

Opera SE

Opera 3 SQL Server Edition

Installation and Implementation Guide

Installation and Implementation Guide

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Introduction

This Installation & Implementation guide provides the information that you need to install and configure Opera 3 SQL SE.

The guide includes instructions for making sure the prerequisites are installed, installing the server software, configuring the server software, installing the client software and migrating data from Opera 3 (Visual Foxpro database) or Opera 3 SQL.

Instructions are also included to upgrade from earlier versions, and to remove Opera 3 SQL SE from servers and client PCs.

About Opera 3 SQL SE



Opera 3 SQL SE is the latest edition to the Opera 3 family, which merges the present with the future. Built on the solid foundation of Microsoft SQL Server, Opera 3 SQL SE gives you the familiar look and feel of the current Opera 3 product with the power, security and reliability that a SQL Server database brings. The design of Opera 3 SQL SE follows Microsoft best practice for modern client server applications.

For those familiar with Opera 3, Opera 3 SQL SE provides both technical and functional improvements with the ability to extend the product further to fulfil customer needs. With the addition of powerful reporting through the use of modern Business Intelligence products, Opera 3 SQL SE takes businesses to another level in terms of data presentation and analysis, for informed decision making.

Audience

To install Opera 3 SQL SE you need to be trained and accredited for Opera 3 SQL SE, and also have a working knowledge of the following technologies:

- Microsoft Windows Server
- Microsoft SQL Server, including Management Studio.

The [Software Requirements](#) guide lists the supported versions of Microsoft SQL Server.

Installation and implementation stages

Links to download the latest version of Opera 3 SQL SE are included in the release communications to Pegasus partners.

Stage	Description
Stage 1	Checking the server prerequisites
Stage 2	Installing Opera 3 SQL SE server software
Stage 3	Configuring the Opera 3 SQL SE server software
Stage 4	Installing the Opera 3 SQL SE client software on each client PC
Stage 5	Doing 'housekeeping' on Opera 3 (Visual Foxpro database) or Opera 3 SQL before migration
Stage 6	Migrating data from Opera 3 (Visual Foxpro database) or Opera 3 SQL

Stage 1: Checking the server prerequisites

What you need to do

In this stage, you need to check that the necessary prerequisites are installed.

Installation prerequisites

Software	Description
Windows Server 2016+	The Windows Server environment.
Microsoft .NET Framework 4.7.2+	The software development framework used by Pegasus in the development of Opera 3 SQL SE.
Microsoft SQL Server 2014+	The data store technology used for Opera 3 SQL SE. The Software Requirements guide lists the supported versions of Microsoft SQL Server.
Microsoft Report Viewer 2015 Runtime	This is needed for viewing reports that were designed for the Server Data Intensive Processes that are run on the Opera 3 SQL SE server.

Is Microsoft .NET Framework 4.7.2+ installed?

If necessary, download and install from www.microsoft.com/en-us/download/details.aspx?id=49982.

The easiest way to check the version of .NET that is installed is to check the registry.

Follow these instructions

1. Run 'regedit' from the Start menu (run as administrator).
2. In the Registry Editor, open the following subkey:
'HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\NET Framework Setup\NDP\v4\Full'.
The version number is shown below **Full**.

In SQL Server 2014 +, is the TCP/IP protocol enabled and does the Windows account have an appropriate role?

In SQL Server Configuration Manager

Make sure that the TCP/IP protocol is enabled for MSSQLSERVER (or the appropriate instance).

Follow these instructions.

1. On the server, click **Start** and type 'SQL Server'. Then click **SQL Server Configuration Manager**.
2. In the left pane, select **Client Protocols** under **SQL Native Client Configuration**.
3. Make sure that 'TCP/IP' is set to 'Enabled'.
4. Do the same for all 'TCP/IP' protocols in SQL Server Configuration Manager.
5. Close SQL Server Configuration Manager.

In SQL Server Management Studio

Make sure that the NT AUTHORITY\SYSTEM local Windows account is granted the role of 'dbcreator'. The Opera 3 SQL SE service uses this account as the Local System account to connect to Microsoft SQL Server.

Follow these instructions.

1. On the server, click **Start** and type 'SQL Server'. Then click **SQL Server Management Studio** and connect to Microsoft SQL Server.
2. In the left pane, select **Security** and then **Logins**.
3. Open the **Properties** dialog for the NT AUTHORITY\SYSTEM account and open the **Server Roles** page.
4. Under **Server Roles**, make sure 'dbcreator' is selected and close the dialog.
5. Close SQL Server Management Studio.

Is Microsoft Report Viewer 2015 installed on the server?

Microsoft Report Viewer 2015 is used to view server reports.

Follow these instructions.

1. On the server, click **Start** and type 'Control Panel'. Select **Programs** and then **Programs and Features**.
2. Check that Microsoft Report Viewer 2015 Runtime is installed.
3. If necessary, download and install from www.microsoft.com/en-us/download/details.aspx?id=45496
4. Close Programs and Features.

Microsoft SQL Server System CLR Types

Microsoft SQL Server System CLR Types is a prerequisite for Microsoft Report Viewer 2015. CLR Types is part of the Microsoft SQL Server 2014 feature pack.

There are multiple files included in the download. Only download the 'ENU\x64\SQLSysClrTypes.msi' file from www.microsoft.com/en-us/download/details.aspx?id=42295.

Next stage

After completing this stage, follow [stage 2](#) to download the software and install the Opera 3 SQL SE server software.

Stage 2: Installing server software

What you need to do

In this stage, you must install the Opera 3 SQL SE server software using a setup wizard. The Server Administration & Monitoring utility is also installed. This must be used to configure the server software after it is installed.

Prerequisites

- All actions for [stage 1](#) (checking the server prerequisites) must be completed.
- The 'Net.Tcp Port Sharing Services' Windows service must be running and the Startup type set to 'Automatic'. This service allows a net.tcp port to be shared and secured using a defined port number. This is needed so that the Pegasus Opera Service can be started during the Opera 3 SQL SE server installation.
- The Distributed Transaction Coordinator Windows service must be running and the Startup type set to 'Automatic'. This Windows service provides the transaction infrastructure for distributed systems. For Opera 3 SQL SE, the Distributed Transaction Coordinator service makes it possible to transfer transactions between companies when a Server Data Intensive Process is used.
- Make sure the [Firewall rules](#) are set up correctly (applies to multiple computer setups).

Actions

Follow these instructions.

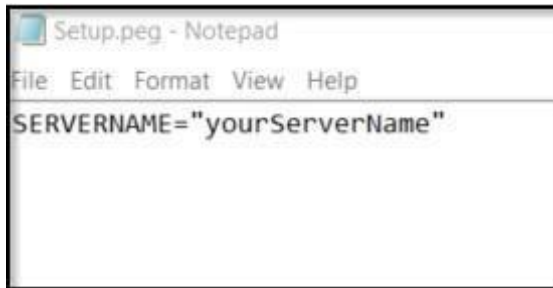
Downloading the software

Download the latest version of Opera 3 SQL SE software from the [Infor Product Download Center](#) or [Infor Xtreme](#).

The downloaded software includes two folders; one for the client installation and the other for the server installation.

1. Save the downloaded software where it can be accessed from the server and from each client PC.
2. In the **Client** folder, open the 'Setup.peg' file using a text editor like Notepad++.

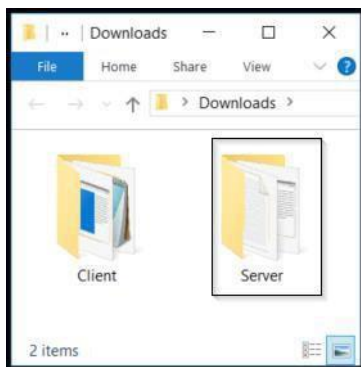
3. On the first line, enter the name of your server between the quotes. This is used when updating each client PC's registry to point the client installation to the server.



If you are upgrading your software from Opera 3 (Visual Foxpro database) or Opera 3 SQL, also download the latest release of that product. The recommendation is that you also install that and use it when running 'housekeeping' processes in [Step 5](#) before migrating your company's data to Opera 3 SQL SE.

Installing the server software

1. On the Opera 3 SQL SE server, run Setup.exe from the **Server** download folder.
2. Complete the steps in the wizard setup.



See Also

[Firewall settings](#)

[Server folders](#)

[Windows registry updates](#)

[Windows Services](#)

Next stage

After completing this stage, follow [stage 3](#) to configure the Opera 3 SQL SE server software using Server Administration & Monitoring.

Stage 3: Configuring the server

What you need to do

In this stage, you must configure Opera 3 SQL SE using Server Administration & Monitoring.

The following tasks are completed during the initial configuration of the Opera 3 SQL SE server software:

- Creation and updating of Windows registry entries on the server
- Creation of the core and system databases in Microsoft SQL Server
- Creation of the demonstration data company in Microsoft SQL Server, plus related files in Windows.

Prerequisites

All actions for [stage 1](#) (checking the server prerequisites) and [stage 2](#) (installing the server software) must be completed.

Actions

Follow these instructions.

1. To open Server Administration & Monitoring, use the 'Opera 3 SQL SE SAM' shortcut in the Pegasus Opera 3 Server SQL SE folder on the server's desktop.
2. On the **Initial configuration** view, select the name of the SQL Server from the list or enter it. Our recommendation is to leave the **Data folder** as 'C:\ProgramData\Pegasus\O3 Server SE'.

If the SQL Server you want to use is not displayed, open SQL Server Management Studio and copy the name from the **Connect to Server** dialog. Then paste it into the SQL Server box on the **Initial configuration** view.

3. Click the **Configure** button and then wait for the initial configuration to finish.
4. Log in to Server Administration & Monitoring as 'admin'. You must set a password before you log in for the first time.
5. In the **Mail Server Settings** view, enter the email server details. These details are used when emails are sent from the Opera 3 SQL SE client software.
6. In the **Activation** view, enter your company's details, licence number, serial number and activation key. This view is displayed automatically after logging in.

7. After entering the activation and licence details, leave Server Administration & Monitoring open and do the following:
 - i. In Windows, create a network share location for the Common shared folder on the server that was created during the configuration; for example, '\\<ServerName>\Common').

This share will be used when saving data backup files, BACS files, Payroll, VAT Return & EC VAT related files and other miscellaneous files, such as exported NL Matrix Reports files.
8. In Windows, set the following network permissions for the Common shared folder:
 - i. Full Control permissions for the MSSQLSERVER service. For any account that has control of MSSQLSERVER service, give that control to the Common shared folder in full.
 - ii. For installations including Payroll, read/write permissions to the *Payroll\RTI* subfolder for Pegasus Online Filing Manager users who submit Full Payment Submission, Employer Payment Summary and NINO Verification Request files to HMRC.
 - iii. Read permissions for the users who will need to view or retrieve files that have been saved here.
 - iv. In Server Administration & Monitoring, open the **Company default folders** view and enter the network share in the **Common shared folder** box (for example, '\\<ServerName>\Common'). Save the **Company default folders** view.
9. In the **Printers** view, select the printers that can be used when Server Data Intensive Processes are run.
10. In the **Activation** view, enter your company's details, licence number, serial number and activation key.
11. In the **Mail Server Settings** view, enter the SMTP server details. These details are used when emails are sent from the Opera 3 SQL SE client software.

12. In the **General Settings** view:

- i. Enter the number of days that inactive desktop messages should be retained for. These are the messages that are sent to the clients after Server Data Intensive Processes are run.
- ii. If Pegasus XRL will be used with Opera 3 SQL SE, record the Windows domain name and domain group that has been set up for Pegasus XRL reporting. These details are required for the data security model that is used with Pegasus XRL. For setup details, please refer to the installation guide for Pegasus XRL for Opera 3 SQL SE at docs.pegasus.co.uk.

13. Close Server Administration & Monitoring.

Changing the location of the Common folder? If you change the location of the common folder you **must** make sure that all the sub folders are created in the new location. The best method is to move the existing folder - which will include all sub folders - to the new location.

See Also

[Windows Services](#)

Next Stage

After completing this stage, follow [stage 4](#) to install the Opera 3 SQL SE client on each workstation.

Stage 4: Installing the client software

What you need to do

In this stage, you must install the Opera 3 SQL SE client software on each client PC using the setup wizard.

Prerequisites

- All actions for stage 1, stage 2 and stage 3 must be completed.
- Client PCs must be running Microsoft Windows 10.
- Microsoft .NET Framework 4.7.2+ must be installed on each client PC.
- Make sure the Firewall rules are set up correctly.

Is Microsoft .NET Framework 4.7.2+ installed?

If necessary, download and install from www.microsoft.com/en-us/download/details.aspx?id=49982.

The easiest way to check the version of .NET that is installed is to check the registry.

Follow these instructions

1. Run 'regedit' from the Start menu (run as administrator).
2. In the Registry Editor, open the following subkey:
'HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\NET Framework Setup\NDP\v4\Full'.
The version number is shown below **Full**.

If the Full subkey is not present, then .NET Framework 4.7.2 + may not be installed. Different registry keys may be used in some Windows operating.

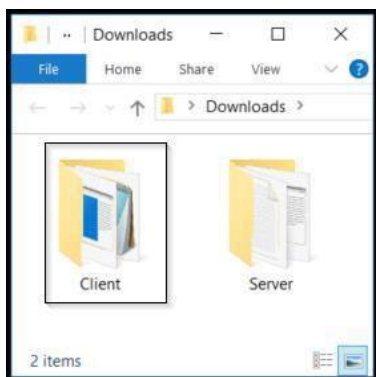
Actions

Follow these instructions.

If you haven't updated the 'Setup.peg' file with the name of the Opera 3 SQL SE server you must do that now. [See Stage 2: Installing server software.](#)

Installing the client software on the server and client PCs

1. On the Opera 3 SQL SE server and all the client PCs, run Setup.exe from the **Client** download folder.
2. Complete the steps in the wizard setup.
3. Complete on each client PC.



See Also

[Client folders](#)

[Windows registry updates](#)

Next Stage

The server software and client software are now installed.

If you are going to migrate your company's data from Opera 3 (Visual Foxpro database) or Opera 3 SQL, follow [stage 5](#) to run housekeeping routines in that product before migrating the data.

If you are not going to migrate data, you are ready to use Opera 3 SQL SE.

The demonstration data - company 'Z' Orion Vehicles Leasing - is available to use when experimenting with the features in Opera 3 SQL SE. Before using the demonstration data in Opera 3 SQL SE take a backup of it using the Backup command on the Utilities menu in the System Manager. The data backup can then be restored to its original state if required.

Stage 5: Doing housekeeping in Opera 3 (Visual Foxpro database) or Opera 3 SQL

What you need to do

In this stage, you should consider doing 'housekeeping' on the existing Pegasus Opera 3 (Visual Foxpro database) or Opera 3 SQL data before migrating the data to Opera 3 SQL SE.

This can be done at any time before migrating data to Opera 3 SQL SE.

Prerequisites

- Relevant access to the housekeeping routines in Opera 3 (Visual Foxpro database) or Opera 3 SQL.

Actions - Housekeeping routines

It is recommended that these housekeeping and period end processes are run in the latest version of Opera 3 (Visual Foxpro database) or Opera 3 SQL before the migration:

1. Install the latest version of Opera 3 (Visual Foxpro database) or Opera 3 SQL, depending on the software being used. That software should have been downloaded as part of [Stage 2: Installing server software](#).
2. Log on to the latest version and complete the housekeeping routines listed below.

These processes may take some time to complete. Some also change accounting period so should be done only at the relevant time. Please read the relevant help topic for details.

Module	Menu	Command	
System	Utilities – Reorganise System Files	Delete VAT history	<input type="checkbox"/>
Sales	History – Action – Tidy History	Remove data	<input type="checkbox"/>
Sales	Utilities	End of Period	<input type="checkbox"/>
Purchase	History – Action – Tidy History	Remove data	<input type="checkbox"/>
Purchase	Utilities	End of Period	<input type="checkbox"/>
Nominal	Utilities	Period End	<input type="checkbox"/>

Cashbook	Utilities	Reorganise	<input type="checkbox"/>
Costing	Utilities	Reorganise	<input type="checkbox"/>
Stock	Utilities	Period End	<input type="checkbox"/>
SOP/Invoicing	Utilities	Reorganisation	<input type="checkbox"/>
POP	Utilities	Reorganise	<input type="checkbox"/>

Next Stage

After completing this stage, follow [stage 6](#) to migrate company data from Opera 3 (Visual Foxpro database) or Opera 3 SQL.

Stage 6: Migrating data from Opera 3 (Visual Foxpro database) or Opera 3 SQL

What you need to do

In this stage, you must run a 'Health Checker' on the Pegasus Opera 3 (Visual Foxpro database) or Opera 3 SQL data and migrate the data to Opera 3 SQL SE using the **Migrate company** view in Server Administration & Monitoring.

Pegasus Opera II data must first be migrated to the latest version of Opera 3 (Visual Foxpro database) or the latest version of Opera 3 SQL before it can be migrated to Opera 3 SQL SE.

Migration

- The company data is copied followed by any associated files (for example, statements and remittances).
- A 'Health check' must be done before the migration.
- A new company is created automatically in Opera 3 SQL SE by the migration.
- If a problem is found during the migration the changes in Microsoft SQL Server can be rolled back.
- If companies are linked to other companies (for example, Sales Ledger in company A is linked to the Nominal Ledger in company B), all those companies must be migrated together.

Migrated data

Option	Description
System data	Relevant company records from the companies table (SEQCO), plus the following tables: <ul style="list-style-type: none"> • User profiles table (SEQUSER) • User groups table (SEQUSRGRP & SEQGRP) • People table (SEQPEOPL) • Navigation favourites table (SEQFAVES)

Option	Description
	<ul style="list-style-type: none"> • Remembered form position and sizes table (SEQFORMS) • Navigation groups table (SEQNAVGRPS) • Report layouts table (SEQRPLAY) • Email profiles table (SEQERPT).
Company data	<p>All company data apart from spool files</p> <p>The migration includes files saved by Opera in a Windows folder - like statements and remittances. These are migrated to the Opera 3 SQL SE Repository or to the Migration folder below the Common folder.</p>

Files without an equivalent folder in Opera 3 SQL SE

The **Migration** folder below the Opera 3 SQL SE **Common** folder is used for files from the source company that do not have an equivalent folder in Opera 3 SQL SE. Examples are emails and spool files. You should check that folder after the migration and if necessary move the files to a more appropriate location.

The root migration folder on the server is 'C:\ProgramData\Pegasus\O3 Server SE\Common\Migration'. A folder is created for each system and company beneath Migration.

Health Checker

The company data must be 'health checked' before the migration. This is important because the database rules in Opera 3 SQL SE are stricter than Opera 3 (Visual Foxpro database) or Opera 3 SQL.

All checks are advised.

Mandatory checks	Example
Valid numeric rule	<p>A numeric overflow; a value of 100 has been added to a field which can only store the maximum value 99.</p> <p>A decimal place numeric overflow; a value of 999.9 has been added to a field which has been defined as 99.99.</p>
Valid date rule	<p>Dates prior to 01/01/1753 will error as they are not allowed in Microsoft SQL Server. Warnings are shown for dates prior to 1899.</p>
Minimum value rule	<p>Checks that fields do not contain values less than the defined minimum value if one has been defined.</p>
Maximum value rule	<p>Checks that fields do not contain values greater than the defined maximum value if one has been defined.</p>
Optional checks	Example
Named value rule	<p>Checks that a field entry is one of the list of specified values; for example, for a sales transaction type is it 'I' (invoice), 'C' (credit note), 'A' (adjustment) and so on.</p>
Pattern matching rule	<p>Entries must match a particular pattern; for example, a document reference must match 'XXXX9999' (where XXXX is a letter and 9999 is a number).</p>
Mandatory value rule	<p>A field must not be empty; for example, a customer record must have an account number.</p>
Unique value rule	<p>Checks that field entries are unique in a table if the field is defined as must be unique. For example, within the customer table, the customer code must be unique.</p>
Referential integrity rule	<p>Checks table joins. Do child records have a parent record? For example, does an invoice transaction record have an invoice header record?</p>

Prerequisites

- All actions for stage 1, stage 2, stage 3 and stage 4 must be completed. You should also consider completing stage 5.
- To migrate data the Microsoft OLE DB Provider for Visual FoxPro 9.0 must be installed on the server. If required, download it from www.microsoft.com/en-us/download/details.aspx?id=14839.
- Access to the Opera 3 (Visual Foxpro database) or Opera 3 SQL data.
- Read/Write network permissions to the 'O3 Server SE' folder in the 'ProgramData' location on the Opera 3 SQL SE server (\ProgramData\Pegasus\O3 Server SE).

This will provide the Read/Write network permissions to the sub folders in this location that are needed during the migration. After the migration the Read/Write permissions for the Windows user account must be removed.

Actions

Follow these instructions.

This process will take some time to complete.

1. Make sure that the folders from which the data will be migrated do not include any non-standard Opera 3 files and folders. The migration may fail if non-standard Opera 3 files and folders are found.
2. Run the Server Administration & Monitoring application using the Windows shortcut on the desktop.
3. On the **Migrate company** view under **Database**, do the following:

Under **Source**:

1. Select the Opera 3 (Visual Foxpro database) server dynamic folder or Opera 3 SQL server dynamic data folder, for example; C:\ProgramData\Pegasus\O3 Server VFP or C:\ProgramData\Pegasus\O3 Server SQL.
2. Select a system code if relevant.
3. Select one or more companies to migrate.

Under **Destination**:

1. Select the SQL Server for the new Opera 3 SQL SE database.
2. Leave the **Repository** and **Common** folders as the default.

Under **Options**:

1. Leave the *Migrate system data*, *Migrate associated users* and *Migrate reports* options selected.
2. Leave the *Roll back changes if migration fails* option selected.
3. Select all the **Health Check** options.
4. Click the **Migrate** button.
5. Check the **Migration** folder for files that were migrated to that location.

After the migration, you must remove the 'Read/Write' network permissions to the 'O3 Server SE' folder in the ProgramData location for the Windows user account used for the migration.

Next Stage

You are now ready to use Opera 3 SQL SE.

Upgrading Opera 3 SQL SE

This section explains the necessary steps to upgrade the Opera 3 SQL SE software on the server and each client PC.

Actions

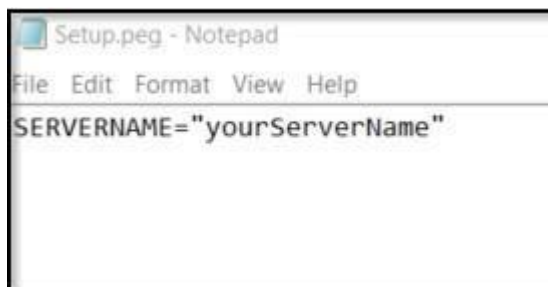
Follow these instructions.

1. Downloading the software

Download the latest version of Opera 3 SQL SE software from the [Infor Product Download Center](#) or [Infor Xtreme](#).

The downloaded software includes two folders; one for the client installation and the other for the server installation.

- i. Save the downloaded software where it can be accessed from the server and from each client PC.
- ii. In the **Client** folder, open the 'Setup.peg' file using a text editor like Notepad++.
- iii. On the first line, enter the name of your server in between the quotes. This is used when updating each client PC's registry to point the client installation to the server.

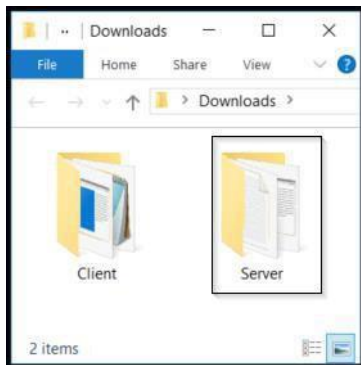


- iv. Save the file.

Make sure that no one is using Opera 3 SQL SE before installing the server and client software.

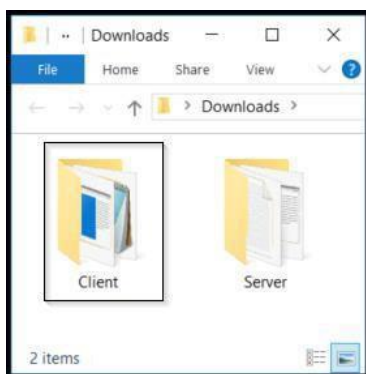
2. Installing the server software

- i. On the Opera 3 SQL SE server, run Setup.exe from the **Server** download folder.
- ii. Complete the steps in the wizard setup.



3. Installing the client software on the server and client PCs

- i. On the Opera 3 SQL SE server and all the client PCs, run Setup.exe from the **Client** download folder
- ii. Complete the steps in the wizard setup.
- iii. Complete on each client PC.



Removing Opera 3 SQL SE

This section explains the necessary steps to remove the Opera 3 SQL SE software from the server and the client software from each client PC. Other steps are necessary too after removing the software - to 'tidy up' the server and the client PCs. Those steps are also detailed below.

Prerequisites

This section applies only if Opera 3 SQL SE has already been installed and you want to remove it from the server and client PCs.

Actions

1. Removing software from the server, plus tidying up

1. Using **Add or Remove Programs**, uninstall the Opera 3 SQL SE server software.
2. In **SQL Server Management Studio**, delete these databases from the Microsoft SQL Server instance used for the Opera 3 SQL SE databases:
 - i. OperaSECompany00? (where ? is the company identifier)
 - ii. OperaSECore
 - iii. OperaSESystem.
3. Using **Regedit**, remove the registry keys from
HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Pegasus\O3 SE.
4. Using **Windows Explorer**, remove the C:\ProgramData\Pegasus\O3 Server SE folder and the C:\Program Files(x86)\Pegasus\O3 Server SE folder.

2. Removing software from each client, plus tidying up

1. Using **Add or Remove Programs**, uninstall the Opera 3 SQL SE client software.
2. Using **Regedit**, remove the registry keys at
HKEY_LOCAL_MACHINE\SOFTWARE\WOW6432Node\Pegasus\O3 SE.
3. Using **Windows Explorer**, remove the C:\ProgramData\Pegasus\O3 Client SE folder and the C:\Program Files(x86)\Pegasus\O3 Client SE folders.

Appendix A: Firewall settings

Firewall settings are not relevant in single PC stand-alone demonstration installations.

In a client-server situation with more than one machine used for an Opera 3 SQL SE installation, you must consider inbound and outbound port settings for the following:

- Pegasus Opera Service
- Microsoft Distributed Transaction Coordinator (DTC)
- Microsoft SQL Server.

Part of the setup for the ports include what actions should be taken when a connection matches specified conditions (allow, allow if secure, block), and when the port rules apply (domain, private, public). You will need to consider your IT security for these aspects of the port rules.

Typically, outbound ports are open by default so should not need to be configured.

Pegasus Opera Service

These ports are used for communications between the client and the server.

To create port rules for the Pegasus Opera Service

1. At the Opera 3 SQL SE Server and each Opera 3 SQL SE Client PC,
2. From the Windows Start menu, type: 'wf.msc' to open the Windows Firewall with Advanced Security window.
3. Create the necessary inbound or outbound port rules.

Machine	Direction	Transport	Port
Opera 3 SQL SE Server	Inbound	TCP	51999
Opera 3 SQL SE Clients	Outbound	TCP	51999

Microsoft Distributed Transaction Coordinator (DTC)

Only needed if the Opera 3 SQL SE server and SQL Server databases are on different machines.

These ports are used for communication between the Opera SE server and the Microsoft SQL Server(s). They are also used between SQL Servers if the databases are on different SQL Server machines.

To create port rules for Microsoft Distributed Transaction Coordinator

1. At the Opera 3 SQL SE Server and Microsoft SQL Server machines,
2. From the Windows Start menu, type: 'wf.msc' to open the Windows Firewall with Advanced Security window.
3. Create the necessary inbound or outbound port rules.

Machine	Direction	Transport	Port
Opera 3 SQL SE Server	Inbound	TCP	135
Opera 3 SQL SE Server	Outbound	TCP	135
Microsoft SQL Server	Inbound	TCP	135
Microsoft SQL Server	Outbound	TCP	135

Microsoft SQL Server

Only needed if the Opera 3 SQL SE server and SQL Server databases are on different machines.

On the SQL Server machine 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 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.

To create port rules for Microsoft SQL Server

1. At the Opera 3 SQL SE Server and Microsoft SQL Server machines,
2. From the Windows Start menu, type: 'wf.msc' to open the Windows Firewall with Advanced Security window.
3. Create the necessary inbound or outbound port rules.

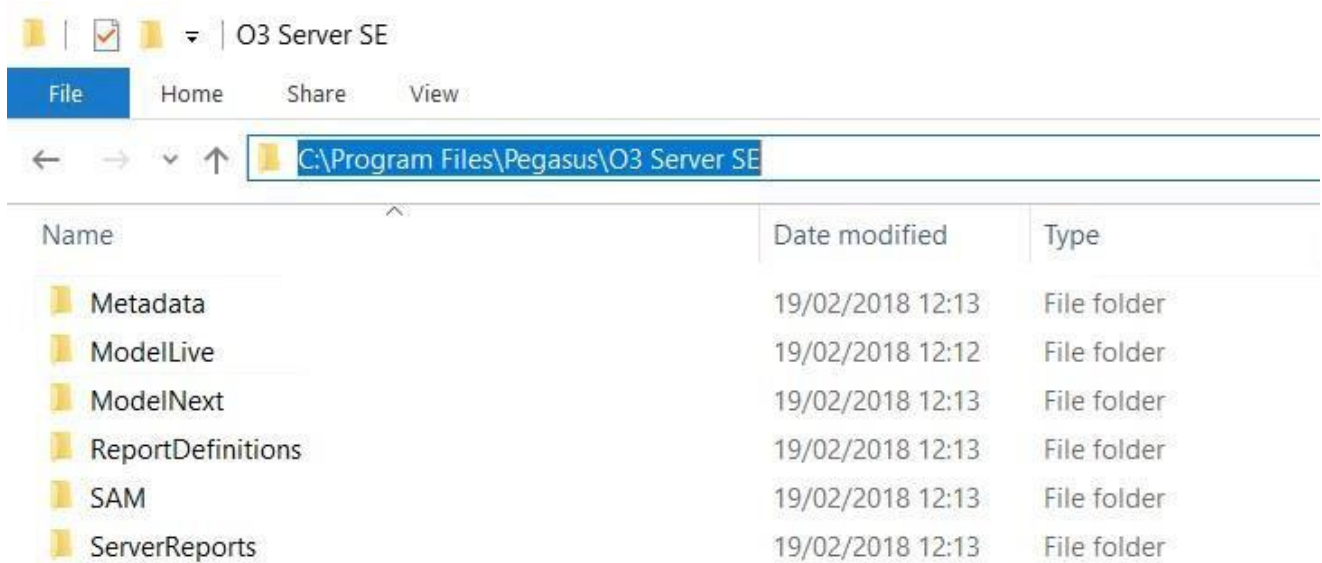
Machine	Direction	Transport	Port
Opera 3 SQL SE Server	Outbound	TCP	1433
Microsoft SQL Server	Inbound	TCP	1433
Microsoft SQL Server	Inbound	UDP	1434
Microsoft SQL Server	Outbound	UDP	1434

Non-default SQL Server instances will default to using a random TCP port number.

Appendix B: Server installation & data folders

Program Files on the server

The default location for the program files on the server is 'C:\Program Files\Pegasus\O3 Server SE'.

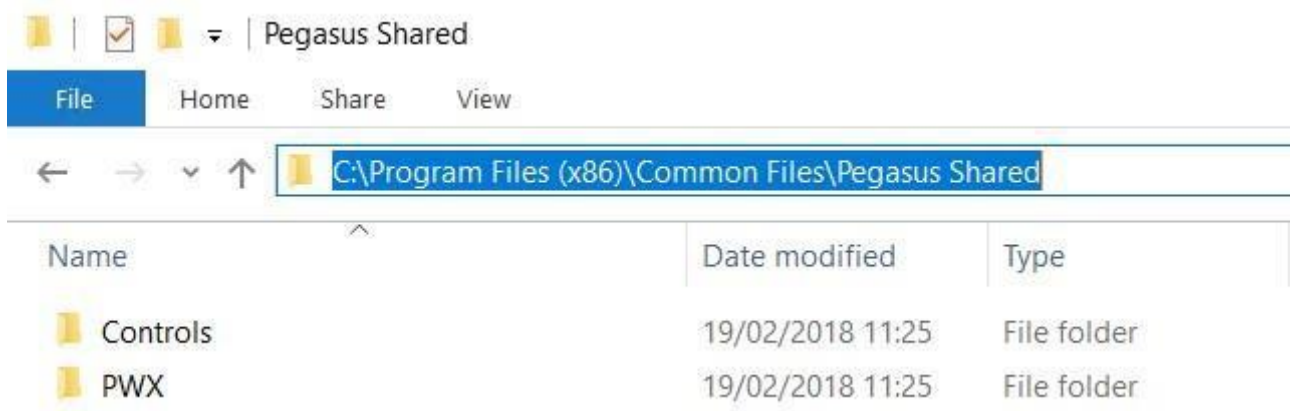


Folder	Purpose
Metadata	Contains the XML definitions of the data tables and fields used in Opera 3 SQL SE. These are only used for implementations of Opera 3 SQL SE that include bespoke solutions.
ModelLive	Contains the live data dictionary definitions currently in use by the Opera 3 SQL SE, the Data Upgrade Health Checker and company and system database mapping text files.
ModelNext	This is updated by the Opera 3 SQL SE upgrade program to hold the latest data dictionary definitions, Data Upgrade Health Checker and company and system database mapping text files. These files are then copied to the ModelLive folder by the Pegasus Opera Service at an appropriate point.
ReportDefinitions	Contains the default reports that are installed for Opera 3 SQL SE. <p style="background-color: #f96; padding: 2px;">Reports in this folder must not be amended manually.</p> <p style="background-color: #f96; padding: 2px;">If you are using logos on your reports, you may need to consider creating an additional shared folder.</p>

Folder	Purpose
SAM	<p>The Server Administration & Monitoring application is a server-side application for configuring the Opera 3 SQL SE server software, entering licence and activation details, configuring email settings, database monitoring and other database activities.</p> <p>To open the Server Administration & Monitoring application, use the Windows Start Menu or the desktop shortcut in the 'Pegasus Opera 3 Server SQL SE' folder.</p>
Server Reports	Contains server reports for the Server Data Intensive Processes.

Common Files

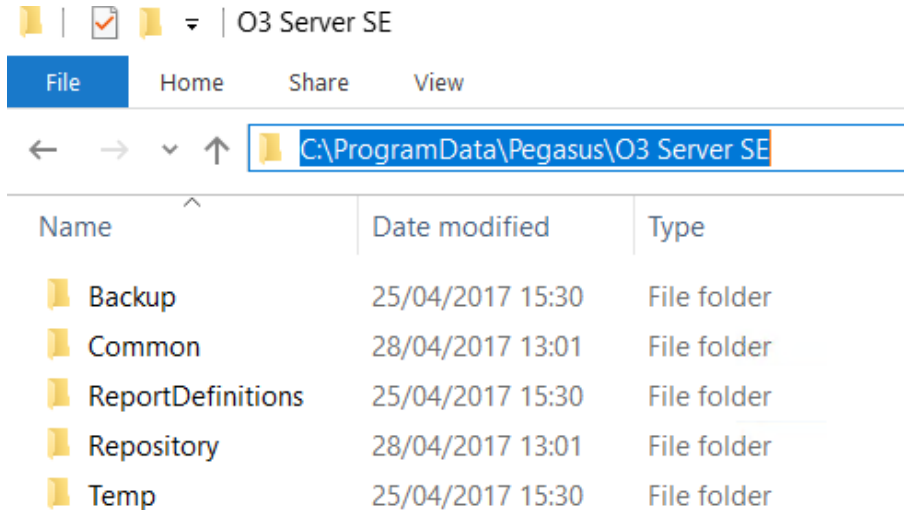
The **Pegasus Shared** folder in the **Common Files** location contains the various Opera 3 SQL SE DLLs. This folder will also be installed on the client PCs.



Folder	Purpose
Controls	This folder contains the various Opera 3 SQL SE 'DLL' programs. This folder will also be installed on the client.

ProgramData folders on the server

The Windows data folders used by Opera 3 SQL SE are located in the **ProgramData** location.



Folder	Purpose
Backup	Contains a sub-folder per Opera system and is where backups from each system will be created.
Common	<p>This is the common root folder, which will be created when Server Administration & Monitoring is used for the first time. Each company will have its own sub-folder off the 'root Common folder'; e.g. \Common\Sys_0\Co_A.</p> <p>The company's common folder includes sub-folders where the Opera 3 SQL SE client will create some files, for example:</p> <ul style="list-style-type: none"> • Company BACS files (\BACS). • VAT Return & EC VAT related files (\Tax). • Other miscellaneous export files, such as exported NL Matrix Reports files (\Export). • Payroll files: <ul style="list-style-type: none"> • BACS files (<i>Payroll\BACS</i>) • Pensions files (<i>Payroll\Pensions</i>) • RTI files (<i>Payroll\RTI</i>) • DEO payment schedules (<i>Payroll\XML</i>) • External Nominal transfer files (<i>Payroll\Export</i>).

	<p>Network share and permissions</p> <p>A network share must be created for this location to allow the files to be saved here.</p> <p>The following network permissions must be given for this location:</p> <ul style="list-style-type: none"> • <u>Full Control</u> permissions for the MSSQLSERVER service. • For installations including Payroll, <u>read/write</u> permissions to the <i>Payroll\RTI</i> subfolder for Pegasus Online Filing Manager users who submit Full Payment Submission, Employer Payment Summary and NINO Verification Request files to HMRC. • <u>Read</u> permissions for the users who will need to view or retrieve files that have been saved here. <p>The instructions for this are included in Stage 3: Configuring the server.</p>
Common\Migration	<p>The Migration sub-folder will be created by the migration process from Opera 3 VFP/SQL as required. Migration itself will contain further sub-folders, created as required during the migration process.</p>
ReportDefinitions	<p>Used for storing amended system-wide customised reports (where default reports are amended but not renamed). These reports are not overwritten by new installations. Each report will need to be checked for compatibility with new releases.</p> <p>The default reports that are installed and upgraded when new releases are installed are located in the 'Report Definitions' folder in the Program Files location.</p>
Repository	<p>For reports and documents created in Opera 3 SQL SE (invoices and so on), and also for reports saved as PDFs/XLS in Opera 3 SQL SE. These are only accessed from the Opera 3 SQL SE client using the Server Reports form in the System Manager.</p> <p>Opera 3 SQL SE's 'store on server' reports will be stored in \Spool sub-folders within \PDF and \XLS.</p> <p>Systems administrators can set a different location for the Repository folder using the Server Administration & Monitoring application. Company-specific bespoke reports are stored without a company prefix below the Repository location in the relevant folder for the company. For example, for company A in System 0, the folder will be 'Repository\Sys_0\Co_A\ReportDefinitions'.</p>
Temp	<p>Used by server processes to store temporary files.</p>

Appendix C: Client installation folders

Program Files folders on the client PCs

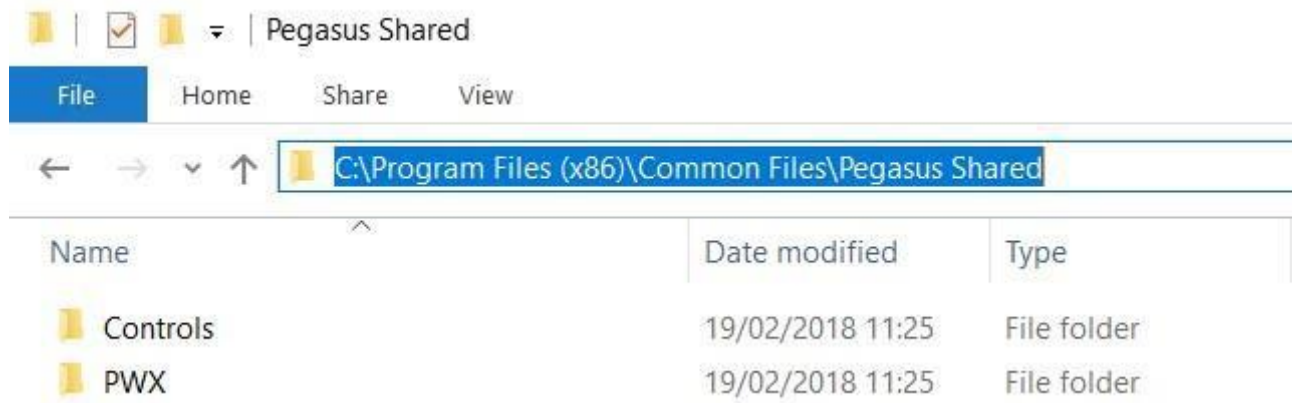
The default location for the program files on the client PCs is 'C:\Program Files (x86)\Pegasus\O3 Client SE\'.
 (x86)\Pegasus\O3 Client SE\.

Name	Date
Classes	07/03/2018 11:32
Framework	07/03/2018 11:32
FrameworkSupport	07/03/2018 11:32
PrinterInst	07/03/2018 11:32

Folder	Purpose
Classes	The Opera Visual Foxpro classes.
Framework/FrameworkSupport	Files and additional folders concerning the application's Visual Foxpro framework.
PrinterInst	Programs and other files needed to create PDF reports in the application.

Common Files on the client PCs

The 'Pegasus Shared' folder in the **Common Files** location contains the various Opera 3 SQL SE DLLs. This folder will also be installed on the server.



Folder	Purpose
Controls	This folder contains the various Opera 3 SQL SE 'DLL' programs. This folder will also be installed on the server.

Appendix D: Windows Registry

These are the updates to the Windows registry on the server and on the client PCs.

Use 'regedit' at the Windows start menu to open the registry editor.

Where	Key	String value
Server	HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Pegasus\O3 SE	Client Target
		Core SQL Credentials
		Core SQL Database
		Core SQL Server
Client PC	HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Pegasus\O3 SE	Client Target

Appendix E: Windows Services

Opera 3 SQL SE uses three main Windows services - programs that operate in the background that are started automatically when the server starts.

Use 'services' at the Windows start menu to open the Services list.

Service	Description
Pegasus Opera Service	The main Opera 3 SQL SE Service - installed with the server installation - provides the conduit to update data consistently and securely because it controls all the data reading from and writing to the Microsoft SQL Server databases. The first activity is to log the users who have run the Opera 3 SQL SE client program. This provides a solid tracking system for the administrators, replacing the use of the old locking mechanism in other editions of Opera 3.
Net.Tcp Port Sharing Services	The Net.Tcp Port Sharing Service allows a net.tcp port to be shared and secured using a defined port number. For Opera 3 SQL SE, this service is used so that the client and server software can communicate with the Opera 3 SQL SE service.
Distributed Transaction Coordinator (DTC)	<p>This Windows service provides the transaction infrastructure for distributed systems. For Opera 3 SQL SE, DTC makes it possible to transfer transactions between companies when a Server Data Intensive Process is used.</p> <p>If the Pegasus Opera Service and SQL Server databases are distributed over several servers, DTC must be enabled on all the machines (service machine and SQL Servers) and set to allow network access on each server.</p>

Appendix F: iTextSharp Licences

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Version 2.1, February 1999

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