

# Installation & Implementation Guide





Pegasus Web Xchange Version 2.20+ Installation & Implementation Guide Jan 2023

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**Installation & Implementation Guide** 

#### Welcome

Thank you for purchasing Pegasus Web Xchange, the application that allows access to Opera 3 data using a web browser and mobile apps. With Pegasus Web Xchange you can access Opera 3 data either when using a company intranet or the internet.

#### About this Guide

This Installation & Implementation Guide provides information concerning the installation and initial configuration of the necessary components for Pegasus Web Xchange on one or more machines. This includes installing Opera 3, the Pegasus Web Xchange Communications Service and the Pegasus Web Xchange website. The website is then configured so that the Pegasus Web Xchange services - Payroll Self Service, Timesheets and Pegasus Mobile Sales - can be set up.

#### Getting the Software

The software is available for Pegasus partners to download using Infor Extreme and for customers using the Infor Download Centre.

#### Audience & Expected Skills

Introduction

This guide is for implementation engineers responsible for installing Opera 3 and Pegasus Web Xchange, and then configuring the Communications Service and setting up the website.

It is assumed that you already have good working knowledge of the following:

- Microsoft Windows Server and
- Microsoft SQL Server
- Internet Information Services (IIS)
- General networking
- Mail Servers and Simple Mail Transfer Protocol (SMTP).

#### **Companion Guides**

These guides are available in the **User Guides** section of the Pegasus Help Centre (docs.pegasus.co.uk).

Guide	Description	Audience
Software Requirements	This guide lists the supported software products and environments, including the supported editions of Microsoft Office, Microsoft SQL Server, Microsoft Windows Server and desktop editions, and web browsers.	Website and administrators
Pegasus Web Xchange – Services Setup	This guide includes details to set up Opera 3 and the Pegasus Web Xchange services - Payroll Self Service and Timesheets. Follow the instructions in this guide after completing the necessary steps in this Installation & Implementation Guide.	Website and administrators
Payroll Self Service - User	This guide provides help for using Payroll Self Service.	Users
Timesheets - User	This guide provides help for using Timesheets.	Users
Pegasus Mobile Sales – Help	A help file is provided in Pegasus Mobile Sales.	Users



Prerequisites

These are the server and web browser prerequisites that must be considered before Pegasus Web Xchange is installed.

Product	Note
Opera 3 (latest)	<ul> <li>Payroll Self Service and Timesheets - Visual Foxpro and SQL Server editions supported.</li> </ul>
	- Pegasus Mobile Sales - Visual Foxpro edition only supported.
Microsoft Windows	For the SQL Server installations for the databases and website.
Server	<b>Important</b> : If the Control Panel 'Power Options' option 'Fast start-up' is available in the Windows Server software, it must be switched off on all servers running Pegasus Web Xchange.
Microsoft Windows	For software demonstrations only.
	Important: If the 'Power Options' option called 'Fast start-up' is available in the Control Panel, it must be switched off on demonstration PCs.
Microsoft SQL Server	Used for Pegasus Web Xchange - independent of the Opera 3 SQL Server database. Data is transferred between the Opera 3 and Pegasus Web Xchange databases. For hardware and software requirements, visit <u>msdn.microsoft.com/en-us/library/ms143506(v=sql.120).aspx.</u>
Microsoft SQL Server Express	The Express editions can be used instead of the licensed editions. There are limitations of the Express edition, which may make it unsuitable for large-scale deployments:
	Maximum database size of 10 GB per database. The limit applies per database (log files excluded); but in some scenarios users can access more data through the use of multiple interconnected databases.
	No SQL Server Agent service
	Hardware-utilization limits:
	Single physical CPU, but multiple cores allowable
	1 GB of RAM (runs on a system with any RAM amount, but uses only at most 1 GB).
	As a guide, Express editions can be used to store up to 30,000 payslips records accessed by a maximum of 100 concurrent employees. Pegasus does not support Express editions if the limitations are exceeded.
Microsoft IIS (Included with Windows)	Internet Information Services must be enabled and started on the web server before Pegasus Web Xchange is installed. A new website and application pool is added to IIS when Pegasus Web Xchange is installed.
Microsoft .NET Framework (4.7.2)	Microsoft .NET Framework must be installed on each server in the Pegasus Web Xchange infrastructure.
Microsoft OLE DB Driver for SQL Server	The Microsoft OLE DB Driver for SQL Server (MSOLEDBSQL) driver must be installed on each server in the Pegasus Web Xchange infrastructure.
SMTP Mail Server	This must be available so administrators can send new users their user name and password details, to email new passwords when they are reset, and to send emails to existing users.

#### Browsers

The Payroll Self Service and Timesheets services are designed for PCs and iPads using a web browser. A PDF viewer add-on may be needed to view payslips and P60s.

Supported web browsers:

- Microsoft Edge
- Microsoft Internet Explorer 11.x
- Google Chrome (latest).

#### Tablets

Pegasus Mobile Sales works on Android tablets running at least version 4.4 KitKat. Screen sizes must be at least 8 inches wide - 9.7/10" recommended.



Pegasus Web Xchange includes the Communications Service, a website plus the Workflow, services (Payroll Self Service, Timesheets and Pegasus Mobile Sales), plus Pegasus Opera 3. Together these make up the Pegasus Web Xchange Infrastructure. They can either be installed on separate machines or one machine. In this diagram separate machines are used for the IIS Server, the SQL Server storage server and the Opera 3 Server. However a single machine can be used for all components.

#### Pegasus Web Xchange Infrastructure



#### Pegasus Web Xchange Website

The website is installed independently of Opera 3 and the Communications Service.

It is designed for:

- Day to day use of Payroll Self Service and Timesheets
- Administration of Pegasus Web Xchange for Payroll Self Service, Timesheets and Pegasus Mobile Sales.



Note: The website uses session cookies only. These are removed after the web browser is closed.

#### Pegasus Opera 3

Pegasus Web Xchange works with Pegasus Opera 3. Each Opera 3 Client installation includes a Dynamic Link Library (.dll) file to allow data communication between Opera 3 and the Pegasus Web Xchange website.

The Opera 3 'PWX Centre' is used to:

- Subscribe companies to selected services
- Set-up and housekeeping
- View the number of users who are logged on
- View the number of Payroll Self Service changes, timesheets and Pegasus Mobile Sales orders
- Review Payroll Self Service website changes, timesheets and Pegasus Mobile Sales orders
   before they are imported

S PWX Centre PWX Company Services System Payroll Self Service Sales App lain Syster AB Limited AB Limited BC Limited BC Limited BC Limited Data to import fro oll Se Latest 10/06/2016 15:05 ayroll Self Service 10/06/2016 15:05 **PWX Users** Data to import from PWX Used Availa 73 Service Service Action • 📀 Close

Relevant data from Opera 3 is automatically uploaded to the website.

#### Pegasus Web Xchange Communications Service

The Communications Service is installed independently of Opera 3 and the website. It is a Microsoft Windows service that is used to send changes made on the website and in Opera 3 to the Microsoft SQL Server databases in the Pegasus Web Xchange infrastructure. Only a small subset of Opera 3 data is sent between servers so minimal bandwidth is used.

The service is configured to start automatically once it is installed and then runs automatically in the background on each machine.

In particular it is used to:

- Send and receive commands, and complete tasks when it receives a command
- Forward commands to another server if necessary
- Act on a timed command to be processed on a server.

The Communications Service must be installed on the machines where Opera 3 and the IIS web server are installed. If a different machine is used for the SQL Server data store, it can optionally also be installed on that machine to speed up the communication.

In the simplest scenario, where just one machine is used for the website, SQL Server data store and Opera 3 server software, the Communications Service must be installed once. In more complex scenarios, where separate servers are used, it must be installed multiple times.

The installation folder for Pegasus Web Xchange Communications Service includes program files (EXE and DLL files) along with various support files.

File		Installed
PWXConfigTool.exe	The Configuration Utility program installed with Pegasus Web Xchange is where setup details are entered for the locations of Opera 3, Microsoft SQL server, and the Pegasus Web Xchange website. This is also where the activation details are entered. This utility is updated after installing the website.	Each file is installed on every server machine in the Pegasus Web Xchange infrastructure.
PWXInfo.exe	A utility reporting program that creates diagnostic reports for Pegasus Web Xchange.	
PWXService.exe	The Pegasus Web Xchange Communications Service, which is run automatically on each machine it is installed on.	
Pegasus.Workflows.WindowsService.exe	The Pegasus Web Xchange Workflows Service, which is run automatically on the storage machine only.	

#### Pegasus Web Xchange Workflow Service

The Workflow service is another Microsoft Windows service that is used to progress a timesheet from one state to the next, depending on the action being completed at the time. The service is configured to start automatically once it is installed and then runs automatically on the storage machine.

The databases for the Workflow are created on the same SQL Server that holds the Storage database.



There are a number of components involved in the installation of Pegasus Web Xchange. These include Opera 3, Pegasus Web Xchange Communications Service and the Pegasus Web Xchange website. See page 5 for the Opera 3 version to install.

The installation files for Opera 3 and for Pegasus Web Xchange are supplied separately.

#### **Installation Options**

Both the Communications Service and the Pegasus Web Xchange website can be installed either manually or with Windows installer packages, which can be used to install or upgrade software using Group Policy settings.

Option	Communications Service	Website
Executable programs	Setup.exe	Setup.exe
Microsoft installer packages	Pegasus Web Xchange Service.msi	Pegasus Web Xchange Website.msi

Each of the Pegasus Web Xchange components can be installed either on an individual server or on separate servers.

#### **Single Server**

In the simplest scenario, the same server can be used for the Opera 3 server, Microsoft SQL Server storage server and the IIS web server.



One server for Opera 3, Microsoft SQL Server and IIS

#### **Multiple Servers**

In more complex scenarios, separate servers in different network domains can be used for the Opera 3 server, the Microsoft SQL Server storage server and the IIS web server. A separate SMTP email server can also be used.



#### **Disk Space Requirements**

Opera 3	Server installation 185 MB Client installation 200 MB
Pegasus Web Xchange Services	30 MB
Pegasus Web Xchange Website	50 MB



First Opera 3 must be activated using the details supplied, followed by the Pegasus Web Xchange web site. Each Pegasus Web Xchange licence is tied to specific Opera 3 licence details. The license includes the number of named service users that can be created.

Activation details for Opera 3 and Pegasus Web Xchange are provided with the software.

Opera 3	Opera 3 must be activated in the normal way by using the activation key provided with the software. This provides access to Pegasus Web Xchange functions in Opera 3, such as the 'PWX Centre', after Pegasus Web Xchange is installed.
Pegasus Web Xchange	Pegasus Web Xchange must be activated during the configuration of the website, after the Communication Service and website are installed.
	The activation key determines the number of named users for each service.
	Any later reactivation, for example to increase the number of named users or use a new Pegasus Web Xchange service, must be done on the website.
	Administrator users
	Pegasus Web Xchange provides some free administrator users that do not affect the purchased user count.
	These are the free users:
	Any number of website administrators
	One Payroll Self Service administrator
	One Timesheets administrator
	One Pegasus Mobile Sales administrator.

![](_page_12_Picture_0.jpeg)

The installation and configuration of Pegasus Web Xchange involves separate installations of the Pegasus Web Xchange Communications Service, and of the website, on designated servers; followed by the configuration of the website using a Configuration Utility.

Follow all the steps for new installations. Follow steps 1, 2, 3 and 4 for upgrades from earlier versions.

![](_page_12_Figure_3.jpeg)

- For new installations, after step 6 is completed, Pegasus Web Xchange is configured. Opera 3 and the Pegasus Web Xchange services now need to be set up. Details for this are included in the **Pegasus Web Xchange Services Setup guide** on the Pegasus Help Centre <u>docs.pegasus.co.uk</u>.
- For upgrades, the website is ready for use after step 4.

### Installation & Implementation Guide

![](_page_13_Picture_1.jpeg)

Installation Checklists

#### STEP 1: Prepare for the New Installation or Upgrade

Before installing Opera 3 and Pegasus Web Xchange, consider these points and read the <u>Appendix</u> <u>A -Pre-Installation Preparation</u> section.

Ne	w Installations	
•	Decide on a name for the Pegasus Web Xchange website and also the servers it will be installed on.	
•	Create a branded banner for the website if required. A simple website banner is provided with Pegasus Web Xchange which can be used if a branded banner is not needed.	
	Banners can be saved in JPG, PNG or GIF formats. The supplied banner's dimensions are width 920px, height 108px.	
Ne	w Installations and Upgrades	
•	Have the supplied Opera 3 and Pegasus Web Xchange activation details ready.	
•	Close all open Pegasus applications on the server.	
•	On each server machine in the Pegasus Web Xchange infrastructure:	
	<ul> <li>Check that Microsoft .NET Framework 4.7.2 is installed on each server. If it is not installed, install it on each server from the Microsoft Downloads Centre - <u>www.microsoft.com/en-gb/download/</u>.</li> </ul>	
	<ul> <li>Install the MSOLEDBSQL driver from the <i>Prerequisites</i> folder of the software download image. Only the Client Components feature must be installed. The SDK is not required.</li> </ul>	
	<ul> <li>Check that the Net.TCP Port Sharing service is not set to 'disabled'. If it is disabled, set it to 'Automatic (Delayed Start)', 'Automatic', or 'Manual'. Then start the service.</li> </ul>	
•	On the web server:	
	Check that Microsoft Internet Information Services is installed and started.	
	• Pegasus Web Xchange can be configured to be used either in an intranet or on the world wide web. If the website is going to be made available on the internet, you must consider using an SSL certificate to ensure a secure connection between the server and web browsers. Secure sites use the HTTPS protocol (Hyper Text Transfer Protocol Secure).	

#### STEP 2: Install Opera 3 (New & Upgrade Installations)

The installation updates the machine's registry so the Opera 3 Server installation must be done at the server machine rather than from a remote PC.

**Note**: Full installation and upgrade instructions are detailed in the Opera 3 Installation Guide on the Pegasus Help Centre (docs.pegasus.co.uk).

![](_page_14_Picture_3.jpeg)

		V
1.	Run the <i>Menu.exe</i> command from the installation files folder. On the installation screen click Opera 3 and then click <b>Readme</b> to read information about the release.	
2.	Click <b>Install Opera 3</b> on the installation menu to install or upgrade the Opera 3 Server machine.	
3.	Follow the instructions and steps in the wizard.	
4.	Install the Opera 3 Client Installation using the <b>Install Client</b> shortcut in the <b>Pegasus Opera 3</b> <b>Server</b> folder on the desktop.	
5.	Run Opera 3 and enter the licence details for this release.	
6.	Update each client PC.	
	Go to the \\ <i>Server&gt;\Server XXX Static\Client Setup\</i> folder, where <i>Server&gt;</i> is the server's name, and XXX is either <i>VFP</i> or <i>SQL</i> . If the server software was installed in a non-default location, go to the \\ <i>Server&gt;\Server XXX Static and Dynamic\Client Setup\</i> folder.	
	Open the <b>Exe</b> subfolder and double-click <i>Setup.exe</i> to run the client installation. Repeat for each client computer.	

# STEP 3: Install Web Xchange Communications Service (New & Upgrade Installations)

Pegasus Web Xchange Communications Service enables the synchronisation of data used in the Pegasus Web Xchange services and Pegasus Opera 3. A Windows service is configured to run automatically once the Communications Service is installed. A shortcut is added to the **Start** button to view the guides and run the Configuration Utility.

**Important**: The Communications Service must be installed on each machine in the Pegasus Web Xchange infrastructure where Opera 3 and the IIS web server are installed. If a different machine is used for the SQL Server data store, it can optionally also be installed on that machine to speed up the communication.

Pegasus Web Xchange Service - InstallShield Wizard	
Welcome to the InstallShield Wizard for Pegasus Web Xchange Service	
The InstallShield(R) Wizard will install Pegasus Web Xchange Service on your computer. To continue, dick Next.	
WARNING: This program is protected by copyright law and international treaties.	
< Back Next > Cancel	
Make sure Opera 3 is not running on the Opera 3 server.	
Run the <i>Menu.exe</i> command from the installation files folder. Then click the <b>Install PWX</b> <b>Service</b> link on the installation menu.	
Follow the instructions and steps in the wizard. The default installation location for Pegasus Web Xchange service is either c:\Program Files(x86)\Pegasus\Web Xchange Service or c:\Program Files\Pegasus\Web Xchange Service\.	
Change the location to a different local folder if required. Network drives are not permitted.	

**Tip:** Tick the **Show the Windows Installer log** box on the last page to see details of the installation (available on some Windows editions).

# STEP 4: Install Web Xchange Website (New & Upgrade Installations)

The Pegasus Web Xchange website includes various web pages, stylesheets, images and other files, installed in a number of folders. The installation also creates a website and an application pool for Pegasus Web Xchange in Microsoft Internet Information Services (IIS).

![](_page_16_Picture_2.jpeg)

1.	Run the Menu.exe command from the installation files folder.	
2.	Click the Install PWX Website link on the installation menu.	
3.	Follow the instructions and steps in the wizard. The default installation location for the Pegasus Web Xchange website is either c:\Program Files(x86)\Pegasus\Web Xchange Website or c:\Program Files\Pegasus\Web Xchange Website\.	
	Change the location to a different local folder if required. Network drives are not permitted.	
4.	Accept the IIS Virtual Directory Name of 'WebXchange' or change it if preferred. The name entered here is the site name in IIS and will be part of the website URL.	
	The default website URL will be <i>https://<webservername.domainname>/WebXchange</webservername.domainname></i> . If you use an IIS Virtual Directory Name of 'Payslips', the website URL will be <i>https://<webservername.domainname>/Payslips'</webservername.domainname></i> .	
	Note: For additional security consider hiding the URL from search engines.	

After installing Opera 3, Pegasus Web Xchange Communications Service and the website, the next step is to use a utility program to configure the Communications Service and then to set up the website. After these configuration steps the infrastructure for Pegasus Web Xchange will be complete and the services can now be set up.

![](_page_17_Picture_0.jpeg)

# STEP 5: Configure Web Xchange Communications Service (New Installations)

Important: It is a once-only process so you must make sure the details entered are correct.

The **Configuration Utility** supplied with Pegasus Web Xchange Communications Service is used to enter the activation key, the first website administrator's details, and the details of the machines and databases used for Opera 3, Microsoft SQL Server, and the Pegasus Web Xchange website.

**Important:** Make sure you use a secure email address for the administrator. Don't use an email address for an everyday user of the website. Make a note of the website administrator user name and password. You must remember it to log on to the website.

F	
This utility will allow you to configure the Pegasus Web Xchange.	
To complete this utility you will be required to enter the following information.	
* Your Pegasus Web Xchange activation key.	

1.	Open the installed 'PWX Configuration Utility' on any server in the Pegasus Web Xchange infrastructure.	
2.	On the <b>Activation</b> screen, enter the activation key on the licence form that was supplied with the software. Click <b>Next</b> .	
3.	On the <b>Server Assignment</b> screen, select the names of the machines to be used. In the simplest scenario, where just one machine is used, the same name will be selected for all machines. In more complex scenarios, where separate machines are used, different machine names must be selected. Click <b>Next</b> .	
4.	On the <b>Database Assignment</b> screen, select the server names for the databases to be used.	
	In the simplest scenario, where just one database installation is all servers, enter the same name for all servers. In more complex scenarios, enter different server names if separate SQL Server installations or instances are being used.	
	To use SQL Server authentication rather than Windows authentication, select the <b>Tick to use SQL Server Authentication</b> boxes. Then enter a username and password.	
	Click Next.	
5.	On the <b>Website Administrator Creation</b> screen, enter the details for the initial website administrator for Pegasus Web Xchange. This administrator is used to set up the website and complete the configuration of Pegasus Web Xchange before people are invited to join.	
_	Important: Make a note of the <i>WebsiteAdmin</i> user name and password. You will need this to log on to the website after updating this utility. You must remember it to log on to the website.	
6.	Select <b>OK</b> to save the settings. The utility will take a few seconds to activate the product, update each selected machine with a Server Role, create the necessary SQL Server databases and create the <b>WebsiteAdmin</b> user.	

#### **STEP 6: Configure Web Xchange Website (New Installations)**

After the Communications Service has been configured you must set up Website Administration on the Pegasus Web Xchange website using the website administrator set up in the step 5.

	Website Adm	ninistration					
-	Configuratio	on settings for v		section you will be ab	le to view and chance u	sers and settings and	f monitor user activit
	Tou nave selected	o the website Administ	auon 500 uon. In uns	Section you will be ad	ie to view and change o	sers and settings and	THOMEOF USEF ACTIVIT
2		11		500	50		
		100		2005	49		

1.	Log in to the Pegasus Web Xchange website using the <i>WebsiteAdmin</i> user that you set up in step 5. The <b>Website Administration</b> page is then displayed. Open the Pegasus Web Xchange website by either:		
	<ul> <li>Entering 'http://<webservername>/WebXchange' in your web browser's address box, (if the default IIS virtual directory name was used when the website was installed). Otherwise enter the custom website name.</webservername></li> </ul>		
_	<ul> <li>From the IIS web server, opening IIS Manager and selecting the Pegasus Web Xchange website in the Connections pane. Then in the Actions pane under Browse Application, click Browse *:80 (http).</li> </ul>		
2.	Click <b>Users</b> and edit the <i>WebsiteAdmin</i> user. Update the record with a name, telephone number and fax number. The <b>Administrator</b> box under <b>Website Administration</b> is ticked automatically. This gives the user the permissions to all website administration pages.		
	Create one or more new Pegasus Web Xchange administrators if required.		
3.	Create one or more administrators for the services that are going to be used. Select the <b>Administrator</b> boxes under <b>Payroll Self Service</b> , <b>Timesheets</b> or <b>Sales App</b> .		
4.	Click Website Administration and then click the Settings button:		
	• Review the Audit logging options. Clearing options will improve site performance.		
	<ul> <li>Review the Data synchronisation period setting for how often data will be synchronised between Opera 3 and Pegasus Web Xchange.</li> </ul>		
	• On the <b>Mail server</b> page, enter the mail server settings. Send a test email.		
	<b>Tip:</b> Check your email settings in your anti-virus software to make sure that emails sent by Pegasus Web Xchange will not be treated as spam.		
5.	Optionally, you can also consider the following:		
	On the <b>Website banner</b> page, upload a branded banner image if required.		
	<ul> <li>From the Email Profiles page, enter the sender email details on the New user email page and amend the email templates on the Forgotten password email page. Remember to replace the placeholder email addresses. On the Email signature page, upload a signature image.</li> </ul>		
6.	Click Service Status to check that communication with Opera 3 is working correctly.		

Now consider the points in the <u>Appendix B: Post-Installation Settings</u> section and then use the **Pegasus Web Xchange - Services Setup Guide** to set up Payroll Self Service, Timesheets or Pegasus Mobile Sales.

![](_page_19_Picture_0.jpeg)

The uninstall process for the Pegasus Web Xchange Communications Service and the website removes the installation files and folders from the 'Program Files' location.

The SQL Server databases used for Pegasus Web Xchange are not removed. You will need to remove these in Microsoft SQL Server after uninstalling the website and Communications Service.

#### To Remove the Website

When the website is uninstalled the IIS settings will also be removed.

1.	If any custom images or stylesheets are used that need to be saved, back them up before removing the website - they will be removed during the uninstallation.	
2.	In the <b>PWX Centre</b> in Opera 3, unsubscribe all the companies that have been subscribed to Pegasus Web Xchange.	
3.	Open 'Programs and Features' in the <b>Control Panel</b> .	
4.	Select <i>Pegasus Web Xchange Website</i> from the list and click <b>Uninstall</b> (from the <b>File</b> menu or the right-click menu).	
5.	Follow the instructions.	

#### To Remove the Communications Service

When the website is uninstalled the Windows Service used for Pegasus Web Xchange will also be removed.

1.	Open 'Programs and Features' in the Control Panel.	
2.	Select <i>Pegasus Web Xchange Service</i> from the list and click <b>Uninstall</b> (from the <b>File</b> menu or the right-click menu).	
3.	Follow the instructions.	

i.

![](_page_20_Picture_0.jpeg)

This appendix describes the possible aspects of the technical environment that should be considered before installing and configuring Pegasus Web Xchange. The actual steps that need to be considered may be different depending on the Pegasus Web Xchange infrastructure being used.

**Note:** The default name for the Pegasus Web Xchange website is 'WebXchange'. If, during the installation of the Website you use another name, use that instead when following these details.

#### .Net Framework

Microsoft .Net Framework must be installed on all of the Pegasus Web Xchange servers (see page 5 for version).

#### **IP Addresses**

Except for a stand-alone demonstration installation, fixed IP addresses are strongly advised for the Pegasus Web Xchange Servers.

Where Pegasus Web Xchange servers are in different domains or workgroups it may not be possible for the various servers to resolve each other's names correctly via the DNS/Active Directory. It may be necessary to add the unresolvable machine names to the HOSTS file on the other servers. This file requires fixed IP addresses.

#### **IIS (Internet Information Services)**

Before Pegasus Web Xchange is installed Internet Information Services must be enabled, configured appropriately for the operating system being used, and then started on the web server.

This article may be useful for understanding IIS: <u>www.iis.net/learn/get-started/planning-your-iis-architecture/understanding-sites-applications-and-virtual-directories-on-iis#Sites</u>

#### **Windows Servers**

The following versions of Windows Server are supported.

Edition	Microsoft Support
Windows Server 2022	Mainstream support ends <u>13/10/2026</u>
	Extended support ends <u>14/10/2031</u>
Windows Server Standard 2019	Mainstream support ends 09/01/2024
	Extended support ends <u>09/01/2029</u>
Windows Server Essentials 2019	Mainstream support ends 09/01/2024
Windows Server Standard 2016	Extended support ends <u>11/01/2027</u>
	Mainstream support has been withdrawn

#### Windows Server 2022

Make sure that at least the following roles are selected:

Internet Information Services	Web Management Tools	IIS Management Console
	Application Development Features	.NET Extensibility ASP.NET CGI ISAPI Extensions ISAPI Filters
	Common HTTP Features	Default Document Static Content WebDAV Publishing
	Security	Request Filtering

#### Windows Server 2019

Using Server Manager, make sure that at least the following options are selected:

IIS Role Services	Web Server	Common HTTP Features	Default Document
			Directory Browsing
			HTTP Errors
			Static Content
		Health and Diagnostics	HTTP Logging
			Request Monitor
		Performance	Static Content Compression

Security	Request Filtering
Application Development	.NET Extensibility 3.5 & 4.7 ASP.NET 3.5 & 4.7 ISAPI Extensions ISAPI Filters
Management Tools	IIS 6 Management Compatibility IIS Management Console IIS Management Scripts & Tools

#### Windows Server 2016

Using Server Manager, make sure that at least the following options are selected:

IIS Role Services	Web Server	Common HTTP Features	Static Content
			Default Document
			Directory Browsing
			HTTP Errors
		Health and Diagnostics	HTTP Logging
			Request Monitor
		Performance	Static Content Compression
		Security	Request Filtering
		Application Development	.NET Extensibility 3.5 & 4.6 ASP.NET 3.5 & 4.6 ISAPI Extensions ISAPI Filters
		Management Tools	IIS Management Console IIS 6 Management Compatibility IIS Management Scripts & Tools

#### Windows 11

The following versions of Windows 11 (Enterprise and Pro) are supported.

Windows 11, version 22H2				
Enterprise	Mainstream support ends <u>14/10/2025</u>			
Pro	Mainstream support ends <u>08/10/2024</u>			
Windows 11, version 21H2				
Enterprise	Mainstream support ends <u>08/10/2024</u>			
Pro	Mainstream support ends 10/10/2023			

Make sure that at least the following options are selected:

IIS Role Services	Web Server	Common HTTP Features	Static Content Default Document Directory Browsing HTTP Errors
		Application Development	ASP.NET .NET Extensibility ISAPI Extensions ISAPI Filters
		Health and Diagnostics	HTTP Logging Request Monitor
		Security	Request Filtering
		Performance	Static Content Compression
		Management Tools	IIS Management Console

#### Windows 10

The following versions of Windows 10 (Enterprise and Pro) are supported.

Windows 10, version 22H2		
Enterprise	Mainstream support ends <u>13/05/2025</u>	
Pro	Mainstream support ends <u>14/05/2024</u>	
Windows 10, version 21H2		
Enterprise	Mainstream support ends <u>11/06/2024</u>	
Pro	Mainstream support ends <u>13/06/2023</u>	
Windows 10, version 20H2		
Enterprise	Mainstream support ends <u>9/05/2023</u> (See the Review Note)	

Make sure that at least the following options are selected:

IIS Role Services	Web Server	Common HTTP Features	Static Content Default Document Directory Browsing HTTP Errors
		Application Development	ASP.NET .NET Extensibility ISAPI Extensions ISAPI Filters
		Health and Diagnostics	HTTP Logging Request Monitor
		Security	Request Filtering
		Performance	Static Content Compression
		Management Tools	IIS Management Console

#### The Importance of Port 80

For existing installations of IIS, use 'IIS Manager' to check the site that is bound to port 80. The WebXchange website is created under this site. If there are no websites currently bound to port 80 a new one called 'PWXSite' will be created and the WebXchange application will be created under this.

#### **HTTPS and SSL**

It is strongly recommended that secure HTTP (HTTPS) is used for WebXchange, whether this is for intranet or Internet usage. When a web browser connects to a webserver using HTTP, it is possible for the data that travels over the network to be intercepted and read by a third party. Connections using HTTPS automatically encrypt and decrypt the data at each end of the connection, so if a third party intercepts the data it is unreadable.

In order to enable HTTPS on the webserver, you need to obtain, install and configure a SSL certificate. This is the key that lets the web browser positively identify the server and so allows the connection to be secured.

#### **Obtaining SSL Certificates**

This will need to be done several weeks before going live because the validation process can take some time. The company that you are obtaining the certificate from will need to validate your company's details before they are allowed to issue the certificate. While certificates are valid worldwide, the validation process may have to be performed in the United Kingdom.

There are a number of SSL certificate providers available. Two of the most commonly used providers are:

- www.globalsign.co.uk/ssl/
- www.symantec.com/en/uk/verisign/ssl-certificates.

#### SQL Server

Every Pegasus Web Xchange server needs to connect to each of the Pegasus Web Xchange databases. To achieve this you need to configure both the Windows Firewall, and SQL Server on all of the machines running it.

Additionally if Opera 3 SQL is used the Pegasus Web Xchange Communications Service on the Opera 3 Server machine will need to access the company databases. These MSDN articles may be useful for installing Microsoft SQL Server:

Hardware and Software Requirements for Installing SQL Server 2012 Hardware and Software Requirements for Installing SQL Server 2014

Hardware and Software Requirements for Installing SQL Server 2016

Hardware and Software Requirements for Installing SQL Server 2017

#### SQL Server Configuration Manager

In SQL Server Configuration Manager consider the following:

- Ensure the TCP/IP protocol is enabled for MSSQLSERVER (or the appropriate instance).
- If SQL Server Express is in use:
  - Disable all of the dynamic ports and use a fixed port number (this is required in order to open the appropriate firewall port later).
  - Note the TCP Port number in use (usually 1433) needed to configure the firewall.
- When connecting to an instanced SQL Server, the database driver will attempt to discover the actual TCP port number to be used for data connections, by initially querying the server on UDP port 1434. If this does not work, or if a non-standard port is used for the default instance, this will need to be entered into the Pegasus Web Xchange Configuration Utility using the format 'Server,Port', for example 'mysqlserver,9876'.

#### SQL Server Management Studio

The required settings depend on whether Pegasus Web Xchange is using either:

- Windows Authentication mode where the Windows User account is used to connect to SQL Server or
- SQL Server Authentication mode where a SQL Server login name and password are used to connect to SQL Server.

**Note**: SQL Server Authentication mode must be used if the Pegasus Web Xchange Servers are on multiple domains or one of Pegasus Web Xchange Servers is in a workgroup.

#### Windows Authentication mode

The Pegasus Web Xchange Communications Service runs as the Local System account in Microsoft Windows on all machines in the Pegasus Web Xchange infrastructure. The Workflow Service runs under the same account but only runs on the machine in the Pegasus Web Xchange infrastructure with the storage role.

This Windows account is listed as NT AUTHORITY\SYSTEM in SQL Server. This login must be granted the **dbcreator** server role.

In a multi-server setup, the SYSTEM accounts of the other Pegasus Web Xchange Servers must also be setup in the same way. This is also required where the SQL Server is a standalone machine that does not have Pegasus Web Xchange Server installed. This is done by adding those computers to the SQL Server Logins.

To add a computer you must use a login name of "*domain/computer*\$", e.g. CORPDOMAIN/SERVER2\$.

#### **Other Options**

Alternatively, the PWX services and IIS application pool can be configured to run as a domain user account with sufficient permissions to read and write to the SQL Databases for PWX.

Note: If the password is changed for this domain user account, the IIS application pool must be updated with the new password.

#### SQL Server Authentication mode

**Note**: Do not use the sa Login for Pegasus Web Xchange as this account has very broad permissions. For security reasons, it is advisable that each SQL Server uses a different SQL Login name and password.

Add a new Login using SQL Server authentication and grant it the **dbcreator** Server Role. Password expiration should be turned off.

If you want to use an existing SQL Login, then you should do the following, so that the logins are truly identical:

Where multiple SQL Servers are used simply having the same username and password is not sufficient, they need the same SID (Security Identity). Create the Login on one of the SQL Servers normally and determine the SID that was automatically generated for it, by running the following query.

select sid, name from sys.syslogins where name = 'mylogin'

On the other SQL Servers, create the <u>same login</u> using the previously determined SID, by running the following statement.

After these logins have been created, they can be edited normally by using SQL Server Management Studio.

#### Opera 3 SQL Databases

If you are running Opera 3 SQL, then the Pegasus Web Xchange Service running on the Opera 3 Server will need access to the company data.

If Opera 3 SQL Company databases are located on the Opera 3 Server

The PWX Service runs as the Local System account in Windows. This Windows account is listed as NT AUTHORITY\SYSTEM in SQL Server. This Login must be allowed to access the SQL Databases.

If Opera 3 SQL Company databases are located on a different Opera 3 Server

The SYSTEM account of the PWX Server that also hosts Opera 3 SQL machine needs to access the company databases. This is done by adding the SYSTEM account of that PWX Server to the SQL Server Logins where the Company data resides. To add a computer you must use a login name of "domain/computers", e.g. CORPDOMAIN/SERVER2\$.

#### **SMTP Email Server**

In order to configure the mail server settings in Pegasus Web Xchange after the installation, you will first need to find out the appropriate SMTP (Simple Mail Transfer Protocol) settings in order to communicate with the mail server.

The mail server may need configuring to allow emails to be sent to it from the Pegasus Web Xchange server that hosts the Pegasus Web Xchange website. Instructions for this vary based on the type and version of the Mail Server software, so we cannot give exact instructions here.

#### **Firewall Settings**

You must consider firewall settings for SQL Server and Pegasus Web Xchange. Pegasus Web Xchange uses both TCP (Transmission Control Protocol) and UDP (User Datagram Protocol) communication sockets. TCP and UDP port numbers must be made available for SQL Server and Pegasus Web Xchange.

#### SQL Server

On the SQL Server allow TCP port 1433 in the incoming rules. If a non-standard port has been used, allow that port number instead. SQL Server connections also use UDP port 1434 in order to determine which actual port is used when non-default instances are connected to. In other words the SQL Server driver connects to this port on the target server to find out the actual TCP port number to use when resolving an instance name.

**Tip:** It is advisable at this point to test that all SQL Servers can be connected to from all Pegasus Web Xchange servers.

#### Pegasus Web Xchange

On all of the Pegasus Web Xchange Server(s), allow both TCP port 51918 and UDP port 51919 in the incoming rules.

Pegasus Web Xchange Servers listen for instructions on TCP port 51918. This is used for server-toserver communications, the Opera 3 client DLL, and the Pegasus Web Xchange Configuration Utility and the Pegasus Web Xchange Info Tool.

Additionally the Pegasus Web Xchange Servers also communicate on UDP port 51919. This is used to provide the drop-down lists of known Pegasus Web Xchange Servers in the Configuration Utility, and is also used to detect if active PWX Servers go offline.

Pegasus Web Xchange Servers also communicate on TCP port 51922 in the incoming and outgoing rules. This is used to provide the Pegasus Workflow Service for PWX Timesheets.

**Note:** UDP broadcasts are blocked by routers.

#### SMTP Email Server

The mail server may need to open up the SMTP port if it has not previously been used, or if it was previously used, but was restricted to certain machines. On the mail server, allow TCP port 25 (for the Pegasus Web Xchange Website Server) in the incoming rules. Port 25 is the default - change as required if the mail server uses a different port number.

#### Firewall Ports Summary

None of these are required for a stand-alone demonstration installation. All the <u>outgoing</u> ports are open by default so do not need to be configured. They are only included in this list for completeness and to aid in troubleshooting.

Machine Type	Direction	Transport	Port	Purpose
Opera 3 Client	Outgoing	ТСР	51918	Allow PWXClient.DLL to talk to Pegasus Web Xchange Servers.
PWX Server	Incoming	ТСР	51918	From other Pegasus Web Xchange Servers / PWXClient.DLLs
PWX Server \$	Outgoing	ТСР	51918	To other Pegasus Web Xchange Servers
PWX Server \$	Outgoing	UDP	51919	Pegasus Web Xchange Server discovery
PWX Server \$	Incoming	UDP	51919	Pegasus Web Xchange Server discovery
PWX Server \$	Outgoing	ТСР	51922	Pegasus Web Xchange Workflow
PWX Server \$	Incoming	ТСР	51922	Pegasus Web Xchange Workflow
PWX Server \$\$	Outgoing	ТСР	1433*	To SQL Server
SQL Server \$\$	Incoming	ТСР	1433*	Incoming SQL calls
SQL Server \$\$	Incoming	UDP	1434*	SQL Server discovery for Instances
Web Server	Incoming	ТСР	80*	For HTTP browsing of the site
Web Server	Incoming	ТСР	443*	For HTTPS browsing of the site
Web Server	Outgoing	ТСР	25*	Sending Emails
Mail Server	Incoming	ТСР	25*	SMTP Emails

\* These are the default ports for these services.

\$ These can be omitted if there is only one PWX Server.

\$\$ These can also be omitted if there is only one PWX Server **and** it also hosts the only SQL Server used by the PWX databases.

![](_page_31_Picture_0.jpeg)

This appendix describes the possible aspects of the technical environment that should be considered after installing and configuring Pegasus Web Xchange. The actual steps that need to be considered may be different depending on the Pegasus Web Xchange infrastructure being used.

The default name for the Pegasus Web Xchange website is 'WebXchange'. If, during the installation of the Website you use another name, use that instead when following these details.

#### **IIS with HTTPS**

This step is only required if the website is to be secured using HTTPS/SSL.

#### Install the certificate

In Internet Information Services (IIS) Manager, select the server (the top level under **Connections**), open **Server Certificates** from the middle pane. Select **Import** under **Actions** in the right pane.

#### Securing the WebXchange

By default Pegasus Web Xchange is installed in the site that is bound to Port 80 (http).

- 1. If that site is already also bound to Port 443 (https), we just need to restrict Pegasus Web Xchange to SSL only.
- 2. If you already have a separate site that is bound to Port 443 (https), we need to move Pegasus Web Xchange to that https site, and restrict Pegasus Web Xchange to SSL only.
- 3. Otherwise, we need to setup https on the Site where Pegasus Web Xchange is installed, then restrict Pegasus Web Xchange to SSL only.

### Restricting Pegasus Web Xchange to SSL only (if another site already supports HTTPS)

- 1. In the **Connections** tree, select the WebXchange application.
- 2. Open **SSL Settings** from the middle pane.
- 3. Tick the **Require SSL** option and click **Apply** in the right pane.

#### Moving Pegasus Web Xchange to an existing secure site

- 1. In the **Connections** tree, select the WebXchange application. Right-click and **Remove**.
- 2. In the **Connections** tree, select the site where you want to add it to. Right-click and click **Add Application** and use the following settings:

Alias	WebXchange
Application pool	PWXAppPool
Physical path	C:\Program Files (x86)\Pegasus\Web Xchange Website

- 3. In the **Connections** tree, select the WebXchange application.
- 4. Open SSL Settings.
- 5. Tick the **Require SSL** option and click **Apply** in the right pane.

#### Setup HTTPS on the existing site

- 1. In the **Connections** tree, select the site where WebXchange is located.
- 2. Right-click and click Edit Bindings...
- 3. Click **Add** and use the following settings:

Туре	https
IP address	All Unassigned
Port	443
SSL Certificate	Select the certificate name as installed earlier

- 4. Click Close
- 5. In the **Connections** tree, select the WebXchange application.
- 6. Open SSL Settings.
- 7. Tick the **Require SSL** option and click **Apply** in the right pane.

**Important:** Check these settings again after upgrading from an earlier version of the Pegasus Web Xchange website. They may be changed by the upgrade program.

#### **Firewall Settings for IIS**

The settings depend on whether WebXchange is to be accessed over HTTP or HTTPS.

#### For HTTP

On the **IIS Server**, allow TCP port 80 in the incoming rules. There may already be a rule for this called something like 'World Wide Web Services (HTTP Traffic-In)'.

#### For HTTPS

On the **IIS Server**, allow TCP port 443 in the incoming rules. There may already be a rule for this called 'World Wide Web Services (HTTP Traffic-In)'.

#### **Router Settings**

If Internet access is required for WebXchange, then the internet router for the company will have to be configured to route incoming traffic on TCP port 80, or 443 (as appropriate) to the IIS Server where WebXchange is located. This is known as port forwarding.

Refer to the router's user guide for instructions.

#### **SQL Server**

Once the SQL Server databases have been created, it is possible to reduce the permissions of the logins used for Pegasus Web Xchange.

- The **dbcreator** Server Role may be removed from all the logins.
- Ensure that each of the logins has their user mapping set so that they are set as **dbowner** for each of the Pegasus Web Xchange databases.

![](_page_33_Picture_0.jpeg)

This section includes solutions for specific installation and implementation issues.

# The file web.sitemap required by XmlSiteMapProvider does not exist

This error can happen if Pegasus Web Xchange could not be installed under the default website node in Internet Information Services (IIS) using port 80. In this situation Pegasus Web Xchange is installed under its own website in IIS called 'PWX' using a different port number but a physical path could not be entered for the site. To fix the error a path must be entered using an empty folder on the web server.

- 1. Create a folder on the PWX Website server, for example C:\TempPWX\.
- 2. In IIS Manager:
  - i. Select the PWX website and select **Basic Settings** under **Actions**.
  - ii. Set the **Physical Path** to the folder just created and click **OK**.
  - iii. Restart the website.

![](_page_34_Picture_0.jpeg)

### Installation & Implementation Guide

Glossary

Application pool	An area in Internet Information Services (IIS) that is reserved for a website. This makes it easier to identify a site in IIS, improves security isolates any problems from other websites in IIS.
Configuration utility	A small program that is installed with Pegasus Web Xchange where various details are entered for the locations of Opera 3, SQL server, and the Pegasus Web Xchange website. This is also where the license details are entered.
Digital certificate	An attachment included with a message that provides a secure connection between a web server and a web browser.
Domain Name System (DNS)	Naming system that lists resources connected to the Internet or a private network. It also translates domain names to the numerical IP addresses required to locate computers and other devices.
Instanced SQL Server	Collection of SQL Server databases run by a single SQL Server installation. You can view each instance separately and can be started and stopped individually. Each instance has completely separate databases, connection configuration, and security credentials.
Internet Information Services (IIS)	Web server feature in Microsoft Windows used to make a website available on the internet, on an intranet, or on an extranet.
Javascript	A client-side scripting language in a web browser.
Pegasus Web Xchange	This is the core product's foundation on which web based services can be used. It includes the technical infrastructure, security model, data synchronisation and auditing capabilities.
Pegasus Web Xchange Communications Service	This enables data to be updated to and from Pegasus Web Xchange and Opera 3. It uses a Windows service which runs automatically once installed.
The Pegasus Web Xchange Workflow Service	This progresses a timesheet from one state to the next, depending on the action being completed at the time.
Pegasus Web Xchange SQL Server databases	<ul> <li>PWXSync (Communications Synchronisation)</li> <li>PWXStorage (Storage database)</li> <li>PWXWebConfig (IIS and security settings)</li> <li>PWXWorkflowConfig (workflow configuration for Timesheets)</li> <li>PWXWorkflowStorage (workflow state for Timesheets).</li> </ul>
Pegasus Web Xchange services	The business services that can be used with Pegasus Web Xchange (currently Payroll Self Service, Timesheets and Pegasus Mobile Sales).
Pegasus Web Xchange infrastructure	The machines used for the Pegasus Web Xchange installation. The Pegasus Web Xchange infrastructure includes the machine or machines where the website, the Opera 3 server software and the Microsoft SQL Server installation are installed.
Secure Sockets Layer (SSL)	SSL encrypts messages between a web server and a web browser using a digital certificate to provide a secure connection. A digital certificate is an attachment that is included with a message that provides a secure connection between a web server and a web browser. Sites secured with SSL use the Hyper Text Transfer Protocol Secure (HTTPS) protocol – a secure version of the HTTP protocol. When used a padlock is displayed in the browser's URL address bar to indicate a secure website.

Session cookie	A file that is temporarily saved on a PC whilst a website is being used. The cookie is removed when the user logs out of the website. Pegasus Web Xchange uses session cookies.
Storage database	This database is the main data storage for the website.
Sync database	This database is used to retain changes made in Opera 3 before being transferred to the PWX STORAGE database. The changes can then be viewed on the website. This database also retains general settings used for synchronising data plus various audit logs.
	Note: Details changed on the website are saved directly to the PWX STORAGE database without updating the PWX SYNC database.
Windows service	A Windows service is a program that runs automatically in the background and is configured to start automatically once it is installed.
WebConfig database	This database retains the IIS security settings for the website plus security settings for users of the website. The security settings control which pages users have access to and the fields that can be changed on each page.
Workflow databases	The following Microsoft SQL Server databases are installed:     PWXWorkflowConfig: holds configuration data for     Timeshoete workflow definitions
	PWXWorkflowStorage: holds workflow states for Timesheets.