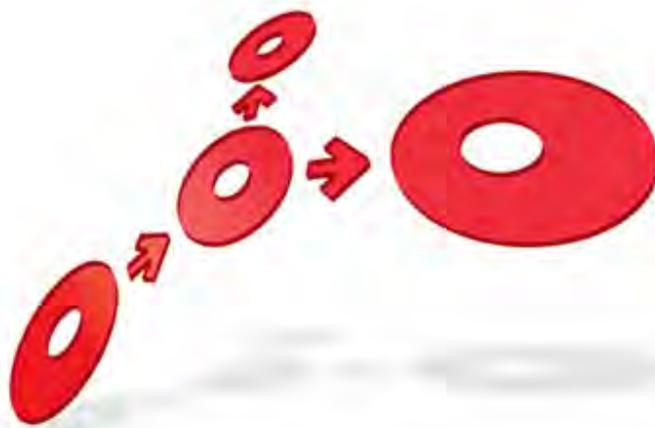


Portrait Foundation



Database Setup Guide

Edition 2.0

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 **Pitney Bowes**
Software



Portrait Foundation Database Setup Guide

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About this document

Purpose of document

To explain the steps involved in setting up a Portrait Foundation SQL Server database and some of the processes and utilities involved.

Intended audience

Individuals who are required to setup a Portrait Foundation database. The reader is assumed to have an understanding of SQL Server and of databases in general.

Related documents

Database Administrators Guide

Software release

Portrait Foundation 5.0 or later.

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1 Introduction

Follow the instructions in this guide to setup the Portrait Foundation database on a system with the supported version of Microsoft SQL Server.

It is important to read the entire document thoroughly before starting the installation process.

This document is primarily written with production databases in mind; commentary on alternatives for development and test environments is offered in the footnotes.

This guide assumes that SQL Server has already been installed on the target server and has the required disk space allocated.

1.1 Process overview

A brief overview of the installation process is provided below; the process is described in detail in the following sections.

1.1.1 Database creation

- Prepare the required hardware and install onto it the pre-requisite software. Essentially this means installing the supported Windows Operating System and SQL Server.
- Launch the database setup wizard, select **"Create a database"** and specify the setup options including the database parameters, file storage locations, additional implementation database scripts and versioning information.
- The wizard will create a new database with all the required Portrait Foundation database objects and scheduled SQL Server jobs.
- Prepare the database for use by amending the default scheduled jobs, creating users and choosing secure administrator passwords.

1.1.2 Database restore

- Prepare the required hardware and install onto it the pre-requisite software. Essentially this means installing the supported Windows Operating System and SQL Server.
- Launch the database setup wizard, **select "Restore from backup" and specify** the setup options including the Portrait Foundation database backup file, database parameters and file storage locations.
- The wizard will restore the database and setup the scheduled SQL Server jobs.
- Prepare the database for use by amending the default scheduled jobs, creating users and choosing secure administrator passwords.

1.1.3 Database upgrade

- Ensure that the existing Portrait Foundation database is installed on a supported version of Microsoft Windows and SQL Server.
- Launch the database setup wizard, **select "Upgrade an existing database"** and specify setup options including the database parameters, additional implementation database scripts and versioning information.
- The wizard will upgrade the relevant database objects.

NB: The upgrade can be used to upgrade any Portrait Foundation database from version 4.4 and above.

2 Preparation

This section details the process of installing the Portrait Foundation database and any implementation specific database objects.

It is assumed that the installation process will be conducted by a database administrator or at least by an individual with experience of SQL Server.

2.1 Hardware requirements

A single processor machine with 0.5GB memory and two disks (one of 9GB and one of 18GB) would generally be adequate for a development database server.

The hardware requirement for the production system is likely to be an implementation-specific decision; the performance requirement, the data volume and the concurrent user load are among the input factors.

The *Database Administrators Guide* offers guidance on possible hardware requirement estimations.

It is recommended that the machine should not be used for any purposes other than as a database server. Using the machine for other purposes, for example, print servers and file servers, will degrade the performance of the database and increase the maintenance overhead.

2.2 Software requirements

Please consult the *Release Notes* for a list of supported Windows and SQL Server platforms.

The setup wizard makes use of **SQLCMD.exe**, so a supported version of the Microsoft SQL Server Client tools must be installed. It also requires the Microsoft .NET Framework v4.5 to be installed.

These settings are unlikely to yield any significant benefit in development and test environments and thus may be ignored in such circumstances.

Production environments may benefit from certain Windows configuration settings that help optimise the performance of SQL Server. Note that these settings are just recommendations and failing to undertake them will not invalidate your Portrait Foundation installation – consequently these optional settings are listed in the *Database Administrators Guide* rather than in this document. The settings can be implemented either before or after setup of the Portrait Foundation database.

The Portrait Foundation database setup can be run using SQL Server or Windows authentication. In either case, the User ID running it must be a member of the **System Administrator** role on the SQL Server which will hold the database. **You must have this role 'directly'**—inheriting the role through a windows user group (e.g. BUILTIN\Administrators) is not sufficient. To use SQL Server Authentication, the database servers security settings need authentication set to **SQL Server and Windows Authentication mode**.

The Portrait Foundation database may be run on any case-insensitive collation – such collations have the abbreviation CI in their names. Portrait Foundation will fail to operate correctly if a case sensitive (CS) collation is chosen.

The SQL Server Agent service must be running to allow the Database Setup Wizard to successfully schedule the required Portrait Foundation database jobs. When performing a create or restore, please check the log file to ensure that these jobs have been successfully created.

Ensure that the Portrait application server SQL clients can use either the Named Pipes or TCP/IP network protocol to communicate with the server by:

- Enabling either the MSSQLSERVER Named Pipes or TCP/IP protocols (or both).

- Ensuring that SQL Client configuration has at least one of the server protocols enabled.

If using the TCP/IP protocol, ensure that the port on which your database server is configured to listen for incoming connections is allowed by Windows firewall. By default, SQL Server will listen for incoming connections on port 1033.

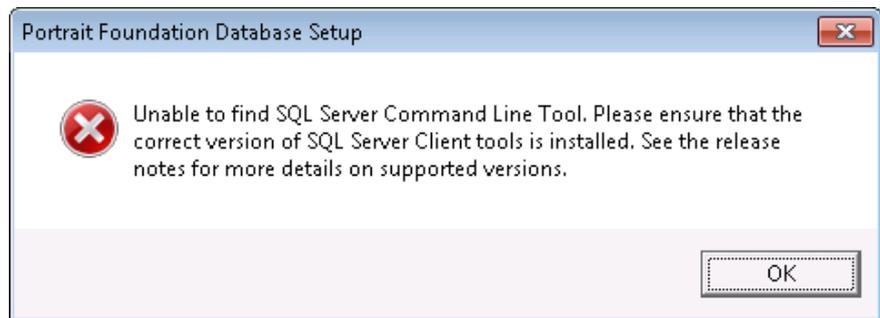
3 Running the wizard

The Portrait Foundation release media contains two directories that are pertinent to the database installation:

- **Documentation\Database** contains this and other useful database related documents.
- **Software\Installsets\Database** contains the setup wizard program.

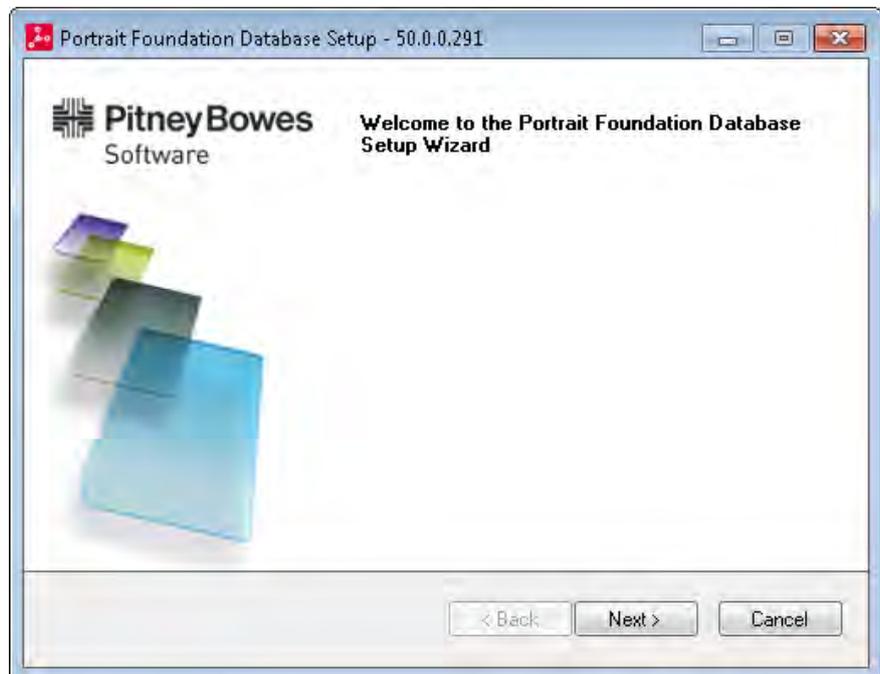
Using Windows Explorer, navigate to **\Software\Installsets\Database** and double-click **FdnDbSetup.exe**. If the correct version of the Microsoft .NET Framework is not installed the application will fail to run.

If the setup wizard cannot find a supported version of the SQL Server Client tools, the following error will be displayed.



On successfully running the setup wizard, you will be presented with a **Welcome** screen.

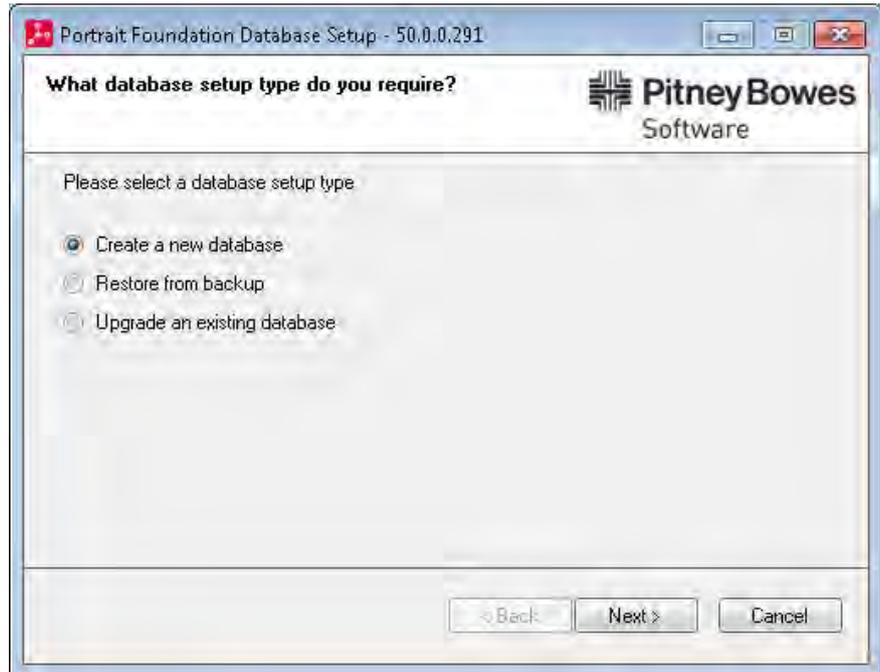
Figure 1 - Welcome screen



On clicking **Next** you will be presented with the following setup options:

- Create new database
- Restore from backup
- Upgrade an existing database

Figure 2 - Select database setup type



Click **Next**.

3.1.1 Database backup file

If you have chosen to restore from backup, then you will be prompted to select the database backup file you wish to restore from. You can use any backup file as long as it contains a supported Portrait Foundation database. If your backup file contains multiple backup sets, the first one will be selected. It is therefore recommended to use the **Overwrite all existing backup sets** option when creating a backup using SQL Server Management Studio. Compressed zip files can also be used as long as they only contain one file which is the database backup file.

The Portrait Foundation release media contains some backup files under **\Software\Database_Baseline**.

Figure 3 - Select backup file



Click **Browse** and select the database backup file. Once you have selected the backup to use, click **Next** to select the database server and name for the new database.

3.1.2 Database name and credentials

If you have chosen to create a new database or restore from a backup, you will be prompted to select the database server and enter the name for the new database. If your database server does not appear in the drop down list then just enter it manually. This may include the SQL Server instance name. For local database setup you can use "." Or "(local)" to represent the local database server.

If a Foundation System already exists on the machine where the database setup is being run, the Database server field will use this as the default value.

Figure 4 - Create a new database

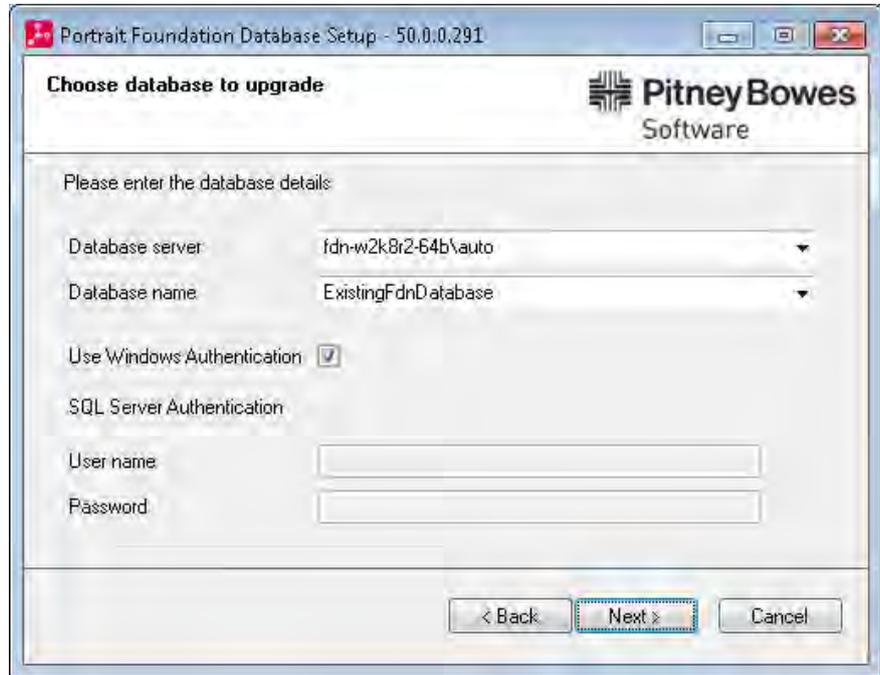


New database names must be no longer than 25 characters, must start with a letter (a-z) and only contain alphanumeric characters including “_” and “-”.

Enter the relevant details and click **Next**.

If you have chosen to upgrade an existing database, you will be prompted to select an existing Portrait Foundation database.

Figure 5 - Choose database to upgrade



Enter the relevant details and click **Next**.

3.1.3 Database collation

You are only asked to select the collation if you are creating a new database.

The Portrait database only supports case-insensitive collation. You can use the default collation method or use the **User defined collation** option to select an alternative case-insensitive method.

Figure 6 - Database collation method



Once selected, click **Next** to continue.

3.1.4 Confirm location of database data and log files

The setup wizard gets the default data and log file paths from the database server. The selected user must have the correct permissions to write to these directories on the database server otherwise setup will fail. The Browse buttons are only enabled if the wizard is being run on the database server.

Figure 7 - Local data file locations

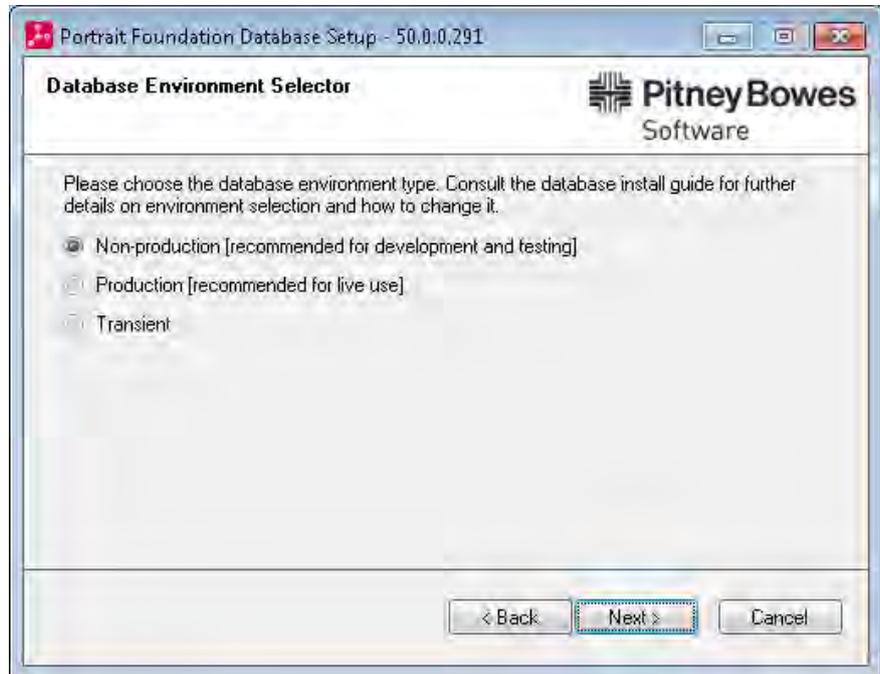


Confirm the data and log path locations for your SQL Server Instance and click **Next** to continue. This is not captured for database upgrades.

3.1.5 Environment selection

You will only be asked to select the type of environment that the database will support if you are creating a new database.

Figure 8 - Database environment selection



Production environments (often referred to as live environments) are subject to stricter configuration change control than non-production environments. Thus it is essential that databases that form part of the production system are created as **Production**. Environments that are used as part of the development and test process should be set as **Non-production**.

The **Transient** option should be used for creating a transient database. For further details please refer to section 7.

Once created, the database environment type can easily be changed using the stored procedure `p_amc_adm_set_environment`. For example:

```
exec p_amc_adm_set_environment 'Production'
```

or

```
exec p_amc_adm_set_environment 'NonProduction'
```

Note that the environment setting affects configuration change control and deployment properties; running this procedure should be a carefully considered action.

Further details on the functional differences between production and non-production environments can be found in the *Live Updates User Guide*.

3.1.6 Additional features

If you are creating a new database or upgrading an existing database, you can choose to select certain additional features in your database setup.

There is the option to encrypt the database's stored procedures and functions. This feature prevents accidental changes from being made to these important database objects. If this checkbox is left as deselected, the stored procedures and functions will not be encrypted.

If unencrypted, you must not attempt to change any database objects without permission from Pitney Bowes Software as this may invalidate your Support contract.

This page also includes a checkbox that allows you to incorporate any implementation-specific scripts into the database installation.

This page also allows you to turn off the default DataMart functionality. We recommend that you only select the DataMart functionality if you specifically want to use it. For more information, please see the DataMart Creation Utility documentation.

Figure 9 - Choose any additional database features as needed



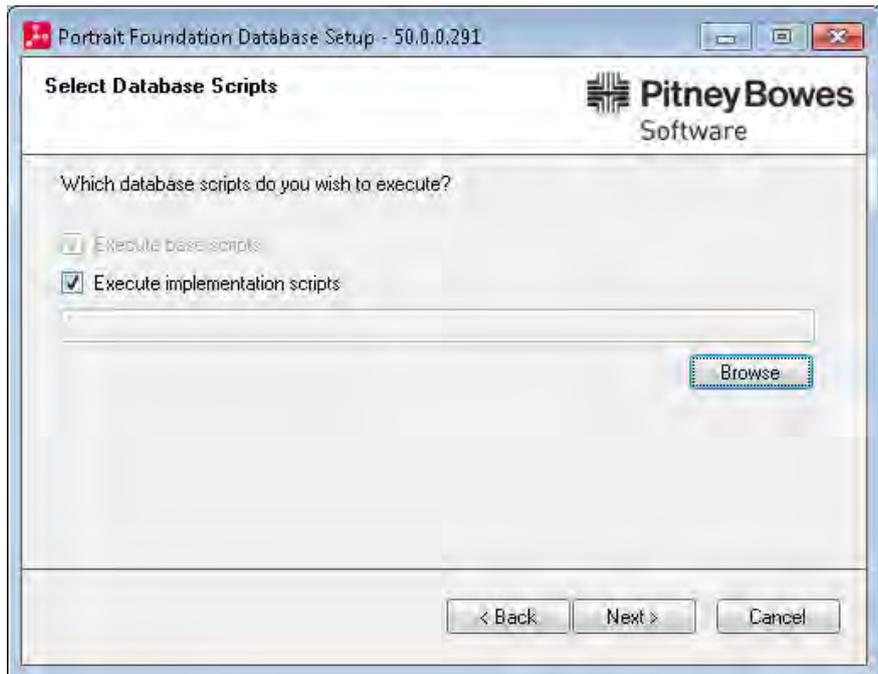
Select the required features and click **Next**.

3.1.7 Select database scripts

In addition to the base Portrait Foundation database scripts it is possible for an implementation to create their own scripts to create project specific database objects. For an example of these implementation scripts see Portrait Interaction Optimizer or contact Portrait Support for further details.

This page is only visible if you have previously selected the checkbox to 'Run additional implementation scripts'.

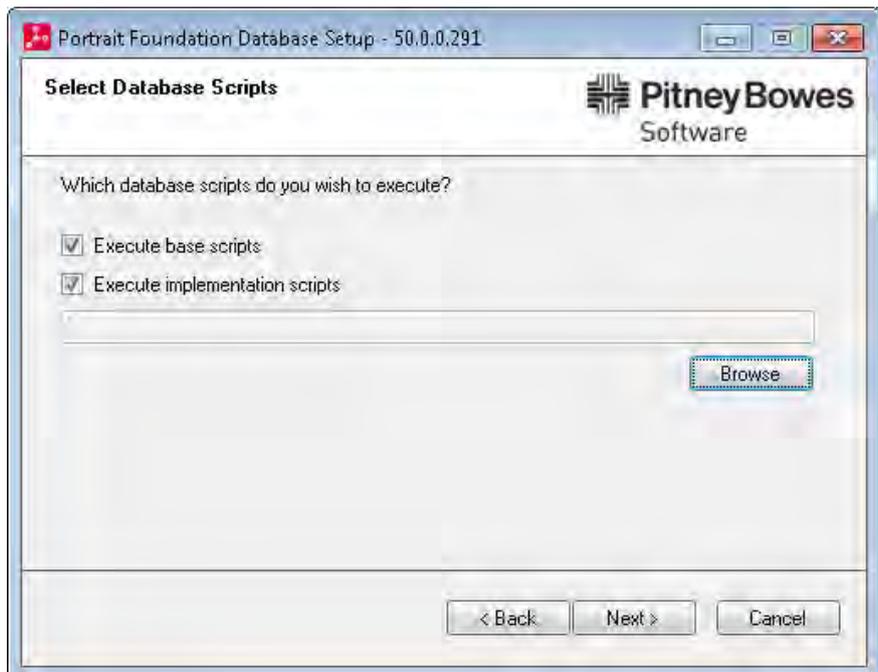
Figure 10 - Select implementation scripts
(create new database)



If you want to run these additional database scripts, tick **Execute implementation scripts** and click **Browse** to select the relevant script. Otherwise, click **Next**.

If you have selected to upgrade an existing database, it is possible to deselect the execution of the base scripts. This allows the implementation scripts to be applied at any time without having to create a new database.

Figure 11 - Select implementation scripts
(upgrade existing database)



3.1.8 Implementation version information

If you are executing any implementation scripts you are required to provide a description.

Figure 12 - The implementation version entry screen



Enter a description and click **Next**.

3.1.9 Commence database setup

Once the relevant details have been captured a summary is displayed. Examples for each database setup type are shown below.

If any of these are incorrect, click **Back** to change the values, or **Cancel** to stop the installation. If the values are correct, click **Next** to start the database setup.

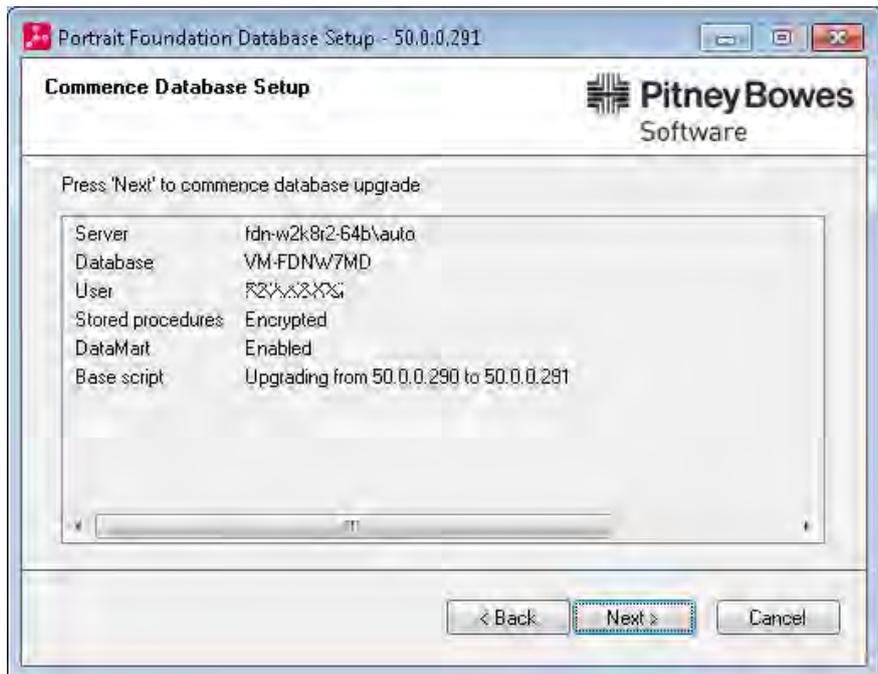
Figure 13 - Commence setup (create new database)



Figure 14 - Commence setup (restore from backup)



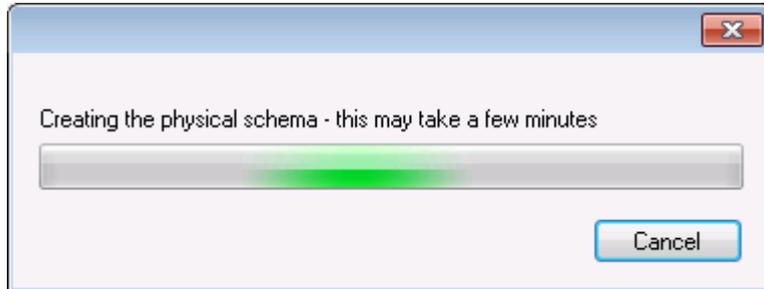
Figure 15 - Commence setup (upgrade existing database)



4 Database setup

As the database setup wizard processes the database scripts, the progress status is updated and displayed.

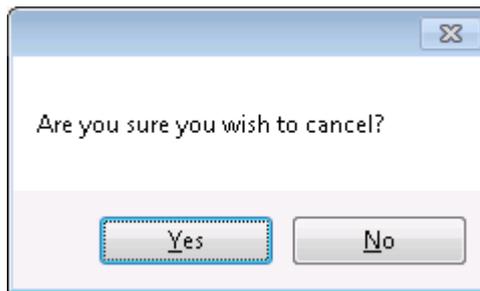
Figure 16 -Progress dialog



4.1.1 Cancelling database setup

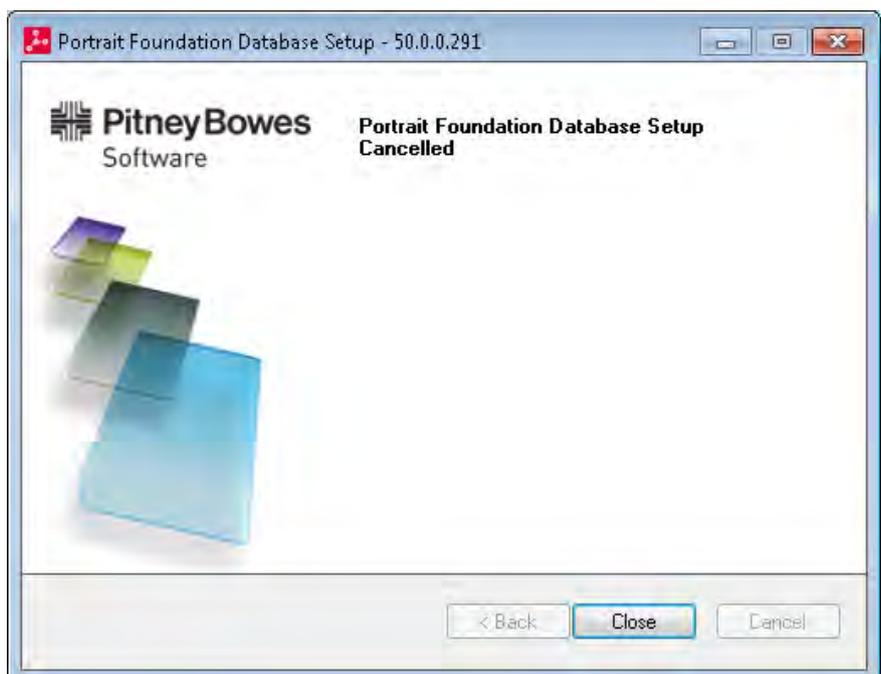
Setup can be cancelled at any time during this process. Clicking **Cancel** at this point will ask for confirmation that you wish to cancel.

Figure 17 -Cancel database setup



Clicking **No** will return back to the progress dialog. Clicking **Yes** will cancel the database setup. If the process completes before you click **Yes**, setup will complete.

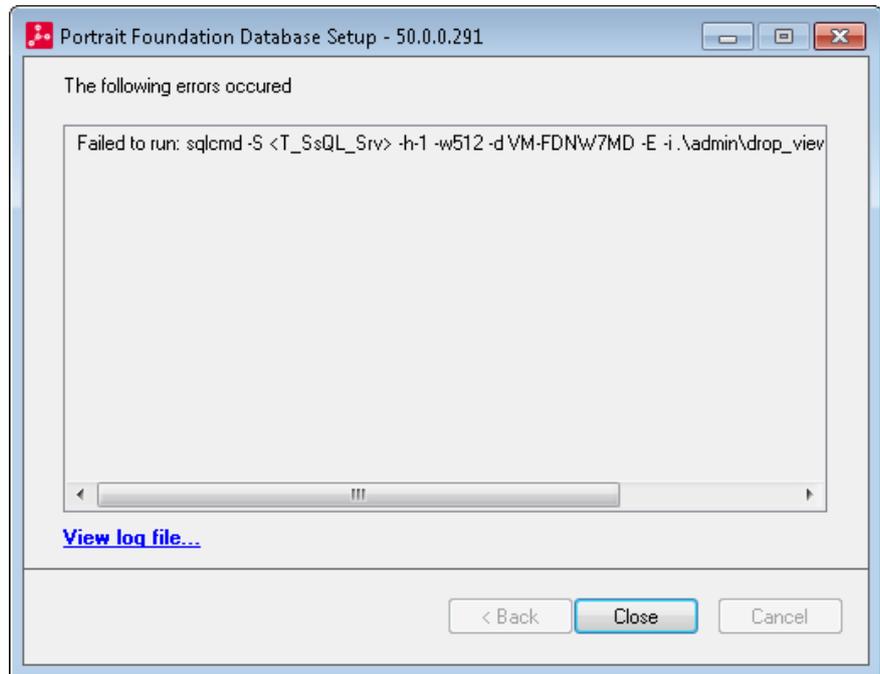
Figure 18 -Database setup cancelled



4.1.2 Database setup errors

If any errors occur during setup the following screen will be displayed.

Figure 19 -Setup errors

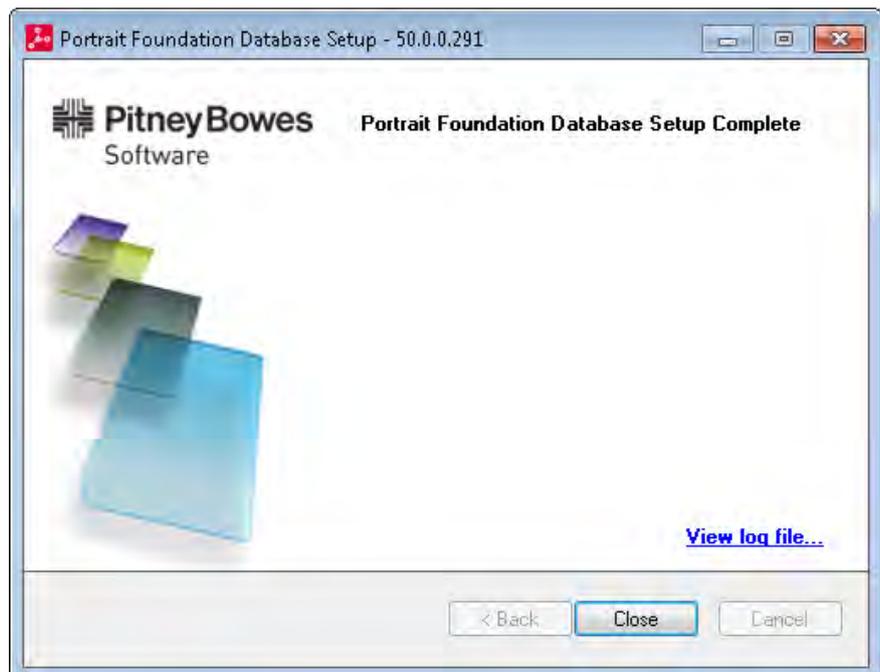


Click on "View log file..." for more details about the error.

4.1.3 Completion

If no errors were detected during setup, the following dialog will be displayed.

Figure 20 - Portrait Database installation complete



NB: It is recommended that the log file is always reviewed to confirm that no errors occurred while executing individual scripts.

5 Command line tool

The database setup tool can also be run from the command line enabling the automation and silent setup of Portrait Foundation databases. Customers wishing to automate their installs should launch the command prompt using the elevated “run as administrator” permissions.

Simply running the tool from a command prompt using the **help** switch provides all the details you need to use the tool.

```
FdnDbSetup.exe /help
```

```

C:\Windows\system32\cmd.exe
Portrait Foundation Database Setup
=====
FdnDbSetup.exe [Server] [Name] [options]
FdnDbSetup.exe [switch]

Please refer to the Database Setup Guide for more details

  Server=[SQL Server database server name including instance]
           Must be supplied

  Name=[Portrait Foundation database name]
        Must be supplied

Options:

  Setup=[C/R/U]
         Optional - [C]reate new database (default)
                   [R]estore from backup
                   [U]pdate existing database

  Username=[database login username]
            Optional - If not supplied Windows Authentication is assumed

  Password=[database logon password]
            Only required if Username is supplied

  Backup=[database backup file name including path]
          Only required for a Restore

  Collation=[database collation code]
            Optional - Only relevant to Create
            Will use SQL Server default if not supplied

  DataPath=[database data file location path]
            Optional - Will use SQL Server default if not supplied

  LogPath=[database log file location path]
            Optional - Will use SQL Server default if not supplied

  Type=[N/P/T]
        Optional - Only relevant to Create
        [N] to create a non-production database (default)
        [P] to create a production database
        [T] to create a transient database

  Encrypt=[Y/N]
           Optional - [Y] to encrypt stored procedures and functions
                     [N] to leave them unencrypted (default)

  UseDataMart=[Y/N]
               Optional - Only relevant to Create/Upgrade
               [Y] to allow use of the data mart functionality (default)
               [N] to turn off data mart functionality

  BaseScripts=[Y/N]
               Optional - Only relevant to Upgrade
               [Y] to execute base database scripts (default)
               [N] to only run implementation scripts

  ImplPath=[path for implementation script]
            Optional - Only relevant to Create/Upgrade
            Only required to execute implementation scripts

  ImplDesc=[implementation version description]
            Only required when running implementation scripts

  Show=[Y/N]
        Optional - [Y] to show progress in console and view log file
                  [N] to display nothing (default)

Switches:

  /help  Show this usage message (also /? or /h)

  /log   Open log file from the last database setup (also /l)

Examples:

  Create: Server=MySQLServer Name=NewFdnDb Type=P
  Restore: Server=MySQLServer Name=NewFdnDb Setup=R Backup=C:\FdnDB.bak
  Upgrade: Server=MySQLServer Name=ExistingFdnDb Setup=U
    
```

It provides the same functionality that is in the database setup wizard and generates the same log file. If the tool runs successfully the Exit Code will be 0.

Exit Code	Description
0	Database setup completed successfully
1	Database setup failed while executing scripts
2	Invalid command line parameters supplied
3	Failed to find SQL Server Client tools
4	Database setup wizard already in use
5	Unexpected error occurred

After running the database setup from the command line, the log file can be viewed using the **log** switch.

```
FdnDbSetup.exe /log
```

If you want to see the progress while running this tool from the command line, then use the **Show** option. This will also display the log file.

```
FdnDbSetup.exe Server=MySQLServer Name=NewFdnDb Show=Y
```

If an unexpected error occurs, details of this can be found in the Windows Application Event log.

6 Post-installation tasks

6.1 Scheduled jobs

A number of scheduled jobs are created upon database creation. The job schedule may be changed to suit the requirements of specific production environments, although this would not normally be necessary. Consult the *Database Administrators Guide* for details on these jobs and how, if necessary, to change their scheduling.

6.2 Setting up users

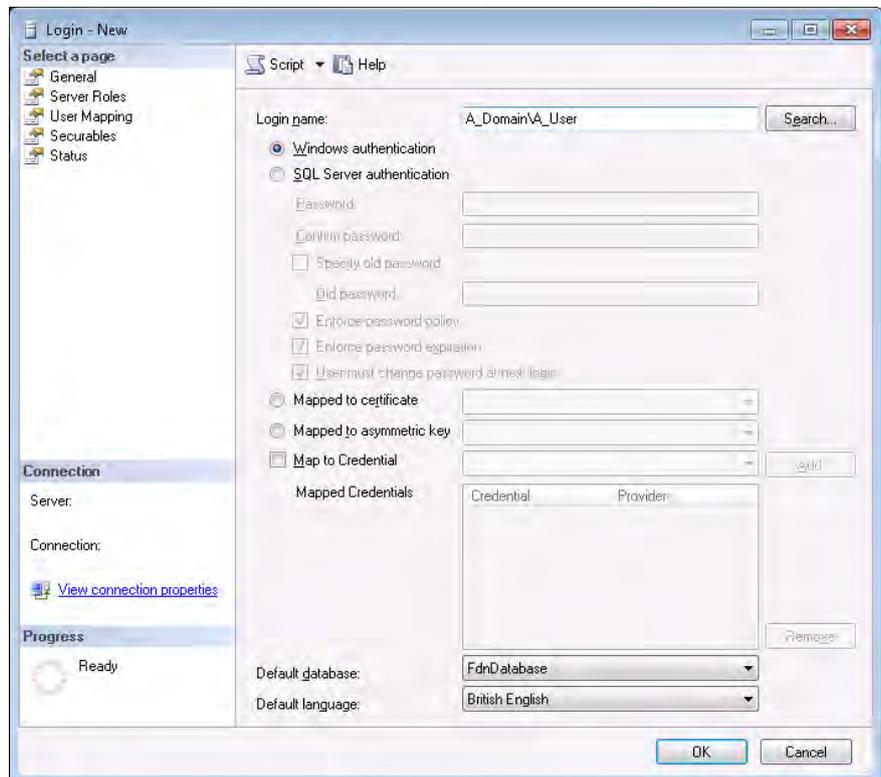
Database users can easily be setup using SQL Server Management Studio. Navigate to **Security\Logins**, right-click and then select **New Login...**. Complete the General, Server Rules and User Mapping pages in the **Login - New** dialog.

In a production system, we recommend setting up OS-authenticated users. This means that security is maintained by the Windows operating system and is not compromised. However, the main benefit is in terms of maintenance in that the only users who need to be created correspond to the owners of the Portrait Foundation services that run on the Process and Web servers.

It is indirectly through these services that agent users connect to the database so once these service users have been set up, more agent users can be created very easily because the operating system will handle their connections to the Portrait Foundation services.

6.2.1 General tab

Figure 21 - SQL Server login properties - General

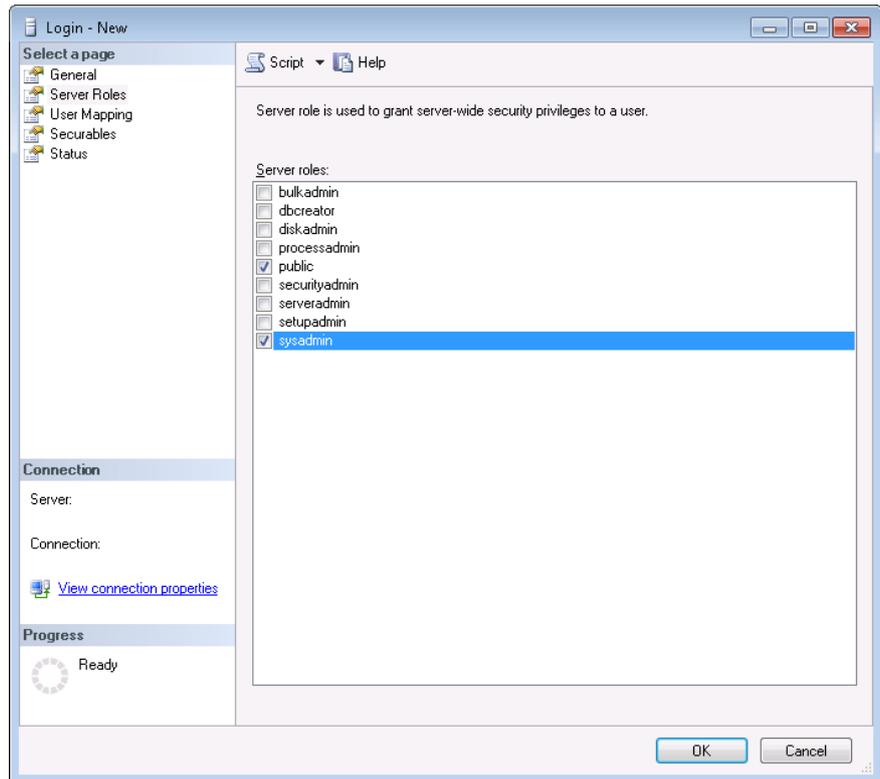


On the **General** tab, click your user's name from the Network browser and the domain they will be working in. Choose the database you have just created (or master if you are maintaining other databases on this server) and the language.

6.2.2 Server Roles tab

The **Server Roles** tab determines the privileges assigned to the user. The default settings will create a standard application user. Selecting any of the checkboxes will give the user powerful privileges which should only be allocated sparingly.

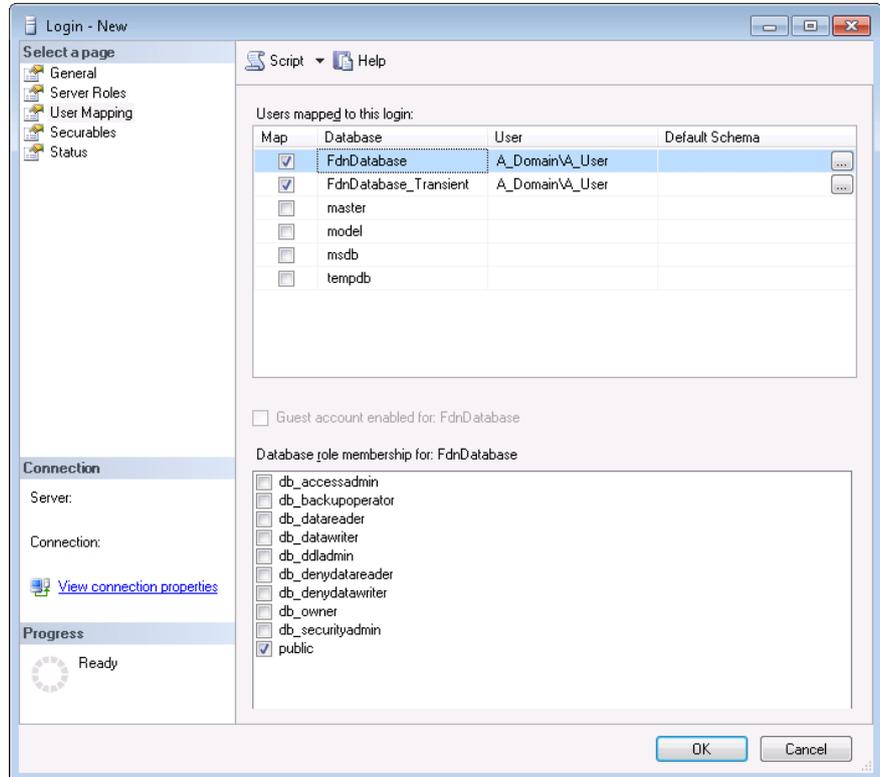
Figure 22 - SQL Server login properties - Server Roles



6.2.3 User Mapping tab

On the **User Mapping** tab you can designate the databases to which the user may connect and specify permitted database roles for that user. Public privileges are sufficient for normal application users.

Figure 23 - SQL Server login properties - Database Access



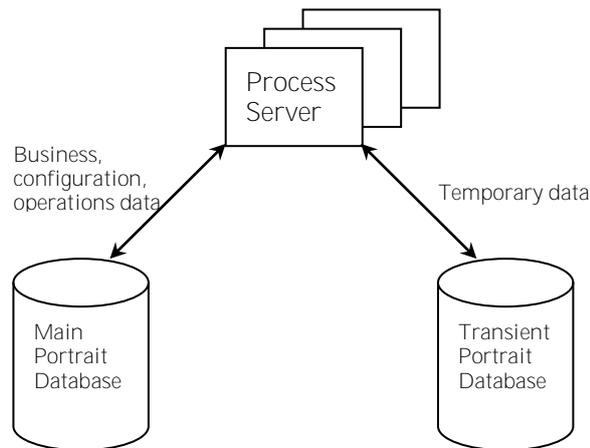
7 Transient database

7.1 Overview

Portrait Foundation has the option of using a separate transient database to hold non-critical temporary data.

The data architecture, under these circumstances, is illustrated in Figure 24. For simplicity the transient database is identical to the main database except for the recovery model employed and the purpose for which it is used.

Figure 24 - Portrait data architecture with a transient database



The transient database will only contain temporary data that has a very short lifespan, often less than one second. One key data entity stored in the transient database is session management. As the name suggests this data describes the **status of a user's session; this information is used by the Process server when a user next interacts with the system.** The data is saved in the database because the Process server is stateless with regards to user data.

7.2 Advantages

There are two key advantages for using this transient database.

- 1 **Division of work** – using two databases spreads the work across two databases and possibly two servers. This simple scale out offers improved performance.
- 2 **Reduced transaction logging** – the main database contains all the business critical data and point-in-time recovery is essential. This means the database operates in the full recovery model and consequently each and every transaction produces transaction logs. The transient data, if stored within the main database, will produce enormous volumes of transaction logging and, as already mentioned, this temporary data has a very short lifetime. Thus it is sensible to split the transient data from the critical data; the transient database can then operate on a different recovery model (**simple**) that produces minimal transaction logging.

7.3 Installation

The installation of the transient database is very similar to that for the main database. The main database and transient database will be almost identical bar a handful of minor differences as described below.

Implementations should create the main database using the process described in the previous sections of this document and then repeat the same process for the transient database except the special circumstances described below.

- 1 **Database name** – it is recommended that the transient database have the same name as the main database suffixed with the string **_Transient**. For example, if your main database is called **FdnDatabase** the recommended name for the transient database would be **FdnDatabase_Transient**.
- 2 **Recovery model** – the database setup wizard will create the database with a full recovery model for **Production** and **Non-production** databases. This is essential for the main database but not appropriate for the transient database. Instead the transient database should operate with a simple recovery model. To ensure this select the **Transient** database environment type during setup.

The recovery model can be checked using SQL Server Management Studio. Right-click on the transient database, select **Properties** and click the **Options** tab. The recovery model should be set to **Simple** as illustrated in Figure 25.

In order to ensure that the recovery model has been registered, perform a full backup of the transient database. This backup can be deleted upon completion.

Figure 25 - Adjusting the Transient database recovery model

