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PNMsoft Knowledge Base

SEQUENCE Best Practices

SEQUENCE 6.0 Installation Guide

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Gold Independent Software Vendor (ISV)

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Document Purpose

This document describes the steps involved in installing PNMsoft SEQUENCE 6.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 subsequent steps.

Prior to Installation

Introduction

An installation of the SEQUENCE Server 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 also lists the software prerequisites for installing SEQUENCE 6.x with:

- Windows SharePoint Services 3.0.
- Microsoft SharePoint 2007.
- Microsoft SharePoint Foundation 2010
- Microsoft SharePoint Server 2010.

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

Note: Using both 32-bit and 64-bit servers in a "server farm" topology is supported in WSS3.0 / SharePoint 2007. However, this scenario is not recommended by Microsoft due to potential performance issues which may arise. SharePoint 2010 supports only 64-bit "server farm" topology.

Hardware and Software Requirements

Single Server Installation

Hardware Requirements

The following table lists both the minimum and the recommended hardware requirements for deploying SEQUENCE Server 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 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	1024 × 768	1024 × 768 or higher resolution monitor.
Network	56 kilobits per second (Kbps) connection between client computers and server.	56 Kbps or faster connection between client computers and server.

Software Requirements

Database

For WSS 3.0 and SharePoint 2007: MS- SQL 2005 SP2, or MS- SQL 2008

For SharePoint 2010: MS SQL 2005 64-Bit with Service Pack 3 with cumulative update 3, or

MS SQL 2008 64-Bit Service Pack 1 with cumulative update 2, or

Microsoft SQL Server 2008 64-Bit R2.

Operating System

Windows Server 2008 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 enable the Internet Information Services (IIS) role, and including its built-in services:

- Common files
- WWW

SharePoint 2007 / SharePoint 2010

The SEQUENCE runtime user interface is hosted in WSS or SharePoint Server. Therefore WSS or SharePoint Server must be installed on the Windows Server.

SharePoint must be installed in at least single farm mode.

Microsoft.NET Framework 3.5 SP1

Before installing SEQUENCE Server, you must install Microsoft .NET Framework 3.5 SP1 and then ensure that ASP.NET 2.0 is enabled.

Note: You can download the .NET Framework version 3.5 from the [Microsoft Web site \(http://www.microsoft.com/downloads/details.aspx?FamilyID=ab99342f-5d1a-413d-8319-81da479ab0d7&displaylang=en\)](http://www.microsoft.com/downloads/details.aspx?FamilyID=ab99342f-5d1a-413d-8319-81da479ab0d7&displaylang=en).

To enable ASP.NET v2.0.50727, open the Web service extension in the IIS snap-in on the Microsoft Management Console (MMC). If ASP.NET 2.0 is installed on the computer before IIS is enabled, enable ASP.NET 2.0 by running the command `aspnet_regiis -i`.

Distributed Server Installation

The primary difference between a single server and a farm 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
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	1024 x 768	1024 x 768 or higher resolution monitor.
Network	56 kilobits per second (Kbps) connection between client computers and server.	56 Kbps or faster connection between client computers and server.

Operating System

Windows Server 2008 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, including built-in services:

- Common files
- WWW

SharePoint 2007 \ SharePoint 2010

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SharePoint must be installed in at least single farm mode.

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To enable ASP.NET v2.0.50727, open the Web service extension in the IIS snap-in on the Microsoft Management Console (MMC). If ASP.NET 2.0 is installed on the computer before IIS is enabled, enable ASP.NET 2.0 by running the command `aspnet_regiis -i`.

Database Server

The computer that hosts the database server role must have Microsoft SQL Server 2005 SP1 or later. Some advanced features require SQL Server 2005 Analysis Services SP1 or later. For information about the hardware and software required to deploy a database server, see [SQL Server 2005 System Requirements \(http://go.microsoft.com/fwlink/?LinkID=75010&clcid=0x409\)](http://go.microsoft.com/fwlink/?LinkID=75010&clcid=0x409).

Required Accounts

Account	Description	Account Type	Needs	Usage in the installation process
Installation Account	Use to install SEQUENCE Server	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	Use to run SEQUENCE administration site and optionally the SharePoint integration site. This account will also be used During the Runtime site installation.	Windows domain or local user account	<p>It must have permission to create sites in the SharePoint.</p> <p>It must have permission to run WMI query.</p> <p>It must be part of the IIS_WPG group.</p>	Application pools user setting window.
SEQUENCE Server Database Account	SQL Server account that is used to create the SEQUENCE database, and enables all the communications to the database server.	Windows domain or SQL account.	<p>It must belong to the Security Administrators and Database Creators roles.</p> <p>It must have db_owner on SEQUENCE database</p>	Database setting window.

<p>SEQUENCE Windows Services Account</p>	<p>Uses to run the background windows service and optionally the Active directory synchronization windows service.</p>	<p>Windows domain or local user account.</p>	<p>It must have permission to the SMTP server. It must be a domain account to query the active directory. It must be a valid SEQUENCE user (otherwise it won't be able to move processes forward). Logon as a service rights on the machine.</p>	<p>Windows service account setting.</p>
<p>WSS Administrator Account</p>	<p>Defined as the site creator.</p>	<p>Windows domain or local user account.</p>	<p>It must be assigned to a user who is part of the Administrators group on the computer that is running Windows SharePoint Services.</p>	<p>In the Runtime site setting.</p>

Prepare your Web Server

Configure SharePoint Services

You can also install SEQUENCE server on WSS 3.0, SharePoint 2007, or SharePoint 2010. Microsoft provides guides for installing SharePoint on Windows Server. See the following links:

- WSS 3.0 - <http://go.microsoft.com/fwlink/?LinkID=107358>
- SharePoint 2007 - <http://go.microsoft.com/fwlink/?LinkId=106632>
- SharePoint 2010 - <http://www.microsoft.com/downloads/en/details.aspx?FamilyID=7604212e-67a6-407d-ae5c-9bb9d6325e17&displaylang=en>

To configure Windows SharePoint Services as Single Server farm:

1. From the product disc, run **Setup.exe**, in one of your Web server computers.
2. Agree to the *Read the Microsoft Software License Terms* page by select the **I Accept the Terms of this Agreement** check box, and click **Continue**.
3. Click **Advanced** in the *Choose the Installation You Want* page. Basic option is for stand-alone installations, usually for test environments
4. In the *Server Type* tab, click **Web Front End**. The Stand-alone option is for stand-alone installations.
5. Optionally, to install Windows SharePoint Services 3.0 at a custom location, select the *Data Location* tab, and then type the location name or browse to the location.
6. Optionally, to participate in the Customer Experience Improvement Program, select the *Feedback* tab and select the option you want. To learn more about the program, click the link. You must have an Internet connection to view the program information.
7. Click **Install Now** when you have chosen the correct options.
8. When Setup finishes, a dialog box appears that prompts you to complete the configuration of your server. Be sure that the **Run the SharePoint Products and Technologies Configuration Wizard now** check box is selected.
9. Click **Close** to start the configuration wizard.

To configure SharePoint as Single Server farm:

1. From the product disc, run Setup.exe on one of your Web server computers.
2. Agree to the *Read the Microsoft Software License Terms* page by selecting the **I Accept the Terms of this Agreement** check box, and click **Continue**.
3. Click **Advanced** in the *Choose the Installation You Want* page. The Basic option is for stand-alone installations, usually for test environments.
4. In the *Server Type* tab, click **Web Front End**. The Stand-alone option is for stand-alone installations.
5. Optionally, to install Windows SharePoint Services 3.0 at a custom location, select the *Data Location* tab, and then type the location name or browse to the location.
6. Optionally, to participate in the Customer Experience Improvement Program, select the *Feedback* tab and select the option you want. To learn more about the program, click the link. You must have an Internet connection to view the program information.
7. Click **Install Now** when you have chosen the correct options.
8. When Setup finishes, a dialog box appears that prompts you to complete the configuration of your server. Be sure that the **Run the SharePoint Products and Technologies Configuration Wizard now** check box is selected.
9. Click **Close** to start the configuration wizard.

Usually you will want to create the Management Console (administration site) on a dedicated web site with a specific port.

Create a new web site for the administration site (IIS 7.0 / 7.5)

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 on the local IIS server and click **Add Web Site**.
3. Insert the site name (i.e. *PNMsoft SEQUENCE Management Console*).
4. Browse to select or create a folder (i.e. C:\inetpub\PNMsoft), 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. 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.

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

Use this web site for the Administration site and SharePoint Services site IIS location. (Section 3.2.2 - Specify the Component installation location)

Prepare your Database Server

The database server must be running Microsoft SQL Server 2005 or Microsoft SQL Server 2008 with the most recent service pack.

The SharePoint 2007 Setup program automatically creates the necessary databases when you install and configure SharePoint 2007. 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.

To configure surface area settings in SQL Server 2005:

1. On the **Start** menu, click **All Programs**, point to **Microsoft SQL Server 2005**, then point to **Configuration Tools**, and click **SQL Server Surface Area Configuration**.
2. In the *SQL Server 2005 Surface Area Configuration* dialog box, click **Surface Area Configuration for Services and Connections**.
3. In the tree view, expand the node for your instance of SQL Server, expand the *Database Engine* node, and then click **Remote Connections**.
4. Select **Local and Remote Connections**, select **Using both TCP/IP and named pipes**, and then click **OK**.

SQL Server and Database Collation

The SQL Server collation must be configured to be case-insensitive. For more information about collations, see "Selecting a SQL Collation" or "Collation Settings in Setup" in SQL Server Books Online.

Enable CLR Integration

The SEQUENCE installation process will set CLR integration to "enabled". If it does not, follow these steps to enable CLR integration.

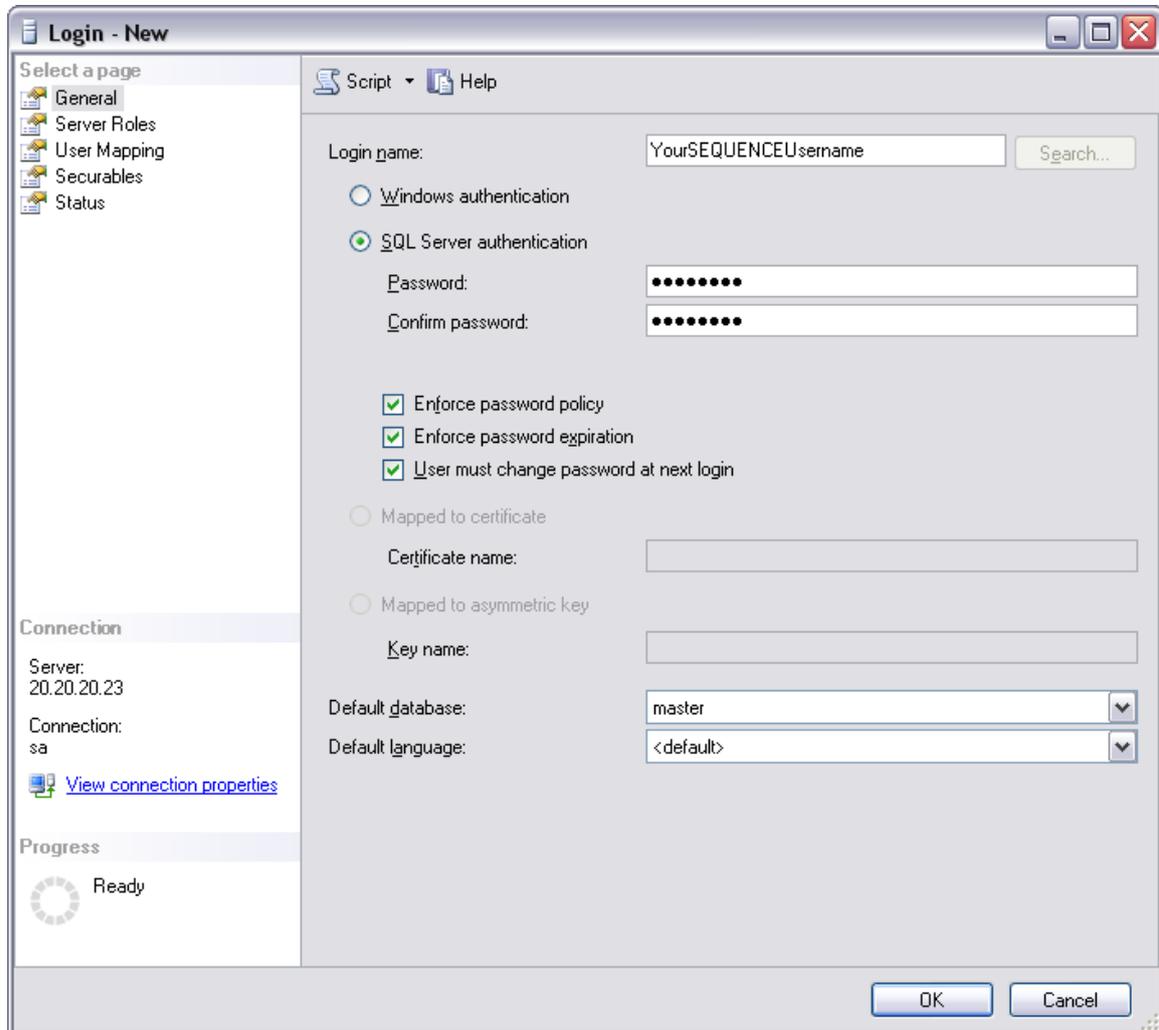
To configure CLR integration in SQL Server 2005:

1. On the **Start** menu, click **All Programs**, point to **Microsoft SQL Server 2005**, point to **Configuration Tools**, and then click **SQL Server Surface Area Configuration**.
2. In the *SQL Server 2005 Surface Area Configuration* dialog box, click **Surface Area Configuration for Features**.
3. In the tree view, expand the *Database Engine* node, and then click **CLR integration**.
4. Select **Enable CLR integration**.

Create an SQL User for SEQUENCE

If you intend to run the background service or the user interface under SQL authentication, you should prepare a dedicated SQL user as follows:

1. Open Security then right-click Logins -> New Login...



Login – New

2. Choose a username, SQL Server authentication and password and click **OK**.
3. Provide the new user *DBOWNER* with permissions to SEQUENCE and Runtime Site databases.

Installation Package Content

The SEQUENCE Installation Package includes the Setup executable and a separate folder with SQL scripts for manually creating the database (used when executable files cannot be run on the database server).

Installation Instructions

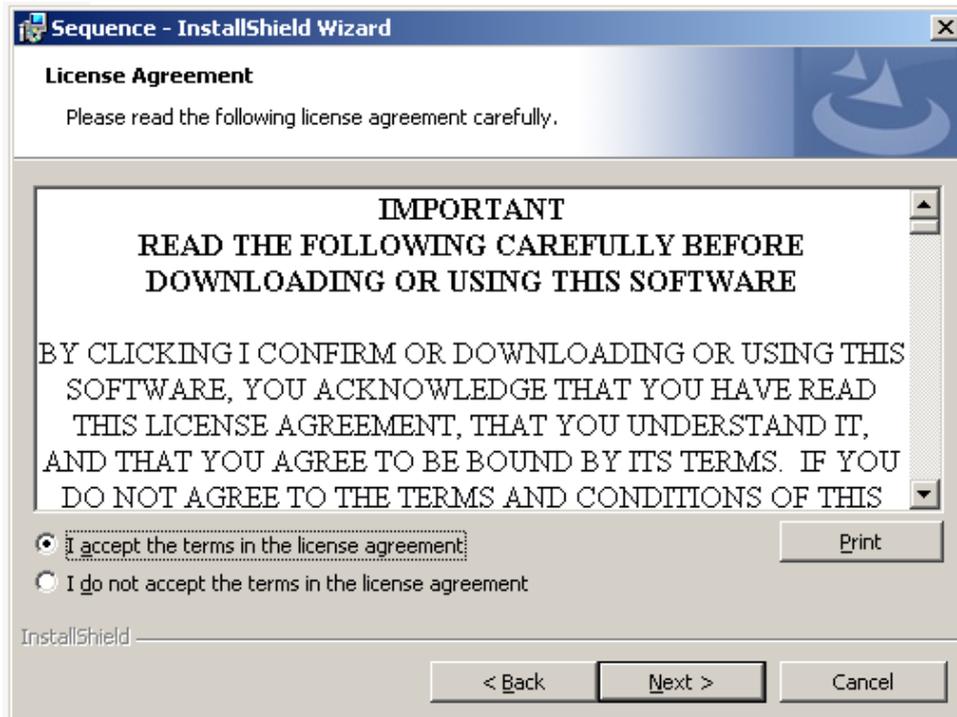
Starting SEQUENCE Server Setup

Note: In Windows Server 2008 environments, the Setup file needs to be executed using "Run As System Administrator".



SEQUENCE Server Setup Welcome Page

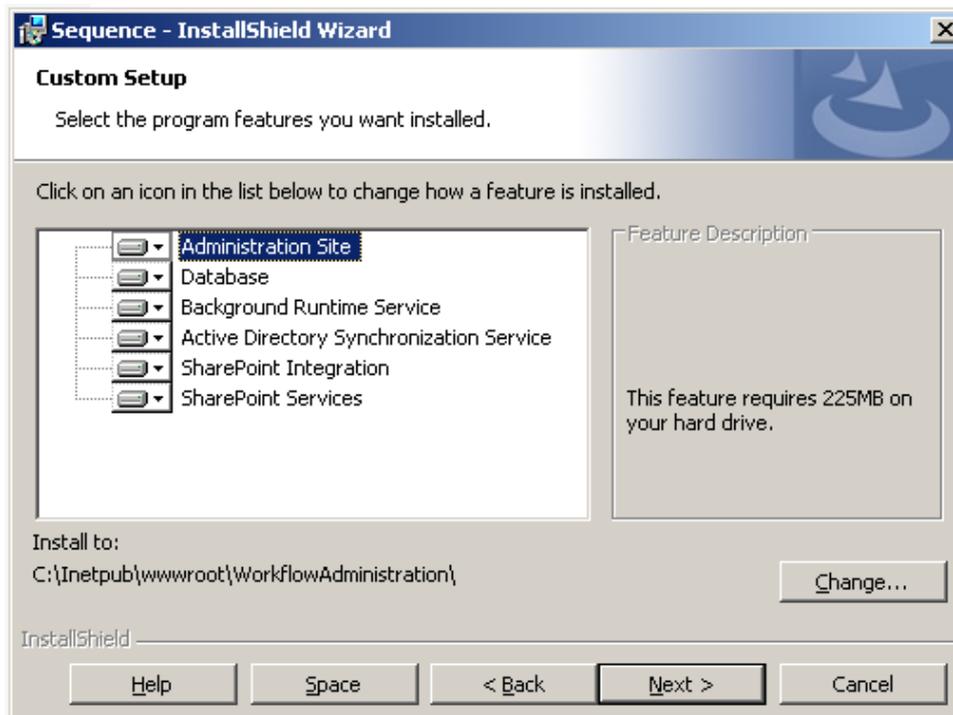
1. Click **Next** to continue. The End-User License Agreement screen opens.



End-User License Agreement

2. Select **I accept...**
3. Click **Next** to continue. The *Custom Setup* page opens.

Choosing the Components to Install



InstallShield Wizard - Custom Setup

Choose the Services You Want to Install on This Server

- **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 new SEQUENCE database. If you are using a distributed topology, run the database installation separately on the Database server.

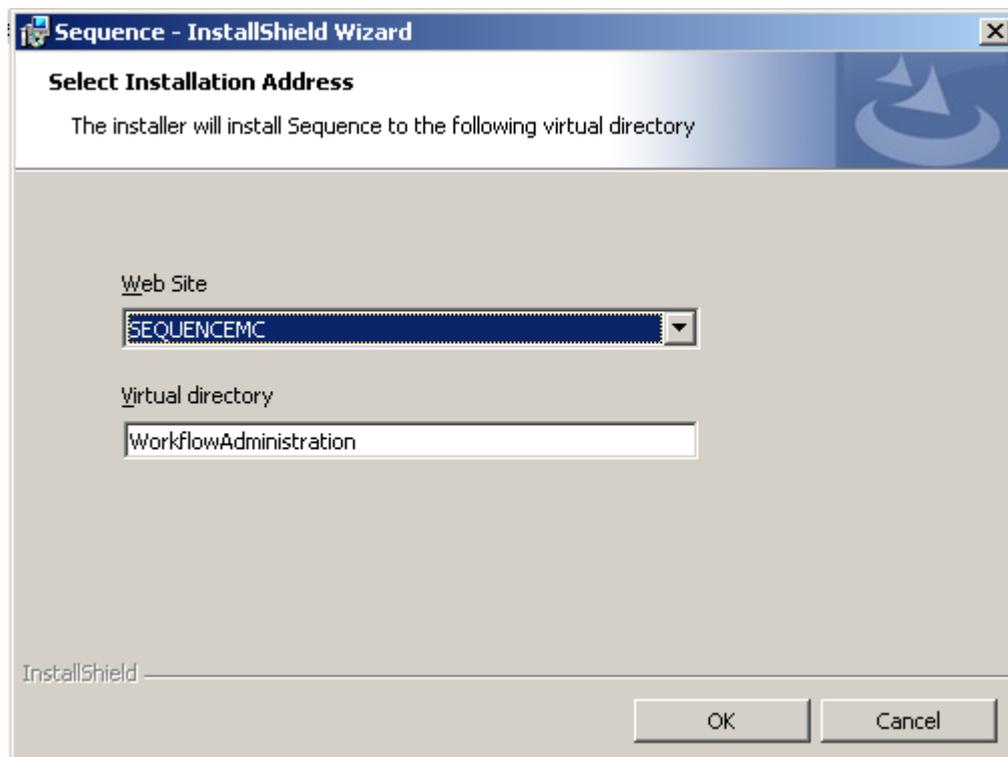
Note: If you cannot run the executable to configure the database, use the database scripts in the installation package. (See Appendix 10.1.3, how to build the SEQUENCE database with scripts)

- **Background Runtime 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.
- **SharePoint Integration:** This component is the Runtime UI which is hosted under the SharePoint site.
- **SharePoint Service:** This component is used for integration with SharePoint 2007, i.e. SharePoint Listener Activity.

Specify the Component Installation Location

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

Administration Site



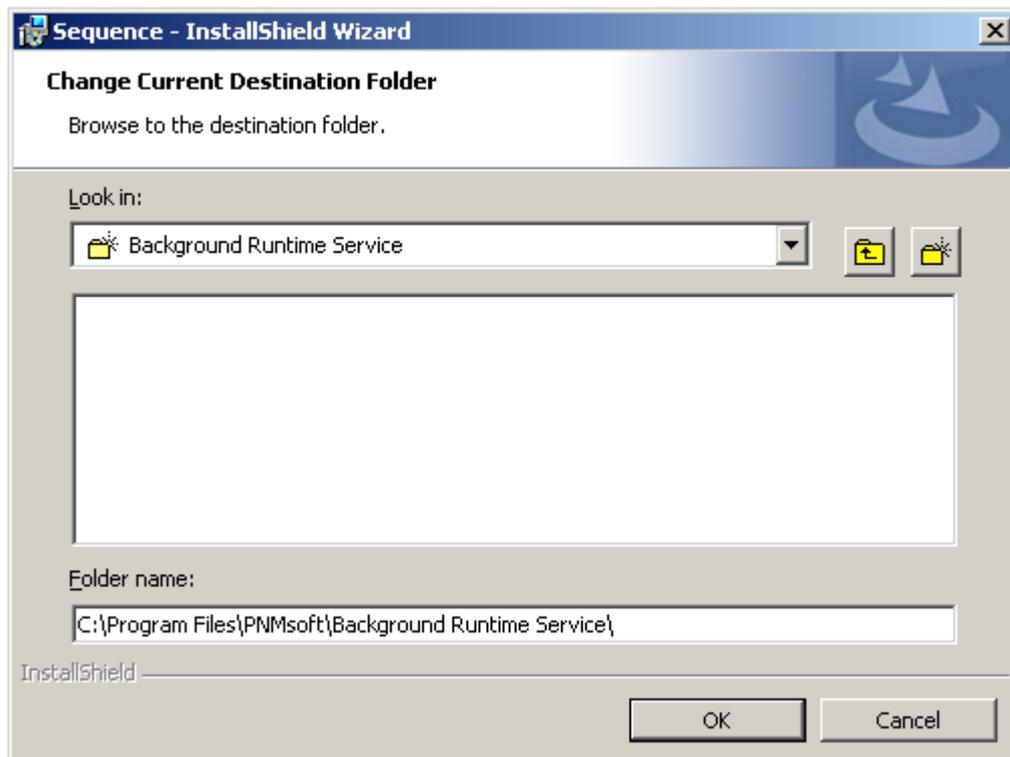
Select Installation Address

- 4. Select a web site other than the sites SharePoint is installed in. We recommend installing the administration site on a dedicated web site. See the section “Create a new web site for the administration site (IIS 7.0 / 7.5)” on how to create a new web site for the administration site.
- 5. (Optional) change the virtual directory name, to any selected name. We recommend not using spaces in the virtual directory name.

Database

Not applicable

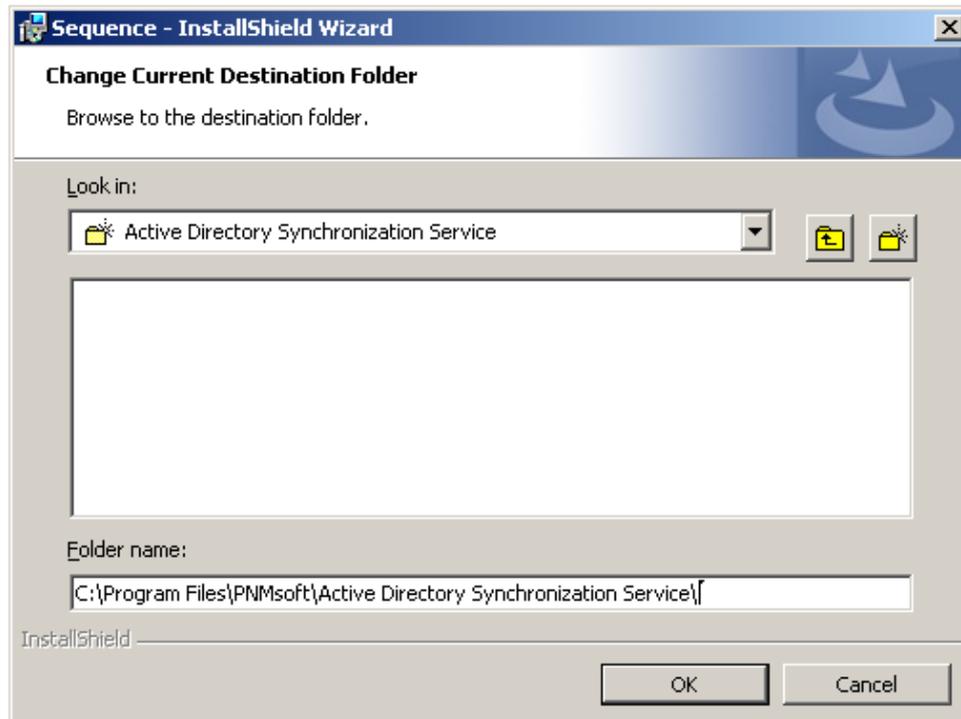
Background Runtime Service



Change Current Destination Folder

- 6. Specify the NTFS location for the service installation folder.

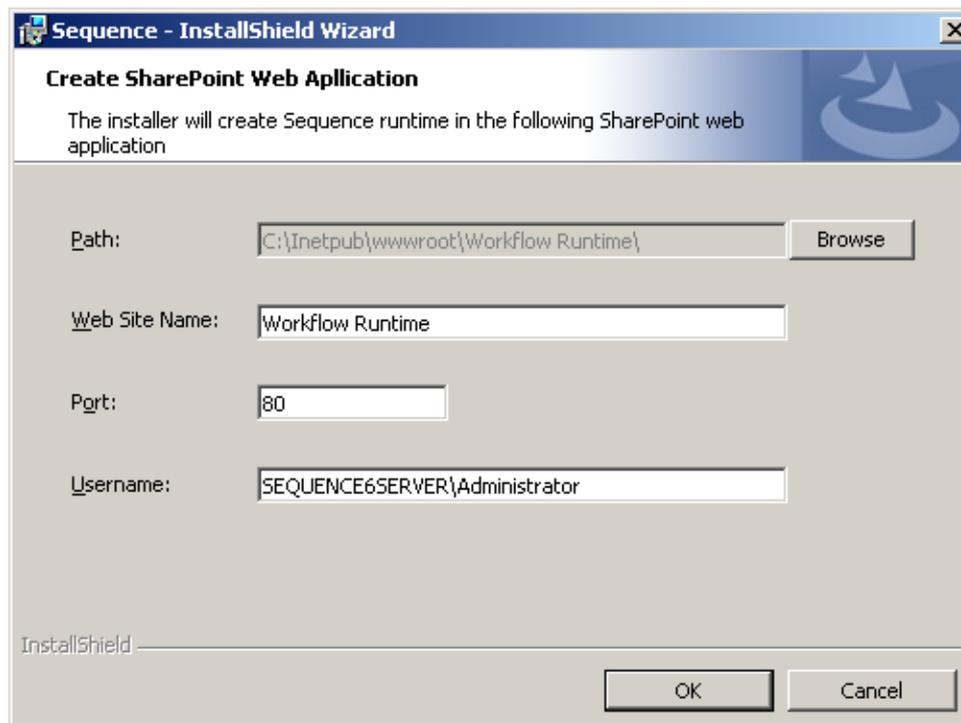
Active Directory Synchronization Service



Change Destination Folder

7. Specify the NTFS location for the service installation folder.

SharePoint Integration



Create SharePoint Web Application

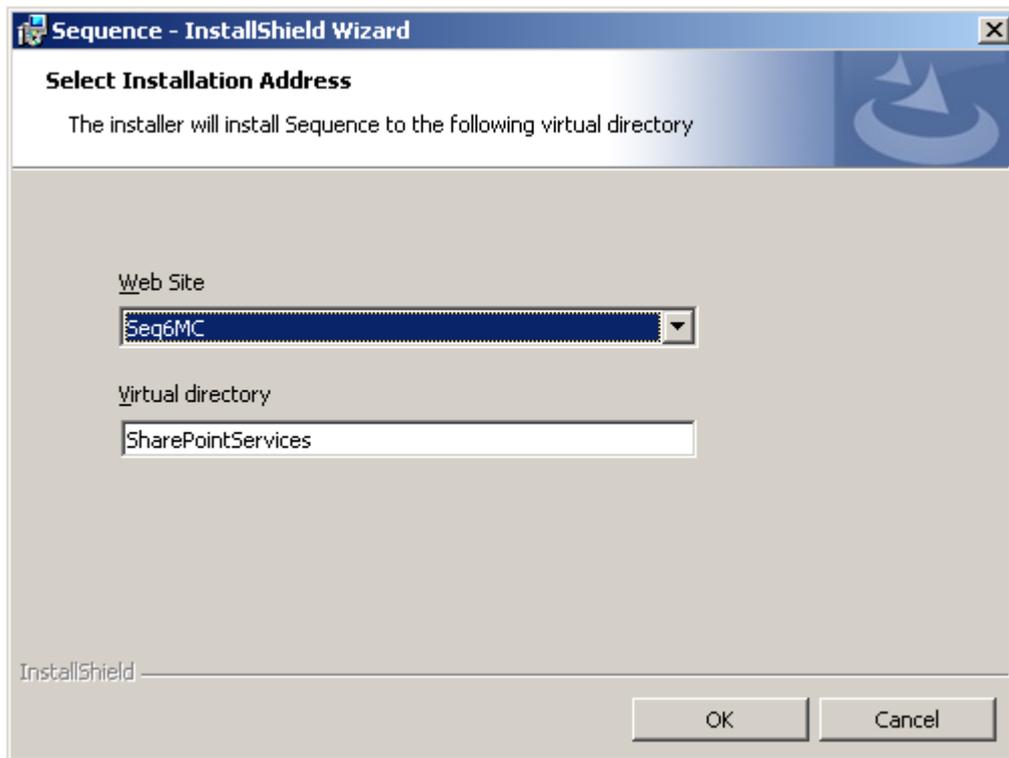
8. Enter the **Web Site Name** and **Port** where you would like to install the SEQUENCE runtime application.

Note: Make sure the port is not in use by another web site.

9. Enter the user name that will be used as the site collection creator and owner.

Note: Make sure you enter a valid user.

SharePoint Services Site



SharePoint Installation Address

10. Select a web site which is different than the sites SharePoint is installed on. 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 site (IIS 7.0 / 7.5)” on how to create a new web site for the Management Console / Administration site)

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

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

Choosing Database Options

Choose the Server and Database Name



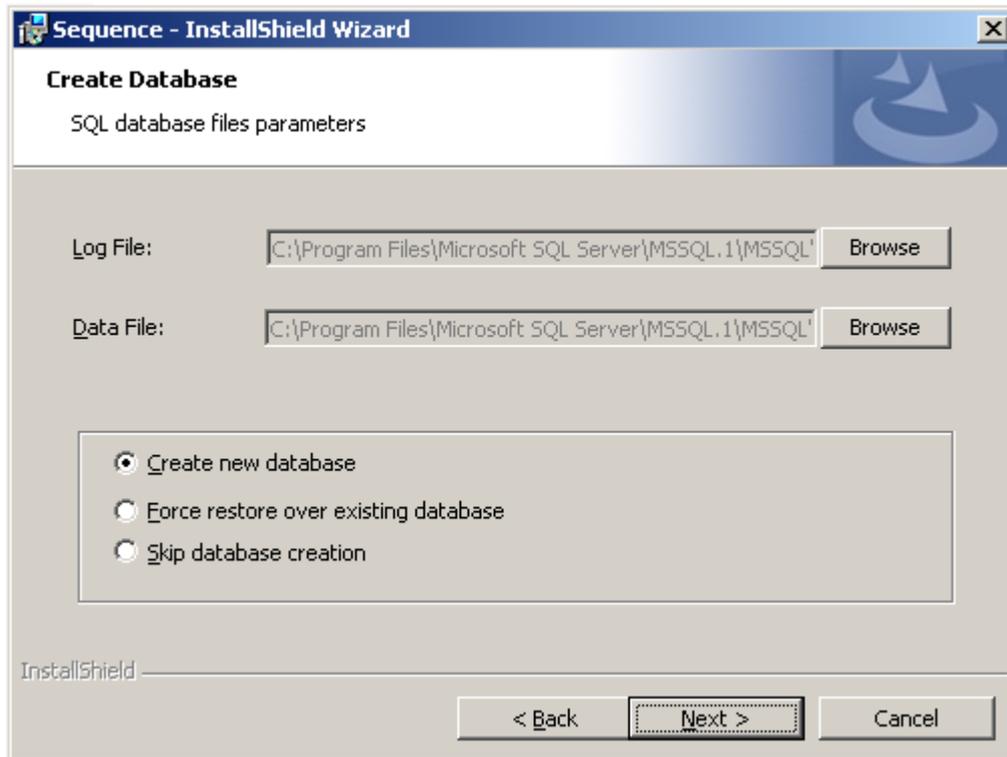
Database Server

12. The name of the database catalog (by default Sequence) is the one that will be created or overwritten in SQL.

The next step details whether to allow overwriting of an existing database.

Define New / Existing Database and Choose Physical File Locations

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



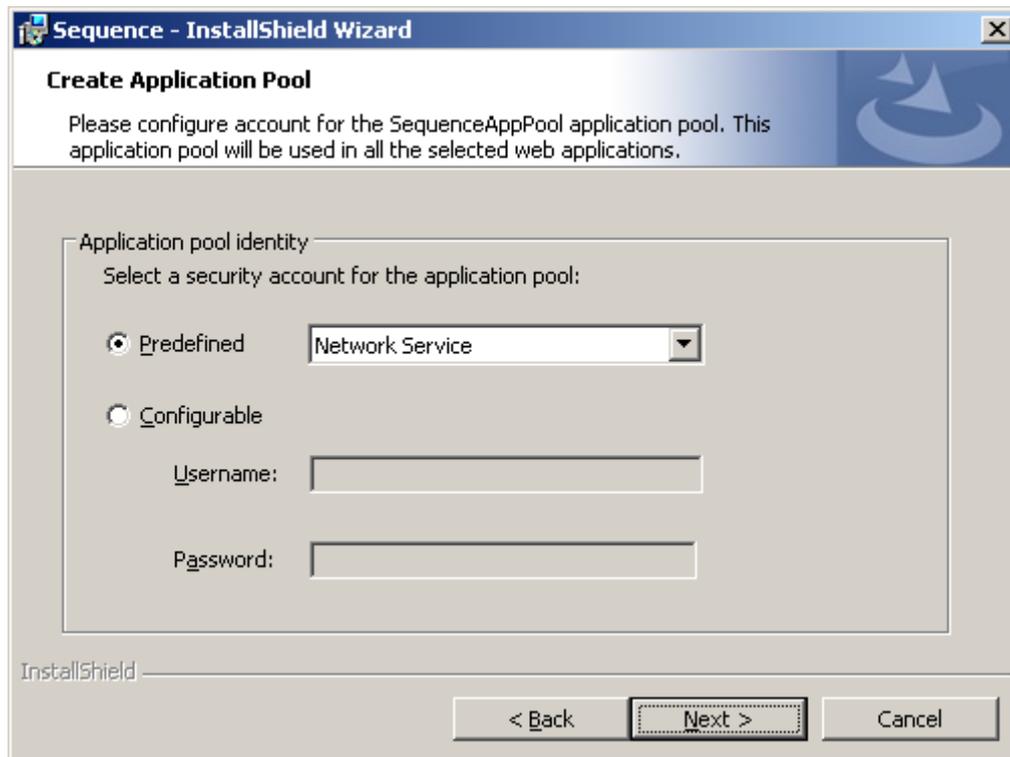
Create Database

13. Use the supplied default SQL data folders or enter a different location for either one or both files.

Important Note: In SQL 2008 the SEQUENCE default folder path does not exist, therefore you should manually choose the file destination.

Choosing Users

Choosing the SEQUENCE Application Pool User



Create Application Pool

The user that runs the IIS application pool can be either one of three preconfigured users, or a custom 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)

Choosing the Background Windows Service User

If SEQUENCE is configured to use SSPI (NT authentication for accessing the database) then the user that runs the background windows service must have access to the SEQUENCE database.

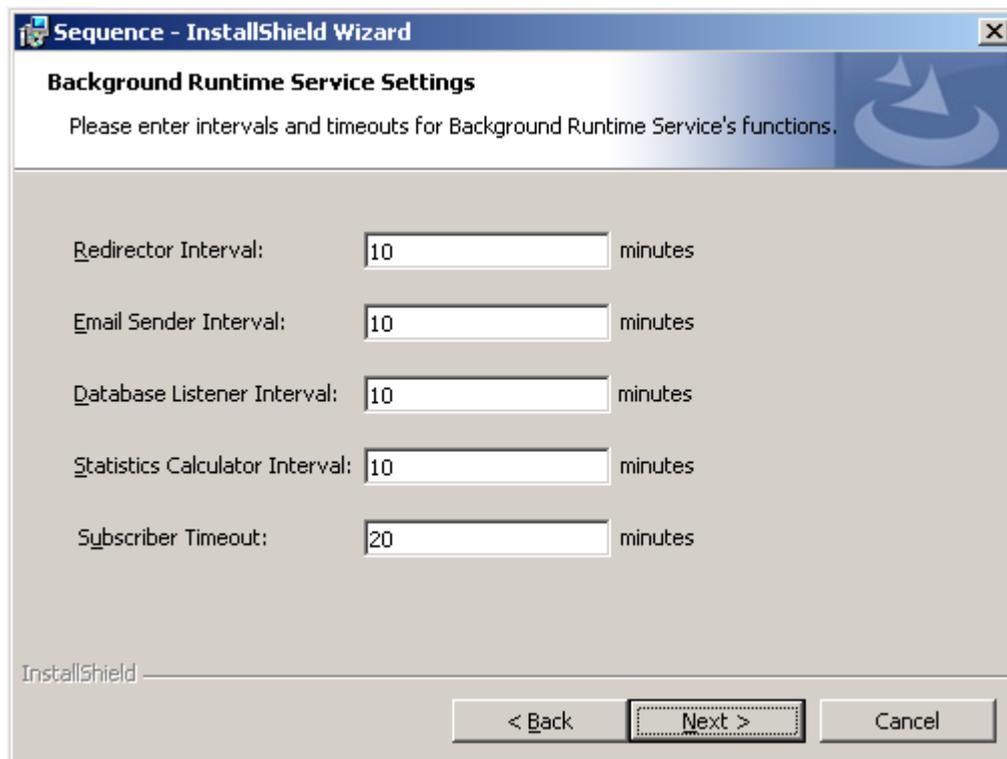


Windows Services Logon Information

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

Background Services Settings

Choosing Background Service Runtime Settings

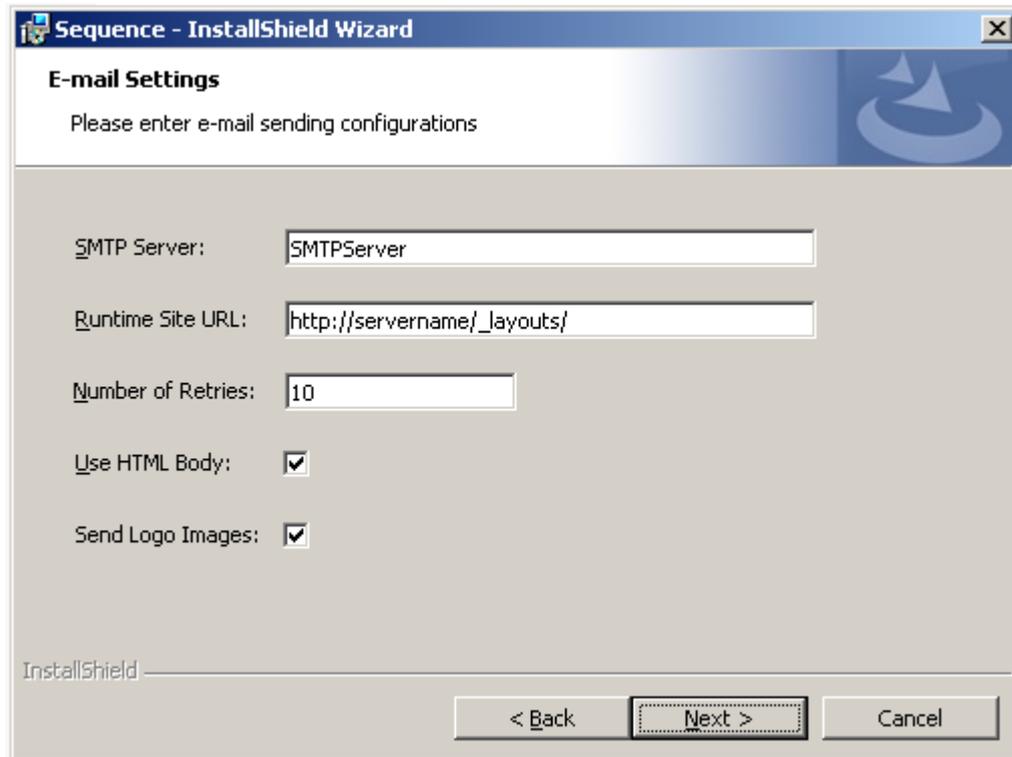


Background Runtime Service Settings

- **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.

14. Enter the appropriate values in the text boxes.

Choosing Background Service Email Settings

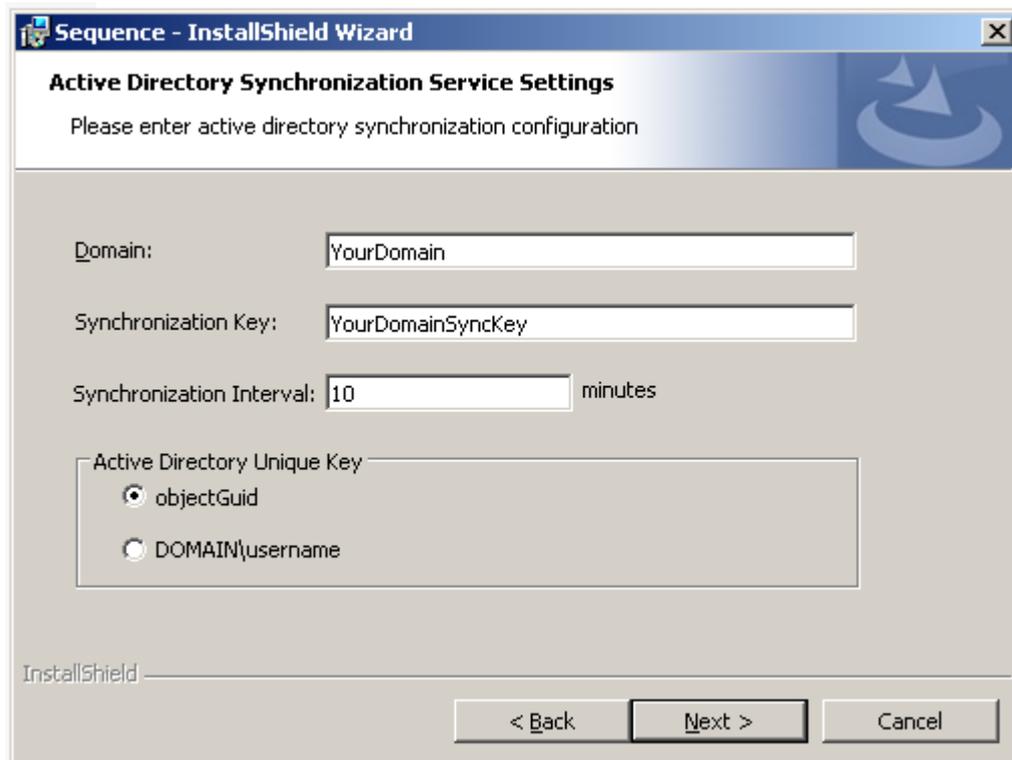


E-mail Settings

- **SMTP Server:** The name or IP of the SMTP server to point outgoing messages to.
- **Runtime 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.

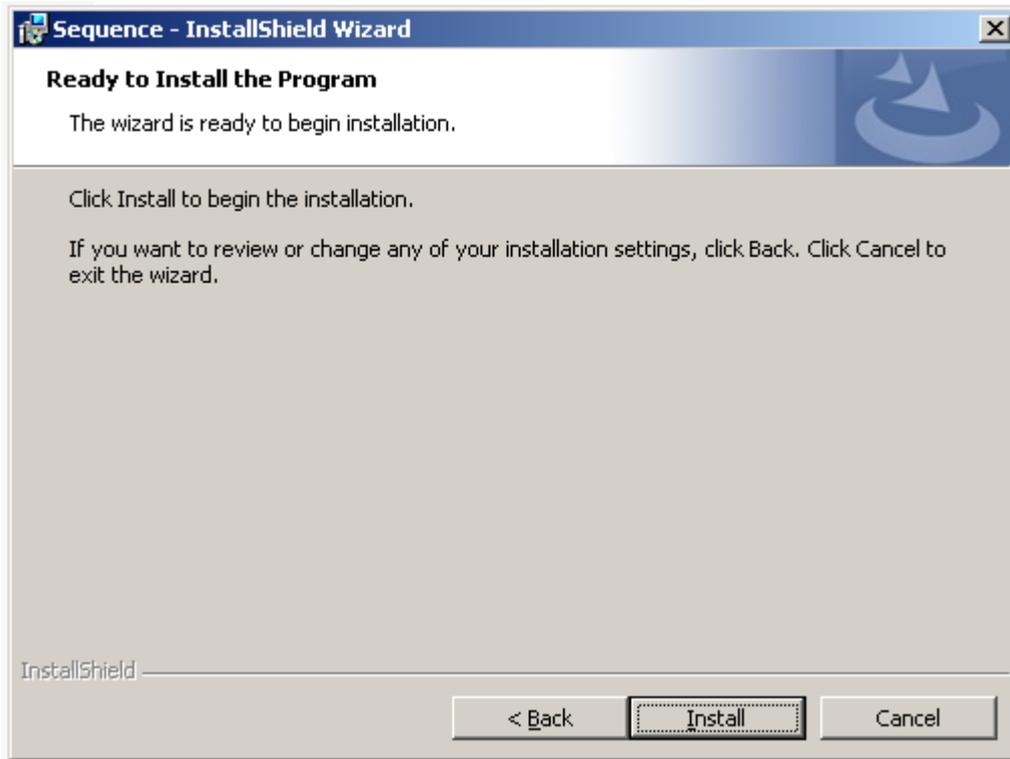
15. Enter the appropriate values in the text boxes. Select the relevant checkboxes.

Choosing Active Directory Service Settings



Active Directory Synchronization Service Settings

Ready to Install SEQUENCE



Ready to Install the Program

Licensing

16. When prompted to choose an activation method, select **offline activation** and save the XML license request file to 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.

17. Upload the license request file to the PNMsoft Activation Site at <http://licensing.pnmsoft.com/>
18. Download the zipped license file and extract it to C:\Program Files\PNMsoft\Licensing\Data\ on the SEQUENCE server.

Post Installation tasks

Add NT Authenticated Group to the SharePoint Visitor Group

Now that the site is up, you can choose which group/s user/s to allow access via the SharePoint Authentication module.

Setting the SEQUENCE Server GMT Offset

The GMT Offset parameter holds the number of hours offset from Greenwich Mean Time. This parameter needs to be manually set.

1. Open SEQUENCE and go to Administration>Tables> General Tables.
2. Edit the System Parameters table.
3. In the Time Zone – GMT Offset box, enter the number of hours offset from GMT.
4. Click **Update** to save.

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

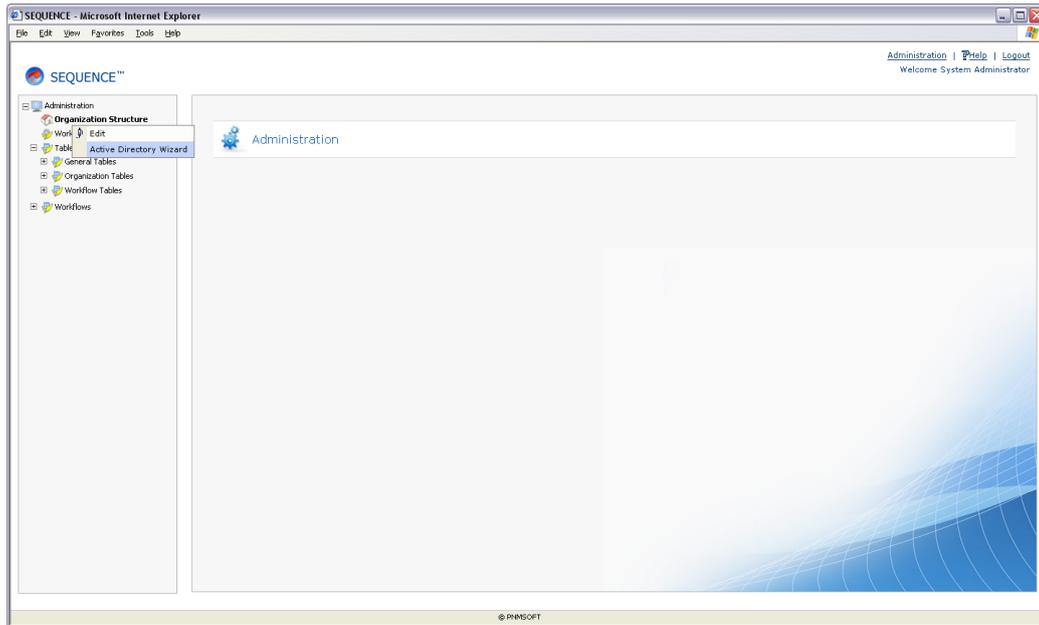
1. On the **Start** menu, click **All Programs**, point to **Microsoft SQL Server 2005**, and then click **SQL Server Management Studio**.
2. Select the relevant server and click **Connect**.
3. Open a new query window.
4. Type the following command and then click Run:

```
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

(Optional) Active Directory Service

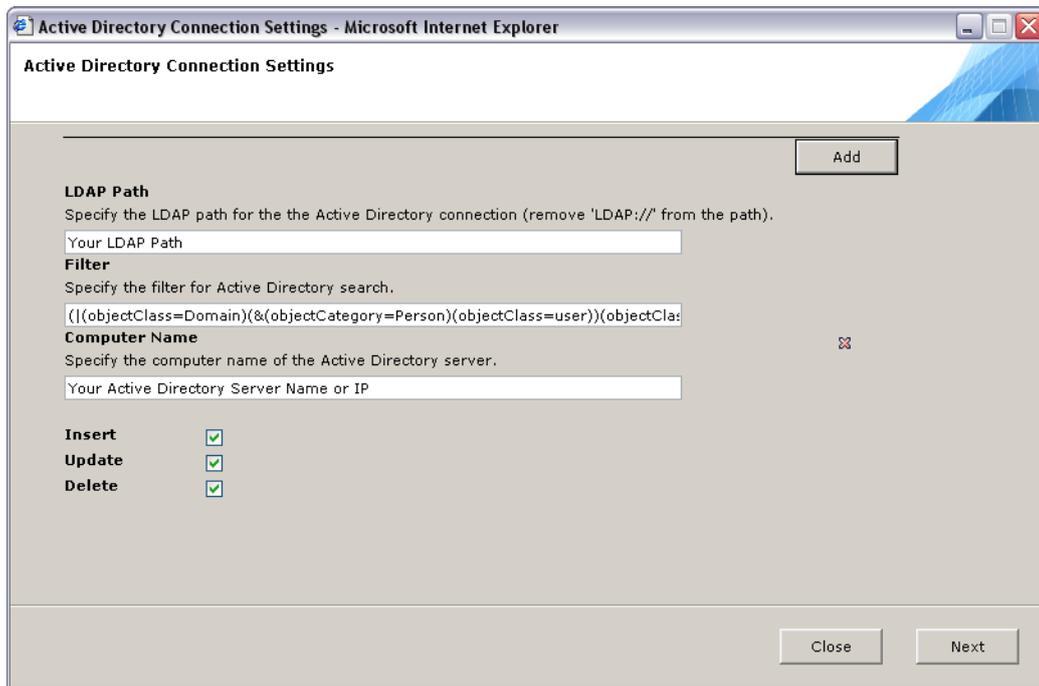
1. Open the administration module, right-click **Organization Structure** and select **Active Directory Wizard**.
2. (Optional) Import users into SEQUENCE using the "Active Directory Wizard".
3. Right-click **Organization Structure** and then **Active Directory Wizard**:



SEQUENCE Administration

4. Select **Active Directory Wizard**.

The *Active Directory Connection Settings* page opens.



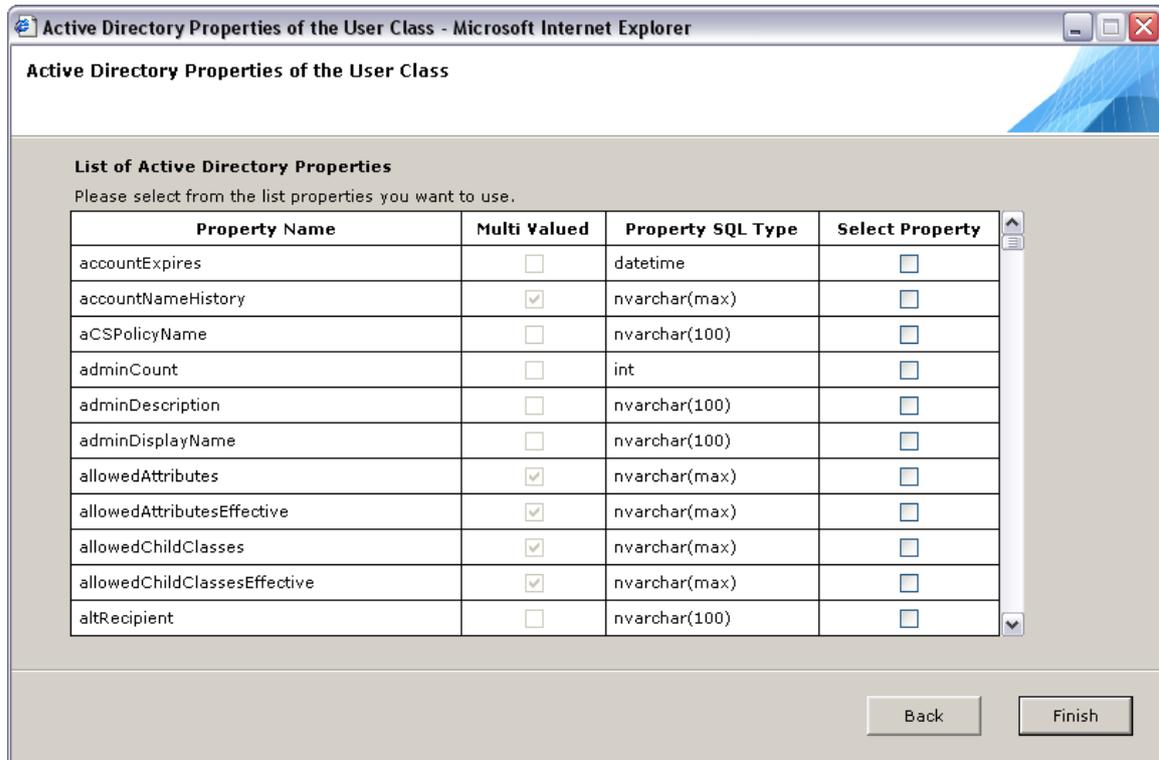
Active Directory Connection Settings

5. Edit the settings to match your LDAP and server configuration, editing the default LDAP query as needed.
6. Click **Next**.
7. Log in when prompted:



Active Directory Login Settings

The Active Directory Properties of the User Class page opens.



The Active Directory Properties of the User Class Table

8. Choose which attributes, in addition to the standard, you wish to import from Active Directory to SEQUENCE.
5. Open the server's services list. Verify that the service Active Directory Synchronization service is *Started*.
6. Restart the service.
7. 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**.

(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>
```

Installation Tests

Sanity tests to ensure all sites and applications are installed and active.

SEQUENCE Administration Site

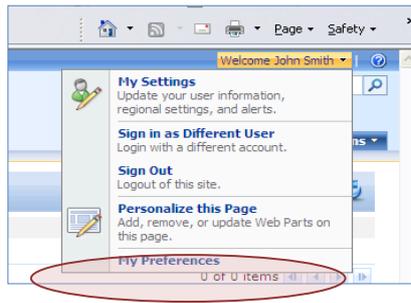
These steps should be performed from a client machine, and not directly on the SEQUENCE server.

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.

SEQUENCE Runtime Site

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

1. Log in with a SharePoint site Authenticated user to the SEQUENCE Runtime Site.
2. Take an overall look at the system, and watch for unexpected occurrences such as missing pictures, incorrect fonts etc.
3. Click the *Workflow Application* link.
4. Verify that the workflow appears.
5. Start a new instance and **Update** a form.
6. Open the top menu (opened from the “welcome [user] arrow”) and verify the feature “My Preferences” exists.



My Preferences

7. Open the *Monitoring and Reports* site, and verify that three charts are displayed.
8. Click **Delegation Management** from the *Quick Launch* menu, and verify that the delegation management page is loading.

Background Windows Service

1. Open the server's services list. Verify that the *Background Runtime* service is *started*.
2. Restart the service.
3. Verify that there are no errors in the event log.

SEQUENCE Client

SEQUENCE Client Hardware Specification

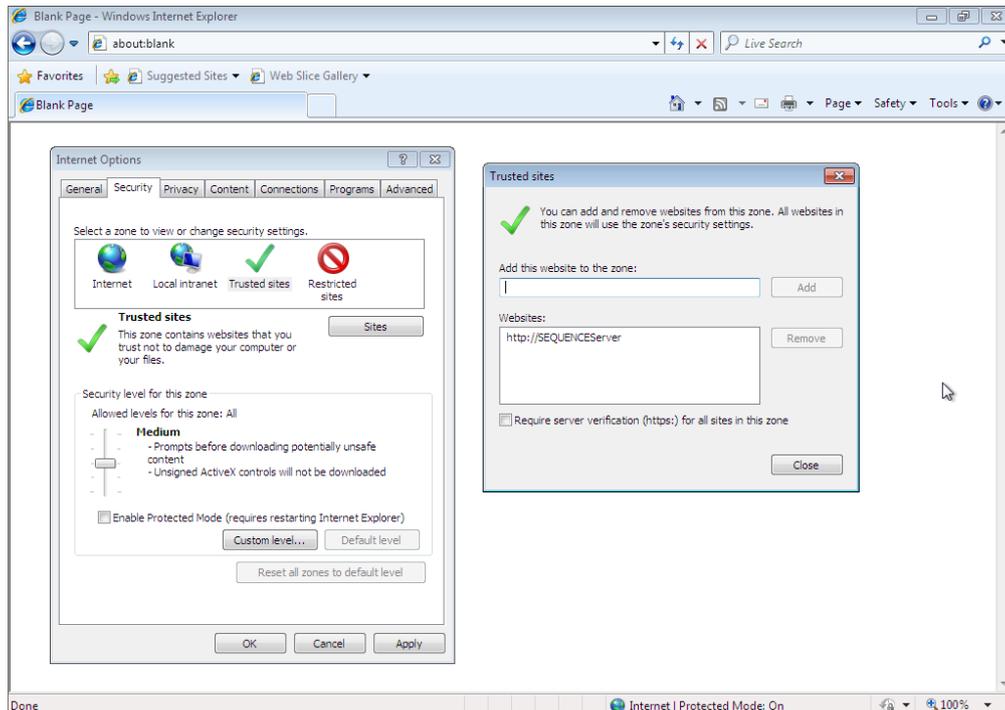
Processors	Pentium III or higher
Memory	512 MB RAM or higher
Software	OS: Windows® 2000/XP or higher; Browsers: - Microsoft Internet Explorer 7.0 or higher, Firefox 5.0– for runtime - Microsoft Internet Explorer 8.0 or higher – for development environments
Network	Transmission Control Protocol / Internet Protocol (TCP/IP)

Installing Developer Tools, on the Client Machine

The Developer Tools installation is to be performed only on designated developers' clients, and only after SEQUENCE has been successfully installed.

To add the SEQUENCE Administration site to the trusted site list:

1. Click on Tools -> Internet Options -> Security (tab) -> Sites.
2. Enter your SEQUENCE site URL and add it to the list of trusted websites. These sites enjoy higher levels of permissions to use ActiveX objects that SEQUENCE requires.



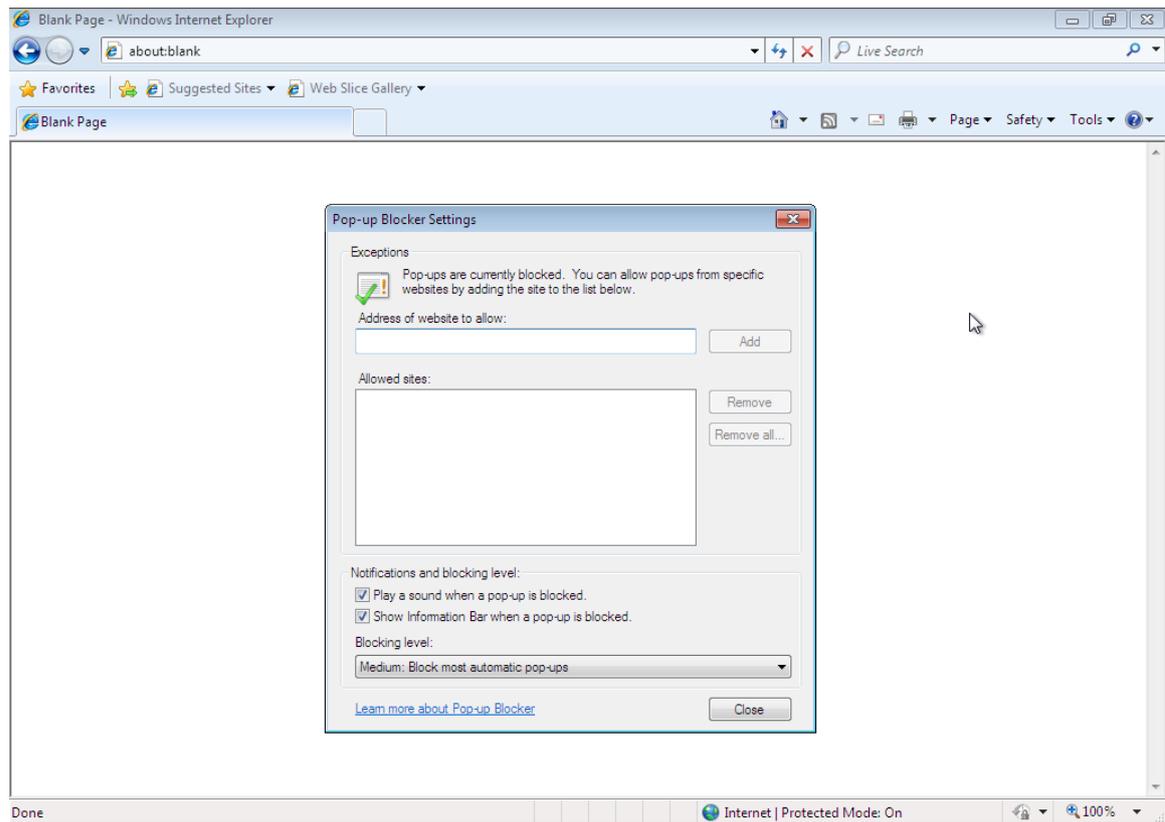
Trusted sites

To set the trusted site configurations:

Now that you've added SEQUENCE to the trusted sites, you need to make sure that the trusted sites settings are sufficient to run the Management Console. Verify that all of the options under the "ActiveX Controls and Plug-ins" header are marked as enabled.

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

1. Click on **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

Manual ActiveX installation

1. Open the Administration site's physical folder.
2. Under ActiveX folder, find the compressed object `ImgFlowX.cab`.
3. Display the content of the `ImgFlowX.cab` file. Its content should include 2 items:
 - `ImgFlowX.INF` – a setup information file
 - `ImgFlowX.ocx` – an ActiveX control
4. Copy the ActiveX control `ImgFlowX.ocx` to your local drive.
5. Register the control:
 - On the **Start** menu click **Run**.
 - Write the following command:
`Regsvr32 <local drive>:\.\.\ImgFlowX.ocx`
 (<local drive>:\.\. is the local folder of the control)

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

		<p>resume searching. In the next iteration the search will be started from this point.</p> <p>Allowed values: 1-120</p> <p>Recommended values: 80-120</p>
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SEQUENCE Windows Services

BPM Windows Service.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	SEQUENCE Runtime 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 Configuring the SEQUENCE Database with Scripts

The installation package includes a folder named DB Scripts. In the folder are six script files prefixed by numbers (0-5) to run consecutively. Their overall purposes are as follows:

1. Delete any old SEQUENCE database already on the server.
2. Create a fresh SEQUENCE database.
3. Populate the database with tables SPs assemblies etc.
4. Populate the system tables with "off the shelf" records.
5. Enable CLR on the server.
6. Initialize the Service Broker and allow transactions through the SEQUENCE database.