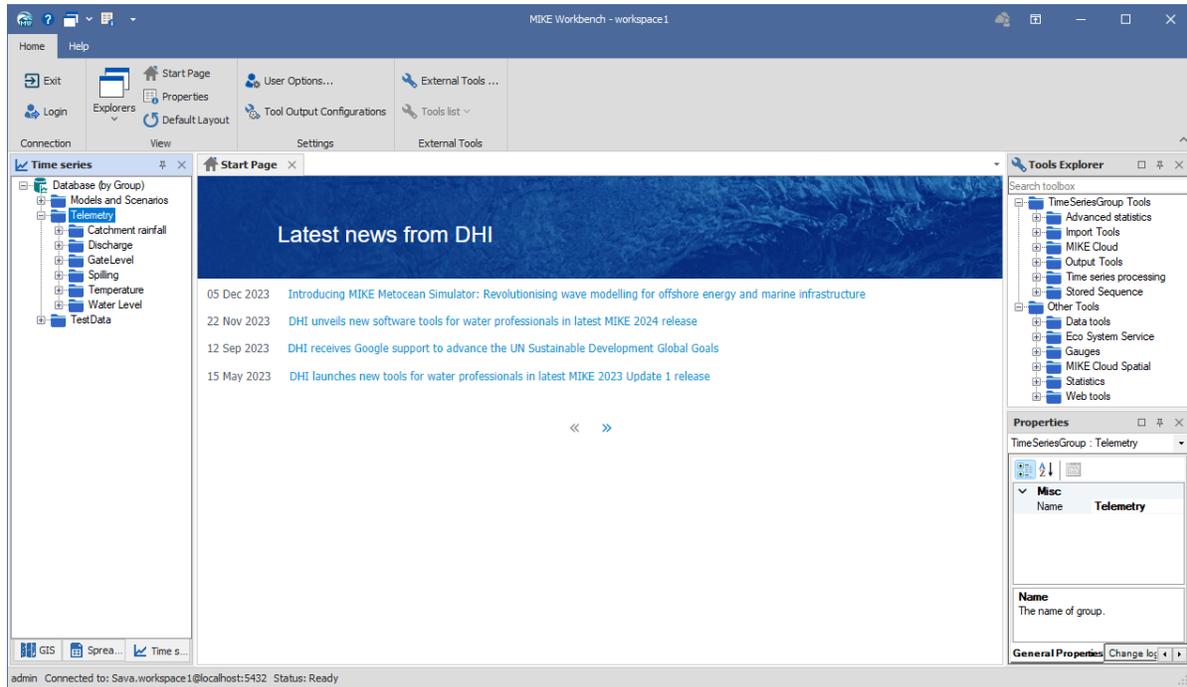


# Installation Guide

## MIKE OPERATIONS Installation Guide for Release 2024.2



### PLEASE NOTE

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## Introduction

This installation guide covers the installation of MIKE OPERATIONS and related Modules (MIKE WORKBENCH, Database Manager Utility, MIKE OPERATIONS Desktop) and required 3rd party software.

MIKE OPERATIONS can be deployed in different ways – ranging from a personal installation to a corporate installation.

1. Personal installation, which allows users to work in a network independent mode on their desktop. This requires the installation of a database on the local computer.
2. Corporate installation, which allows for an office to have multiple installations (clients) all working against a central database.
3. Web installation, which allows for an organisation to access MIKE OPERATIONS over the Internet (this option requires installation of MIKE OPERATIONS Web as well).

This installation guide describes the installation process for all the different deployment patterns and required associated 3rd party software.

Installation of MIKE OPERATIONS Web is described in a separate installation guide.

**Info**

Please be aware that all MIKE software (including the DHI License Manager) on the same computer must be installed with the same service pack. This is due to the dependencies between MIKE software products and our wish to use the latest and technically most advanced development systems.

## Installation Prerequisites

MIKE OPERATIONS depends on prerequisites as listed below.

### Database service (optional)

Because MIKE OPERATIONS runs on a database, a supported database software or service must be installed.

The following databases are supported by MIKE OPERATIONS:

- PostgreSQL
- SQLite
- MS SQL Server

**Note**

Please note that Oracle databases are not supported as of release 2022 of MIKE OPERATIONS.

SQLite is installed and run automatically by MIKE OPERATIONS. The other database types run as services and must be installed by the user.

### PostgreSQL

The MIKE OPERATIONS installer includes an optional PostgreSQL installer that installs a PostgreSQL server along with the PostGIS spatial database extender.

Although the PostgreSQL installer delivered with MIKE OPERATIONS installs the latest PostgreSQL/PostGIS combination, it's also possible to use older combinations.

 **Warning**

PostgreSQL has a limited 5-year period of support for each major version of PostgreSQL. After this period, PostgreSQL will not release security and hotfixes for the version. This also means that MIKE OPERATIONS will not support these versions with new releases.

Read more on the [PostgreSQL version policy page](#) and on [DHI Developers](#).

MIKE OPERATIONS 2024.2 supports the following combinations of PostgreSQL and PostGIS with this release:

PostgreSQL	PostGIS
PostgreSQL 12	PostGIS 3.0.*
PostgreSQL 13	PostGIS 3.1.*
PostgreSQL 13	PostGIS 3.2.*
PostgreSQL 14	PostGIS 3.1.*
PostgreSQL 14	PostGIS 3.2.*
PostgreSQL 14	PostGIS 3.3.*
PostgreSQL 15	PostGIS 3.3.*
PostgreSQL 15	PostGIS 3.4.*
PostgreSQL 16	PostGIS 3.4.*

Combinations of later versions may also work but have not been tested.

PostgreSQL versions accepted by MIKE OPERATIONS can also be viewed in the file `DssDatabases.cfg.xml` of the MIKE OPERATIONS installation folder.

**Note**

In case upgrading a system running on an older unsupported version of PostgreSQL, a new version of PostgreSQL should be installed and the database moved to this new installation.

**MS SQL Server**

MS SQL Server must be installed by the user. An installer is not included with the MIKE OPERATIONS installer. Supported versions include 2019 and 2022.

**The DHI License Management application.**

The installation wizard of the DHI License Manager is included in the MIKE OPERATIONS installer.

**Microsoft .NET Framework 4.7.2**

The Microsoft .NET Framework is installed by default when installing Microsoft Windows.

**Microsoft Edge WebView2**

Microsoft Edge WebView2 is a control that lets MIKE WORKBENCH and MIKE OPERATIONS Desktop (Operator UI) embed advanced web page in docked panels inside the application.

The following controls use the Microsoft Edge WebView2.

- MIKE WORKBENCH Start Page
- Operations Manager web page extensions
- Operator UI web items

Microsoft Edge WebView2 is installed with MIKE OPERATIONS, when running the installer using `setup.exe`.

**MIKE OPERATIONS Installation/Upgrade**

MIKE OPERATIONS 2024.2 is installed by running the `Setup.exe` program coming with the installation media. The installation process consists of two parts.

 **Note**

It is important to run the Setup.exe as administrator to allow all components to be installed.

- Installation of DHI License Management application (only if not previously installed with other MIKE software).
- Installation of MIKE OPERATIONS software files including MIKE Workbench, Database Manager Utility, MIKE OPERATIONS Desktop, and PostgreSQL/PostGIS.

Installation of the MIKE OPERATIONS software package is simple and requires no user interactions beyond accepting the license conditions and specifying the installation folder.

The following section explains how to install or upgrade MIKE OPERATIONS, MIKE WORKBENCH, and required 3rd party software.

If you are installing MIKE OPERATIONS for the first time, PostgreSQL and PostGIS can be installed if you want to run on top of a PostgreSQL database.

If you want to install a different combination than the default PostgreSQL versions, refer to APPENDIX A.

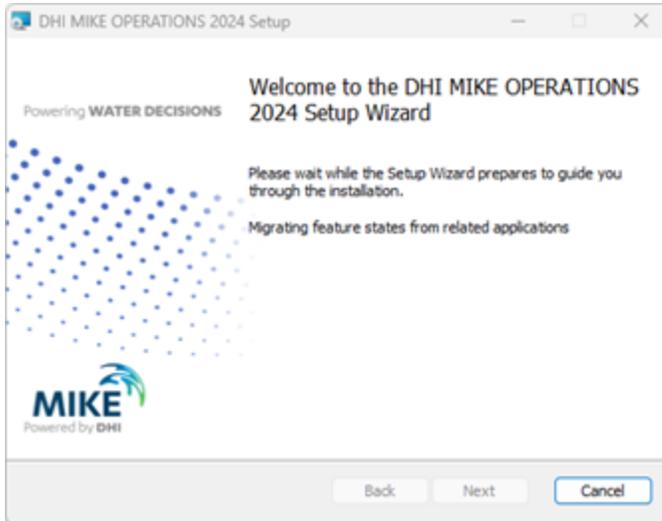
## Start Installation

Run the `setup.exe` file from the installation media/download folder.

`setup.exe` will make sure that the License Manager as well as PostgreSQL is installed.

 **Warning**

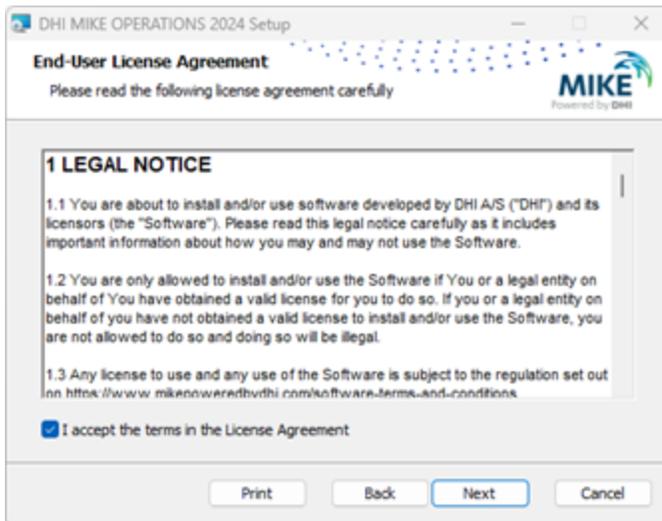
Do not use the MIKE OPERATIONS msi installer unless an existing installation of MIKE OPERATIONS needs to be reinstalled.



### Note

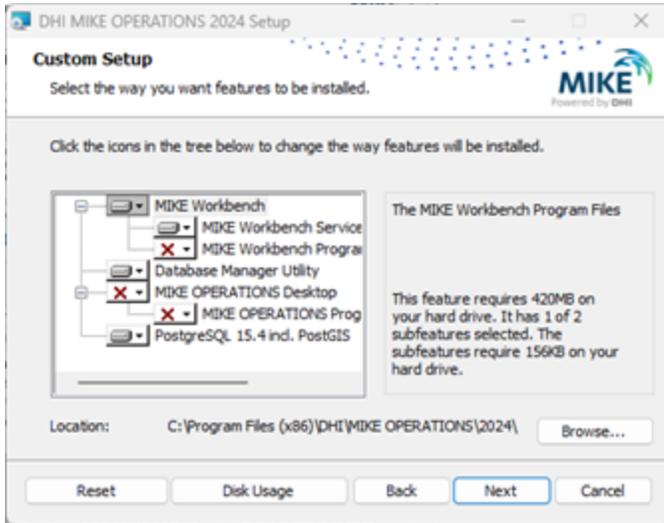
Note: In case the DHI License Manager is not installed, the installation wizard of the DHI License Manager will start. Refer to the installation guide of the DHI License Manager for more information about features and license configuration.

Accept the license agreement.

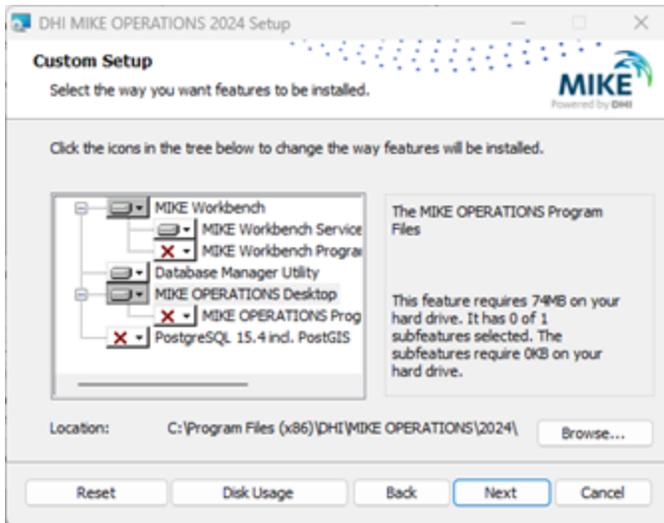
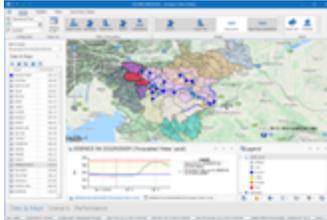


## Select Components

MIKE Workbench and the Database Manager Utility are required components when installing MIKE OPERATIONS.



### MIKE OPERATIONS Desktop (optional)

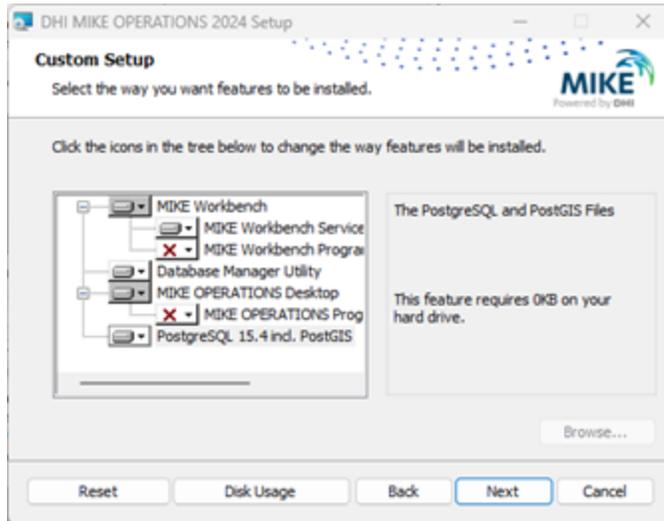


### PostgreSQL including PostGIS (optional)

It is recommended to install MIKE OPERATIONS with PostgreSQL and PostGIS on a shared server or virtual machine.

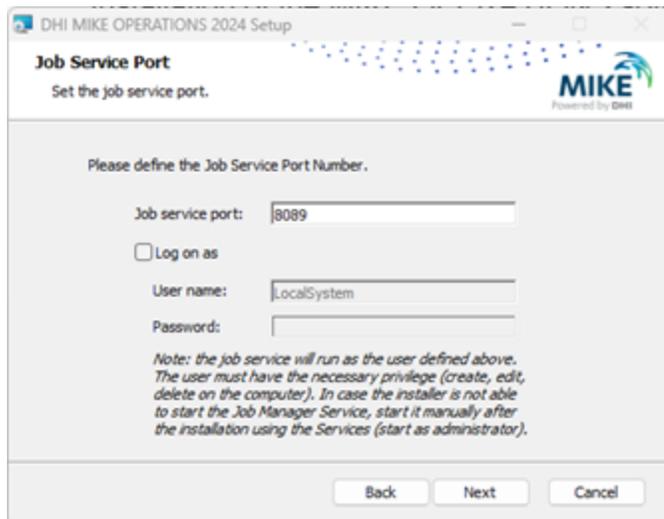
### Note

Install PostgreSQL and PostGIS on if a database server is not already installed or an older unsupported version of PostgreSQL is currently installed.



## Job Service Port

Specify the port to use for the Job Manager Service.



Use the default port (8089).

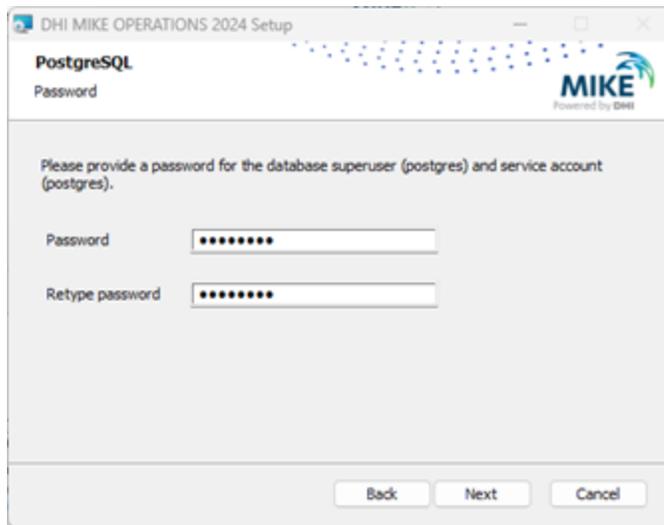
It's possible in this step to specify a computer user profile to be used when running jobs. This can be edited later.

**Note**

If the Job Manager fails to start, this might be because the default port used for the Job Manager Service is already used.  
In that case, please restart the installation process and select a different port number.

## PostgreSQL administrator password

If you've selected a PostgreSQL installation, you will be asked to provide a password for PostgreSQL database.



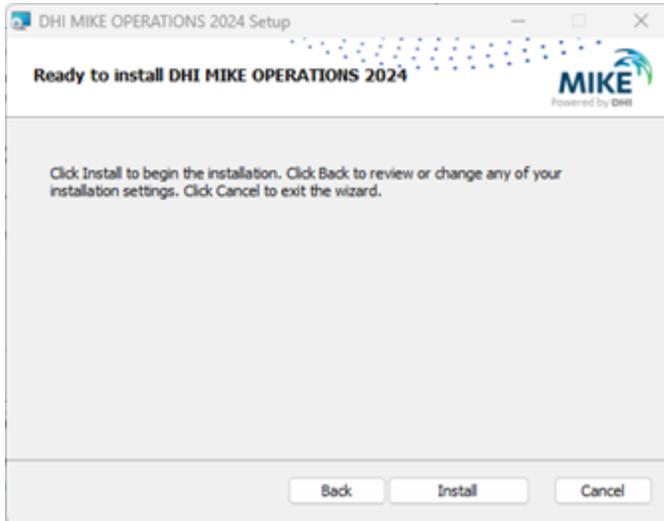
The screenshot shows a Windows-style dialog box titled "DHI MIKE OPERATIONS 2024 Setup". The main heading is "PostgreSQL Password". Below the heading, there is a sub-heading "Password" and a logo for "MIKE Powered by DHI". The main text reads: "Please provide a password for the database superuser (postgres) and service account (postgres)". There are two input fields: "Password" and "Retype password", both containing seven asterisks. At the bottom, there are three buttons: "Back", "Next", and "Cancel".

Provide Password to the PostgreSQL database.

**Info**

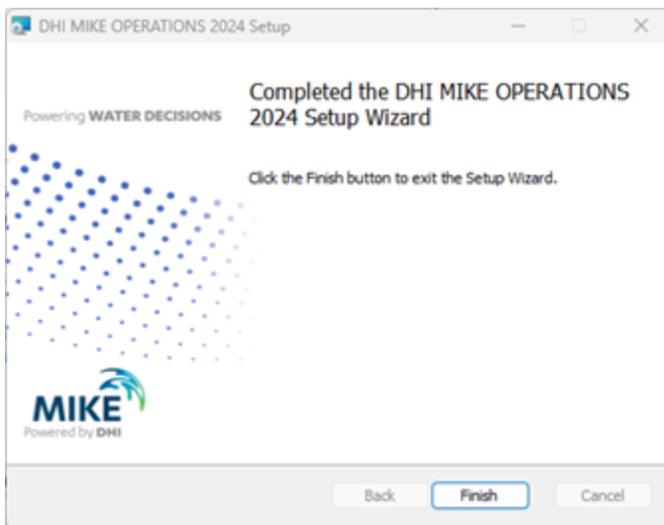
The password should be used whenever the Database Manager Utility is used or the PostgreSQL native database management software *pgAdmin* is applied.

## Install



Click Install

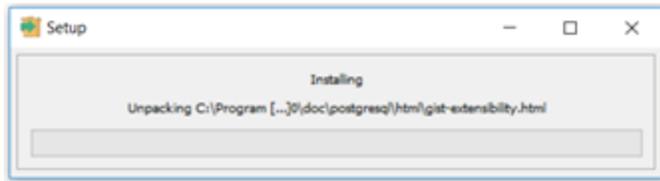
## Finish Installation



Click Finish

## PostgreSQL Installation

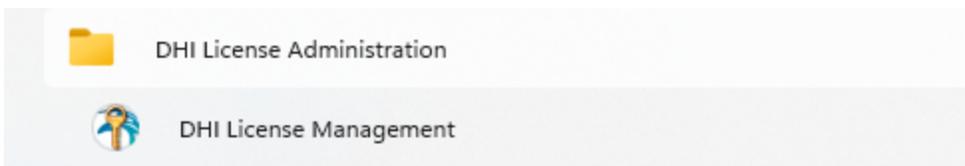
If you are doing a PostgreSQL installation, wait until installation of PostgreSQL and PostGIS is complete.



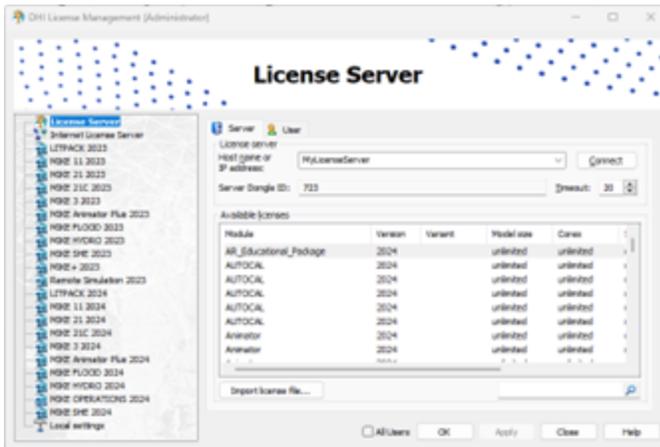
Click OK to complete the installation once the PostgreSQL installation is complete.

## DHI License File

The DHI license is handled through the DHI License Management software, which can be found under DHI License Administration in the Start Menu.



Open the DHI License Management program in the start menu as administrator.



There three different options: - Internet License - Network License - Local License (dongle)

### Note

All Users must be ticked to allow job execution (if job service is using another user profile)  
Please look in the documentation found by clicking the Help button or contact your local MIKE Sales representative.

## Set up Database

Once the software is installed for the first time, it is required to set up a database.

This includes connecting to a database file or server, creating a database, and making a database connection.

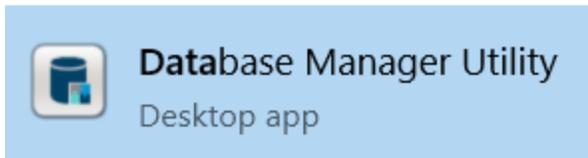
Instructions for database setup and connection are provided in the help file for the Database Manager Utility.

The following database types are supported:

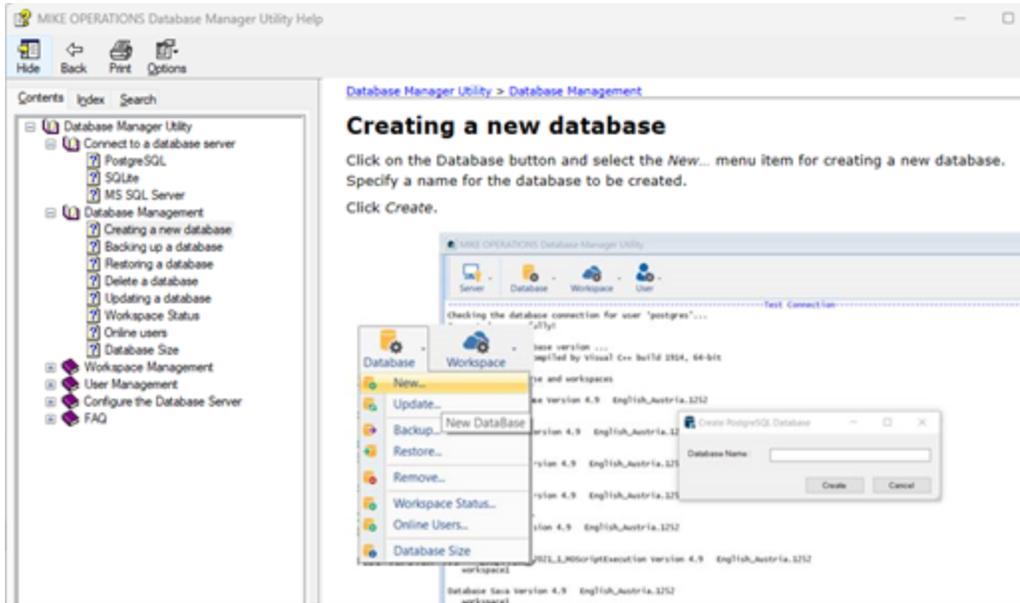
- PostgreSQL
- MS SQL Server
- SQLite

It's also possible to use Azure Database Service for PostgreSQL instead of a local PostgreSQL service.

To launch Database Manager Utility, go to the Start menu and search for Database Manager Utility.



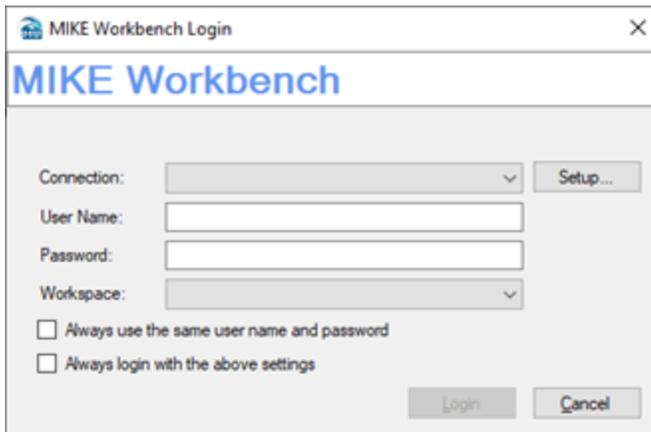
Refer to the Database Manager Utility documentation on how to connect to a database server and on how to create a new database.



Connect to a database in MIKE Workbench

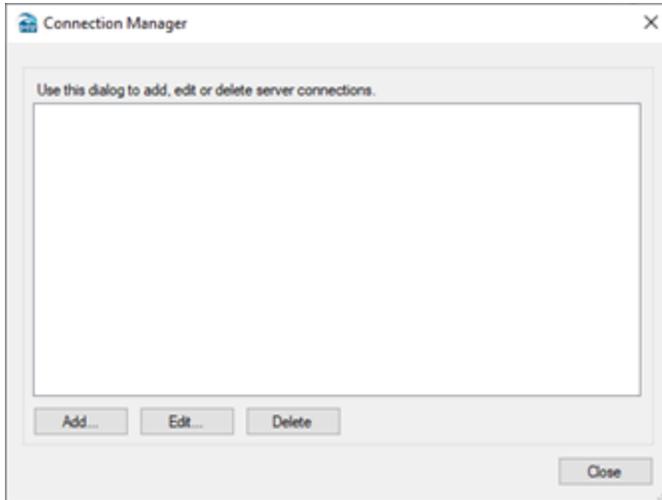
After a database has been created in the Database Manager Utility, a connection to the database must be created in MIKE WORKBENCH.

When opening MIKE WORKBENCH, a connection window appears.



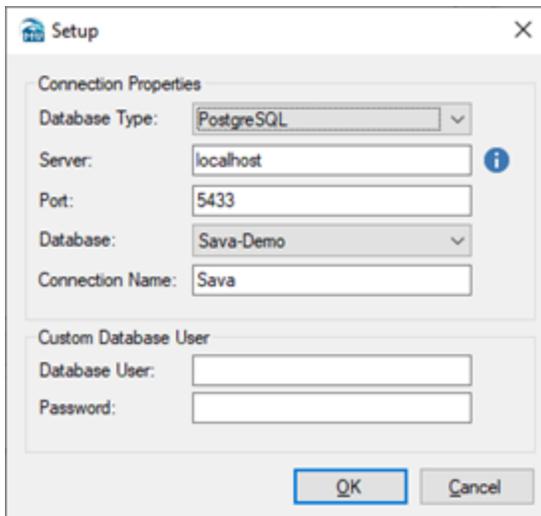
Click *Setup...*\*

A connection manager then allow you to create a connection.



Click *Add...*

In the Setup window, a database connection is defined.



If the selected database type is PostgreSQL, MS SQL Server, or Oracle, you should define the server name.

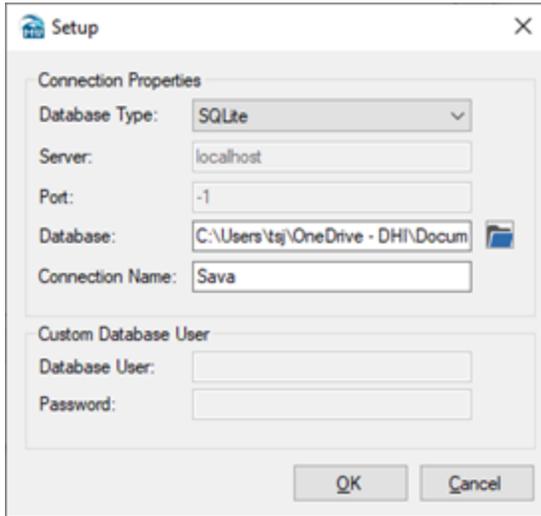
In the current example, we work with a database installed locally and the server name should be set to *localhost*.

The port should be set to the port associated with the server. This association is made in Database Manager Utility for local services.

The Database is selected from the databases available from the given server/port combination.

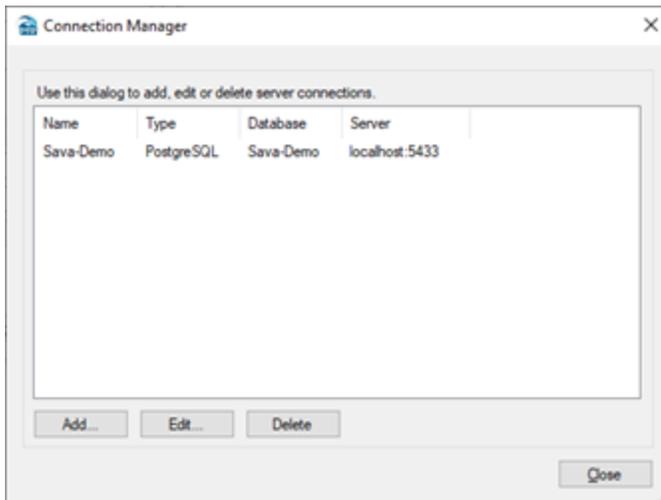
The Connection Name is set to the database name by default but can be changed.

For SQLite, you should define the path to the SQLite database file.



The Connection Name is set to the database name by default but can be changed.

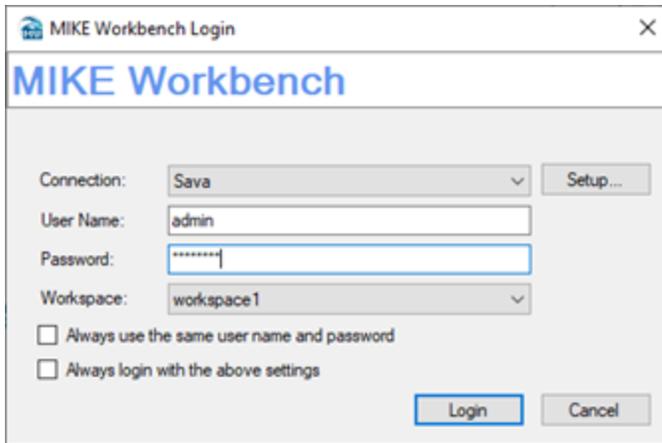
The newly created connection appears in the list.



The Connection menu now shows the newly created database connection.

By default, the pre-configured administrator account is called `admin`. The password is `dssadmin`.

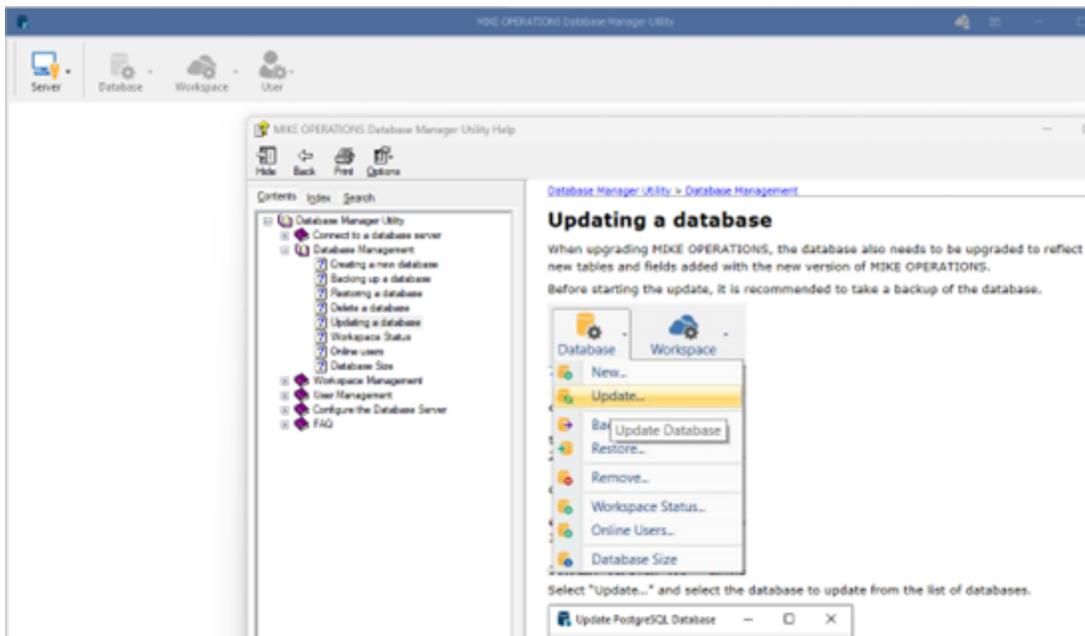
This can be changed after logging in to the system. See the MIKE Workbench documentation for more information.



Click *Login*

## Updating an Existing Database

If you are doing an update, you should ensure the database version and the MIKE OPERATIONS version are consistent. Indeed, from one version to another one, the database schema usually evolved.



Instructions for updating a database are provided in the help file of the Database Manager Utility.

Beware that after updating the database, MIKE OPERATIONS users working with the earlier version of the software will not be able to use the database. After the database has been updated everybody using the database should update the client.

## Database Server Update

This chapter concerns users:

- Installing MIKE OPERATIONS on a computer different from the database server
- Upgrading MIKE OPERATIONS on a computer different from the database server
- Updating a database with Database Management Utility from a computer different from the database server

From version 2017.5, the Mesh Database was included in MIKE OPERATIONS. This requires a specific DLL to be located on the database server. The installer and the Database Management Utility will automatically copy this file if PostgreSQL is installed locally.

In the case PostgreSQL is not installed locally, the user will need to carry out the following steps to ensure MIKE OPERATIONS works correctly:

- Locate and copy the file called `DHI_mesh.dll` in the MIKE OPERATIONS bin folder
- Log in to the computer on which the database server is installed (PostgreSQL)
- Paste the file to the `lib` folder of the PostgreSQL installation.

## APPENDIX A: Install different version of PostgreSQL

As mentioned in Chapter 2, it is possible to use several versions of PostgreSQL databases.

PostgreSQL installers for Windows can be found on the [EDB PostgreSQL Download page](#).

### PostgreSQL Installation

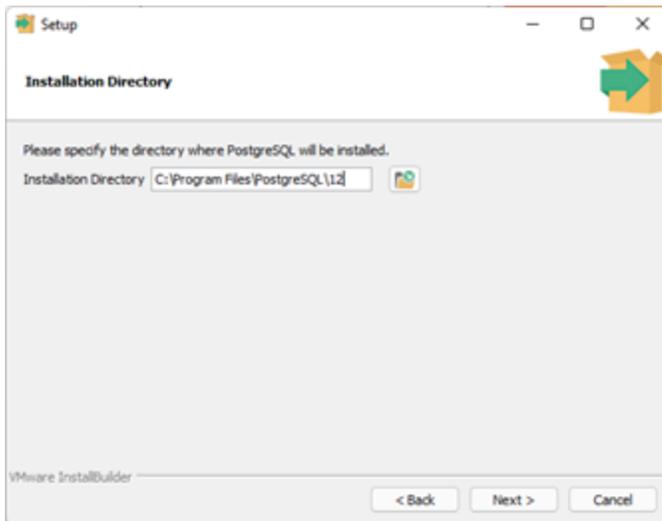
The following table explains how to install a PostgreSQL installer downloaded from the web page of EnterpriseDB.



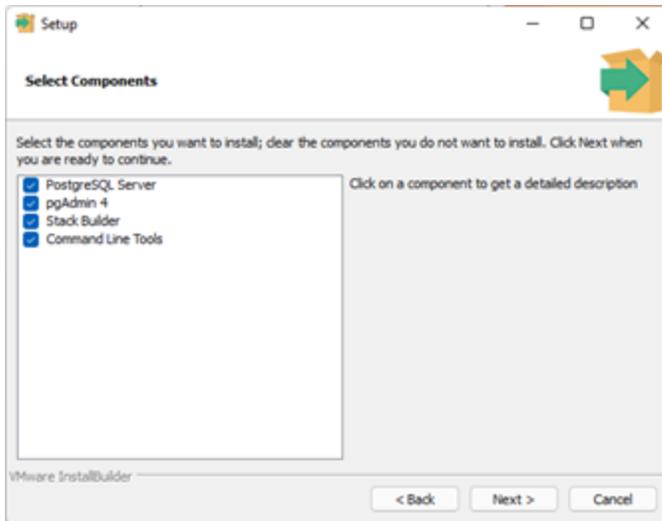
Run the database installation program e.g. `postgresql-XX.X-X-windows-x64.exe`

### Start of installation

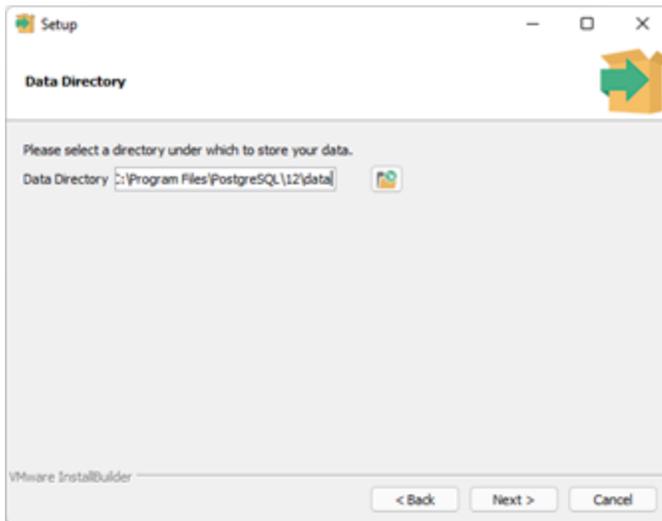
Accept the default installation folder.



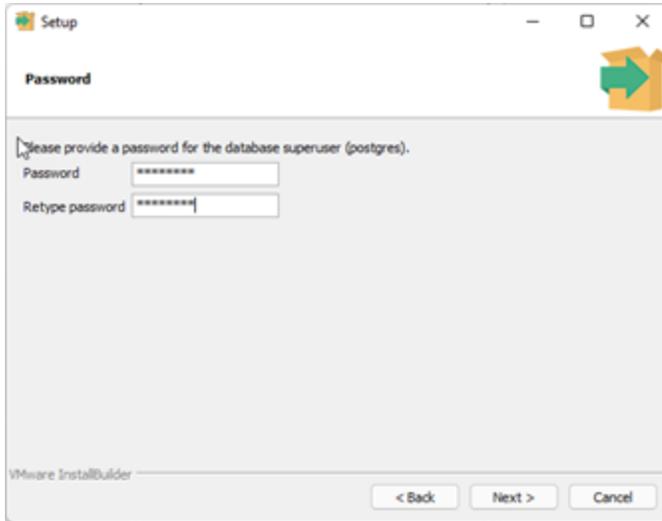
Select the components to install.



Accept the default data folder.

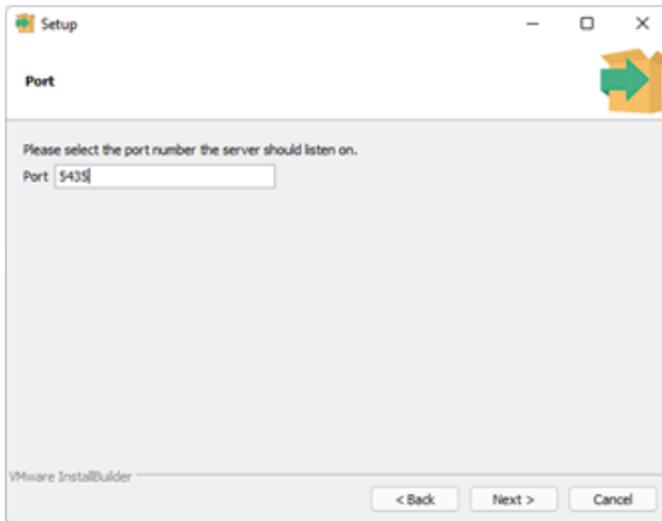


Type in a password of your choice for the `postgres` user (the administrator for the database server).

 **Tip**

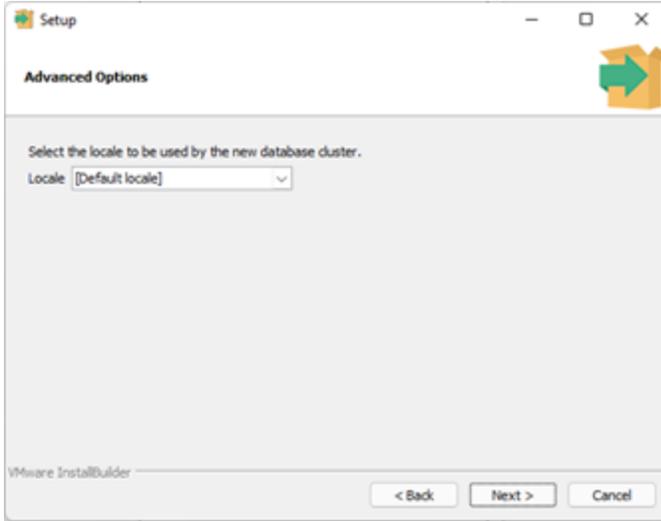
Do not forget this password!

Accept the port number (default port is 5432).

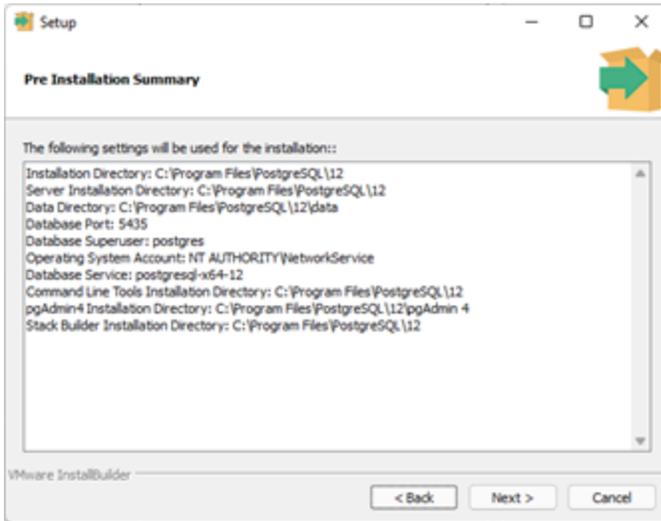


If more PostgreSQL servers are installed, the first free port number after port 5432 is suggested.

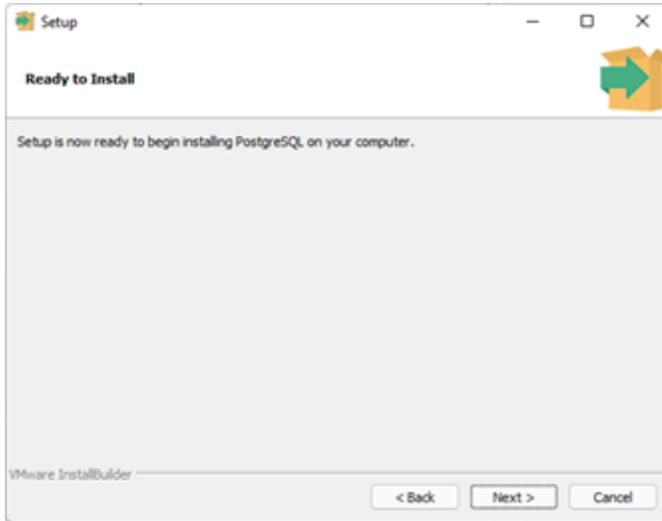
Leave the **Locale** as *Default Locale*



Review the installation summary.



Click Next



The database server installation has finished.



Uncheck the *Launch Stack Builder at exit?* option and then click *Finish*.

### PostGIS Manual Installation

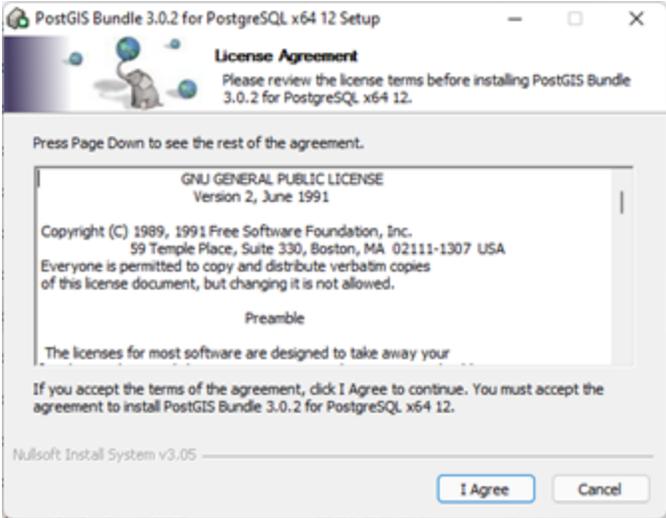
The following table explains how to install PostgreSQL exemplified by using a PostGIS `postgis-bundle-pgXXx64-setup-X.X.X-X.exe` installer from the [OSGeo Download Server](#).

Run the PostGIS installation program (e.g. `postgis-bundle-pg14x64-setup-3.2.3-2.exe`).

**Note**

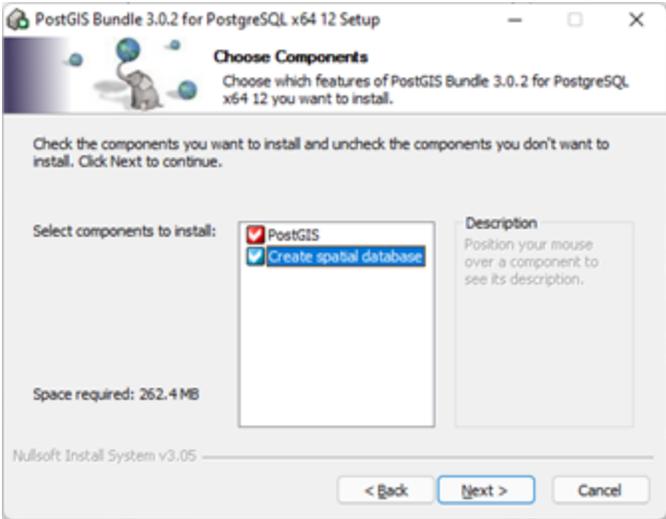
Note supported the versions of PostGIS for the installed version of PostgreSQL in the *Installation Prerequisites* section.

Start of installation.

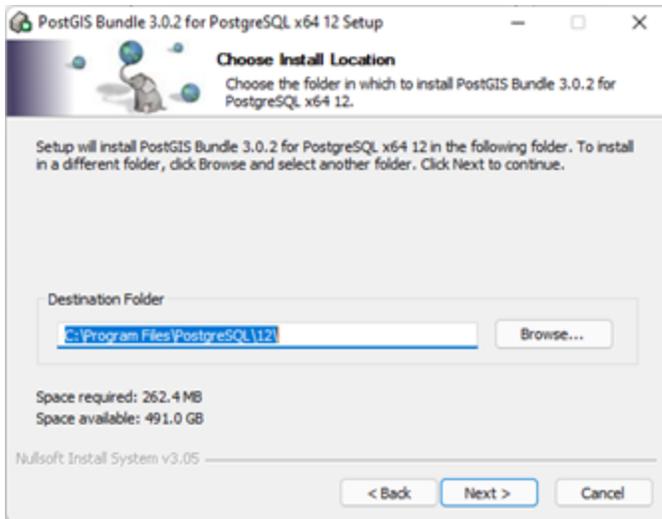


Click *I Agree*.

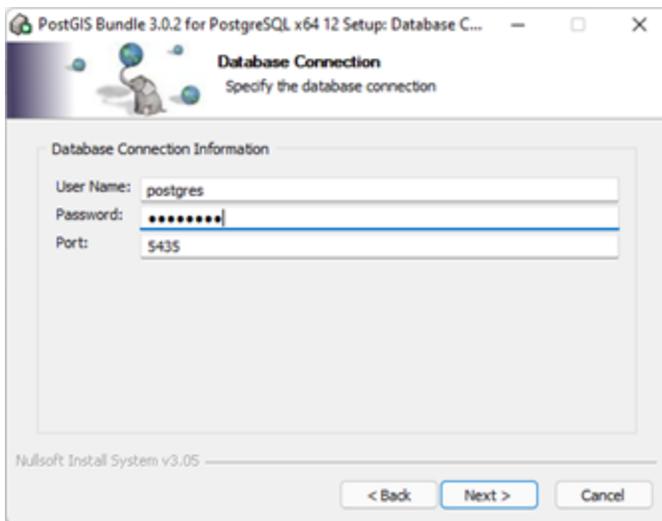
Check *Create spatial database*.



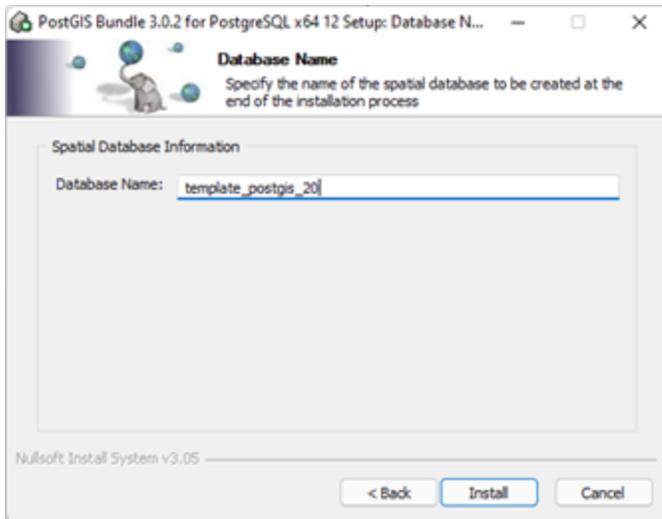
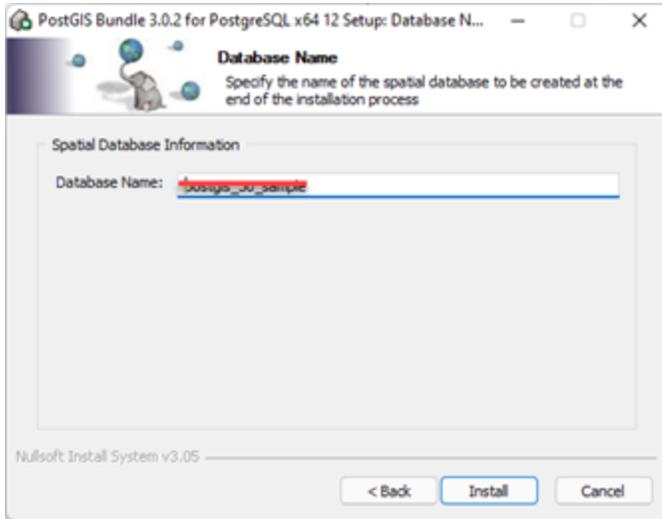
Accept the default folder.



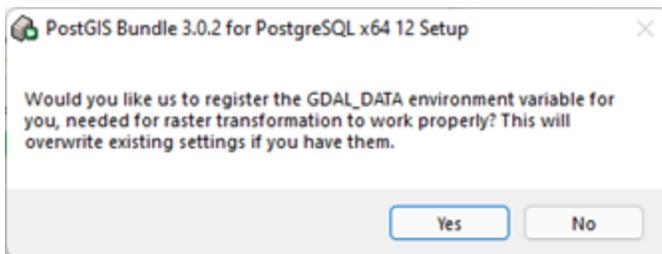
Type in the password that was specified for the `postgres` user when installing the PostgreSQL database server.



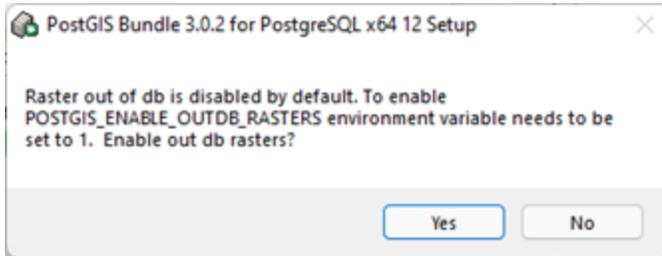
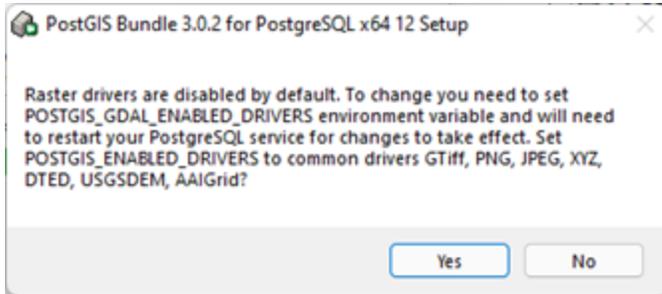
Rename the Spatial database: `template_postgis_20`



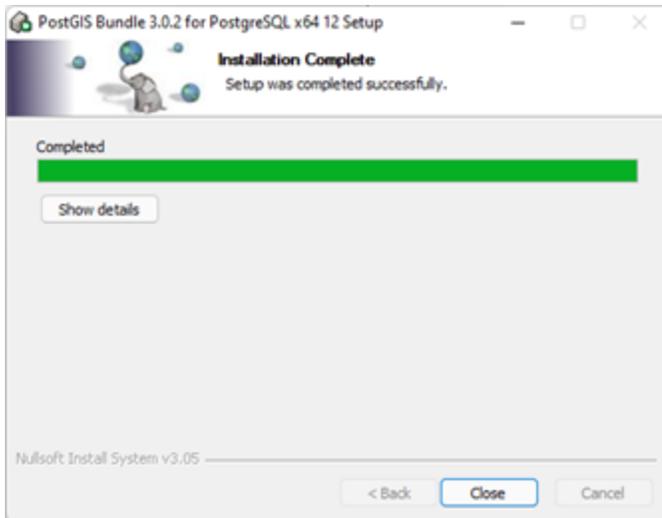
Yes, to the GDAL\_Data environment variable.



Yes, to both set of environment variables.



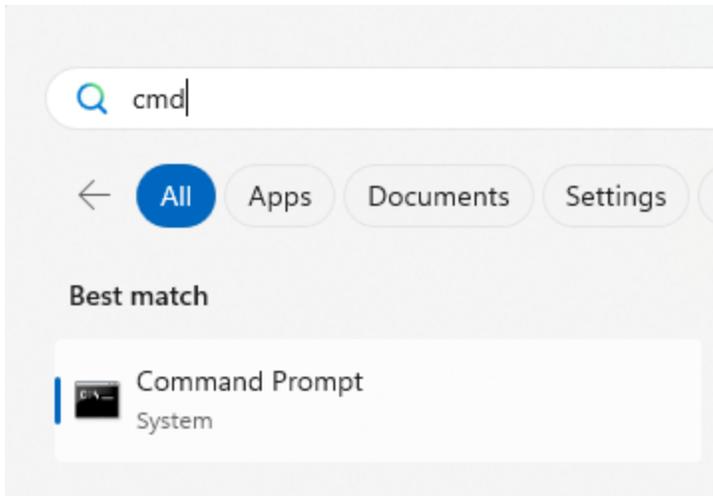
The installation has finished.



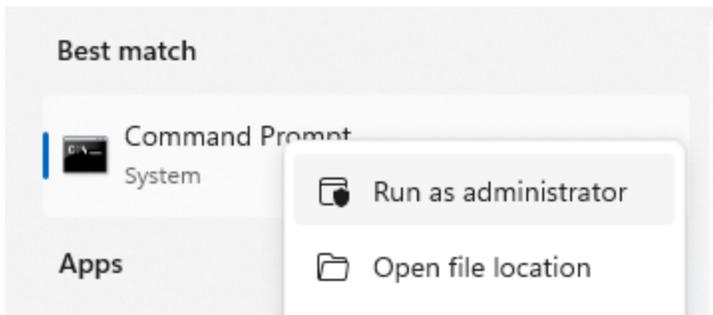
## Configuration of PostGIS

Open the Windows Command Prompt.

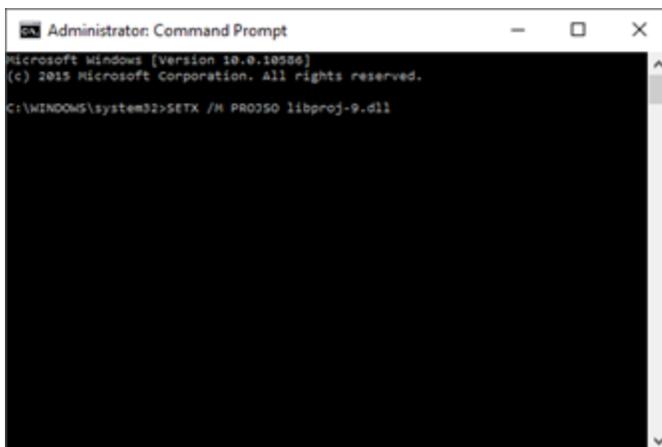
Click the Windows Start Menu and type `cmd`.

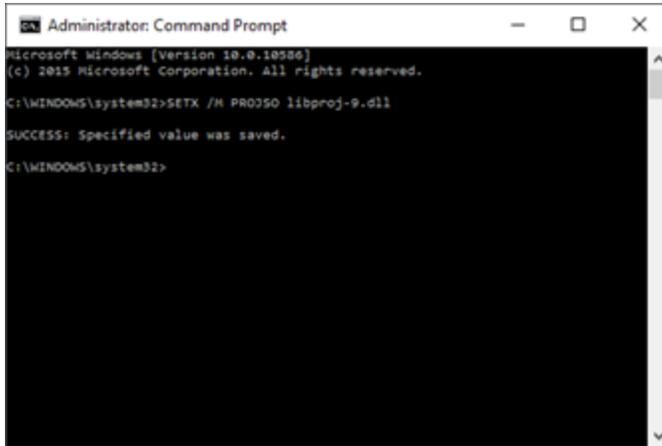


Right-click on cmd.exe and choose Run as administrator.



In the command prompt type `SETX /M PROJ50 libproj-9.dll` and press *Enter*.



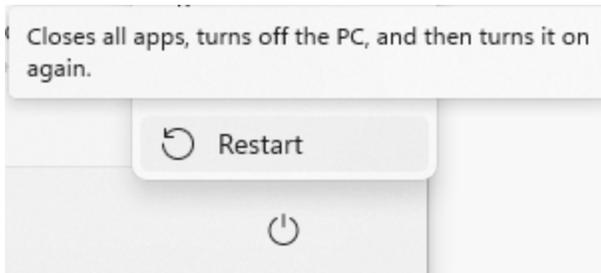


```
Administrator: Command Prompt
Microsoft Windows [Version 10.0.10286]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\WINDOWS\system32>SETX /M PROJ90 libproj-9.dll
SUCCESS: Specified value was saved.

C:\WINDOWS\system32>
```

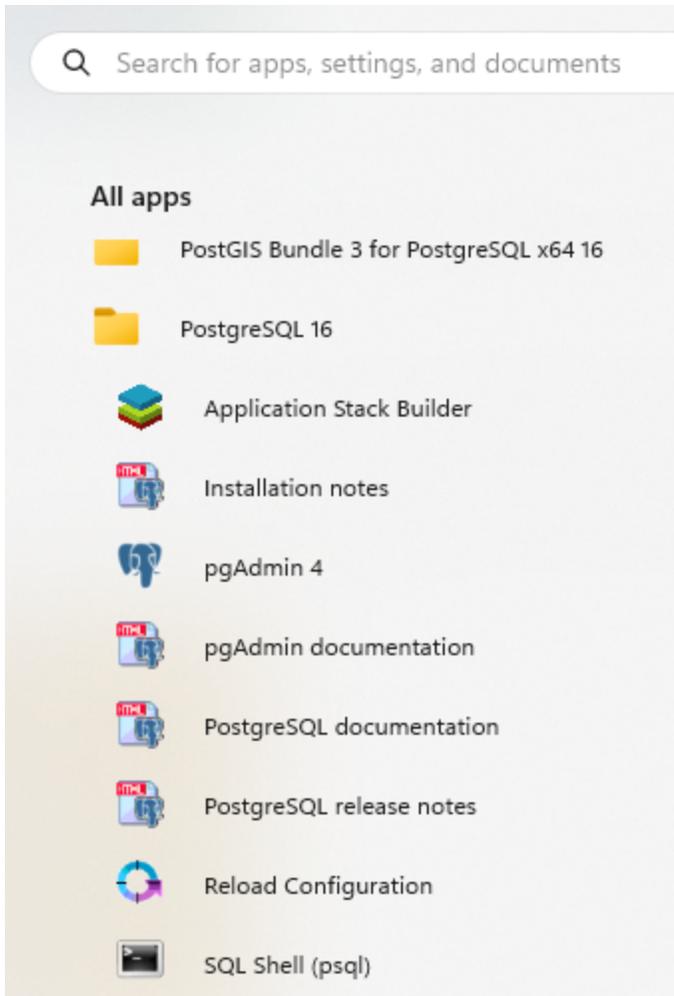
Restart the computer to make the environment variable available to PostGIS

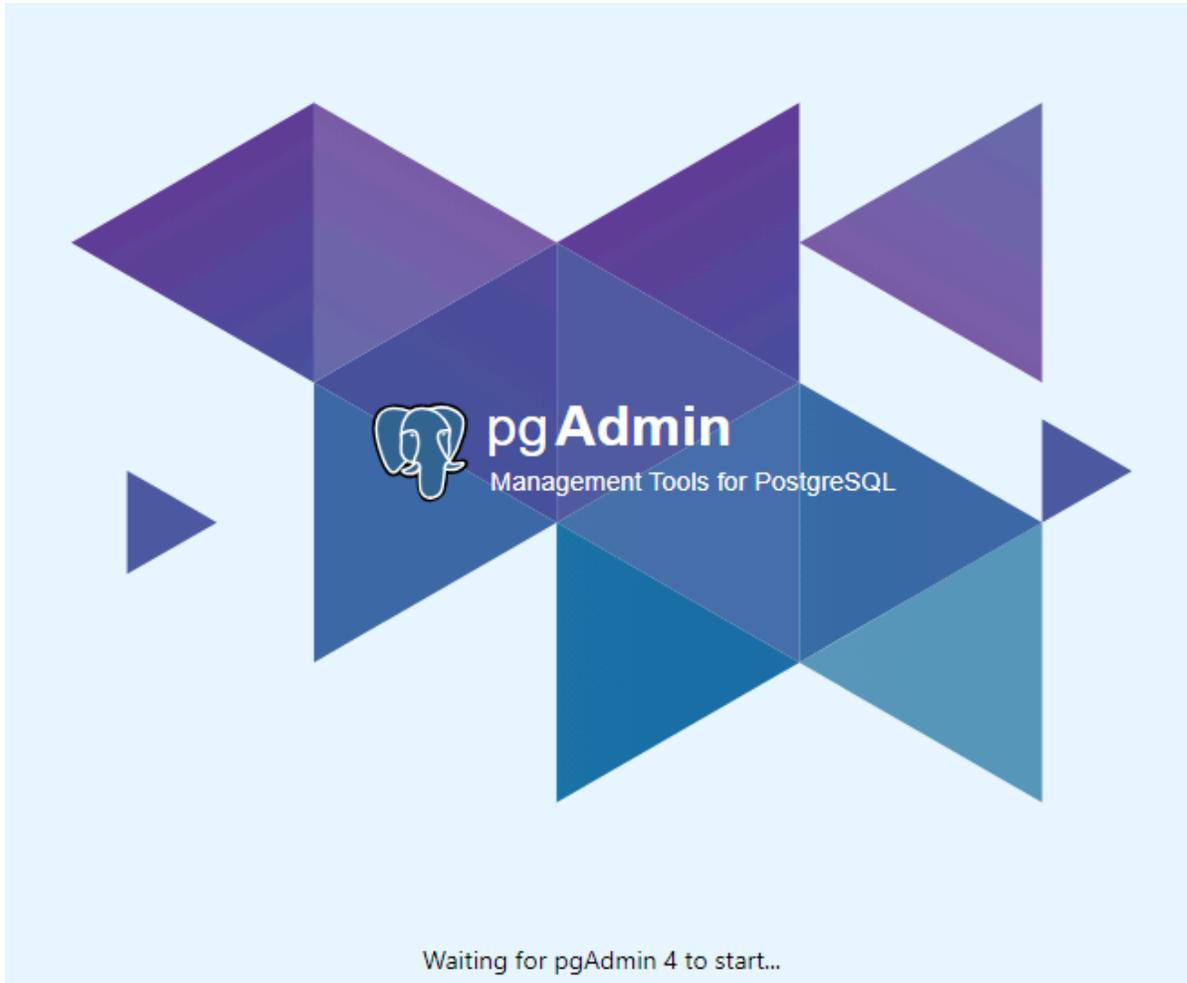


## APPENDIX B: Advanced PostgreSQL Database management tool

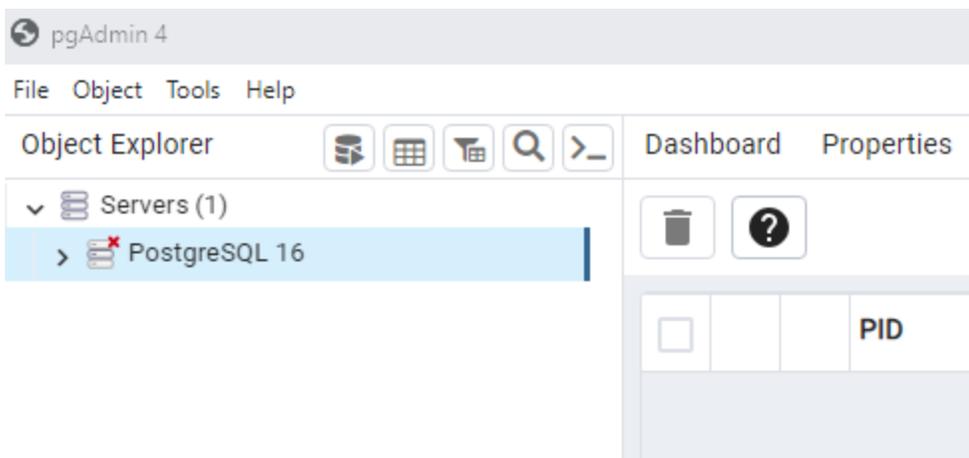
The PostgreSQL database password provided during installation can be stored in the database for easy access in the future. It is an optional configuration.

Start the pgAdmin 4 database administration tool from the Windows Start menu.

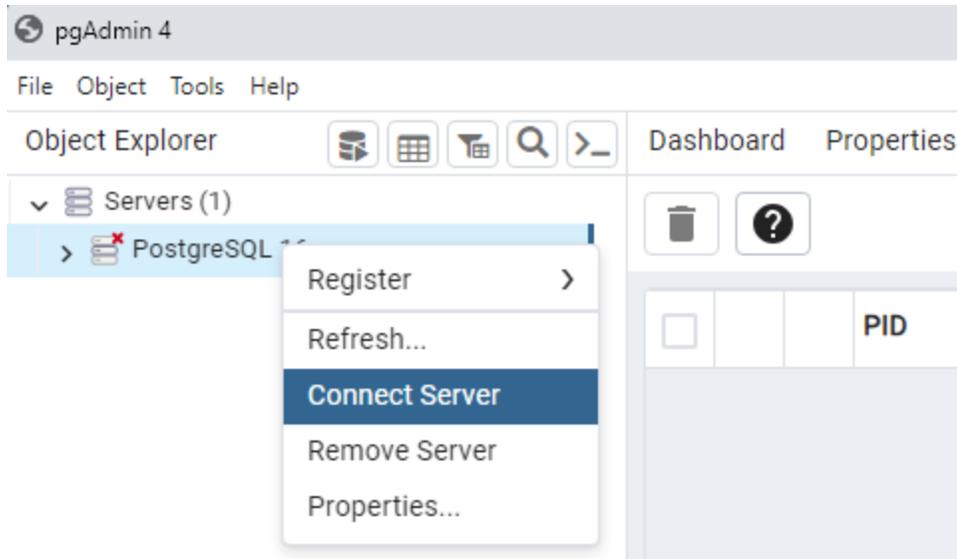




The pgAdmin tool opens.



Right click the database server entry for localhost under the Servers node to access *Connect Server*.



Provide the password for the `postgres` user.

**Note**

Check on the *Store password* option in case you want to store the password locally on the computer.

**Connect to Server** ✕

---

Please enter the password for the user 'postgres' to connect the server - "PostgreSQL 16"

.....

Save Password

---

✕ Cancel ✓ OK

**Note**

Clicking on *Store password* leads to a warning.

Click OK on the warning dialog.

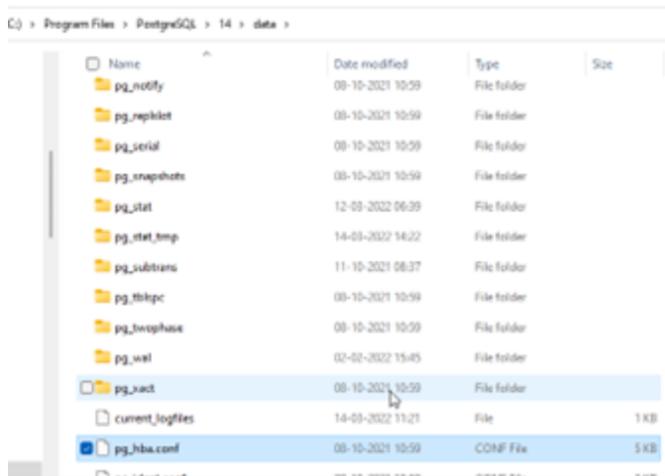
## APPENDIX C: Configuring the PostgreSQL Database Server for remote access

### Tip

This step is only needed if the database server shall accept connections from remote computers.

The section describes how to configure the PostgreSQL database server for running in corporate mode.

Start by enabling password save as shown in APPENDIX B.



Locate the `pg_hba.conf` file in the data folder e.g. `C:\Program Files\PostgreSQL\16\data` and open it in an editor e.g. Notepad.



```

pg_hba.conf - Notepad
File Edit Format View Help
# NAME=VALUE. The available options depend on the different
# authentication methods -- refer to the "Client Authentication"
# section in the documentation for a list of which options are
# available for which authentication methods.
#
# Database and user names containing spaces, commas, quotes and other
# special characters must be quoted. Quoting one of the keywords
# "all", "sameuser", "samerole" or "replication" makes the name lose
# its special character, and just match a database or username with
# that name.
#
# This file is read on server startup and when the postmaster receives
# a SIGHUP signal. If you edit the file on a running system, you have
# to SIGHUP the postmaster for the changes to take effect. You can
# use "pg_ctl reload" to do that.

# Put your actual configuration here
# -----
#
# If you want to allow non-local connections, you need to add more
# "host" records. In that case you will also need to make PostgreSQL
# listen on a non-local interface via the listen_addresses
# configuration parameter, or via the -i or -h command line switches.

# TYPE DATABASE USER ADDRESS METHOD
# IPv4 local connections:
host all all 127.0.0.1/32 md5
# IPv6 local connections:
host all all ::1/128 md5
# Allow replication connections from localhost, by a user with the
# replication privilege.
#host replication postgres 127.0.0.1/32 md5
#host replication postgres ::1/128 md5
host all all 0.0.0.0/0 md5

```

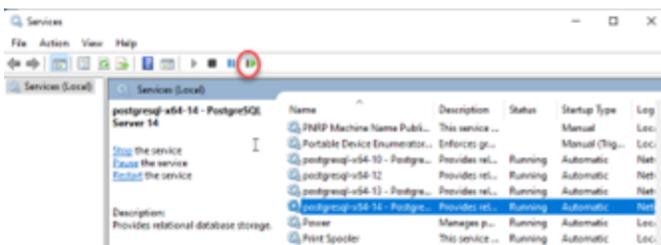
Insert a new line to open up for all non-local connections to database as shown on the right

```
host all all 0.0.0.0/0 md5
```

Adjust spaces!

Save the configuration.

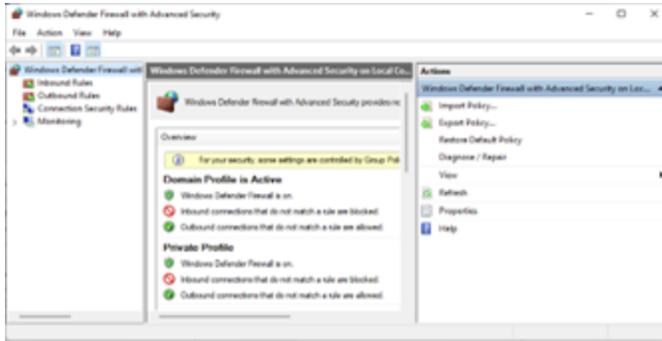
Restart the services to apply the update



## Configuring the Windows Firewall for remote access

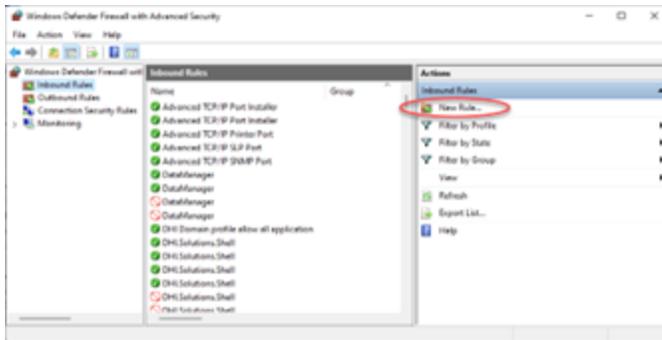
The section describes how to configure the Windows firewall for MIKE OPERATIONS running in enterprise mode.

Open the Firewall applet in the Windows Control Panel.

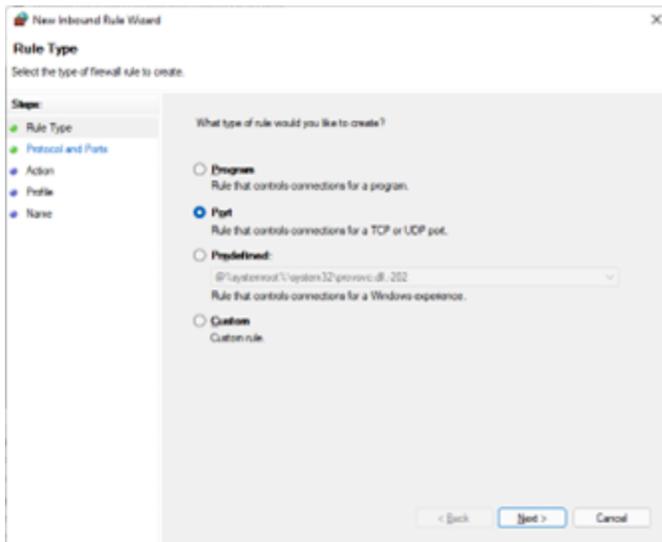


Select Inbound Rules

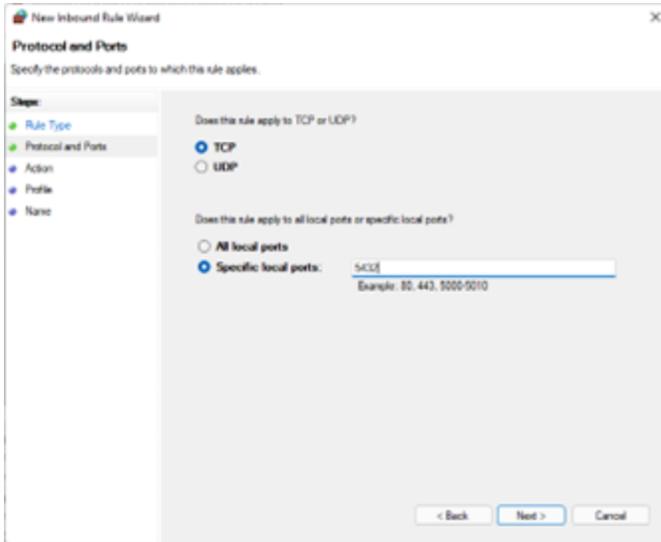
Click New Rule in the Actions panel to the right



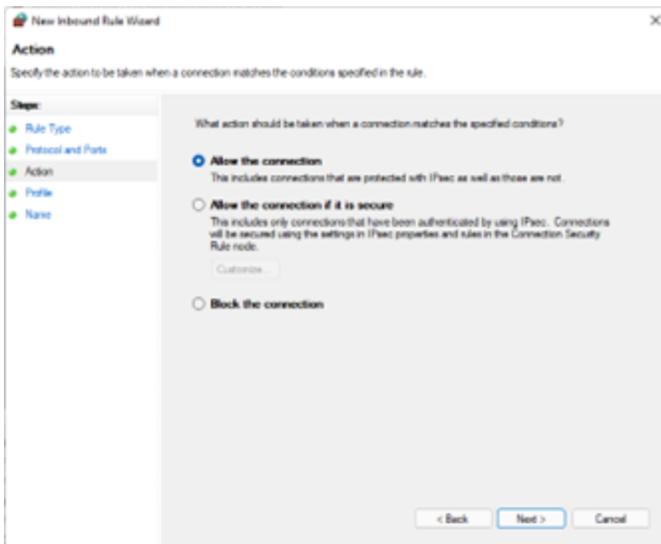
Select Port



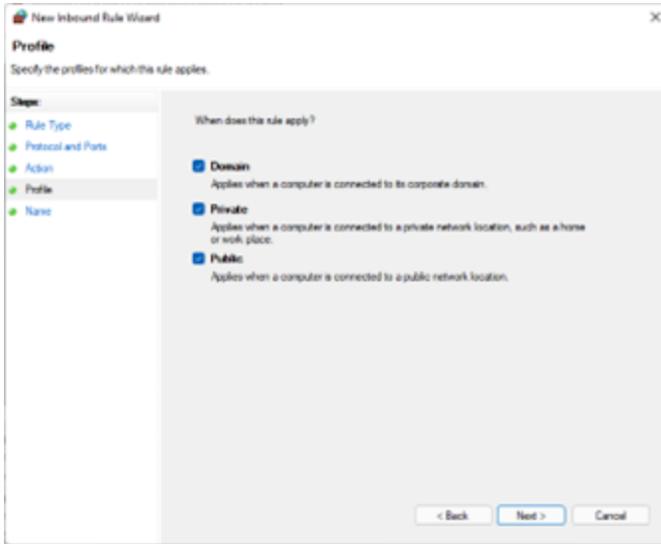
Select TCP, Specific local ports and enter 5432 (or the port number specified when installing PostgreSQL)



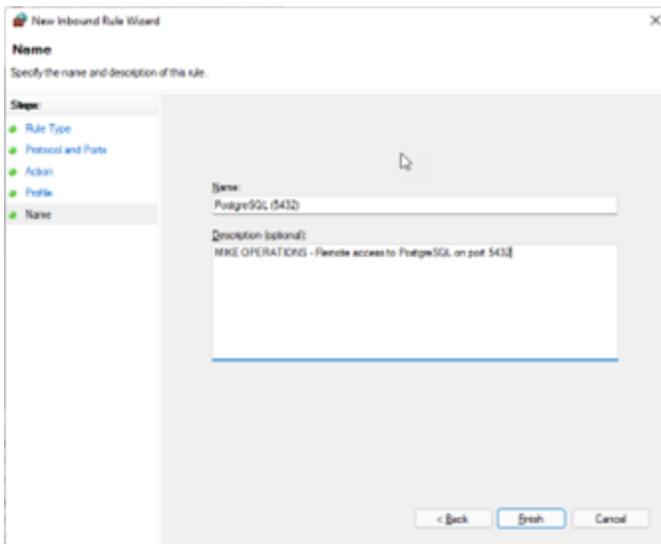
Select Allow the connection.



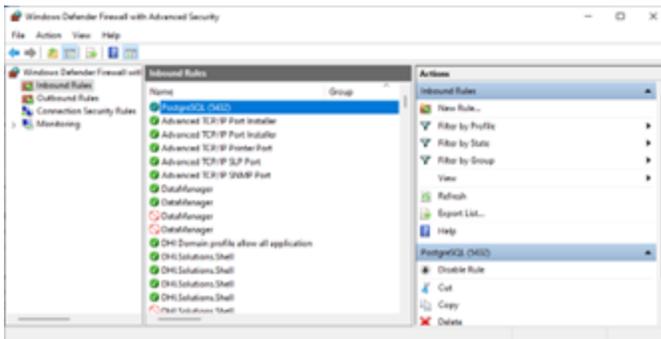
Click on for all profiles.



Specify a rule name – e.g. *PostgreSQL (5432)* – and a description.



The new rule is now added to the list of Inbound rules.



## APPENDIX D: Troubleshooting

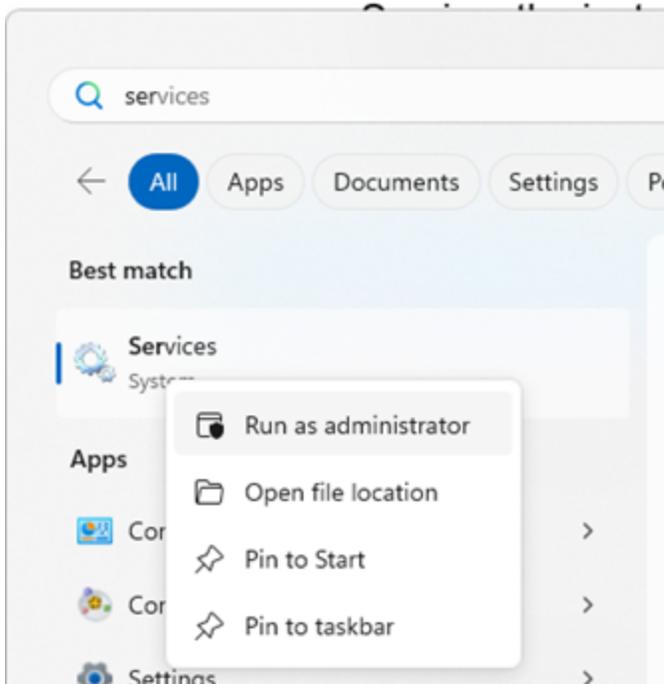
### Job Manager Service will not start

In situations where a specific user has been specified for running the Job Manager Service, the installer could be prevented

from starting the service in case the user does not have the necessary rights to run services.

In this case, start the job manager service (DHI Solutions Job Manager Service) manually using the Services application of Windows.

The Services application will automatically grant the user access to running services.



### Event Manager Service will not start (System.PlatformNotSupportedException)

If the DHI Event Manager Service is not starting during the installation, the installation cannot complete and will roll back.

The following stack trace can be found in the Windows Event Viewer.

```
Service cannot be started. System.PlatformNotSupportedException: Operation is not supported on this platform.  
    at System.Net.HttpListener..ctor()  
    at System.ServiceModel.Channels.SharedHttpTransportManager.OnOpen()  
    at System.ServiceModel.Channels.TransportManager.Open(TransportChannelListener
```

```

channelListener)
  at
System.ServiceModel.Channels.TransportManagerContainer.Open(SelectTransportManagersC
selectTransportManagerCallback)
  at System.ServiceModel.Channels.TransportChannelListener.OnOpen(TimeSpan
timeout)
  at System.ServiceModel.Channels.HttpChannelListener`1.OnOpen(TimeSpan timeout)
  at System.ServiceModel.Channels.CommunicationObject.Open(TimeSpan timeout)
  at System.ServiceModel.Dispatcher.ChannelDispatcher.OnOpen(TimeSpan timeout)
  at System.ServiceModel.Channels.CommunicationObject.Open(TimeSpan timeout)
  at System.ServiceModel.ServiceHostBase.OnOpen(TimeSpan timeout)
  at System.ServiceModel.Channels.CommunicationObject.Open(TimeSpan timeout)
  at DHI.Solutions.EventManager.Service...

```

To solve the `System.PlatformNotSupportedException` issue:

1. Start a command prompt as *administrator*.

2. Run `sc config http start=demand`

3. Run `sc start http` (to make sure that the http service is running).

```

Administrator: Command Prompt
Microsoft Windows [Version 10.0.16299.309]
(c) 2017 Microsoft Corporation. All rights reserved.
C:\WINDOWS\system32>sc config http start=demand 1
[SC] ChangeServiceConfig SUCCESS
C:\WINDOWS\system32>sc start http 2
[SC] StartService FAILED 1056:

An instance of the service is already running.

C:\WINDOWS\system32>_

```

Template\_postgis\_20 does not exist

After making a fresh installation of MIKE OPERATIONS, when trying to create a new database, if you receive an error message mentioning a missing database model `template_postgis_20`, it means that PostGIS was not installed correctly.

```

User workspace_lead already existed. been updated
(1 ligne)

DROP FUNCTION
SET
SET
SET
SET
CREATE FUNCTION
    dss_alter_system_manager
-----
User workspace_member already existed. been updated
(1 ligne)

DROP FUNCTION
SET
SET
SET
SET
SET
CREATE FUNCTION
    dss_alter_system_manager
-----
User workspace_reviewer already existed. been updated
(1 ligne)

DROP FUNCTION
ERREUR: la base de données mod le   template_postgis_20   n'existe pas
"C:\Program Files\PostgreSQL\9.6\bin\psql.exe" -d postgres -h localhost -p 5432 -U postgres -c "CREATE DATABASE ""barragemikep""
PostGIS20
Restore.bat could not create "barragemikep", does it already exist?
-----Restore Database 'barragemikep' Done-----

```

The solution is to reinstall PostGIS (see APPENDIX A). The download file can be found online.

## APPENDIX E: Custom Tools, Managers and Providers

MIKE OPERATIONS is a software product build on pluggable components.

This also includes adhoc custom components developed for projects.

The loading of custom components is added done in `runtime.config` files.

In case updates to the `runtime.config` file has been made the installer will notify the user during installation.

Once a new installation of MIKE OPERATIONS has been made, custom components loaded in previous versions MIKE OPERATIONS must manually be moved to the new versions of the `runtime.config` files.

The sample below shows a section loading a custom tool `MyCustomTool` with the full name `MyProject.Tools.MyCustomTool` compiled into the assembly (dll) `MyProject.Tools.MyCustomTool.dll`.

```

<Plugin
  Name="MyProject.Tools.MyCustomTool"
  Type="DHI.Solutions.Generic.ITool"
  Assembly="MyProject.Tools.MyCustomTool.dll" />

```