












## **PHDwin Version 3 Installation Guide**

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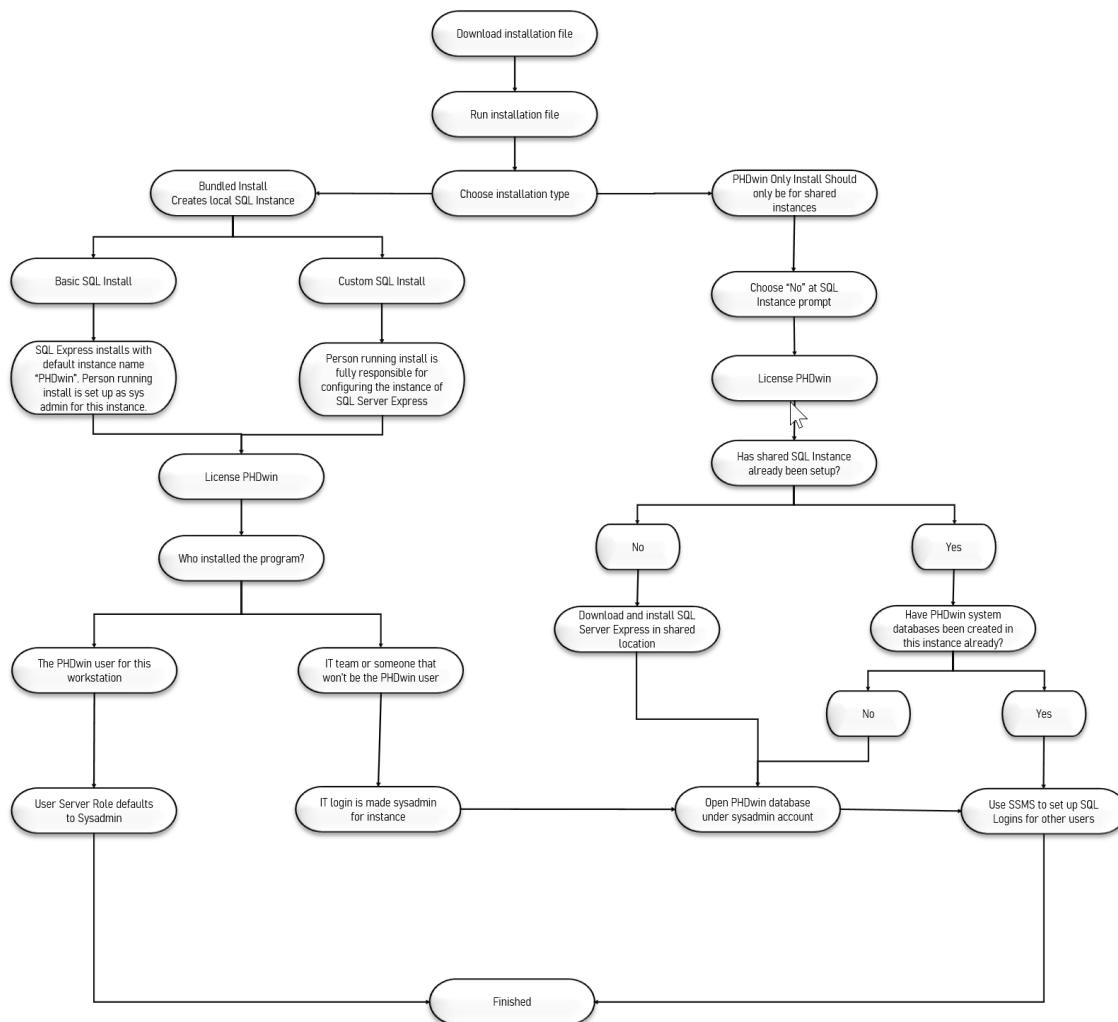
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# Installation Overview

This guide will walk you through the complete initial installation as well as provide instructions to update with a new build. Prior to installing the program, you can view the [minimum System Requirements](#) for your computer and also ways to [improve the performance of PHDwin](#). PHDwin databases will be created on an instance of Microsoft SQL Server. The instance can be installed locally on your computer, on a shared network server that multiple users can access, or both. Please read [about Microsoft SQL Server](#) for further information.

## Installation Options

After you download the installation file, you will get the option to do a bundled installation which will install PHDwin as well as SQL Server Express 2016. Or, if you already have an instance of SQL Server or plan to do the installation on your own, you can use the installation file to only install PHDwin. The installation process will follow the diagram below.



# PHDwin System Requirements

## Minimum System Requirements

### Workstation

- **Processor** - Intel i3 processor or better
- **Memory** - 8 GB RAM or better (16+ GB is recommended)
  - Should be increased as database size increases to ensure optimal performance
- **Hard Disk** - 500GB Hard Drive
  - May need to be upgraded as necessary for larger data sets
- **Operating System** - Windows 7 (64 bit) or newer
- **Database Storage** - Microsoft SQL Server or SQL Server Express
  - PHDwin is compatible with versions 2019 or later
  - Backup folder location should have 2.5 times sum of databases used space.
  - The full system requirements for Microsoft SQL Server can be found on [Microsoft's Website](#)
- **Monitor** - Screen resolution of 1920x1080 or greater

### Dedicated SQL Server Location (When different from workstation, i.e. shared SQL environment)

- **Memory** - 16 GB RAM or better
  - Should be increased as database size and/or number of concurrent users increase to ensure optimal performance
- **Database Storage** - Microsoft SQL Server or SQL Server Express
  - Allocated free storage space should be 2.5 times sum of databases used space.
  - Backup folder location should be on a separate drive and have at least the same amount of space as maximum total available for databases.

## Ways to Improve the Performance of PHDwin

The best ways to improve the performance of PHDwin are by improving your Hard Drive, Processor & Memory. PHDwin will run optimally if you provide a dedicated server (preferably with solid state drives), multi-core processor, and gigabit network connection. The recommended upgrades in order of importance are:

- **Dedicated server** for your PHDwin databases.
  - If using a dedicated server, make sure to allocate at least as much memory and disk space as recommended above. The number of users and size/number of databases may require increasing the dedicated server resources.
- **Hard Disk** - upgrade to a Solid State Drive.
- **Memory** - upgrade to at least 16 GB ram.

- **Processor** - upgrade to at least an i5 or i7 quad-core processor. The economics engine of PHDwin is capable of parallel processing and efficiently using all cores available on the computer; increasing processor capabilities will directly impact the speed of your economic runs.
- **Network** - Upgrade to **Gigabit network** connection.
  - If SQL is on a different machine from PHDwin, where possible, keep workstation and SQL server "close", i.e. same physical network or remote into a VM in the same physical network as the SQL server.
- **Anti-Virus & Network Monitoring** - Whitelist PHDwin application and processes.

## Recommended Complimentary Software

Microsoft SQL Server or SQL Server Express (free version) is the only software application required to run PHDwin. In addition, you may want to install the following software:

- Microsoft Excel (2010 or later, including Office 365) - necessary to export reports to excel
- Adobe Acrobat or another PDF reader/writer - necessary to export reports to PDF
- Microsoft SQL Server Management Studio - highly recommended for use of PHDwin so that you can manage/delete databases

## Running PHDwin on a Mac

You need to be able to run a 64-bit version Microsoft Windows OS on your machine. Some MacBook laptop models with Intel-based processors can run a 64-bit Windows OS. Please confirm your specific model of apple computer can run a full 64-bit version of Windows.

To run PHDwin V3 on your Mac, open the Boot Camp Assistant which will walk you through the entire setup. Boot Camp is a default application on all newer Mac computers. For more information on exactly how to set this up, you can go to [Apple's website](#).

## Installing PHDWin

### Downloading the Installation Files

To get started, there are a few steps that must be taken to access the pertinent installation files for download:

To download the files:

1. Log in to our **Client portal**: <https://portal.phdwin.com/>
  - a. If you have not logged in to our client portal previously, you will have to click Request Access to register as a new user.
2. Click the **Downloads** icon
3. Click on **Download PHDwin (version 3)**.

### Installing PHDwin & SQL Server

#### To Install PHDwin

1. Open windows explorer and go to the Downloads folder (or the location where you saved the installation file.)
2. Double-click on the file named **PHDwin\_3.1\_Setup.exe** to begin the installation.
3. You will get a prompt asking if the program can make changes to the computer, click **Yes**.
4. The install wizard will check your computer for any missing components that need to be installed. More information about this error message can be found in the Troubleshooting section.
5. If you are not missing any components or have installed them and restarted the installation, click **Next** to continue.
6. You will be required to **read and accept** the terms of the license agreement to continue and click **Next**.
7. You can choose the **destination folder for the application** - it is recommended to leave it at the default location and click **Next**.
8. Click **Install** to begin the installation of PHDwin.
9. Once the installation is complete, you can click **Next** to begin the optional installation of SQL Server.

#### To Install SQL Server Express

1. The bundled MS SQL Server setup lists any local instances of SQL Server found on the computer and ask if you'd like to install a new instance of Microsoft SQL Server Express 2019.
2. Choose one of the following options:

MS SQL Server Setup Options for PHDwin

The installer has detected the following instances of SQL Server on this computer:

SQLEXPRESS (SQL Server 2012)
FMORESDemo (SQL Server 2014)
PHDWIN3 (SQL Server 2014)
PHDWIN (SQL Server 2016)
MARCH (SQL Server 2016)

A version of 2016 or newer was found, the install options will be disabled.

☐ **Yes, continue with the basic install (recommended)**

This will install and configure a new instance of MS SQL Server 2019 on your computer. The Instance name will be PHDwin and the user that is currently logged in will be set up as a system administrator.

☐ **Yes, but I would like to configure the options myself (not recommended)**

This option will run through the advanced custom install of MS SQL Server Express 2019 and should only be chosen if you are an advanced user that is familiar with the installation of MS SQL Server.

☒ **No, I already have an instance to use or will download and install my own instance.**

☒ Launch PHDwin

☐ I accept the MS SQL Server [license agreement](#)

Next Cancel

- a. **Yes, continue with the basic install** - recommended for most users. This installs a new instance of **SQL Server Express 2019**. The account that is logged in will be set up as a system administrator. The instance name will be "**PHDWIN**"
- b. **Yes, but I would like to configure the options myself (not recommended)** - this option will install a new instance of SQL Server Express 2019 and is only recommended for advanced users with knowledge of Microsoft SQL Server. You will be required to name the instance and specify the system administrators.
- c. **No, I already have an instance to use or will download and install my own instance** - You should only choose this option if one of the following is also true:
  - o **You prefer to install a different version of SQL Server.** The install file will install an instance of Microsoft SQL Server Express 2019. PHDwin is compatible with Microsoft SQL Server (or SQL Server Express) 2016, however, we recommend using version 2019 or newer.
  - o **You plan to install SQL server's database engine on a network server.** This can be useful if multiple users would like to log into the same database.
  - o **You are just updating your build of PHDwin** and do not need another instance of SQL Server.
3. If you selected either of the **Yes** options, check the box to accept the MS SQL Server license agreement.
4. Click **Next**
  - a. If you have chosen the custom install, you will be required to configure all options. Otherwise, just wait for the installation of SQL Server 2019 to finish, as there are no additional steps required.

- b. Click **OK** when the SQL Installation is completed.
5. Click **Done**.

After PHDwin and SQL Server are installed, you should [license the program](#) and then [log in and create a new database](#).



You can install and run multiple versions (or builds within a version) on one machine. If you have PHDwin installed already, you can view its Version and Build number from the Login Screen: If you run the installation file for a higher build number than the currently installed build, it will automatically overwrite the existing build. For example, if you currently have PHDwin 3.1.10 and run the 3.1.11 installation file, it will overwrite the 3.1.10 installation.

## How Do I Install Multiple Versions of PHDwin?

If you would like to install multiple Versions of PHDwin, for example, Version 3.1 Build 26 and Version 3.2 Build 1, they will automatically be installed to separate directories for you. However, each build/version of PHDwin needs to be linked to a separate SQL Instance version. It does not matter the order in which you install them. You can run the installer as normal, just do not change the location of the installation directory. In fact, if you want to get rid of a previous Version of PHDwin after installing a new one, you will have to uninstall it through the control panel.

## How Do I Install Multiple Builds (Within the Same Version) of PHDwin?

If you would like to install multiple Builds with the same Version Number, for example, Version 3.1 Build 10 and Version 3.1 Build 11, follow the steps below.

1. Run the installation file for the build with the highest Build number, for this example, Build 11.  
**Note:** if you previously had an earlier Build installed, such as Build 9 or 10, it will overwrite this. You do not have control over that.
2. Run the installation file for the build with the lower build number, for this example, build 10.
  - a. During the installation for build 10, you need to specify a separate installation directory.



## Licensing PHDwin

The software can be purchased and licensed in one of two ways. Follow the instructions for the type of installation that you purchased:

- [Single-User/Standard installations](#)
- [Concurrent-User/Network Installations](#)

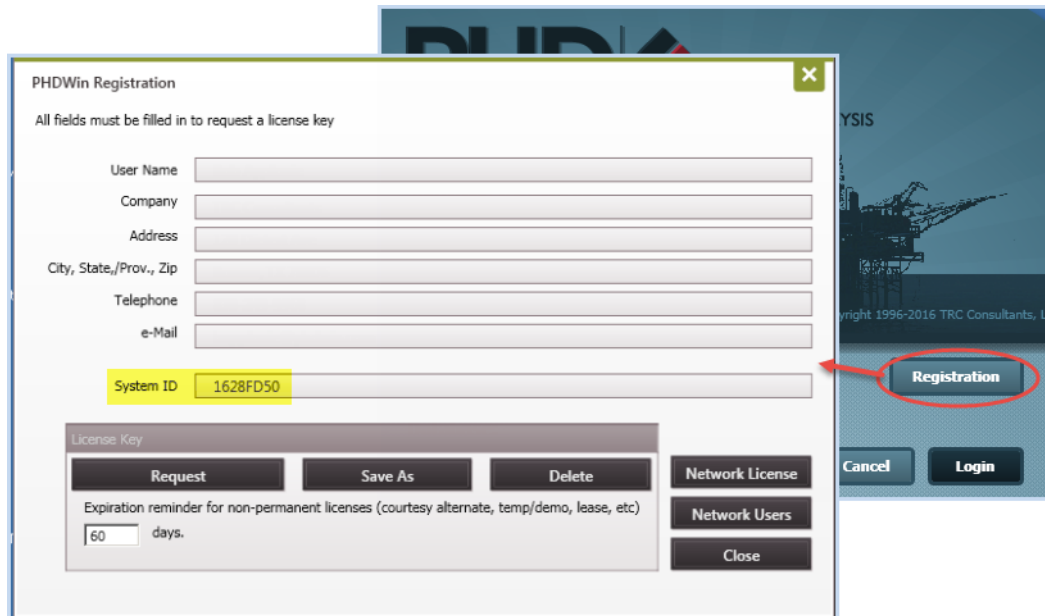
**Note:** If the Workstation is running Windows Server OS, it cannot run a Standard License and will require access to a Network Seat License.

### Single-user/Standard License

Access to the software is limited to the computer on which the software is installed.

### To Request a New PHDwin License

1. **Open PHDwin** to the splash screen/login window.
2. Click on the **Registration** button - this will open a new window.



PHDwin Registration

All fields must be filled in to request a license key

User Name

Company

Address

City, State, Prov., Zip

Telephone

e-Mail

System ID

License Key

Expiration reminder for non-permanent licenses (courtesy alternate, temp/demo, lease, etc)

days.

3. **Fill out the form** completely - every field must be filled in to complete the request.
4. Verify the **System ID** field has been populated - this is required before you send in your request.
5. **Email the request** to the license team using one of the following options:
  - Click the **Request** button. This will use your default email program to generate an email with the correct information pre-populated. You just need to send the email.

- **If your default mail program does not automatically generate an email** - you will need to email the information in the registration to the license team. You can take a screenshot of the completed registration form by pressing Ctrl + PrintScreen OR you can type in the information including your name, company name, address, phone, email, and system ID. When you are finished, send the message to [license@phdwin.com](mailto:license@phdwin.com) with the subject line **"License Request for PHDwin Version 3"**

Once the license team receives your email, they will process it and send you back a license file. You will have to save the file following the steps below.

## Saving your License File

To save the license file:

1. Open the email received from [license@phdwin.com](mailto:license@phdwin.com).
2. **Save the email attachment** named **PHDwin.lic** to the **C:/Program Files/TRC Consultants/PHDwin 3.1/Config** folder.
3. Open PHDwin to confirm that the license has been activated and registration was successful.

If the steps above do not work, try saving the license string directly. To do so:

1. Open the email received from [license@phdwin.com](mailto:license@phdwin.com).
2. Open PHDwin. On the login window, click on **Registration**.
3. Click on the **Save As** button and copy and paste the **license string** from the email into the Save As window.
4. Click **Apply** and **Close** the registration window to confirm that the license has been activated and registration was successful.

The screenshot shows the 'PHDWin Registration' window. It has a 'User Information' section with fields for User Name, Company, Address, City, State, /Prov., Zip, Telephone, e-Mail, and System ID. A 'License Key' section at the bottom has buttons for 'Request', 'Save As', and 'Delete'. The 'Save As' button is highlighted with a red box. A 'Save To License File' dialog box is open over the 'Save As' button, showing a 'License String' field (also highlighted with a red box) and 'Apply' and 'Cancel' buttons. The 'Apply' button is highlighted with a red box. Below the 'License Key' section, there is an 'Expiration reminder for non-permanent licenses (courtesy alternate, temp/demo, lease, etc)' with a dropdown set to '0' days. At the bottom of the window are buttons for 'Network License', 'Network Users', and 'Close'.

## Concurrent-User/Network License

PHDwin may be installed on multiple computers; however, simultaneous access to PHDwin is limited to the number of concurrent installations purchased. To set this up, you will install the PHDwin application on each user's computer and then install the PHDwin License Server application in a shared/server location to manage the licenses available.

### Step 1 - Download and Install the PHDwin License Server Application (License Manager)

1. **Download** the latest version of the **PHDwin License Server install--**  
<http://www.phdwin.com/downloads/>.
2. This will be a zipped file - **PHDwinLicSvr.zip**.
3. **Unzip the file** to get to the installation file - **PHDwinLicSvr.msi**.
4. Make sure you are **logged in with "Administrative" privileges** - the install should only be executed under an administrative login.
5. **Close all other programs**.
6. Double-click on the **PHDWinLicSvr.msi** file to execute it - this will start the Installation Wizard.
7. Read the first screen and **comply with all recommendations** and click **Next**. (If you must fix any issues, you can hit Cancel and just restart the installation wizard again when finished).
  - a. **Note:** If you do not see a "Welcome" screen but see options to "Modify, Repair or Remove" PHDwin License Server, it has already been installed. The program runs as an NT Service so you may not notice it is installed or running. If you are trying to update to a new version, it can only be installed after uninstalling the previous version.
8. You must **accept the license agreement** to continue. After an authorized user has read the agreement, choose "**I accept the license agreement**" and click **Next** to continue.
9. Next choose the **installation location**. The default location is **C:\Program Files(x86)\PHDwin License Server**--it is highly recommended that you use do not change this location. Click **Next** to finish the installation.

### Step 2 - Request a License

1. Double-click the **PHDwin License Server** icon and click on the **Registration** button.
2. **Fill out the form** completely - every field must be filled in to complete the request.
3. Verify the **System ID** field has been populated - this is required before you send in your request.
  - If it is not populated, click on the **Delete** button and it should regenerate an ID.
4. **Email the request** to the license team using one of the following options:
  - **Using Outlook** - If this machine has a default mail program loaded, click the **Request** button. This will generate an email with the correct information pre-populated, you just need to send the email.
  - **If your default mail program does not automatically generate an email** - you will need to email the information in the registration to the license team. You can take a screenshot of the completed registration screen by pressing Ctrl + PrintScreen OR you can

type in the information including your name, company name, address, phone, email, and system ID. Once you are finished, send the message to [license@phdwin.com](mailto:license@phdwin.com) with the subject line "**Network License Server Request for PHDwin Version 3**"

Once the license team receives your email, they will process it and send you back two emails with a separate license file attached to each email. You will have to save the files by following the steps below.

### Step 3 - Save your License Files

To save your license files:

1. Open the email that you received from [license@phdwin.com](mailto:license@phdwin.com).
2. **Save both license files** that were attached to the email to the **License Server installation folder**. The default location is **C:\Program Files(x86)\PHDWin License Server**.

**Note:** The files should be named **PHDWin License Server.lic** and **PHDwin.lic** (it is common for Outlook to append an underscore to attachments so please make sure they are saved with the correct name to work correctly).

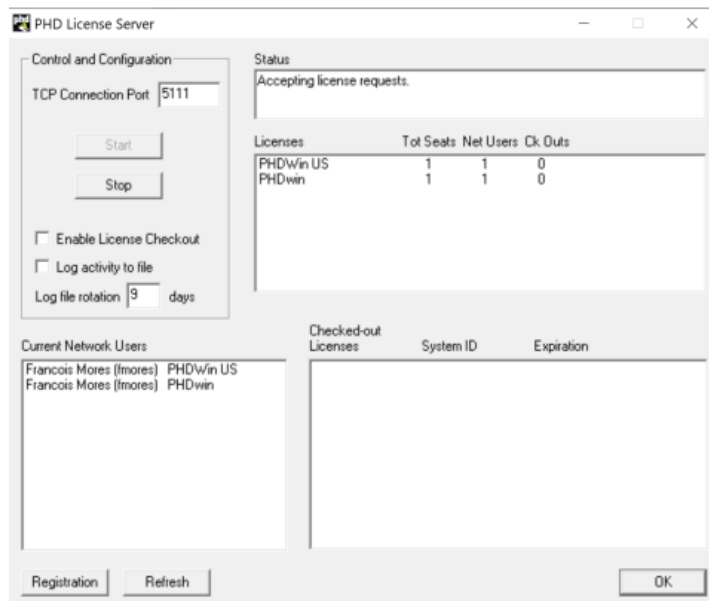
### Step 4 - Starting the License Server

Once the licenses are saved to the PHDwin License Server installation directory, **open the license server application**, and select **Start**. If the licenses are valid, the status of the License Server should say "**Accepting License Requests**". (If it says it is unable to open main license file, try re-saving the files or contacting support - the first thing to check will be to make sure that no characters have been added to the name of the license files such as an underscore to the beginning of the file name. This is a common issue with text attachments being sent via Outlook. The file names are: **PHDWin License Server.lic** and **PHDWin US.lic**).

### License Manager Features

The application also indicates:

- **Status & Licenses:** how many seats are available on the license
- **Current Network Users:** how many network users are currently logged in (and which users they are)
- **Checked-out Licenses:** how many licenses have been checked out



## Troubleshooting

Application shows Unknown users connected to the network or checked out licenses are locked in.

Occasionally the license server will get locked in on a user having a license checked out even though he or she has logged off or checked in the license. If this occurs, please contact tech support and we will help to resolve the issue.

## Step 5 - Set Up Each User's Machine to Connect to the License Server

1. Once the program is installed, go to each user's computer, and **delete the local PHDwin license file**, if it exists. It is found by default at **C:/Program Files/TRC Consultants/PHDwin3.1/Config**. The file name is **PHDwin.lic**.
2. Open the PHDwin splash screen and click on the **Registration** button.
3. Click on the **Network License** button and **type the name of the server next to Host**.

**Network License Server**

Host: TRC-Server

Port: 5111

**License Check-in/Check-Out**

Temporarily check a network license out of the shared pool and use it as a fixed license on this system.  
Checking the license in will return it to the pool.

Number of days needed (max. 30): 30

Check Out

Apply Cancel

4. Click **Apply** to save the changes and go back to the **Registration** window.
5. Click **Close** in the **Registration** window.
6. **Restart** PHDwin. When running PHDwin the computer will then look to the server to see if there is a seat available to open the program.

## Installing Microsoft SQL Server

When you ran the installation for PHDwin you should have received a prompt about installing MS SQL Server. If you chose the "No" option, this section covers doing a manual install of SQL Server Express. Otherwise, you can skip to [Logging in and Creating a New Database](#). The steps to install an instance of Microsoft SQL Server Express is the same for a local or network server installation. PHDwin is compatible with SQL Server or SQL Server Express 2016 and newer. However, we highly recommend utilizing 2019 or newer if possible.

### To Run the Installation:

1. Open windows explorer and go to the **Downloads** folder (or the location that you downloaded the file). Double-click on the file named **SQL2019-SSEI-Expr.exe** to begin the installation. Select Custom then Install.
2. This will open the **SQL Server Installation Center** - click on **New SQL Server stand-alone or add features to an existing installation**.
3. This will open the **SQL Server 2019 Setup** window. Review and **accept the license terms** and click Next.
4. On the **Product Updates** page - check the box to **Include SQL Server product updates** if there are any and click Next.


5. On the **Installation Type** page, choose **Perform a new installation of SQL Server 2019** and click Next.
6. On the **License Terms** page - **Accept the License Terms** and click Next.
7. On the **Feature selection** page, choose the **Database Engine Services** at the very minimum and click Next. Note: You can also choose to install **Management Tools - Basic** which is the database management interface - but this can also be installed later if you need it. You do not need to install SQL Server replication, Reporting Services, Analysis Services or Business Intelligence to run PHDwin.
8. On the **Instance Configuration** page - You can **use the default instance** or choose to name the instance. Instance names cannot not be changed once the initial instance name has been established. Microsoft recommends that you use the default instance if it will be the only one on the machine. If you name the Instance, be sure to make a note of the name so that you can select it later when you go to run PHDwin. The instance name cannot contain any special characters (besides underscore) or spaces.
9. On the **Server Configuration** page - leave both accounts to **automatically** start up and click Next. **Note:** It is especially important to leave the SQL Server Browser to start automatically if you are installing on a server. This means that the instance will show up when the users browse for an instance to connect to within PHDwin.
10. On the **Database Engine Configuration** page, you can set up the **security mode** and specify any **SQL Server Administrators**.
  - **Security Mode** — Select Windows Authentication or Mixed Mode Authentication for your instance of SQL Server. If you select Mixed Mode Authentication, you must provide a strong password for the built-in SQL Server system administrator account. With Mixed Mode, users can still login using Windows Authentication, but you also have a backup master password in case domain accounts are somehow compromised.
  - **SQL Server Administrators** — You must specify at least one system administrator for the instance of SQL Server. To add the account under which SQL Server Setup is running, click Add Current User. To add or remove accounts from the list of system administrators, click Add or Remove, and then edit the list of users, groups, or computers that will have administrator privileges for the instance of SQL Server.
    - Any account that you add here will have full privileges to run PHDwin on the instance that you are installing.
    - It is recommended that you are the administrator for local instances. If you are not the Administrator, you will need to get someone who is an administrator to build the first PHDwin database, and add your login as a user to the default databases (see [Creating SQL Logins](#)).
11. On the **Error Reporting** page, choose if you'd like to **send error reports** to Microsoft and click Next.
12. This will take you to the **Complete** page where you can view the information about and **complete the installation** and hit **Close**.

## Logging In and Creating a New Database

The first database that is ever built for a new installation of PHDwin must be created by a System Administrator. This will create additional System Databases required by PHDwin to manage user logins. As a result, creating the first database takes a bit longer than any subsequent databases.

1. **Double-click on the PHDwin icon** on your desktop - This opens the login window. Note that your build version may be different from the one shown below.



2. **Choose the server instance** by clicking on the  button to browse for a server/instance of SQL.
  - a. **Note:** If you did the bundled install, the name of the instance should be "PHDWIN". If you did a custom install and did not name the instance during install, the default instance name should be "SQLEXPRESS".
3. You can **validate your login** by either checking the box to use your **Windows Authentication** credentials (recommended) or by typing in the SQL Server **Username and Password** that was created for you.
4. If you are logging in to an instance of SQL with no PHDwin databases, type in the name of a new database next to the input box and click **Create**.
5. If you are logging in to an instance that already has PHDwin databases, choose **<Add New Database>** from the Database drop-down menu, type in the name, and click **Create**.



## PHDwin Database Names

When creating a database through the PHDwin interface, spaces are converted to underscores. Also, when looking at the database through SQL Server Management Studio, notice that all databases begin with "Phd\_". This is how the application filters the list of available databases when opening an existing database.

SQL also has a few rules for naming of databases that you should be aware of when creating new PHDwin databases:

- names cannot contain any spaces - these is automatically converted to an underscore by PHDwin, though.
- names cannot contain any non-alphanumeric character.
- names should avoid using any [SQL reserved words](#).

## Creating SQL Logins & Permissions

### Setting Up a Shared SQL Server Instance

If you are the PHDwin user and have installed a local instance of SQL Server where you are the system administrator, then your setup is complete, and you don't have to read any further.

If you are part of an IT team installing PHDwin and SQL Server for the PHDwin user, you will need to create a SQL login for the PHDwin user. If the SQL Server instance was installed on a shared network location for multiple users to access, you will also need to enable TCP/IP & Named Pipes connections. All the PHDwin users must be using the same build number of PHDwin to access a shared instance.

### Adding a Login to SQL Server

If multiple users will be logging into a shared SQL Server Instance for PHDwin, it is recommended to [Create a domain group](#) that contains all PHDwin users to save time managing permissions for the individual users. Each domain group or individual PHDwin user must be added as a login for the SQL Server using SQL Server Management Studio.

#### To Add a New Login

1. Open **SQL Server Management Studio** and connect to the instance you'll use to store PHDwin databases. The server must be a part of the domain that you created the group on.
2. Expand **Security** to find the **Logins** - right-click on **Logins** and select **Add New**.
3. Click on the **Search** button next to the **Login name** to search for the group that you created. This will open a new window.
  - a. Click on **Object Types** and make sure that **Group** or **User** is selected.
  - b. Make sure the location underneath "**From this location**" is set correctly. You may need to click on the **Locations** button to choose the network that the group/individual is a part of.

- c. In the section that reads "**Enter the object names**", type in the name of the group or use and click Check Names.
  - d. The name you were searching for should show up with the text underlined. Once you see this name, click **OK** to close the window.
4. Underneath the login name, you will choose the **authentication method - Windows authentication** or **SQL Server authentication** which allows you to specify a password for the login.
  - a. If you select **Windows authentication** for a group login, the domain will know which users belong to any groups you've created and allow them to log in with the permissions for the group.
  - b. If you select **SQL Server Authentication**, you must create a Username and Password for the PHDwin user. Uncheck "User must change password at next login" as this action cannot be performed from the PHDwin login screen.
5. Go to the **Server Roles** page.
  - By default, the login will have a **public** server role.
  - If you are creating a login for a PHDwin user on their local instance, click the box for the **sys-admin** server role. This will enable them to create databases in PHDwin, make changes, and delete them if necessary.
  - If you do not want to make the user a **sysadmin**, view the section below on limiting SQL permissions.
6. Click **OK** to save your changes.

## Limiting SQL Permissions

If you do not want to have every user setup as a **sysadmin**, you can use SQL Server Management Studio to grant specific permissions on both the instance/server and individual database level. The following options describe the minimum permissions required to open and edit databases on the server.

### To set the Minimum SQL Login Permissions

1. Open **SQL Server Management Studio** and connect to the instance you'll use to store PHDwin databases. The server must be a part of the domain that you created the group on.
2. Expand **Security** to find the **Logins**
3. Right-click on the **Login** that will be assigned permissions and select **Properties**.
4. In the Login Properties window, go to the **Securables** page.
5. Under the list of Explicit Permissions, click the **Grant** box next to:
  - a. Alter any database
  - b. Connect any database
  - c. View Server State
6. Go to the **User Mapping** page.
7. Click the **Map** box next to the following databases:
  - a. **PhdDefaults**
  - b. **PhdReports**

- c. **PhdRules**
- d. **PhdUsers**
- e. Any **user-created databases** which the login will need to access. These databases will all have the "Phd\_" prefix.
- 8. Click **OK**.
- 9. Expand **Databases** to see full list of databases in the SQL Instance. The database level permissions for the login must be specified for each database mapped in step 7 above.
  - a. Expand the list under each database to find **Security**.
  - b. Expand **Security** to find **Users**.
  - c. Expand **Users** to find the Login you're modifying
  - d. Right-click on the Login name and select **Properties**.
  - e. Go to the **Securables** page.
  - f. Click **Search...**
  - g. Select **All objects of the types...** and click **OK**.
  - h. Select **Databases** and click **OK**.
  - i. Click the **Grant** box to assign that permission to the login. Refer to the chart below for minimum permissions for using PHDwin.

I		Databases				
		Phd_	PhdUsers	PhdReports	PhdRules	PhdDefaults
Permissions	Alter Databases	✓		✓		
	Connect	✓	✓	✓	✓	✓
	Create Table			✓		
	Delete	✓	✓	✓	✓	
	Execute	✓	✓	✓	✓	✓
	Insert	✓	✓	✓	✓	
	Select	✓	✓	✓	✓	✓
	Update	✓	✓	✓	✓	

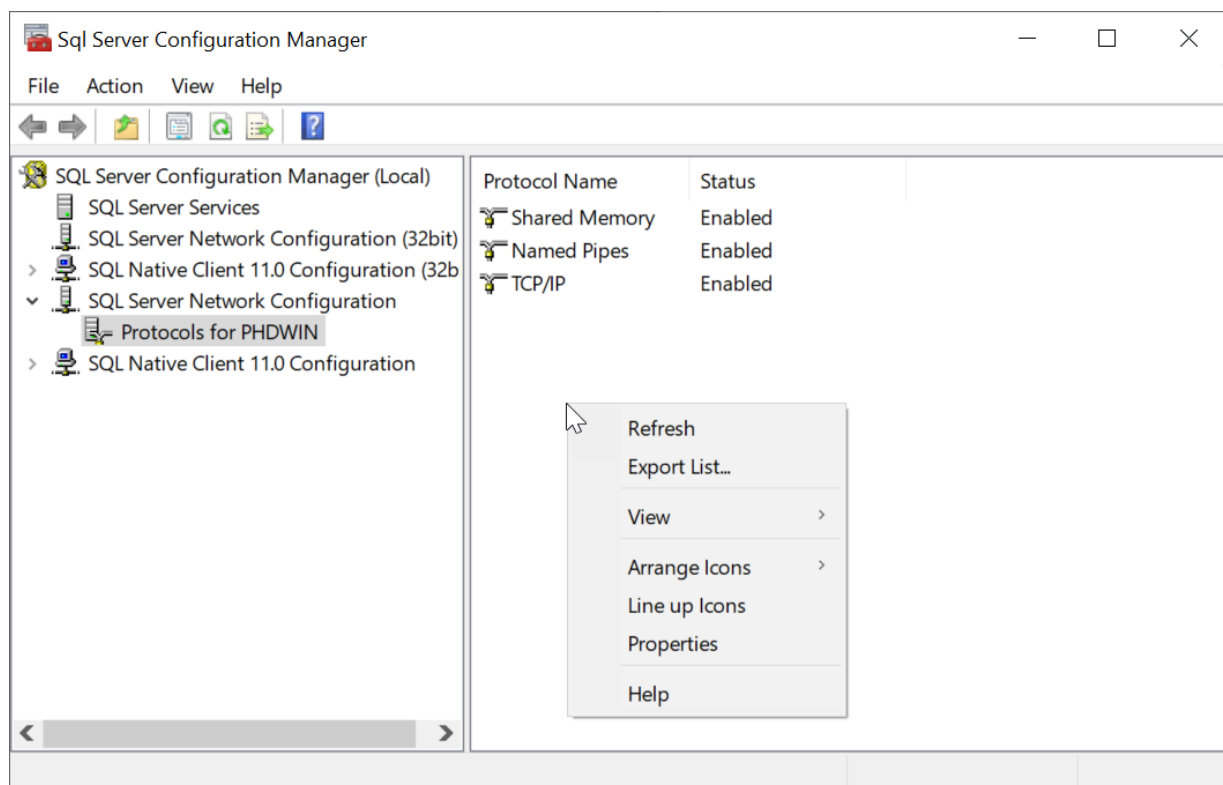
- j. Click **OK** to save your changes.
- k. Repeat for each **database**.

## Enable TCP/IP and Named Pipes

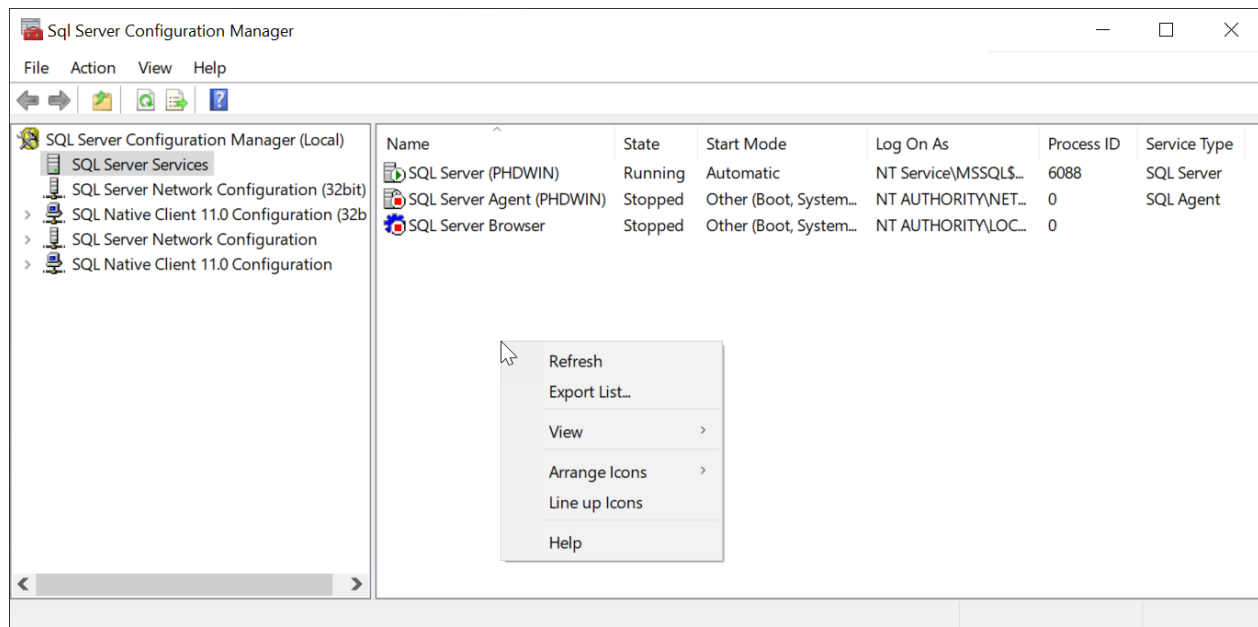
If you've installed SQL Server on a network server and you or other users will need to connect to it, TCP/IP and Named Pipes connections must be enabled.

### To Enable TCP/IP and Named Pipes

1. Start **SQL Server Configuration Manager** – you can search for this app in the Windows start menu.
2. In SQL Server Configuration Manager, in the console pane, expand **SQL Server Network Configuration**.
3. In the console pane, click **Protocols for <instance\_name>**.
  - a. In the details pane, right-click **TCP/IP**, and then click **Enable**.
  - b. In the details pane, right-click **Named Pipes**, and then click **Enable**.



4. In the console pane, click **SQL Server Services**.
  - a. In the details pane, right-click **SQL Server (<instance\_name>)**, and then click **Restart**, to stop and restart the SQL Server service to apply the changes.



## Setting Up a Group on the Domain

You can save time setting up SQL Server logins by creating a security group using Windows Active Directory Domain Services. The group should contain all PHDwin users. That way, when the security group is given access to an object (such as the PHDwin server), all members of the security group automatically receive the same access to the object.

To create a domain group:

1. **Log in to the server with the domain controller** - the instance of SQL server used by PHDwin must have access to this domain controller.
2. Open the Active Directory Users & Computers. This is found by opening **Administrative Tools>Active Directory Users and Computers**.
3. Find the domain that you would like to add the group to and expand it to find the Users grouping. Right-click on **Users** and select **New>Group**.
4. Give the group a **Name** and select the **Group scope & group type**. The group type should be "**Security**", the group scope will typically be "Global" but may depend on the rules & requirements of your company. Click **OK** to save the group.
5. Find the group that was created in the list of Users, **right-click** on it and choose **Properties**.
6. Click on the **Members** tab and then click on the **Add** button to add the first user to the group.
  - a. Under **Select this object type**, click on **Object Types**, and make sure "**Users**" is selected.
  - b. Under **From this location**, make sure you are on the domain that you'd like to add users from. Click on **Locations** button to change this.
  - c. Type in all or part of the name of the first user that you'd like to add and click on **Check names**. The username should pop up, select it and hit **OK**.
  - d. **Repeat this process** for all the PHDwin users that you'd like to be a part of this group.

7. Once you are finished adding users, click **OK** to save your changes.

**More information** on domain groups, including settings and adding or removing members can be found on [Microsoft's website](#).

## About Microsoft SQL Server

PHDwin databases will be created and stored on an instance of the Microsoft SQL Server database engine that you will install. PHDwin is compatible with Microsoft SQL Server or Microsoft SQL Server Express 2016 or later. The "Express" version of SQL Server is a free program and capable of running the majority of PHDwin data sets. Although earlier versions are compatible, we highly suggest downloading at least SQL Server 2019 due to improvements made to better handle data sets and providing new tools to add to overall functionality.

You may want to set up multiple instances depending on the processes and workflow at your company. The instances can be on your computer, on a shared network server that multiple users can access, or both

### Setting Up SQL Server

We recommend that you set up a separate instance of SQL Server for PHDwin databases. You should not create PHDwin databases in an instance that stores databases for other applications. You can install the instance locally or on a shared network server. The benefits of a local installation are a fast setup and the ability to easily take projects home. There should be no concerns about security or compliance issues related to a user's local instance.

We expect PHDwin users will set up one or more instances, with varying degrees of security. The exact setup will vary depending on the way your company will be using PHDwin. For example, if you are an exploration and production company that does a lot of A&D work, you may have to set up multiple instances for:

- Reserves engineers – who will need a very tightly managed environment (since it is usually audited). This database might be on its own instance that is separately managed from the rest. It could be limited to select users with stricter permissions. On this instance, users would probably not be able to create or delete databases. But imposing the requirements of the reserves databases on the A&D and Production engineers significantly limits flexibility and productivity.
- Production engineers (if different from the reserves engineers) – who will need a more managed but reasonably open environment. This could be set up as a second instance on a shared server with more relaxed permissions and that more people have access to.
- A&D work - where users will typically need sandbox environments to work databases quickly as they are delivered from other companies without polluting in-house data. These types of users may need the ability to create and delete databases as they please. This type of work could be done via local instances where each user is a system admin.

Consulting companies and banks will mostly likely want to set up a local instance for each PHDwin user. They should be system administrators so that they can create and delete databases as necessary. If data needs to move between databases or instances, our Transfer (PHZ3) and merge features allow quick, easy, and disciplined data migration.

## Troubleshooting

### To Delete Old Databases

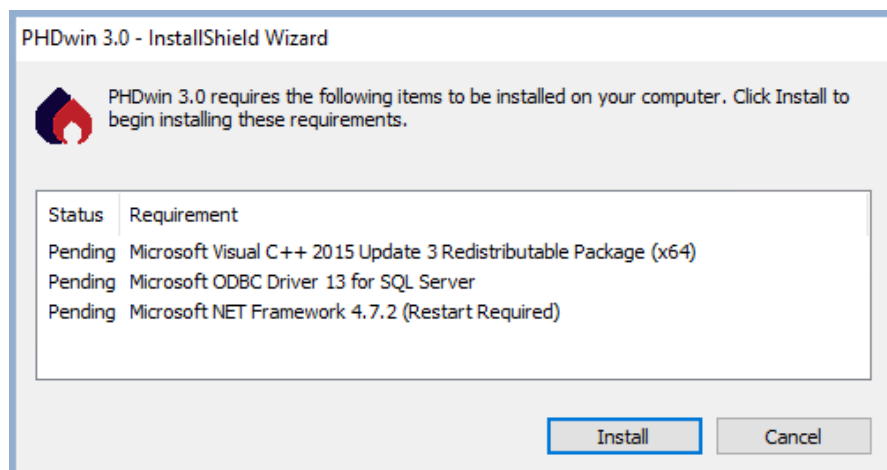
1. Open **SQL Server Management Studio**.
2. **Log in** to the instance of Microsoft SQL Server that you've been using to create PHDwin databases.
3. On the left you will see the **Object explorer**, highlight **Databases**.
4. Click **F7** to open the Object Explorer Details.
5. **Select all the PHDwin databases** by using **CTRL+Click** to highlight them all. All databases created by the application will begin with "Phd".
6. **Right-click** on any of the databases you've selected and then choose **Delete**.

### Installing Extra Components

There are 3 extra components that are part of the default installation of PHDwin. The install wizard will check your computer for any missing components that need to be installed. They are the **Visual C++ Redistributable**, **SQL Native Client** and the **ODBC Driver 13 for SQL Server**. These should be installed locally with the PHDwin application.

### InstallShield Wizard Error Message

If you are missing any components, they will be listed for review. Click **Install** to download and install them. (Note: this may require a restart). Once you have restarted your computer, restart the installation by executing the **PHDwin\_3.1\_Setup.exe** file again.



## To Install Visual C++ Redistributable

1. Open windows explorer and go to the **Downloads** folder (or the location that you downloaded the file). Double-click on the file named **vc\_redist.x64.exe** to begin the installation.
2. In the Setup window, check the box to **Agree to the terms and conditions** and click **Install**.

## To Install the ODBC Driver 13 for SQL Server

1. Open windows explorer and go to the **Downloads** folder (or the location that you downloaded the file). Double-click on the file named **msobdcsql131\_x64.msi** to begin the installation.
2. In the **Setup window**, click **Next** to begin the installation.
3. **Accept the terms of the license agreement** and click **Next**.
4. On the **Feature Selection** page, leave everything as is and click **Next**.
5. Once the setup is ready, click **Install** and then **Finish**.

## To Install the SQL Native Client

1. Open windows explorer and go to the **Downloads** folder (or the location that you downloaded the file). Double-click on the file named **sqlncli\_x64.msi** to begin the installation.
2. In the **Setup window**, click **Next** to begin the installation.
3. **Accept the terms of the license agreement** and click **Next**.
4. On the **Feature Selection** page, leave everything as is and click **Next**.
5. Once the setup is ready, click **Install** and then **Finish**.
6. You will have to **restart your computer** for the configuration changes to take effect.

## Problem - The Server is Not Showing Up When I Try to Log In

If you are trying to log in to PHDwin but nothing is listed under "Server", even when you click on the Browse button, try following the steps below to verify that SQL Server Browser is running and that you have enabled TCP/IP and Named Pipes.

### Solution 1 - Verify that SQL Server Browser is Running Automatically

During the install, you should have set the SQL Server Browser to start automatically. If you didn't, PHDwin will not be able to see the server as an available option when you try to log in.

To verify that the service is running automatically:

1. Start SQL Server Configuration Manager - Click **Start**, point to **All Programs**, and click **Microsoft SQL Server**. Click **Configuration Tools**, and then click **SQL Server Configuration Manager**.
2. In SQL Server Configuration Manager, in the console pane, click on **SQL Server Services**.
3. In the details pane, look for **SQL Server Browser**. The **Start Mode** should be set to **Automatic**. If it is set to "Other" or "Disabled", right-click on SQL Server Browser and choose **Properties**.
4. In the Properties window, go to the **Service** tab and find the **Start Mode**. Change this to **Automatic** and click **OK**.



5. Right click on the **SQL Server Browser** and click **Restart** to apply the changes.

## Solution 2 - Enable TCP/IP and Named Pipes

If you installed SQL Server locally on your machine, you could skip this step. If you installed SQL server on a network server and you or other users will need to connect to it, it requires you to enable TCP/IP and Named Pipes connections.

To enable TCP/IP and Named Pipes:

1. Start SQL Server Configuration Manager - Click **Start**, point to **All Programs**, and click **Microsoft SQL Server**. Click **Configuration Tools**, and then click **SQL Server Configuration Manager**.
2. In SQL Server Configuration Manager, in the console pane, expand **SQL Server Network Configuration**.
3. In the console pane, click **Protocols for <instance\_name>**.
  - a. In the details pane, right-click **TCP/IP**, and then click **Enable**.
  - b. In the details pane, right-click **Named Pipes**, and then click **Enable**.
4. In the console pane, click **SQL Server Services**.
  - a. In the details pane, right-click **SQL Server (<instance\_name>)**, and then click **Restart**, to stop and restart the SQL Server service to apply the changes.

## Further troubleshooting

For more information, see the article from Microsoft on "[Troubleshoot connecting to the SQL Server Database Engine](#)".

## Problem - My Login Credentials are Invalid

If you get an error that your login credentials are invalid, make sure to click on "Change Login" so that you can see the details of the server you are logging into.

This error will appear when you are trying to log in using a SQL username and password instead of windows authentication. Make sure that you have typed the password correctly and try to log in again.