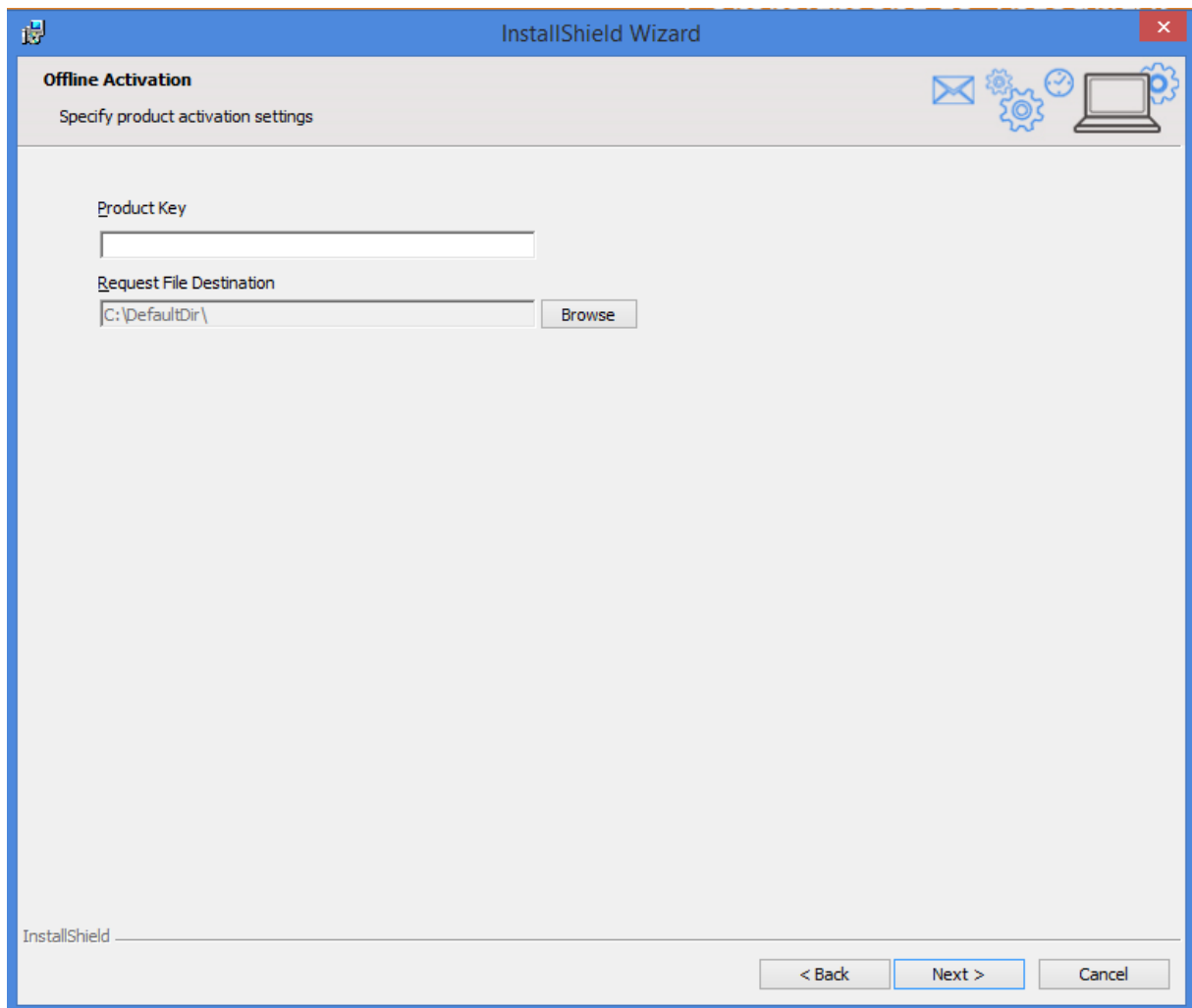
Licensing

Towards the end of the installation, you will be prompted to choose an activation method.



Sequence Activation Method

48. Select **Offline Activation** and click **Next**. The *Product Key* screen opens.

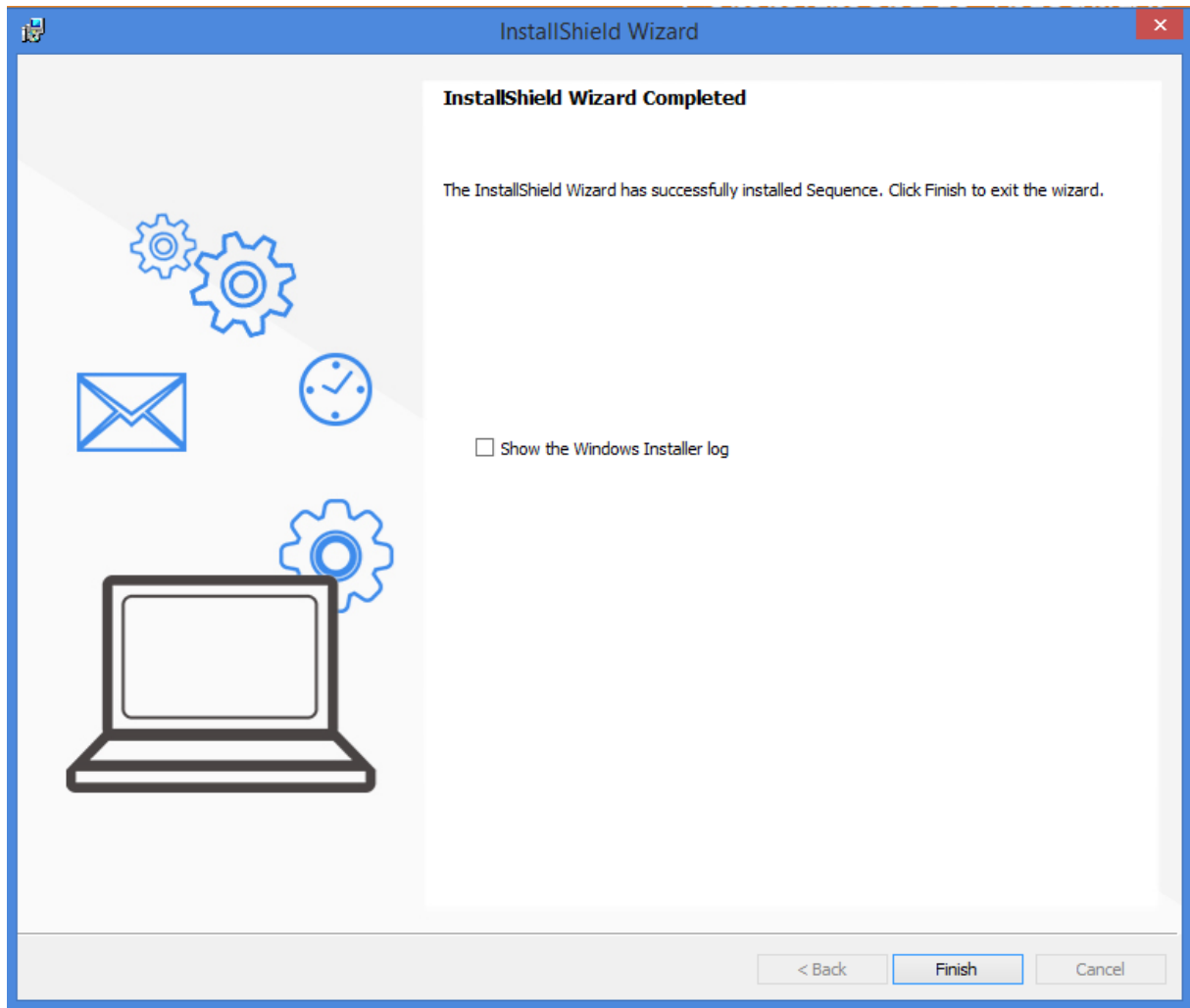


Product Key

49. Enter your **Product Key** as supplied with your Sequence product (request it from your account manager). To retrieve a missing Product Key, please contact PNMsoft Support (support@pnmsoft.com).
50. Click **Browse** to select the XML license request file destination on your hard disk.

***Note:** As this file represents the Sequence server's hardware configuration for the license, it is recommended to save a copy of it.*

51. Click **Next**. The *Installation Complete* screen appears.



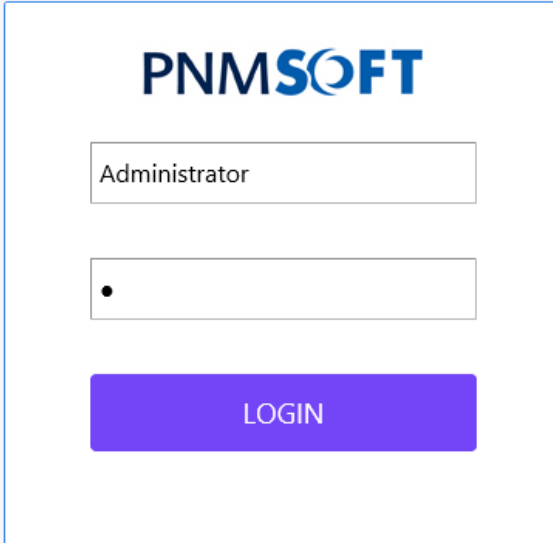
Installation Complete

52. Click **Finish**. The Installation is complete.
53. Upload the license request file (from step 50.) to the PNMsoft Activation Site at <http://licensing.pnmsoft.com/>. The site provides you with a license file.
54. Download the license file and place it in *C:\Program Files\PNMsoft\Licensing\Data* on all the Sequence servers.

Post Installation Tasks

Logging in to the Administration Site

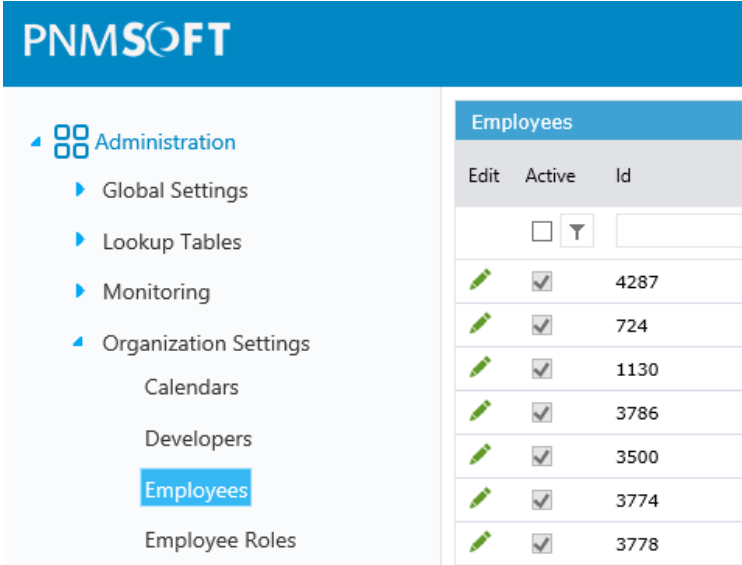
1. Browse to the default Administration url:
http://<yourservername>:<youradminport>/administration
(The system default port is 8090.)
2. Login with the default credentials:
Username: Administrator
Password: [The password you have provided during setup]



The image shows a login form for PNMSOFT. At the top is the PNMSOFT logo. Below it are two input fields: the first contains the text 'Administrator' and the second contains a single dot, representing a password. Below these fields is a blue button with the text 'LOGIN' in white capital letters.

Logging in to Administration Site

3. Select **Administration > Organization Settings > Employees**.



The image shows the PNMSOFT Administration interface. On the left is a navigation menu with the following items: Administration (expanded), Global Settings, Lookup Tables, Monitoring, Organization Settings (expanded), Calendars, Developers, Employees (highlighted), and Employee Roles. On the right is the 'Employees' table. The table has columns for Edit, Active, and Id. There are 7 rows of data, each with a green pencil icon in the Edit column, a checked checkbox in the Active column, and an Id value.

Edit	Active	Id
	<input checked="" type="checkbox"/>	4287
	<input checked="" type="checkbox"/>	724
	<input checked="" type="checkbox"/>	1130
	<input checked="" type="checkbox"/>	3786
	<input checked="" type="checkbox"/>	3500
	<input checked="" type="checkbox"/>	3774
	<input checked="" type="checkbox"/>	3778

Organization Tables > Employees

- From the Employee Table, open the System Administrator user.

Edit Employee Details

Administration

- Global Settings
- Lookup Tables
- Monitoring
- Organization Settings
 - Calendars
 - Developers
 - Employees**
 - Employee Roles
- Solutions
- Workflows
 - All Workflows

First Name
System *

Last Name
Administrator *

Title
Manager

Domain
Domain

Time Zone
(UTC+02:00) Jerusalem

☒ Active

E-mail

Calendar
General

Interface Language
English (UK)

User Name
administrator *

Password
[Change Password](#)

☒ Global Administrator

System Administrator User

- In the Domain field, enter your user's Domain.
Note: If the server is not a member of a domain, substitute the server name.
- In the User Name field, enter your user name.
- Click **Update**.
- Logout from the Administration site.
- Test by logging in to <http://<yourservername>:8090/administration>. You should be logged to the Administration site directly without any authentication prompts.

Logging in to the Flowtime Site

- Go to the default url for the Flowtime Site:
<http://<yourservername>:<yourflowtimeport>/Flowtime>
- Assuming that you logged into the Administration site successfully (in the steps above), you should be logged in directly without any authentication prompts.

The screenshot displays the PNMSOFT Flowtime web application. At the top, there's a navigation bar with 'FLOWTIME', 'PROCESSES LIST', 'DELEGATIONS', and 'HOT OPERATIONS'. Below this, a dashboard shows key metrics: 'NEW PROCESS', '376 INBOX ITEMS', '0 TASKS DUE TODAY', '376 OVERDUE TASKS', and '28 PROCESSES I STARTED'. The main content area is divided into two sections: 'INBOX: MY OPEN MESSAGES' and 'MY OPEN PROCESSES'. Both sections contain tables with columns for user, workflow name, subject, received date, and stage. The inbox table lists five messages, and the processes table lists five items. Both tables include pagination controls at the bottom.

Flowtime Site

Enable the SQL Service Broker

The Sequence installation process creates a new service broker. If it does not, follow these steps to enable SQL notification on the server:

To enable the New Service Broker:

1. On the **Start** menu, click **All Programs**, select **Microsoft SQL Server**, and then click **SQL Server Management Studio**.
2. Select the relevant server and click **Connect**.
3. Open a new query window.
4. Type the following command and then click Run:

```
ALTER DATABASE [Sequence] SET NEW_BROKER WITH ROLLBACK IMMEDIATE
```

Note: If you did not name your database Sequence, please replace the [Sequence] database name in the square brackets.

Demote SQL User

Once the installation is complete, demote the SQL user from being a system administrator. But make sure it has db_owner on the Sequence database.

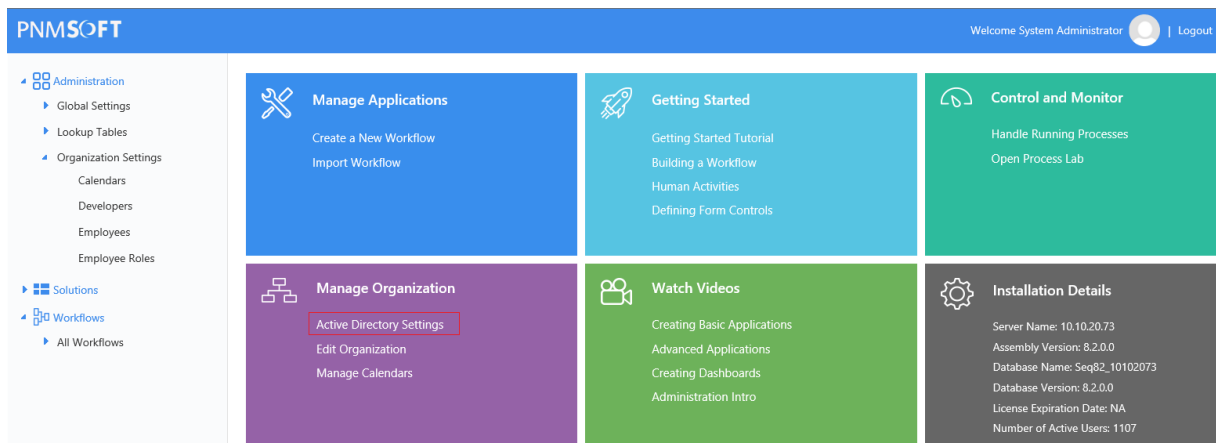
(Optional) Active Directory Service

Notes:

For assistance with this step, please contact PNMsoft Support.

Active Directory updates are one-way only: Active Directory updates the Sequence Database, but Sequence cannot update the Active Directory.

1. Open the Administration and select **Active Directory Settings**.



Sequence Administration

The *Active Directory Connection Settings* page opens.

Active Directory Connection Settings

Domain	Credentials		
QA	Use Default Credentials		
LDAP Path	Filter		
QA	((objectClass=Domain)(objectClass=user)(objectClass=OrganizationalUnit)(objectClass=Group)(!(name=Domain Controllers)))		
+ Add new filter			
+ Add new domain			

Next
Close

Active Directory Connection Settings

2. Edit the settings to match your LDAP and server configuration, editing the default LDAP query as needed. See the [Active Directory guide](#) for more details.
3. Open the server's services list. Verify that the service Active Directory Synchronization service is *Started*.
4. Restart the service.
5. After a few minutes, check that new users were added to the Sequence Database. Open the Management Console, right-click on the organization structure, and select **Edit**.

Adding the Windows Service User to the Employees Table

This step is necessary to enable BRS functionality (such as automatic link redirections and sending emails from Sequence).

If the Windows service user is synchronized from the Active Directory (meaning, it is already in the Employees table), then you may skip this step.

Otherwise it is necessary to add this user manually as follows:

1. Browse to the default Administration URL.
2. Select **Administration > Organization Settings > Employees**.
3. Click **Add new record**.
4. Enter the Windows service details as in the example below:

Add Employee

<p>First Name</p> <input type="text" value="sequence_svc"/> * <p>Last Name</p> <input type="text" value="BRS user"/> * <p>Title</p> <input type="text" value="Employee"/> <p>Domain</p> <input type="text" value="mydomain"/> <p>Time Zone</p> <input type="text" value="Default Time Zone"/> <p><input checked="" type="checkbox"/> Active</p>	<p>E-mail</p> <input type="text"/> <p>Calendar</p> <input type="text" value="General"/> <p>Interface Language</p> <input type="text" value="English (UK)"/> <p>User Name</p> <input type="text" value="sequence_svc"/> X * <p>Password</p> <input type="text"/> <p>Confirm Password</p> <input type="text"/> <p><input type="checkbox"/> Global Administrator</p>
---	--

Add Record Screen

5. Click **Add**.

(Optional) SharePoint Services Configuration

1. Open the *Workflow Editor*.
2. Add a SharePoint Listener Activity.
3. Enter a List's details, and verify GUIDs are retrieved from SharePoint.

4. Set workflow permissions.
5. Instantiate the defined event in the SharePoint Site utilizing a user who has permissions to the workflow.
6. Verify that a new instance was created.
7. The Administration configuration file section should look as follows:

```
<activities>
  <sharepoint>
    <sharepoint2007>
      <webservicepath>
        <add path="http://[servername + port]/SharePointService/ws/asmx">
        </add>
      </webservicepath>
    </sharepoint2007>
  </sharepoint>
</activities>
```

(Optional) SAP License

To enable Sequence SAP integration, obtain the SAP serial number from PNMsoft Support, and insert this serial number into the Flowtime and Administration config files, in the SAP key:

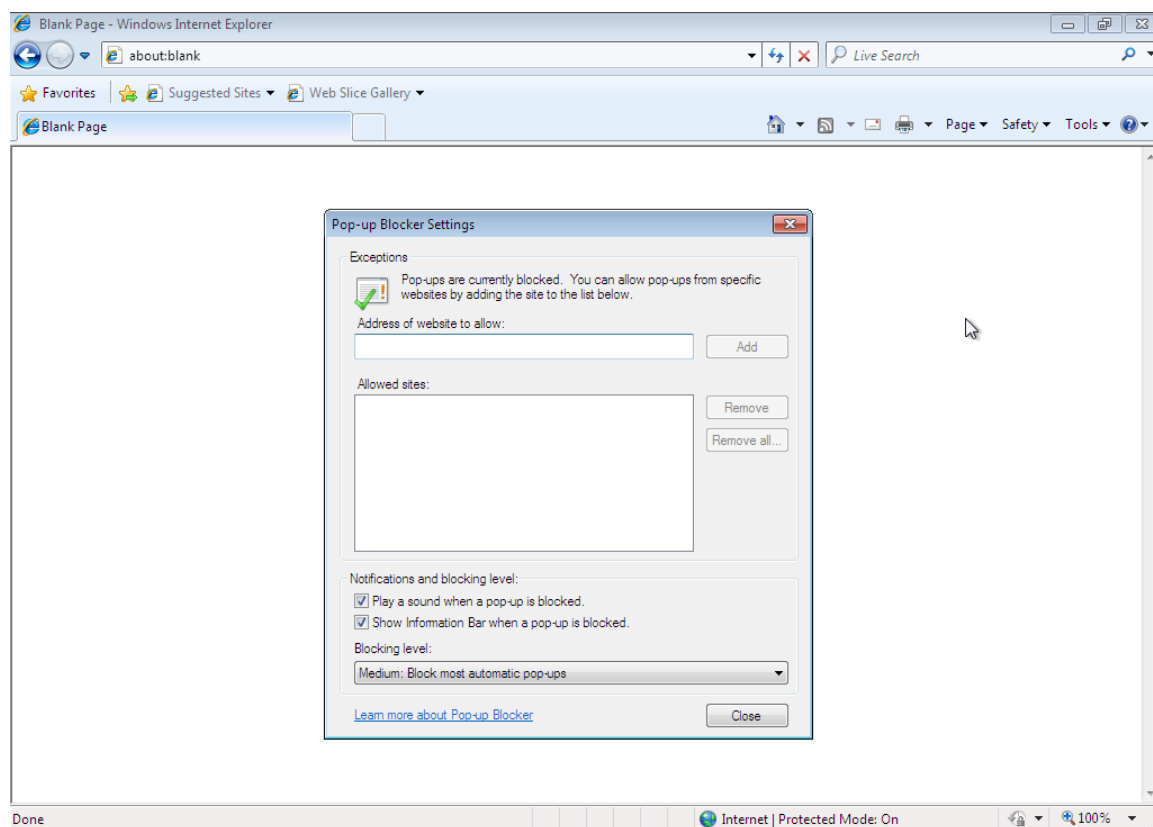
```
<dependentAssembly>
  <assemblyIdentity name="PNMsoft.Sequence.SAPConnector"
publicKeyToken="[enter the SAP serial number here]"/>
  <bindingRedirect oldVersion="5.5.0.0-7.0.0.0" newVersion="7.0.0.0"/>
</dependentAssembly>
```

Enabling Pop-ups on Sequence Clients

Sequence Developers access Sequence Administration from their machines. Enable pop-ups from Sequence on client machines to facilitate Sequence functionality as follows:

To add Sequence to the Pop-up Blocker Exceptions List:

1. From the client's browser, select **Tools > Pop-up Blocker > Pop-up Blocker Settings**.
2. Add Sequence to the list of websites from which pop-ups are allowed.

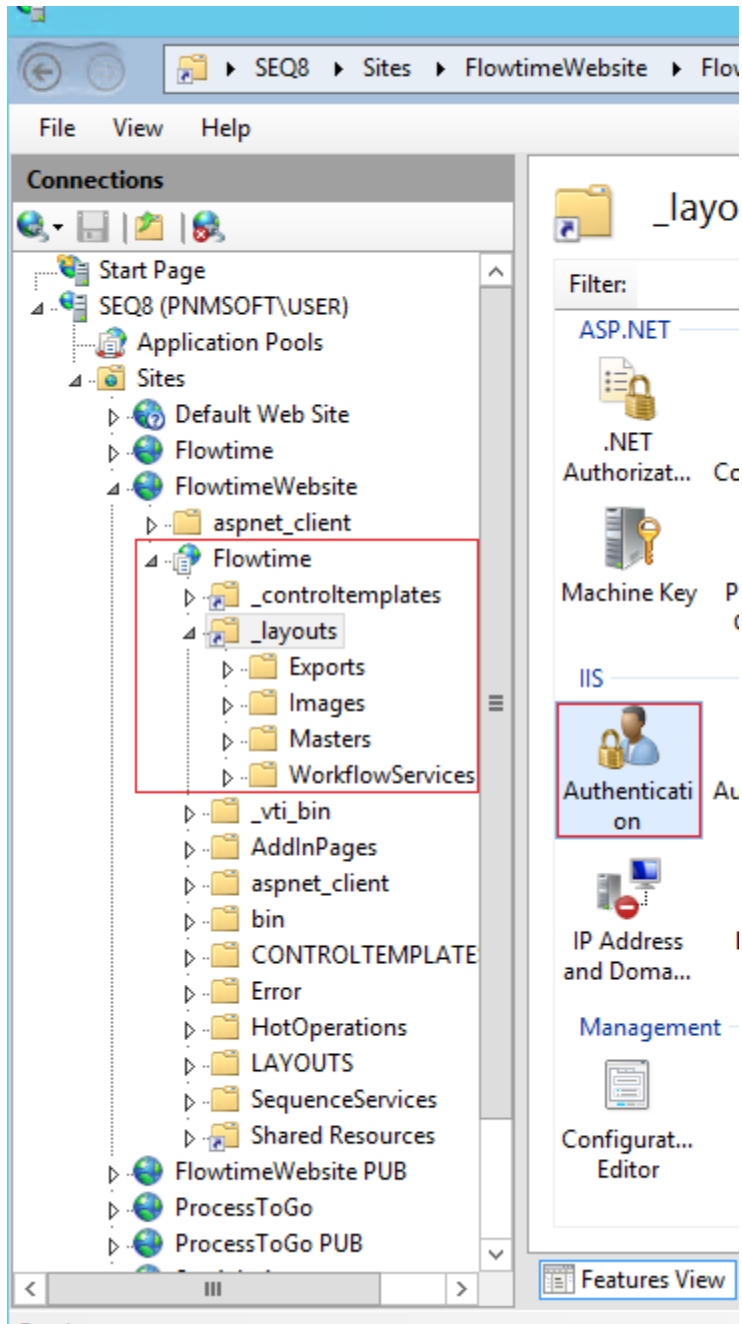


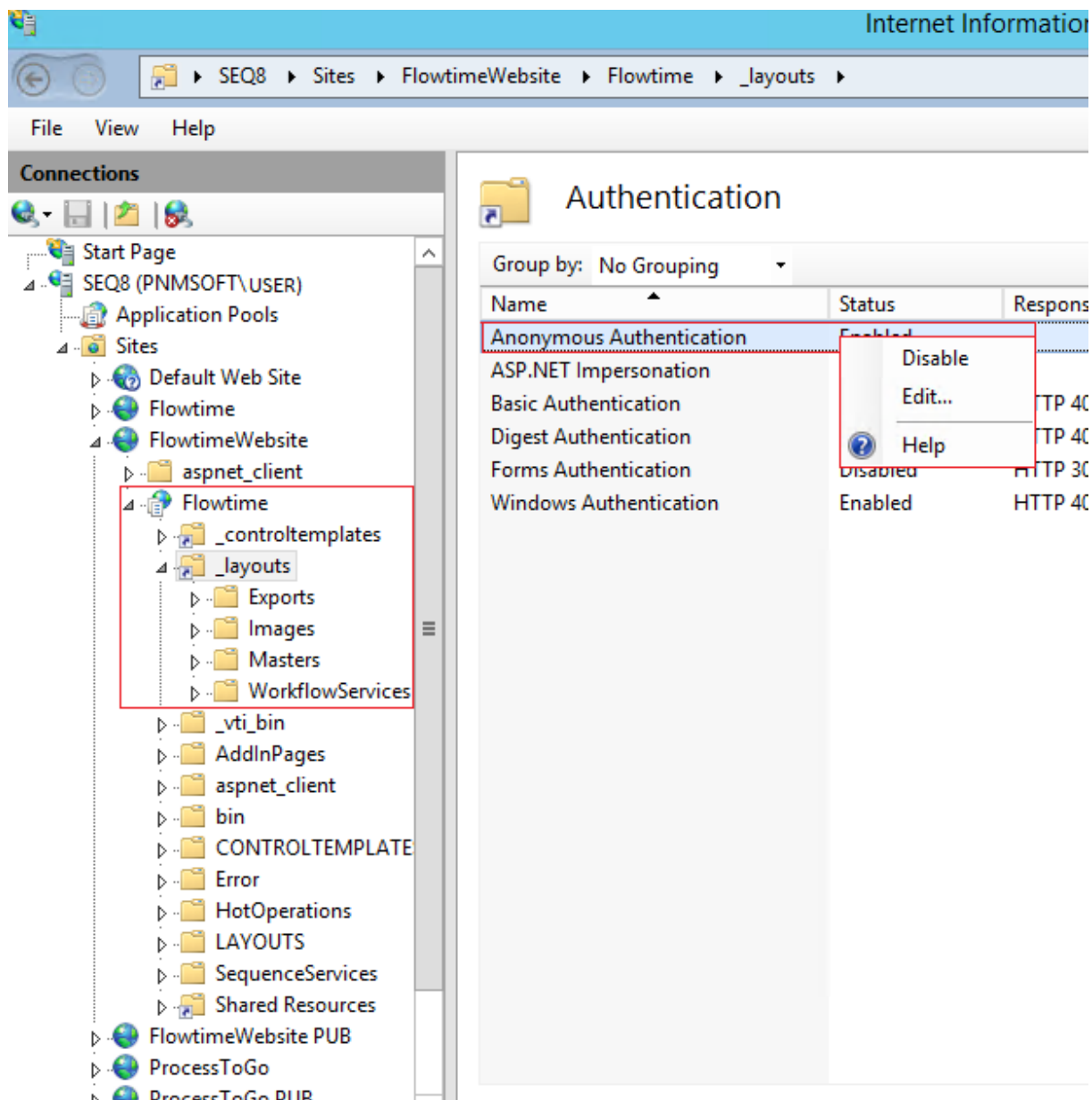
Pop-Up Blocker Settings

Disable Anonymous Authentication

By default, anonymous authentication is enabled on the */_layouts* virtual folder so that a user can browse to a Flowtime page. This can cause authentication issues when Sequence cannot authenticate the user:

To disable anonymous authentication on the */_layouts* virtual folder:





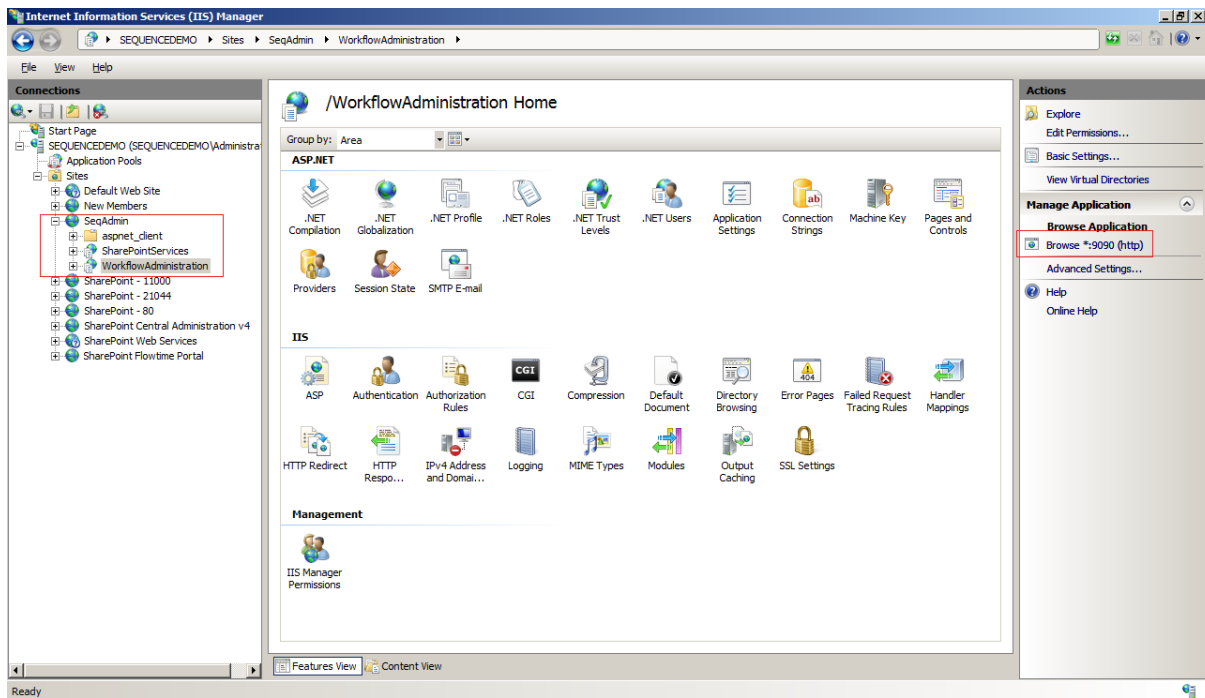
Installation Tests

Perform the following sanity tests to ensure all sites and applications are installed and active.

Sequence Administration Site

These steps should be performed from a client machine, and not directly on the Sequence server.

You can retrieve the URL of the Sequence Administration site from the IIS Manager as displayed in the figure below.



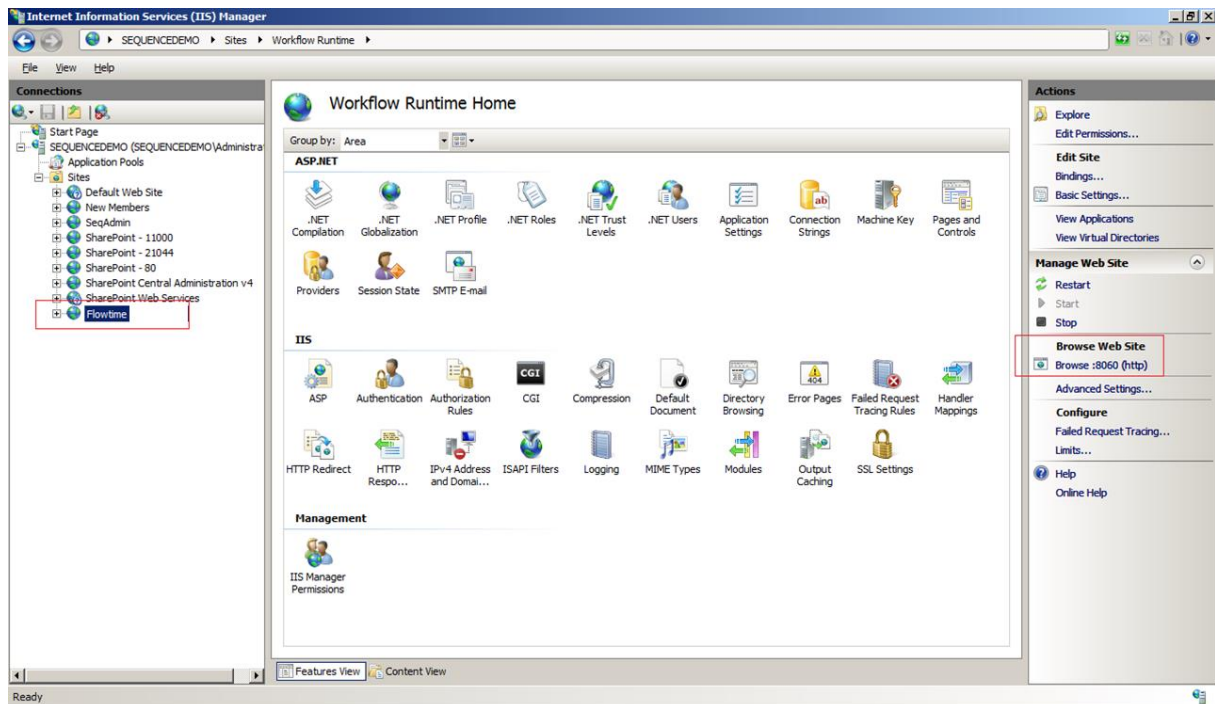
IIS Manager

1. Login as an administrative user.
2. Take an overall look at the system, and check for unexpected occurrences such as missing pictures, icons etc.
3. Open the *Administration* module and test the mouse right-click options.
4. Create a new sample process; make sure you see to the workflow diagram.
 - Create a form activity
 - Create a message activity where the message mode is “Send link”.
 - Give permissions at the workflow and activity level.
5. Logout.

Flowtime Site

These steps should be performed from a client machine, and not directly on the Sequence server.

You can retrieve the URL of the Flowtime site from the IIS Manager as displayed in the figure below.



IIS Manager

1. Log in to the Flowtime Site.
2. Take an overall look at the system, and watch for unexpected occurrences such as missing pictures, incorrect fonts, etc.
3. Click the *Business Processes* link.
4. Verify that the process you created in the previous section appears.
5. Start a new instance of the process and update its form.
6. Click **Delegation** from the *Quick Launch* menu, and verify that the delegation management Page loads.

Background Runtime Windows Service

1. Open the server's services list. Verify that the *Background Runtime Windows Service* is *started*.
2. If it's started, restart the service. If it's not started, start it.
3. Verify that there are no errors in the event log.

Troubleshooting

If the installation fails, please contact PNMsoft Support. You will be asked to send the Sequence log file.

To find the Sequence log file:

1. Select **Start > Run** and enter: %temp%.
2. In the folder that opens, you will find the file: Sequence.log.

For additional installation troubleshooting issues, please visit the [Knowledge Centre](#).

Appendix A: Special Configurations

Many of the parameters set during installation are editable in the Sequence configuration files. In this section, you will find a list of editable keys and their functions.

Note: Please be sure to back up your files before editing them.

Sequence Active Directory Service

The default location for the file is C:\Program Files\PNMsoft\Active Directory Synchronization Service\Sequence Active Directory Synchronization Service.exe.config:

Key Name	Key Value	Remarks
DBParams	The Sequence connection string, without user id and password.	The Provider should not be specified.
Credentials	Encrypted user Id and password for the connection string.	In order to encrypt the username and password use the encrypt.exe application located in the Installation folder of the Sequence server.
timerActive Directory. Interval	The interval in which the Sequence Active Directory Synchronization Service will synchronize the organizational structure. The interval is stored in milliseconds.	By default the interval is set to 600000 (10 minutes).
Computer NameAD	The Active Directory server.	This key should be the same as the value that is specified in the Computer Name setting of the Active Directory Wizard in the Sequence Management Console.
PageSize	The number of Active directory objects that will be retrieved per query (an integer).	This key can be set to values between 1 and 1000. The recommended value is 100. The value 0 is valid and means that no paging will take place and all the Active Directory objects will be copied at once. It is strongly not recommended to set this key to 0 in large organizations because it can place a heavy work load on the Active Directory server.
ServerPageTimeLimit	The maximum time limit (in seconds) that the service will wait for the Active Directory page to be fully retrieved (an integer).	When the time limit is reached, the server stops searching and returns the result obtained up to that point, along with a cookie containing the information about where to resume searching. In the next iteration the search will be started from this point. Allowed values: 1-120 Recommended values: 80-120

Sequence Background Runtime Windows Services

BackgroundRuntimeService.exe.config:

Key Name	Key Value	Remarks
DBParams	The Sequence connection string, without user id and password in .Net format.	The Provider should not be specified.
ADOParams	The Sequence connection string, without user id and password in ADO format.	The Provider should be specified.
Credentials	Encrypted user Id and password for the connection string.	In order to encrypt the username and password use the encrypt.exe application located on the Installation folder of the Sequence server.
SMTPServer	The SMTP server name or IP.	
SiteUrl	Flowtime URL (used in emails containing links back to Sequence).	
timerRedirect.Interval	The amount of time in milliseconds between the completion of workflow redirection and the beginning of a new cycle.	Default value = 60000 ms.
timerEmail.Interval	The amount of time in milliseconds between the completion of email sending and the beginning of a new cycle.	Default value = 60000 ms.
timerUpdateStatus.Interval	The amount of time in milliseconds between the completion of workflow status updates and the beginning of a new cycle.	Default value = 60000 ms.
timerDBListener.Interval	The amount of time in milliseconds between the completion of database listener queries and the beginning of a new cycle.	Default value = 120000 ms.
timerEmbeddedEmail.Interval	The amount of time in milliseconds between the completion of embedded email sending and the beginning of a new cycle.	Default value = 600000 ms.
XSLTDirectory	The NTFS location of the XSL file used in email message formatting	

Manually Installing the Sequence Database with Scripts

The installation package runs scripts on your SQL Server remotely, to install the Sequence Database. If it is not possible to run these scripts remotely through the Installation Wizard, you can install the Sequence Database using scripts, and then run the Installation Wizard.

For detailed instructions on installing the Sequence Database using scripts, see [this guide](#).

Setting Up SSL for Sequence Sites

Please see [this guide](#) for how to set up SSL for Sequence sites.