



Nile Basin Decision Support System

DSS Installation Training Module

Revision History

Version	Date	Revision Description
0.1	31/10/2014	Initial draft
0.2	26/12/2014	Final version for approval

Contents

Revision History	i
1. Introduction	3
1.1. Purpose.....	3
1.2. Module pre-requisites	3
1.3. Expectations.....	3
1.4. Conventions.....	4
1.5. Module data	4
1.6. Links to additional resources	4
1.7. Problem Reporting Instructions.....	4
2. Lessons.....	5
2.1. General.....	6
Introduction	6
Minimum hardware requirements	6
User privileges	7
Software Perquisites	7
Licensing requirements.....	7
Review Questions.....	7
Answers	8
2.2. DSS installation	9
Introduction	9
Lesson pre-requisites.....	9
An overview of the DSS installation	9
Installation process.....	10
Review Questions.....	45
Answers	46
3. References.....	47

1. Introduction

This document is part of training modules for the Nile Basin Decision Support System (DSS). These modules are developed for use in classroom training that is given to Nile Basin countries and as a self-learning training material that will be made available as part of the DSS helpdesk and knowledgebase.

1.1. Purpose

The purpose of this document is to provide a tutorial to the DSS installation process.

1.2. Module prerequisites

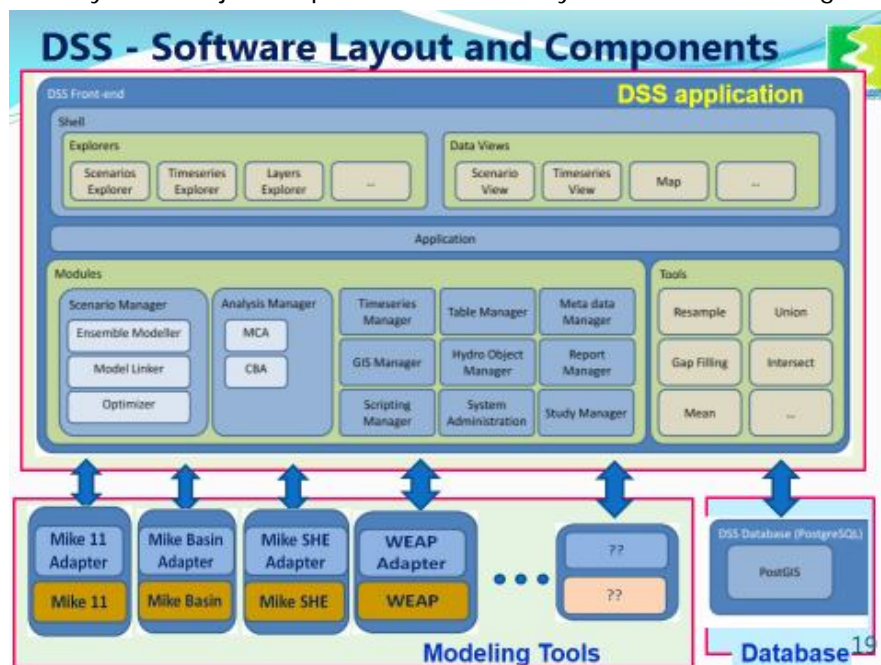
The following prerequisites are needed before taking this tutorial:

Software prerequisites: Windows 7, 8 or 8.1.

User prerequisites: User is expected to be familiar with program installation procedure on Windows but this is not essential.

1.3. Expectations

Upon successful completion of this module, you will have learnt how to setup the DSS components successfully on your computer. A fully installed and functional DSS can be conceptualized by three major components illustrated by red boxes in the diagram below.



1.4. Conventions

The following conventions are followed in this document:



means a tip for the user



means important information

1.5. Module data

The files needed to install the DSS are located in the ..\ **DSS_Setup** folder.

1.6. Links to additional resources

In addition to the information presented in this module, below are links to additional resources that you can access to obtain further information on the following:

- Mike By DHI:
 - <http://www.mikebydhi.com/>
- PostgreSQL:
 - <http://www.postgresql.org/>
- PostGIS
 - <http://postgis.net/>

1.7. Problem Reporting Instructions

This document will be updated regularly. Therefore, it is highly recommended to report any spotted problem to helpdesk@nilebasin.org so it can be corrected in future versions. When reporting the problem, you are kindly requested to provide the following:

- Document title
 - Document version
 - Page number where the problem was spotted
 - A description of the problem
-

2. Lessons

In this section the following lessons are included:

- General: This lesson introduces you to the various installation requirements of the DSS Software. It covers the following:
 1. Minimum hardware requirements including OS recommendations
 2. User privileges
 3. Software Prerequisites
 4. Licensing requirements
- DSS installation: This lesson takes you through the DSS installation process. This includes:
 1. MIKE Zero Installation (Includes installation of Mike 11 and Mike Hydro)
 2. MIKE by DHI License installation (Stand-alone/Network)
 3. PostgreSQL Database Installation on Windows and configuring PostgreSQL on Windows to allow remote connections (only for Corporate version under Windows)
 4. PostGIS installation on Windows
 5. DSS installation

After completing the lessons in this section you will have installed the DSS successfully on your computer.

2.1. General

Introduction

This lesson introduces you to the various installation requirements of the DSS Software. If you are familiar with those requirements you can skip this and move to the next lesson.

Topics covered in this lesson:

- Minimum hardware requirements
- User privileges
- Software prerequisites
- Licensing requirements

Lesson objectives:

After completing this lesson, you will be able familiar with:

- The various installation requirements of the DSS Software

Minimum hardware requirements

The recommended minimum system requirements to install the DSS are:

Operating systems	Fully supported operating systems * Windows 7 Professional Service Pack 1 (32 and 64 bit), Windows 8 Pro (64 bit) and Windows Server 2008 R2 Standard Service Pack 1 (64 bit).
Processor	2.0 GHz Intel Pentium or higher
Memory (RAM)	2 GB (or higher)
Hard disk	40 GB (or higher)
Monitor	SVGA, resolution 1024x768 in 16 bit color
Graphics adapter	64 MB RAM (256 MB RAM or higher recommended), 24 bit true color
Media	DVD drive compatible with dual-layer DVDs is required for installation
File system	NTFS
Ports	One USB port for the DSS hardware key

DSS Editions and installation privileges

The DSS comes in two editions, the 'Professional' and the 'Corporate'. For the 'Professional' edition, the server is the same machine. For the 'Corporate', there is a centralized database server where postgres and postgis reside. A professional edition can be turned into corporate by allowing others to connect to the database server.

The installation of both editions does require administrative privileges.

Software Prerequisites

In addition to the Operating system requirements specified above, the DSS requires Microsoft .NET Framework 4.0 to be installed. To install Microsoft .Net Framework 4.0, you should locate it from the prerequisites folder on the MIKE By DHI DVD or download a copy from the Internet from <http://www.microsoft.com/en-us/download/details.aspx?id=17851>.

Licensing requirements

In order to use the DSS, you have to obtain the following:

- A hardware key (Dongle)
- A license file that is associated with the above hardware key.

The hardware key and its associated license file can be obtained from the NBI secretariat and they can be used for either the 'Professional' or the 'Corporate' editions. A hardware key can hold more than one license for the corporate edition.

Review Questions

1. The DSS can run on Windows XP.
 - True
 - False
2. What are the two editions of the DSS? Explain the differences between them.
3. The DSS has no software prerequisites.
 - True
 - False?

Answers

1. False (it can run but it is not supported by DHI, i.e. if a problem occurs, it cannot be reported as it may be caused by incompatibility).
2. The DSS comes in two editions, the 'Professional' and the 'Corporate'. For the 'Professional' edition, the server is the same machine. For the 'Corporate', there is a centralized database server where postgres and postgis reside. A professional edition can be turned into corporate by allowing others to connect to the database server.
3. False (It requires Microsoft Windows 7, 8 or 8.1 and .NET Framework 4.0).

2.2. DSS installation

Introduction

This lesson takes you through the DSS installation process.

Topics covered in this lesson:

- MIKE Zero Installation (Includes installation of Mike 11 and Mike Hydro)
- MIKE by DHI License installation (Stand-alone/Network)
- PostgreSQL database installation on Windows and configuring PostgreSQL on Windows to allow remote connections which is needed only for NB DSS Corporate edition under Windows (See for [DSS editions](#) section for details).
- PostGIS installation on Windows
- DSS installation

Lesson objectives:

By the end of this lesson, it is anticipated that you will be able to install the DSS and all its associated programs successfully.

Lesson prerequisites

None.

An overview of the DSS installation

A number of different software packages are required in order to install and run the DSS. These are:

- Modeling tools such as MIKE 11 and MIKE HYDRO to run simulations. These are part of the MIKE by DHI 2014 version.
- PostgreSQL 9.1 which acts as the database server
- PostGIS 2.0 which acts as the GIS extension to PostgreSQL.

The PostgreSQL database server can either be installed on the same machine for the 'Professional' edition whilst it can be installed on a server machine for the 'Corporate' edition.

DSS Installation

Installation of the above packages should happen before proceeding with installation of the DSS. All of the modeling tool installers offer to switch DHI 'Autoupdate' on, but when used with the DSS, It is advised not to do so, in order to ensure a compatible installation.

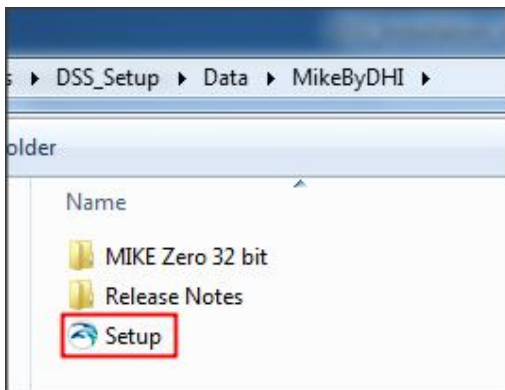
Installation process

In the following sections, a step by step DSS installation tutorial is presented. Please note that this installation was undertaken under Windows 7 32-bit edition. Installation on other operating systems and/or architectures may vary.

Exercises

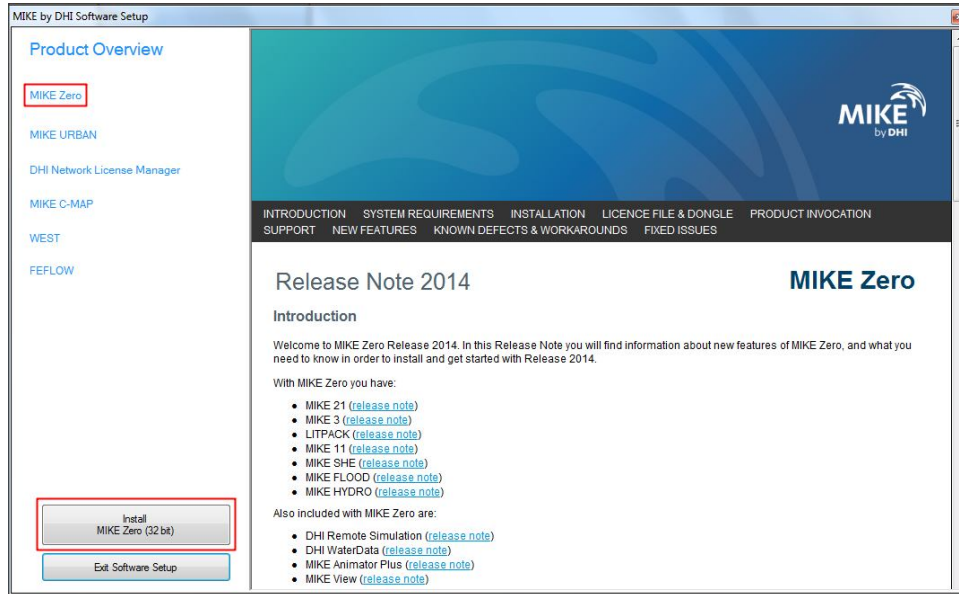
MIKE Zero Installation

Open the ..\ **DSS_Setup\Data\MikeByDHI** folder. Right-click on 'Setup' (or 'Setup.exe' if file extensions are shown in windows Explorer) and select 'run as administrator':



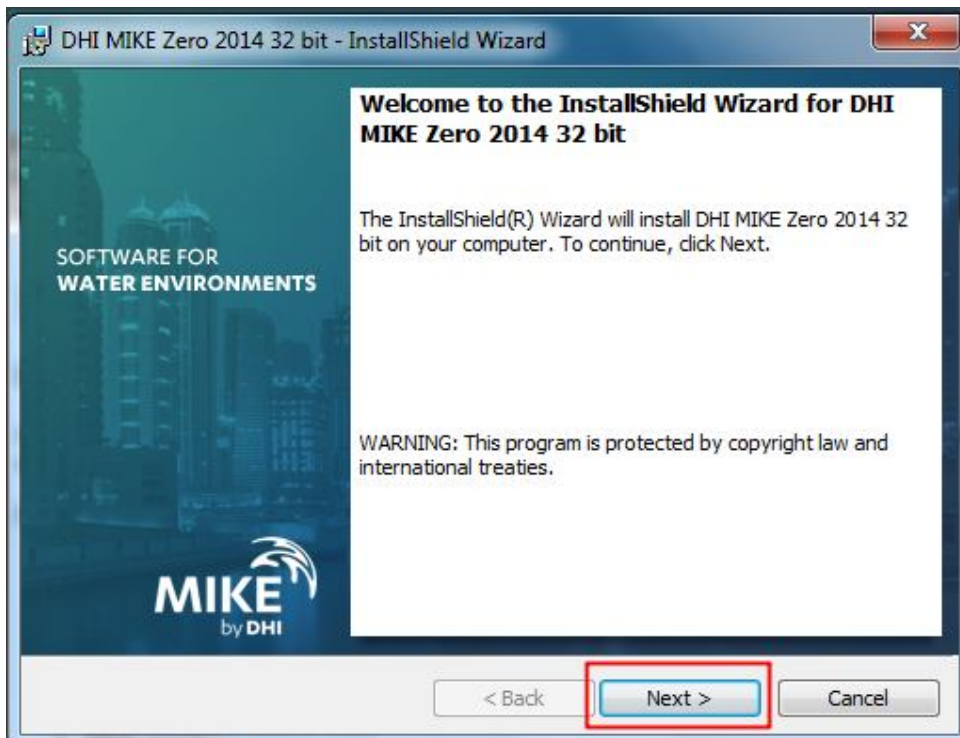
The following window appears with the different setup options:

DSS Installation



Click 'MIKE Zero' then click 'Install Mike Zero (32 bit)'. If you are installing 'MIKE Zero' on a 64-bit machine from a DVD, this installer by default will install the 64-bit version of 'MIKE Zero' which is not compatible with DSS v2.0. In such case, you should force the 32-bit version by running setup from inside the "Mike Zero 32 bit version" folder in the DVD.

The following dialog appears Click 'Next'.

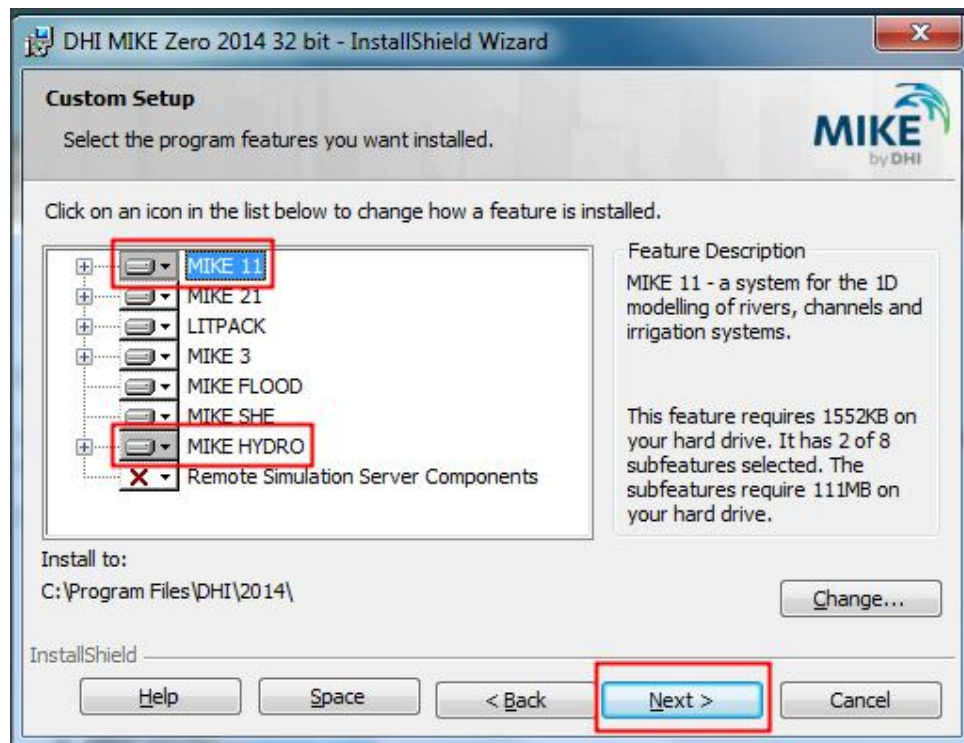


DSS Installation

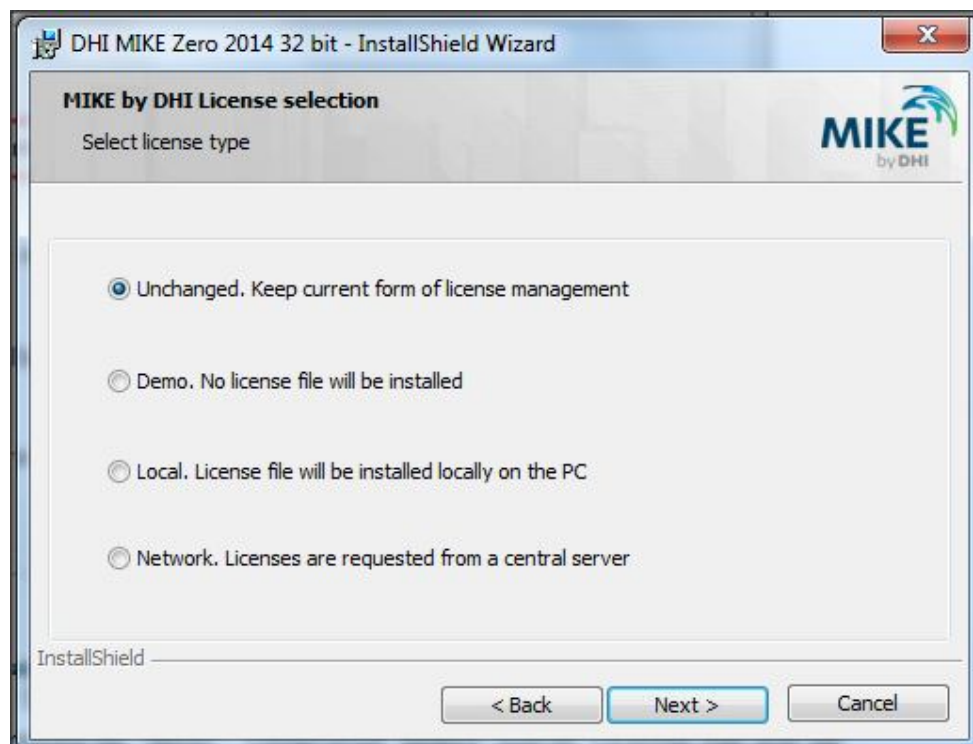
Read and accept the terms in the license agreement and click 'Next'.



Make sure that Mike11 and Mike Hydro are both selected to be installed as shown below and click 'Next'.



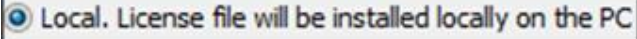
The license selection dialog appears.

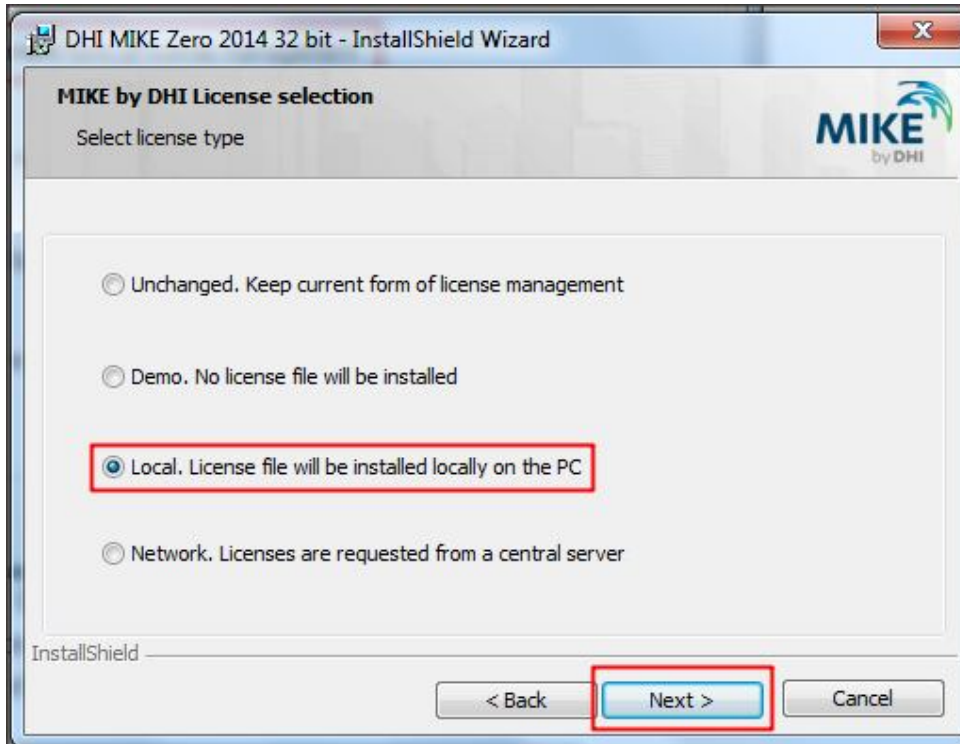


There are four license options:

DSS Installation

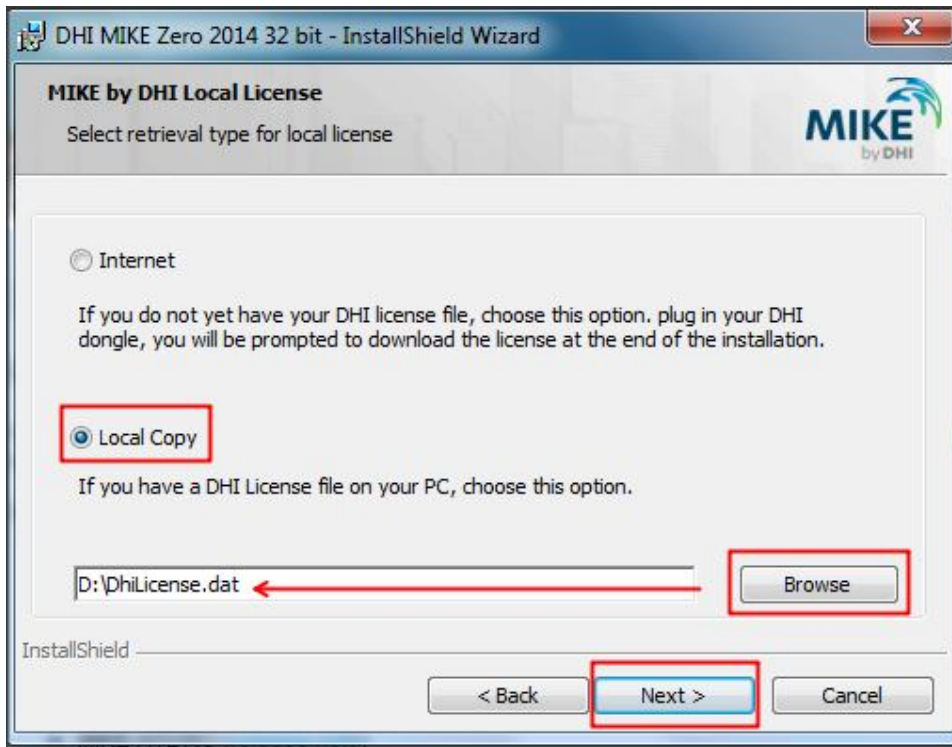
1. Unchanged: this means you already have a valid DHI license installed
2. Demo: This means you want to run the program in demo mode (i.e. limited in features and capabilities)
3. Local: This means you already have a license file but it is not installed
4. Network: This means licenses are installed on a server

In this case select  and click 'Next':

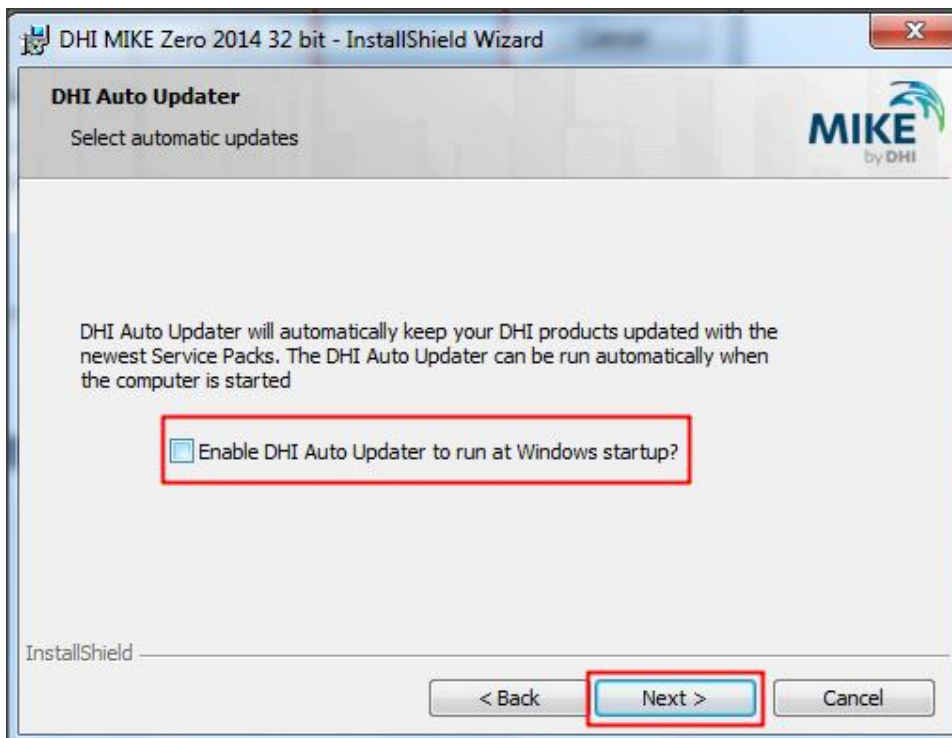


The local license dialog appears, select 'Local copy' and click 'Browse' to select the DHI license file¹ then click 'Next'.

¹ Contact the Nile Basin Secretariat to obtain this license file provided that you are entitled for a license. A USB dongle is also required.



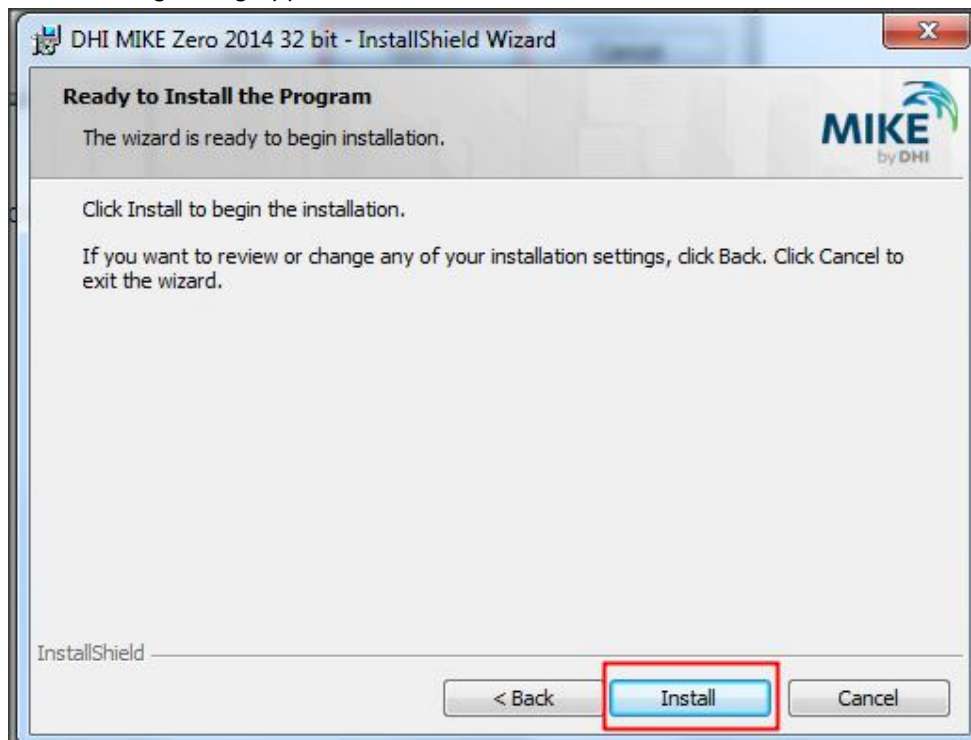
The 'Auto Update Configuration' dialog appears, uncheck² 'Enable DHI Auto Updater to run as startup' and click 'Next'.



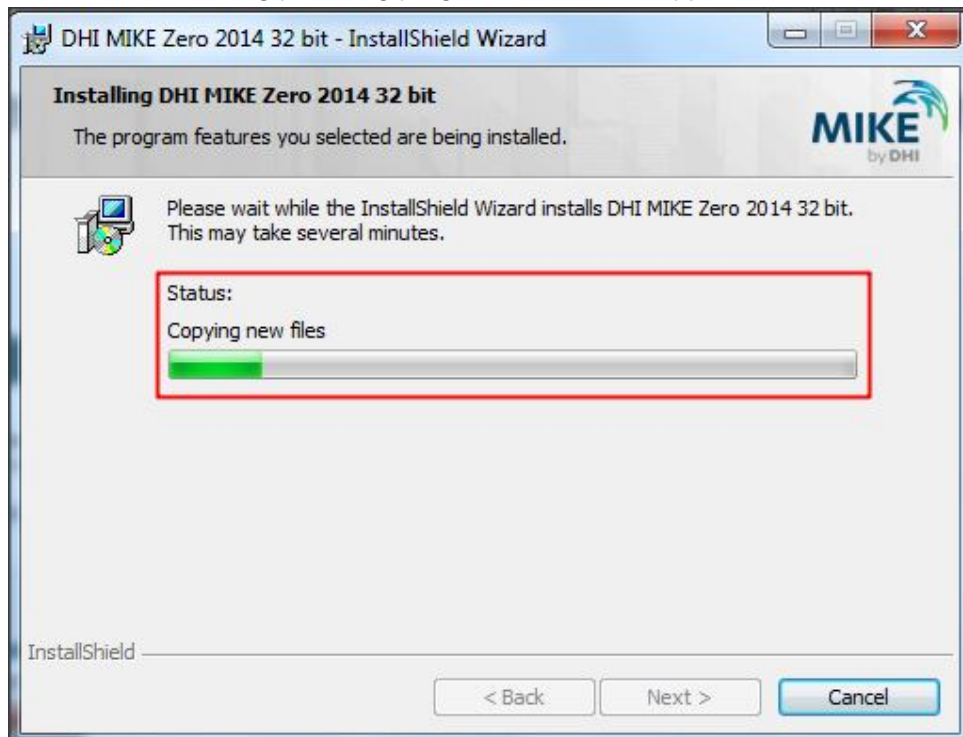
² When new services packs or updates are available, it is not recommended to install them unless DHI advises to do so. NBI-SEC will advise you on that.

DSS Installation

The following dialog appears. Click 'Install' to start installation.

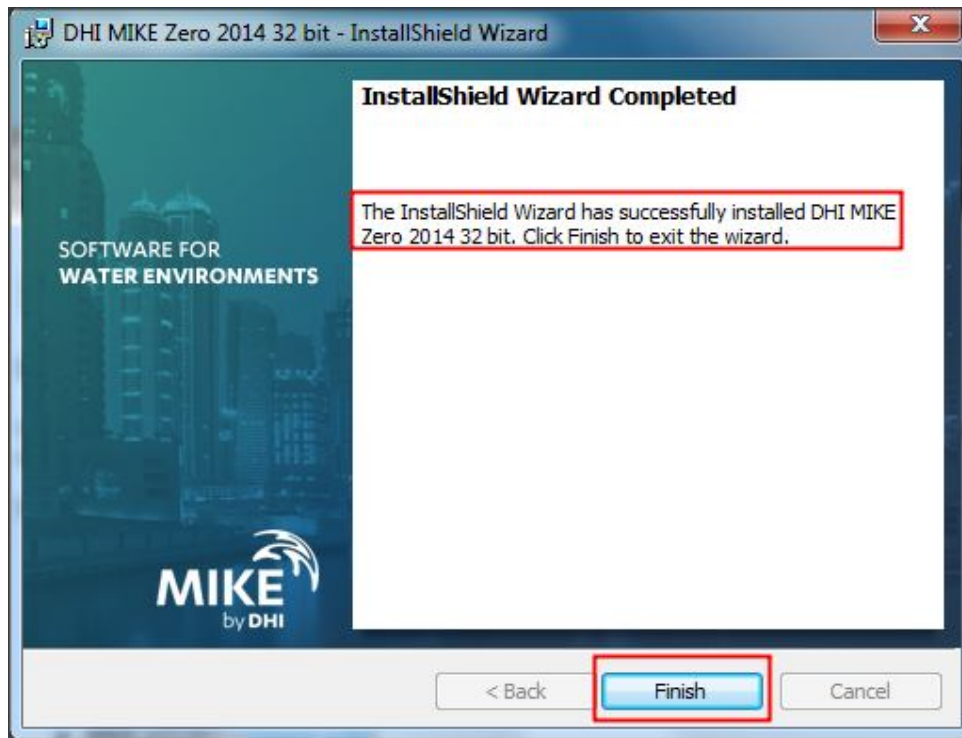


The installation dialog providing progress information appears.



DSS Installation

When finished the following dialog appears. Ensure that the program was installed successfully and click 'Finish'.



A new folder called 'MIKE by DHI 2014' is now created under 'All Programs' in the 'Start menu'.




MIKE by DHI License installation (Stand-alone/Network)

Installing and configuring Mike by DHI license is done using the DHI License Manager accessible via Windows Start Menu under MIKE by DHI menu (here shown in version

DSS Installation

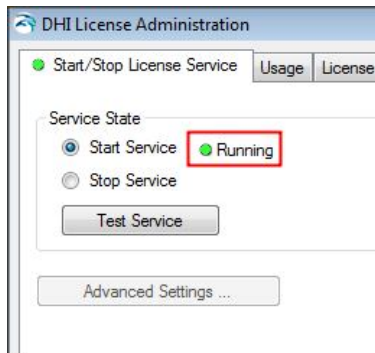
2014). This is needed to ensure that the dongle is linked to the license file you have installed.

Stand-alone License installation

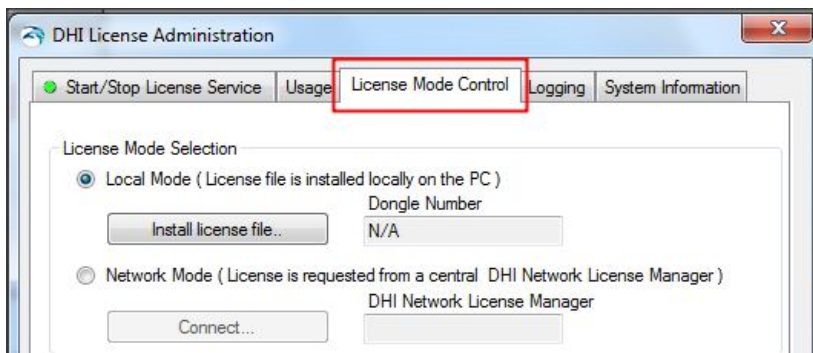
Right click on  **DHI License Administration** under the Mike by DHI 2014 group and select 'Run as administrator'.



Make sure the license server is running:

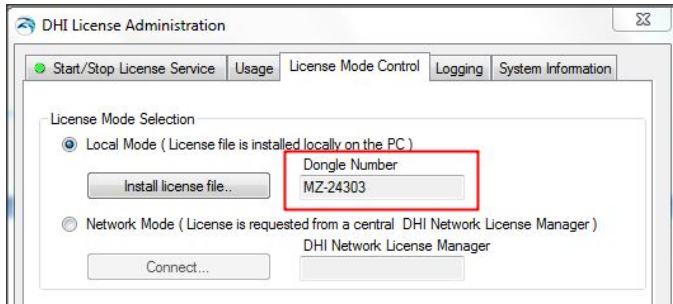


Click on 'License Mode Control' tab:

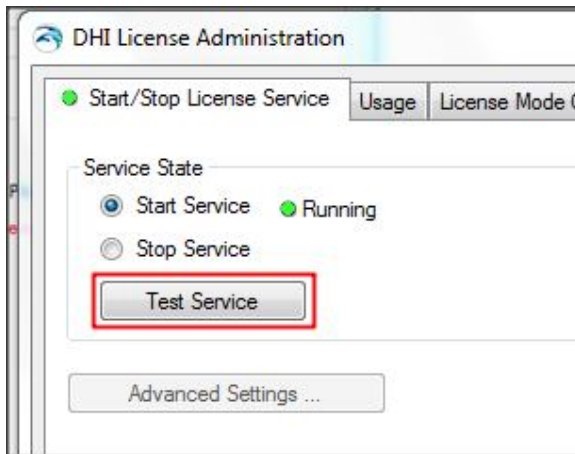


DSS Installation

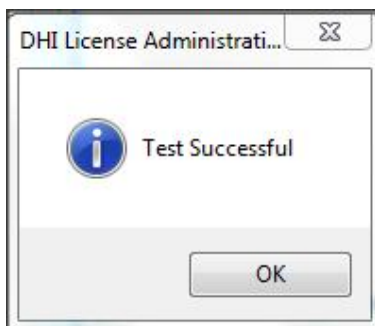
Insert the DHI hardware key (or dongle) in a USB port and click on 'Local Mode'. After a few seconds the dongle should be installed and recognized.



Go back to the 'Start/Stop Licenser Service' tab, click the 'Test Service' button.




If installation of the license is successful you should get the following message:

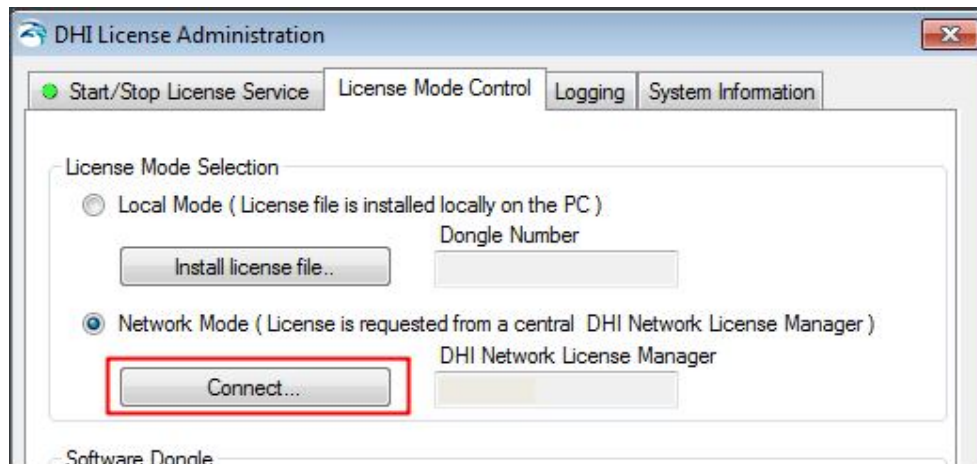


DSS Installation

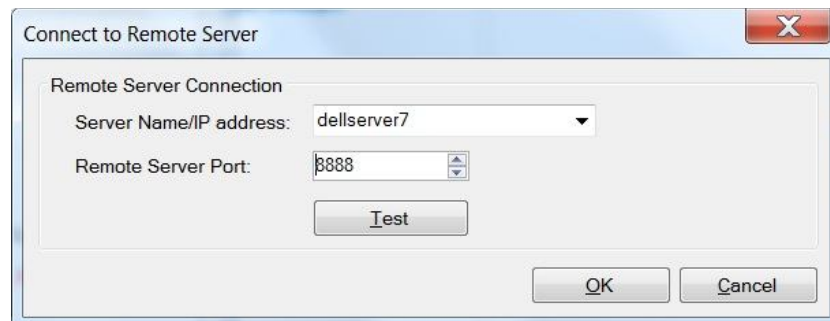
Network License installation

To use a Network License, you need to click the Network Mode button instead of the local mode that was selected in above section. You need also to specify the name of the computer on which the DHI Network License Manager is installed.

First right click on  **DHI License Administration** under the Mike by DHI 2014 group and select 'Run as administrator'. Switch to the 'License Mode Control' tab and select 'Network Mode'.



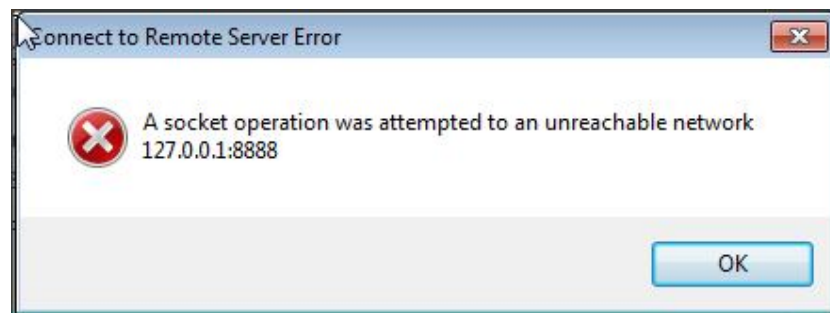
Click the 'Connect...' button



In the above window, specify the server name where the license is installed or its IP address. By default server port where the license is installed is '8888'. Leave it if it is correct otherwise change to the correct port. Click the 'Test' button to check whether the settings are correct or not. If the settings are correct the following message appears confirming that the test is successful.



If not you receive the following message which means you need to correct you inputs.

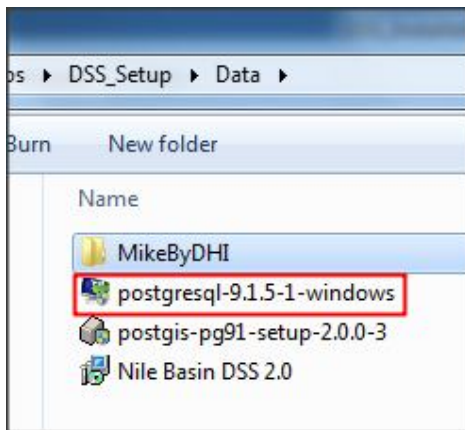


DSS Installation

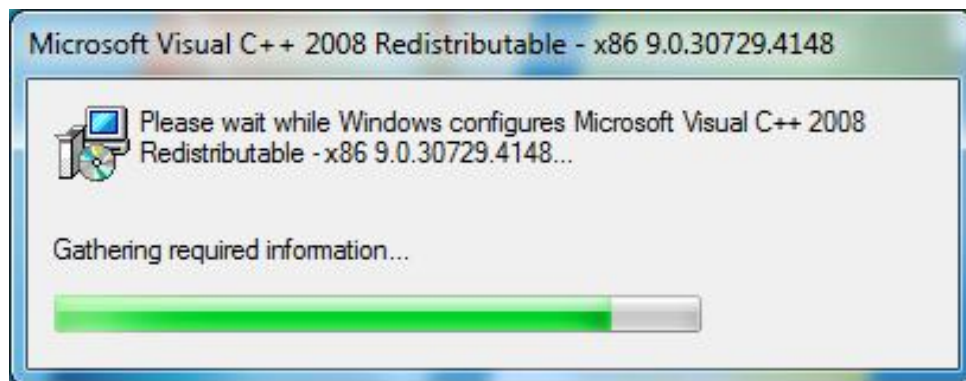
PostgreSQL Database Installation

In this section, it is assumed that you have not previously installed the PostgreSQL database. If you have any previous version of PostgreSQL installed, you must remember the password used when installing that version before proceeding with the current installation process. If you cannot remember the password used in the previous installation, you have to delete the postgres user account from your system.

Open the **..\DSS_Setup\Data** folder. Right click on 'postgresql-9.x.x-windows' (or 'postgresql-9.x.x-windows.exe' if file extensions are being shown) and select 'Run as administrator'.



Some prerequisites may be automatically installed. In such case a dialog similar to the one below appears.

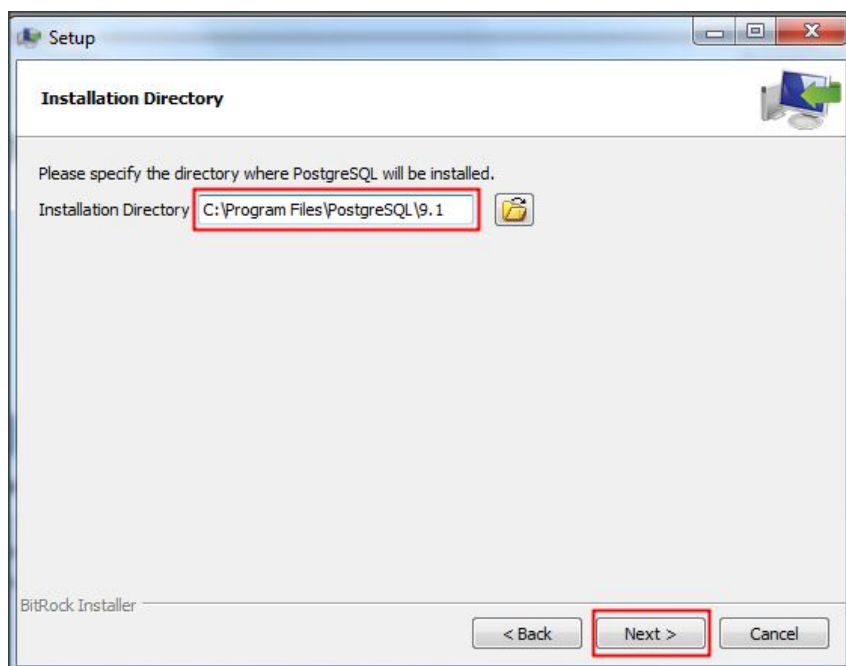


DSS Installation

After all prerequisites are installed the following dialog appears. Click 'Next'.

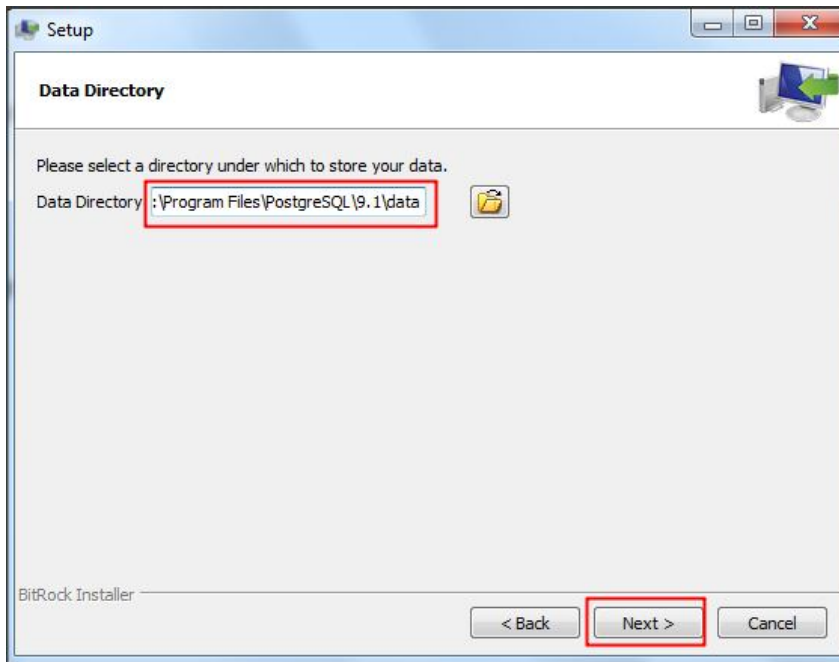


The installation directory dialog appears, accept the default 'Installation Directory' by clicking 'Next'.

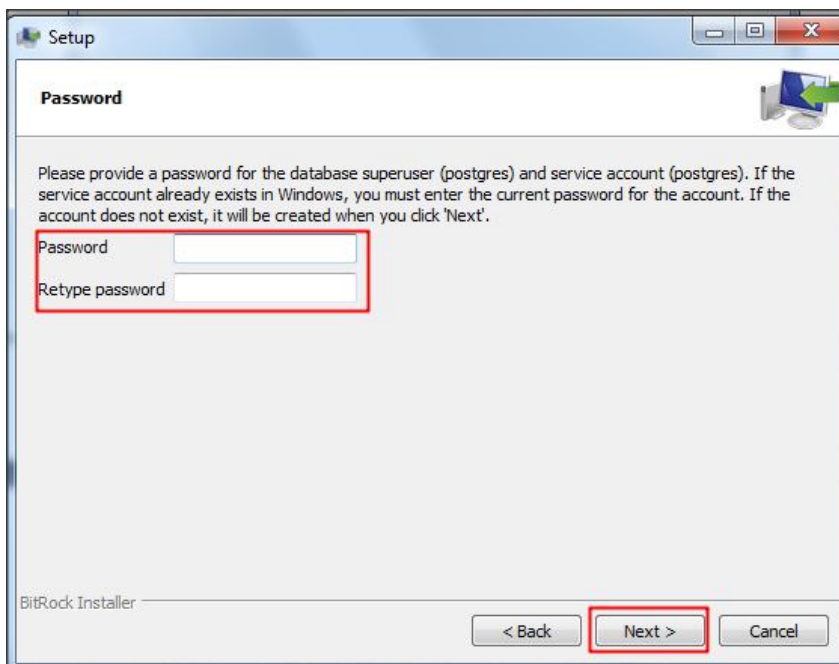


DSS Installation

The data directory dialog appears, accept the default 'Data Directory' by clicking 'Next'.

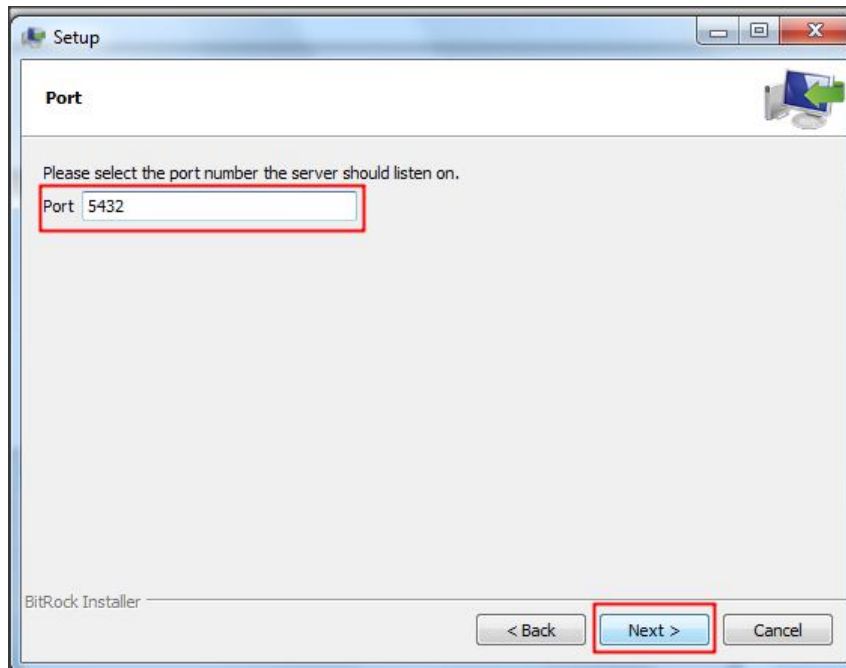


The password dialog appears, Type in a password³ of your choice and click 'Next'.

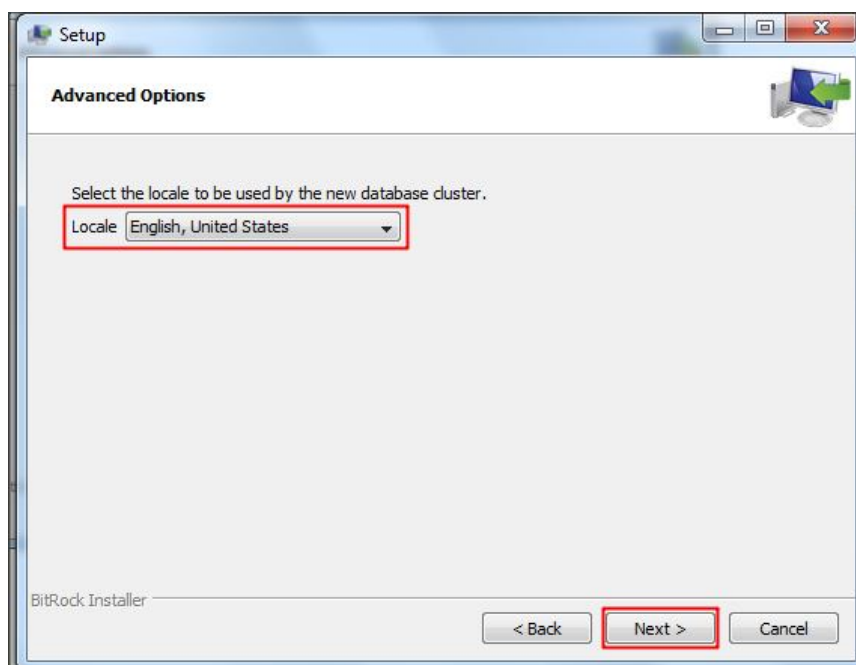


The port dialog appears; accept the default 'Port' and click 'Next'.

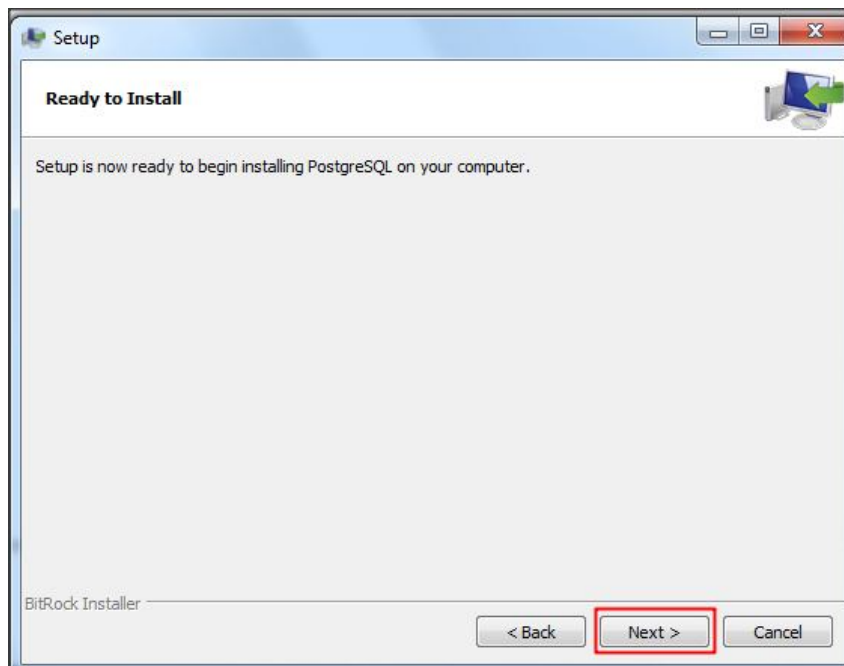
³ Note your password as it shall be used later in the process



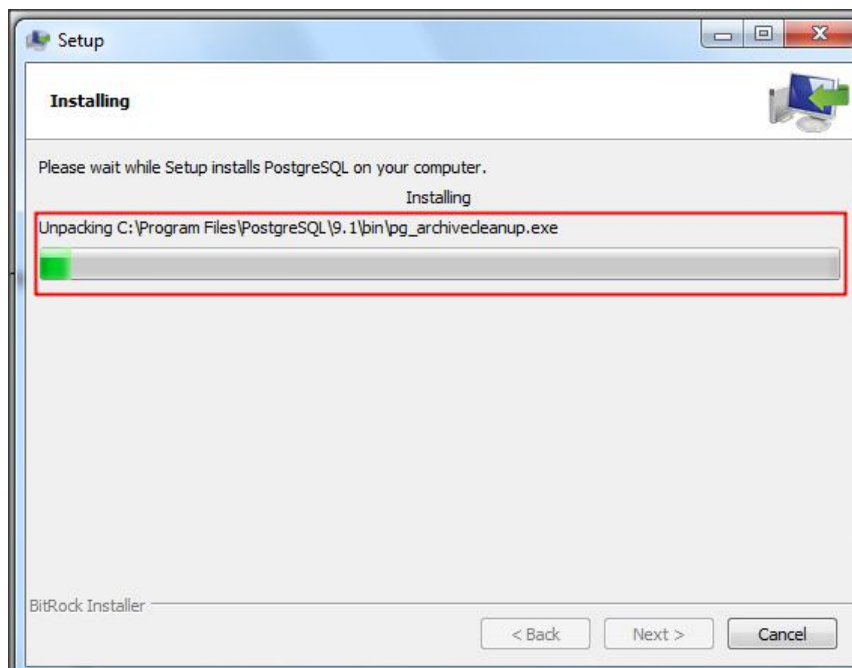
The advanced option dialog appears, select 'English, United States' instead of the default 'Locale' and click 'Next'.



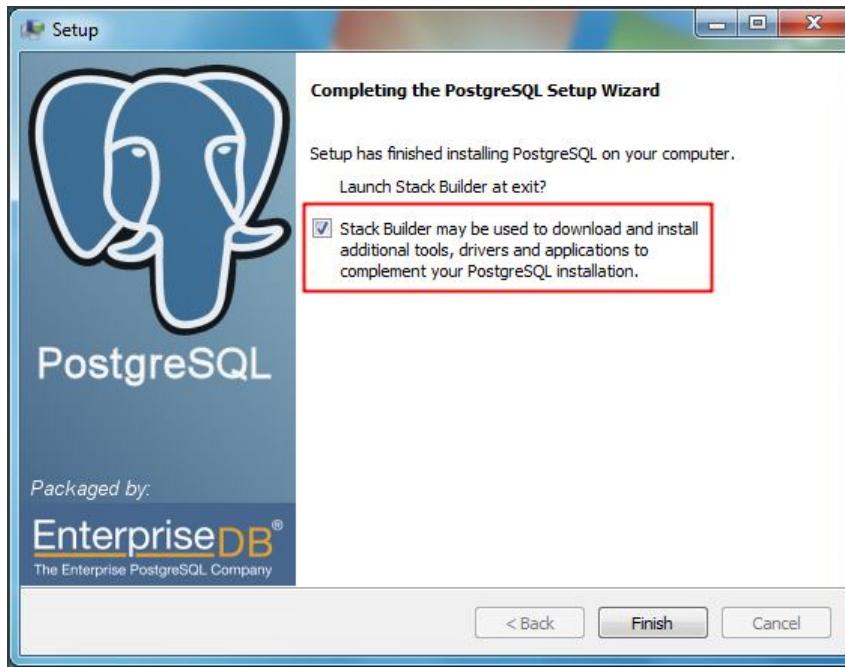
The 'Ready to Install' dialog then appears; click 'Next' to start installation.



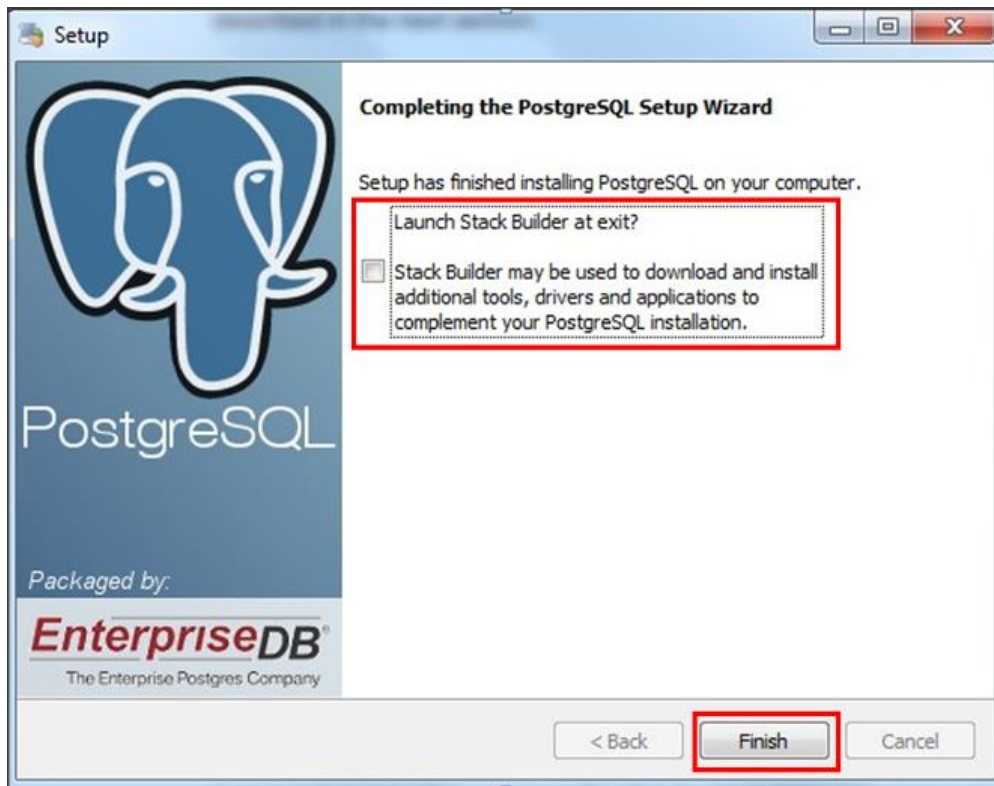
The installation dialog providing progress information appears.



When installation is done, the following dialog appears.

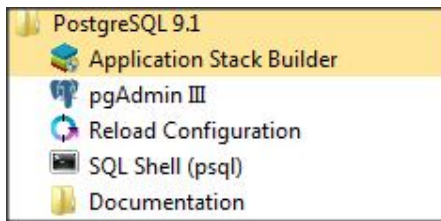


Uncheck 'Launch Stack Builder at exit?' then click 'Finish' to finalize the installation.



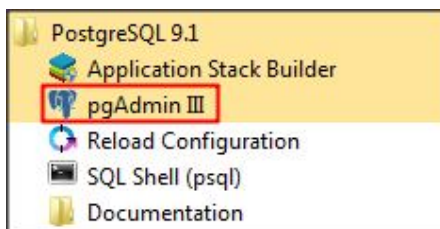
DSS Installation

A new program group called 'PostgreSQL 9.1' is now created under 'All Programs' in the 'Start menu'.

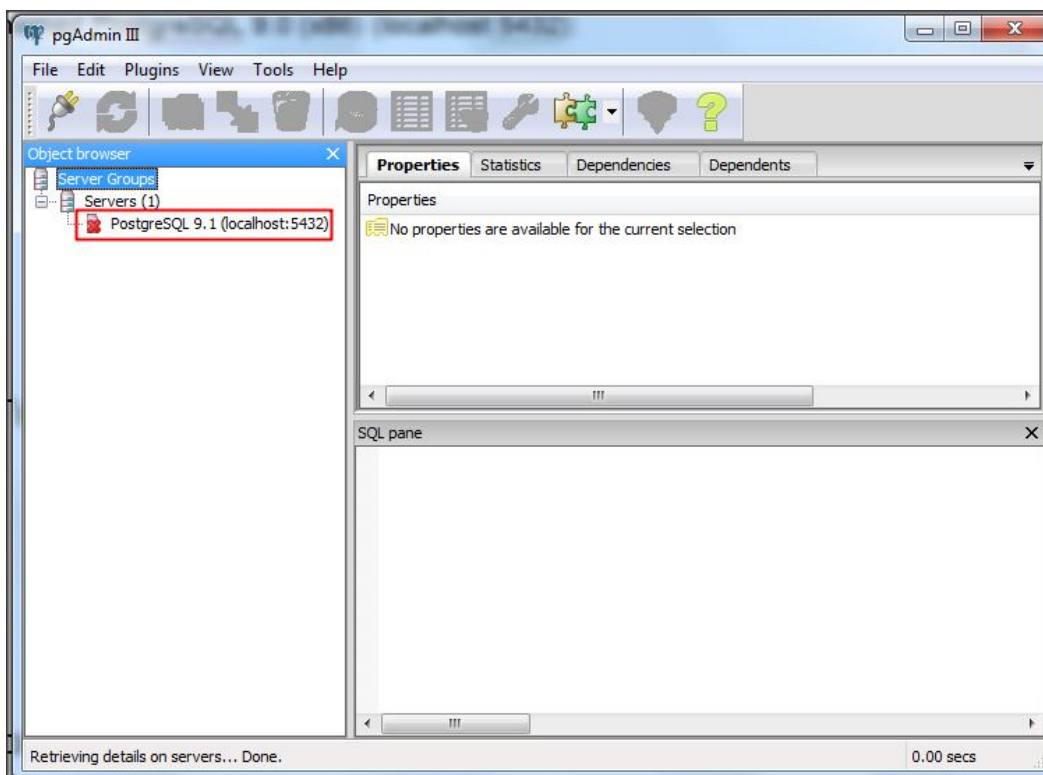


Starting the PostgreSQL admin

Start 'PgAdmin III' by clicking on 'Windows Start' menu, followed by 'All Programs', then 'PostgreSQL 9.1' and finally 'pgAdmin III'.

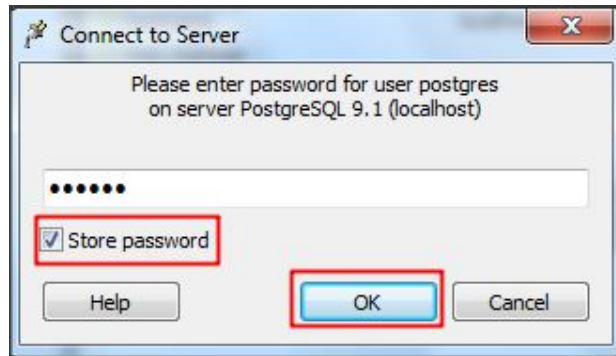


The main PgAdmin window appears.



DSS Installation

Double click on the node for the server (it should be the only one) named PostgreSQL 9.1 (localhost:5432). Type in the password for the PostgreSQL user and check 'Store password'. Click 'OK'.

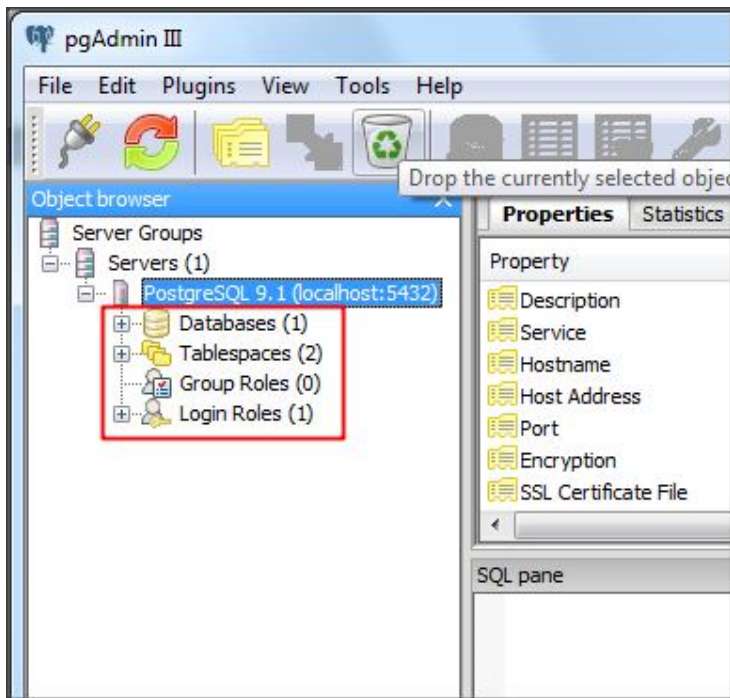


The following dialog appears to warn you that the password is stored in plain text (i.e. can be seen by any one). Click 'OK'. Note that saving the password helps you later in accessing the database server either directly or using the Database Manager Utility. Therefore, for a local installation saving the password is not very unsafe but on a server, the server administrator should be cautious about it.



DSS Installation

A connection to the server is established and pgAdmin shows the contents of the database.



Installation on Linux

Configure PostgreSQL and Windows to allow remote connections (only for Corporate edition under Windows)

In a Professional Edition where the PostgreSQL service is a local database service for programs in the same machine the settings are by default appropriate.

The following section is only relevant for situations where the Windows machine with the database shall act as a central server to many clients. In that case some the following settings need to be modified:

- Windows Firewall
- PostgreSQL service

Firewall

By default the firewall of a Windows machine is restrictive with respect to what and who can gain access to the resources. It is therefore necessary to configure the firewall to permit access to the PostgreSQL service.

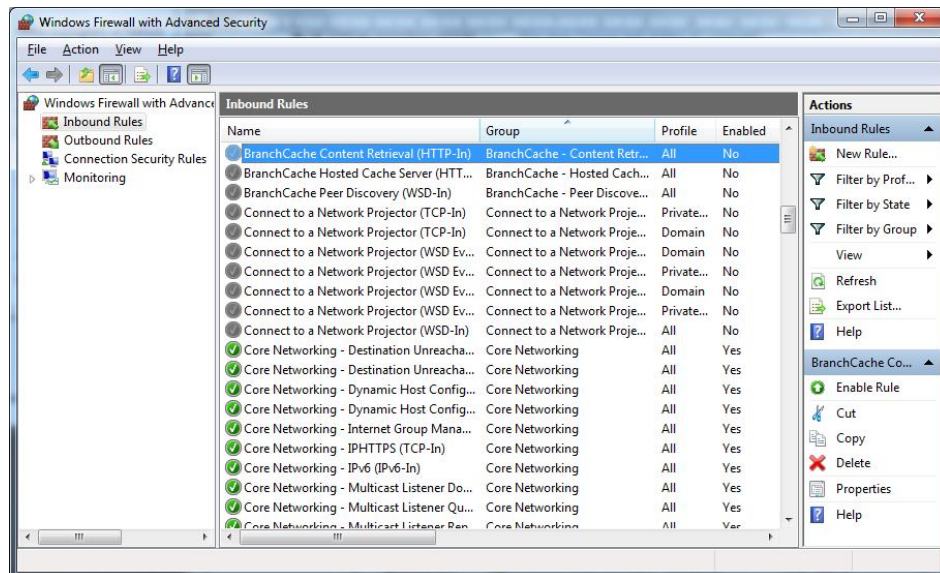
The procedure below describes how to open up for incoming traffic on the PostgreSQL port from any machine.

DSS Installation

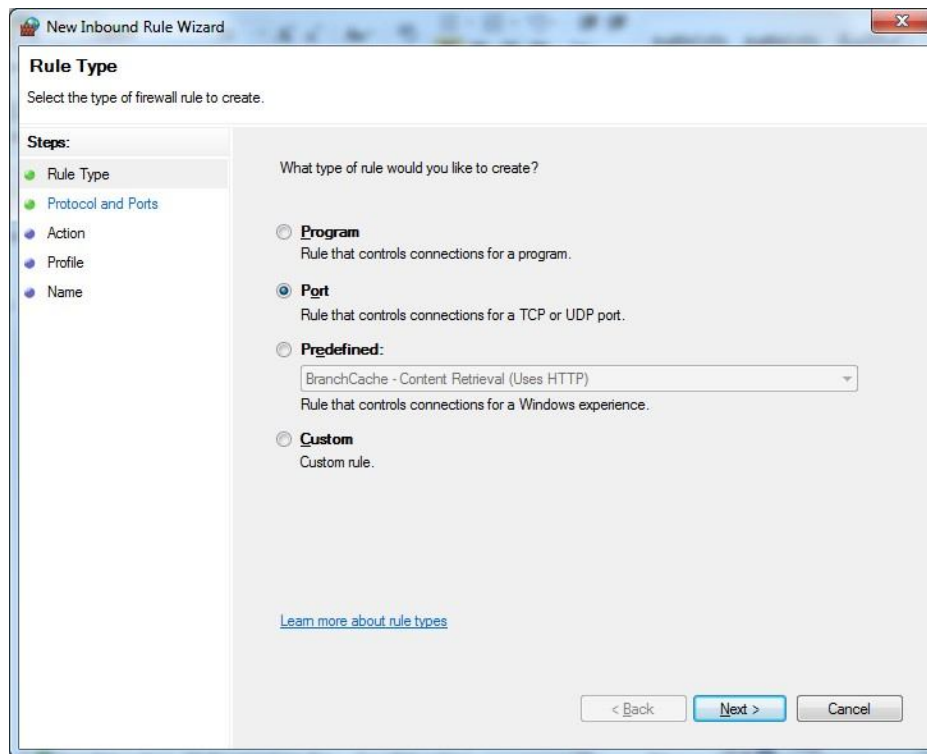
From the Control Panel click on Windows Firewall



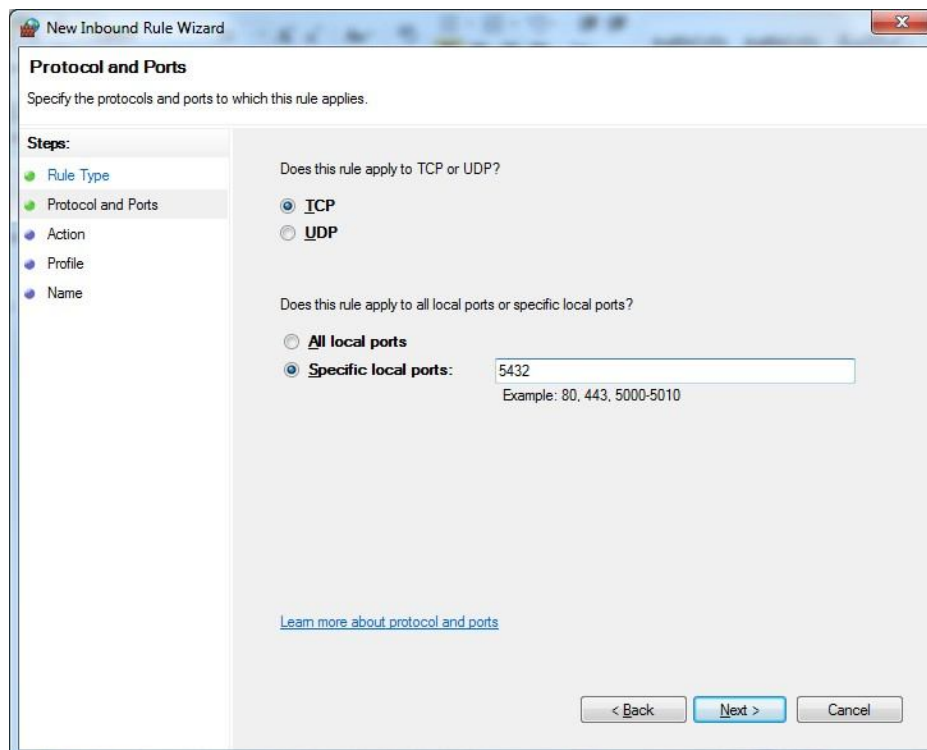
Click advanced setting and choose Inbound Rules in the Next dialog



Click the 'New Rule' in the menu to the right. This opens a Rule Wizard. Select 'Port' type and click 'Next'.

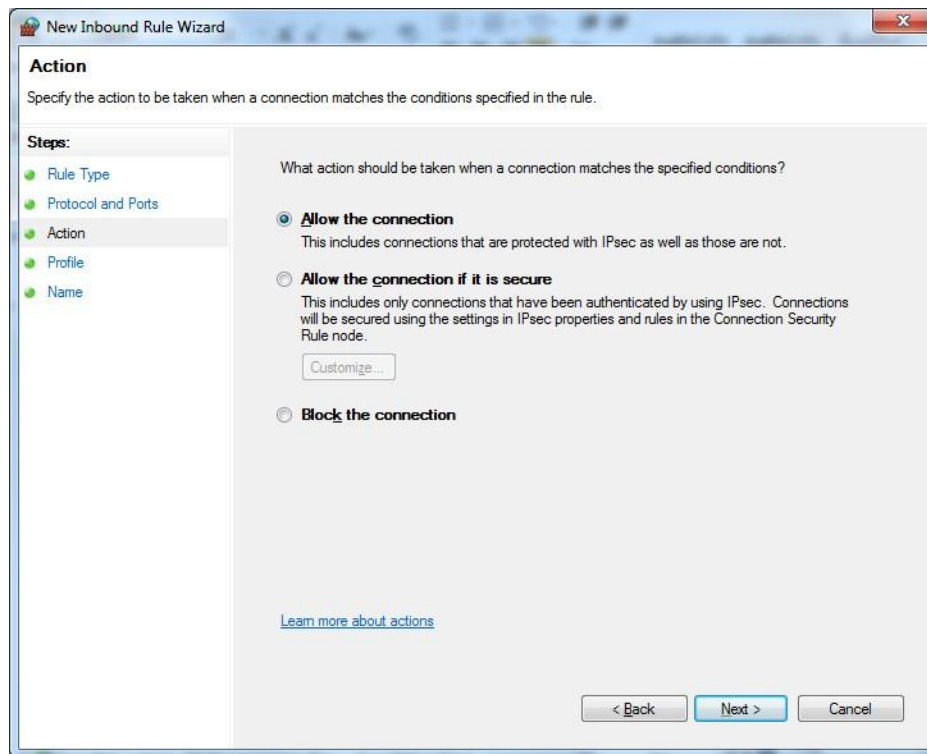


Specify the TCP port for PostgreSQL (as used for the PostgreSQL installation, but typically 5432). Click Next.

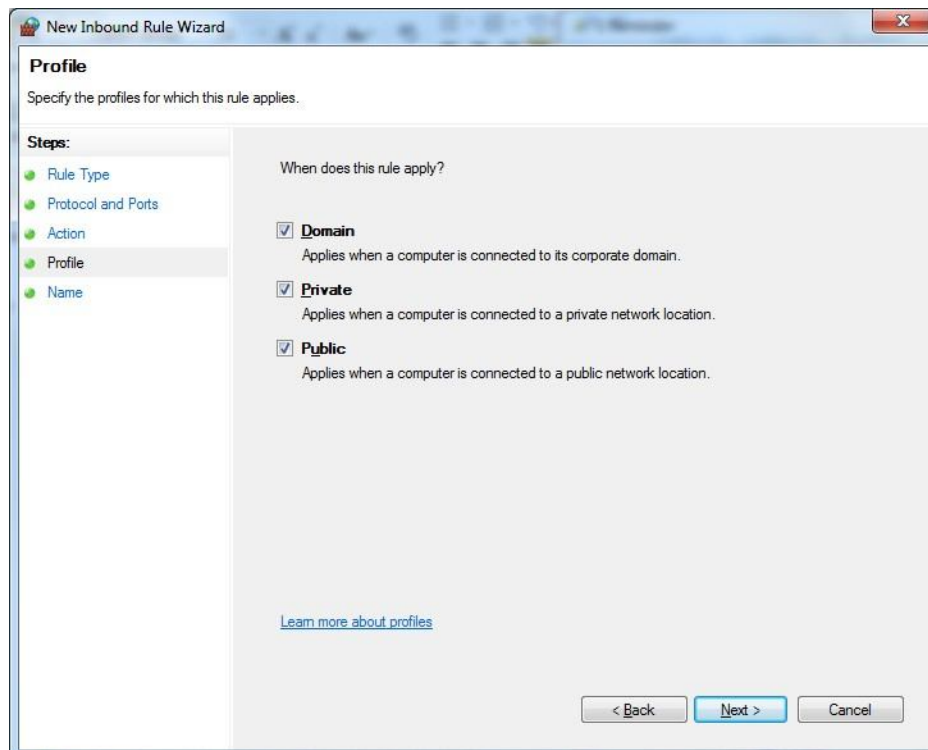


The rule should allow access on this port. Click Next

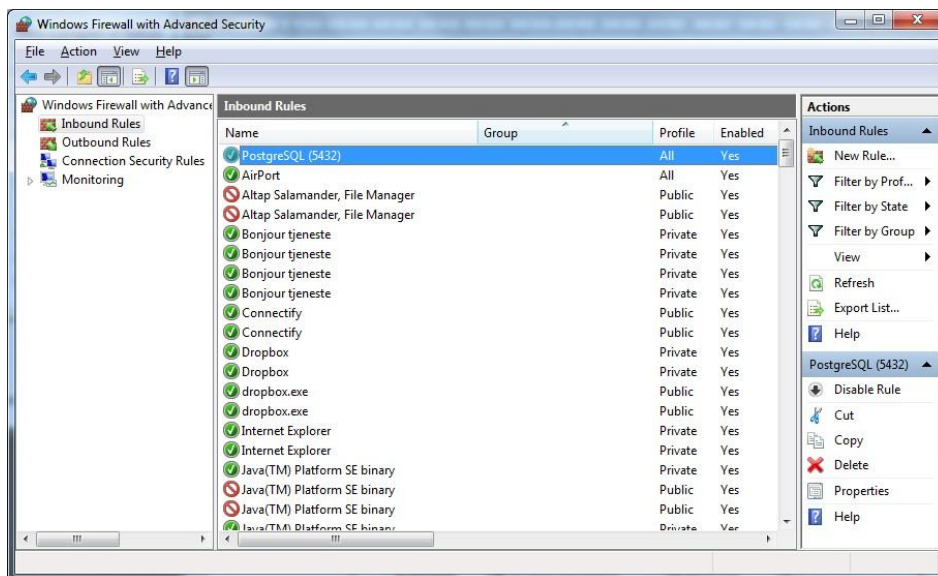
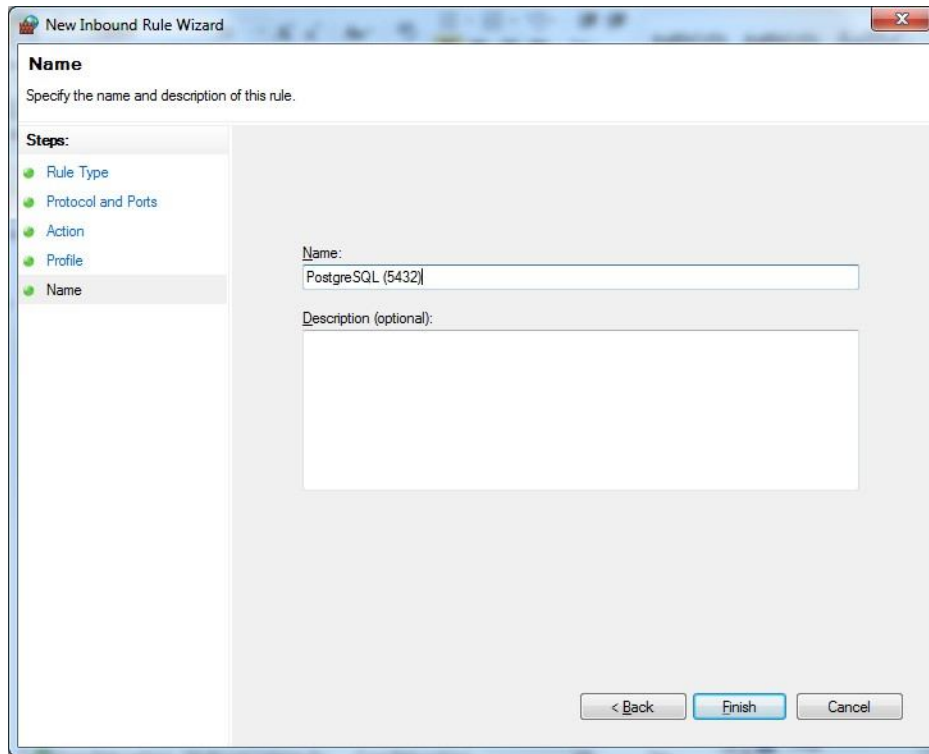
DSS Installation



Select all profiles and click 'Next'.



Enter a name and description of the rule and click 'Finish'.



Now the new rule is visible in the list of Inbound rules.

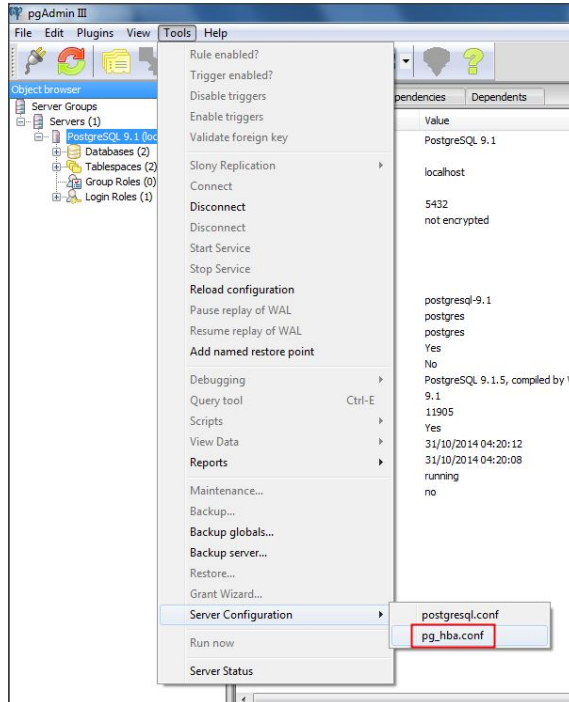
PostgreSQL Service

The database service itself also includes an access permission system which by default only allows local access from the same computer. For the server to work as a server in a network environment the permissions must be opened up.

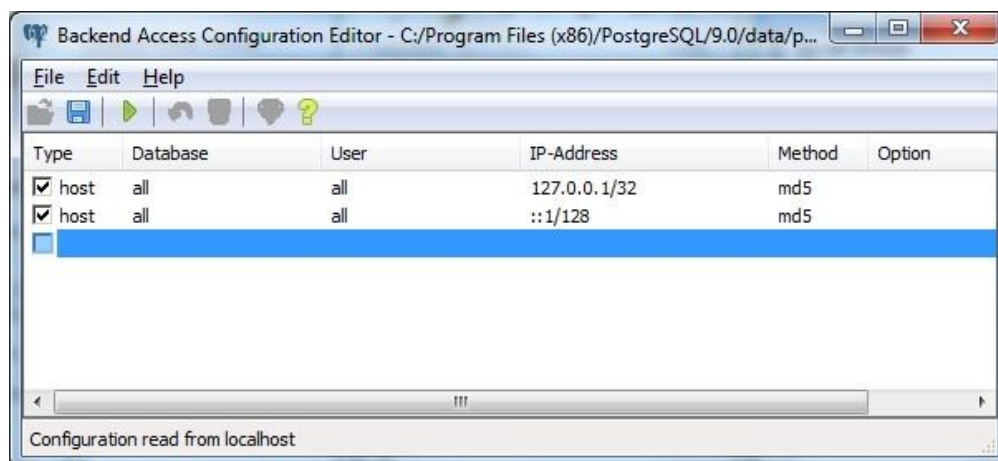
DSS Installation

To set up the server to allow access any machine, the following should be done: Open pgAdmin and connect to the database service (as explained [starting the PostgreSQL admin](#)).

Open menu item Tools -> Server Configuration -> pg_hba.conf

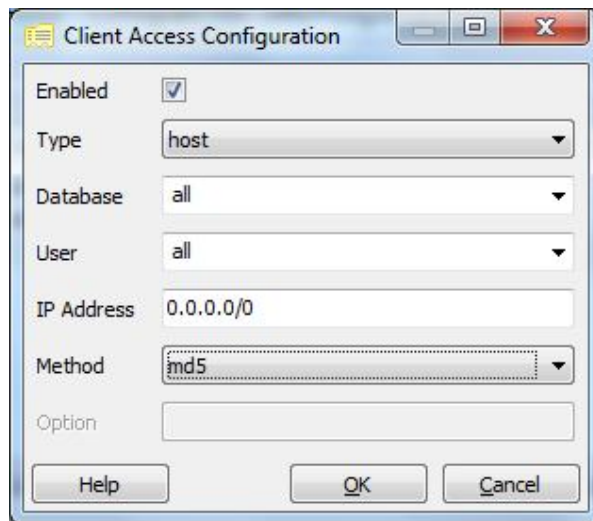


The 'Backend access configuration Editor' window appears. Double-click the empty line and configure remote access.



The 'Client Access Configuration window' appears. Fill the data as shown below. Click 'OK' and save the configuration.

DSS Installation



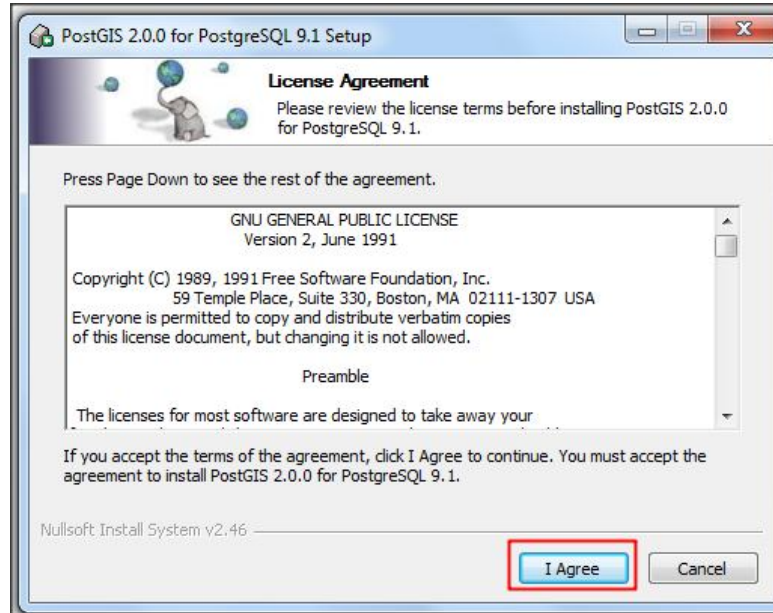
Finally click File->Reload Server to activate the new settings. Verify the settings by connecting with pgAdmin from another machine in the network (if possible).

DSS Installation

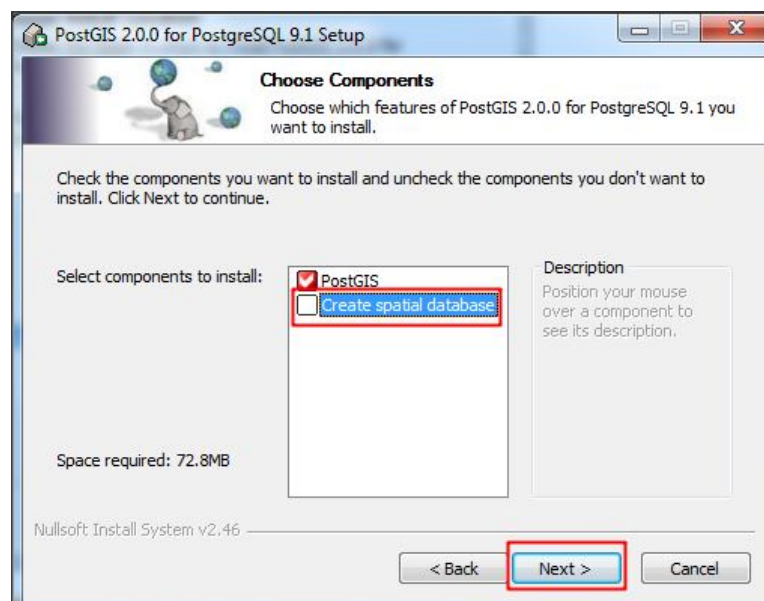
PostGIS Installation

Open the `..\DSS_Setup\Data` folder. Right click on ' postgis-pg91-setup-2.0.0-3' (or ' postgis-pg91-setup-2.0.0-3.exe' if file extensions are being shown) and select 'run as administrator'.

Please note that the PostGIS file name shows the compatible Postgres version. For example, if postgres 9.0 is installed, postgis 2.0 for postgres 9.0 should be installed. The following dialog appears, click 'I agree'.

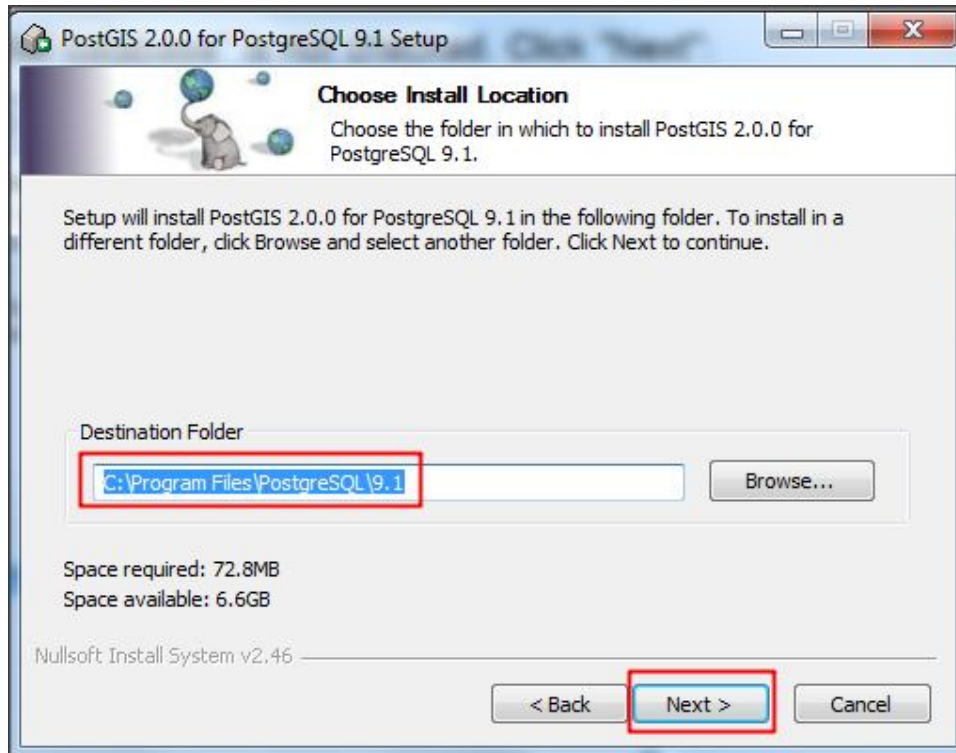


The software components selection dialog appears, it is recommended to leave 'Create spatial database' unchecked. Click 'Next'.

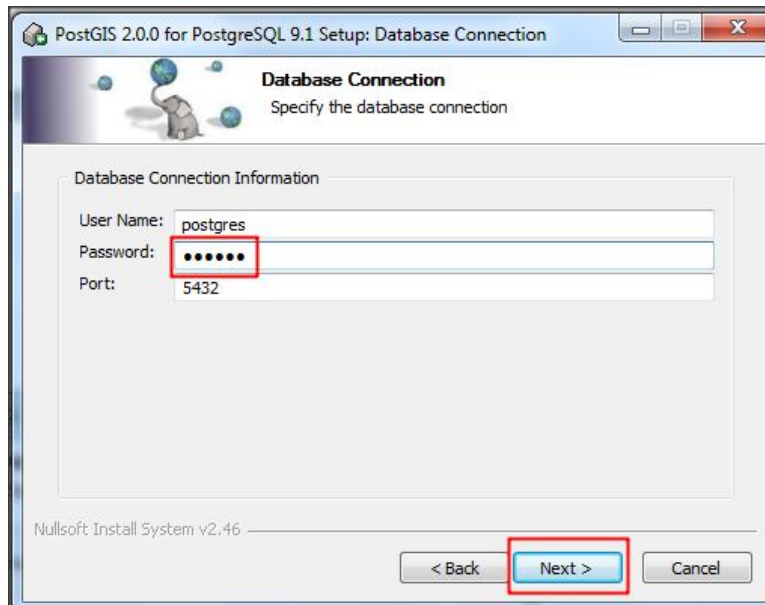


DSS Installation

Accept the default 'Destination Folder' by clicking 'Next'.

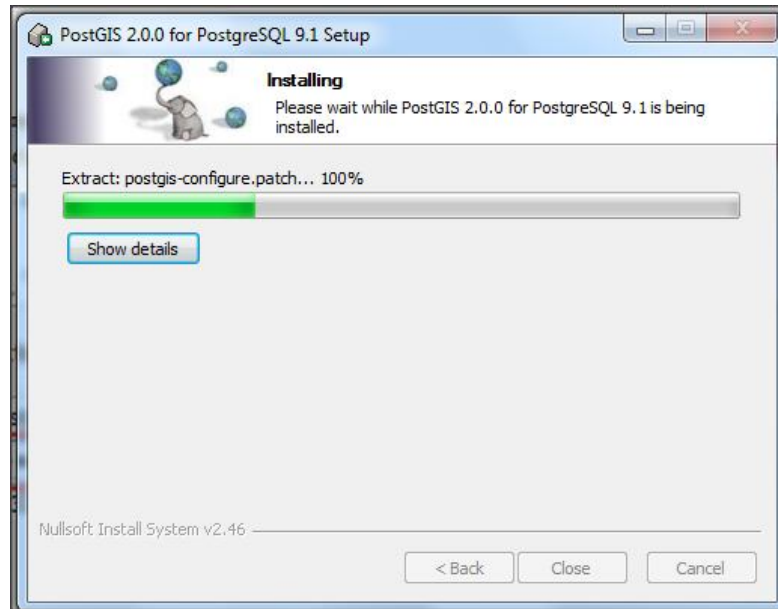


The database connection dialog appears. Type in the password of the postgres user (the same as during PostgreSQL database installation). Click 'Next' to start installation.

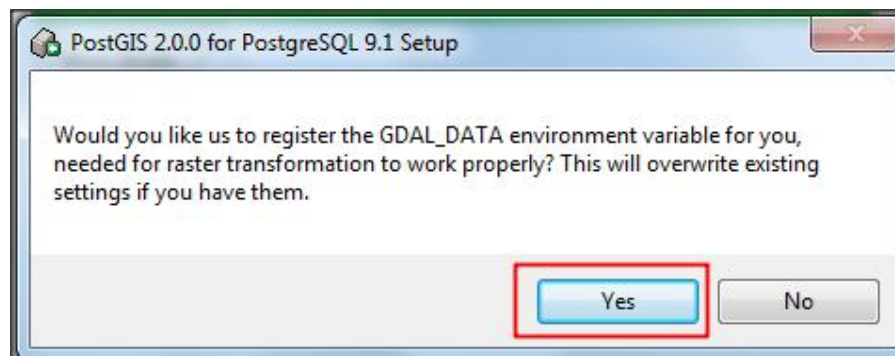


DSS Installation

The installation dialog providing progress information appears.

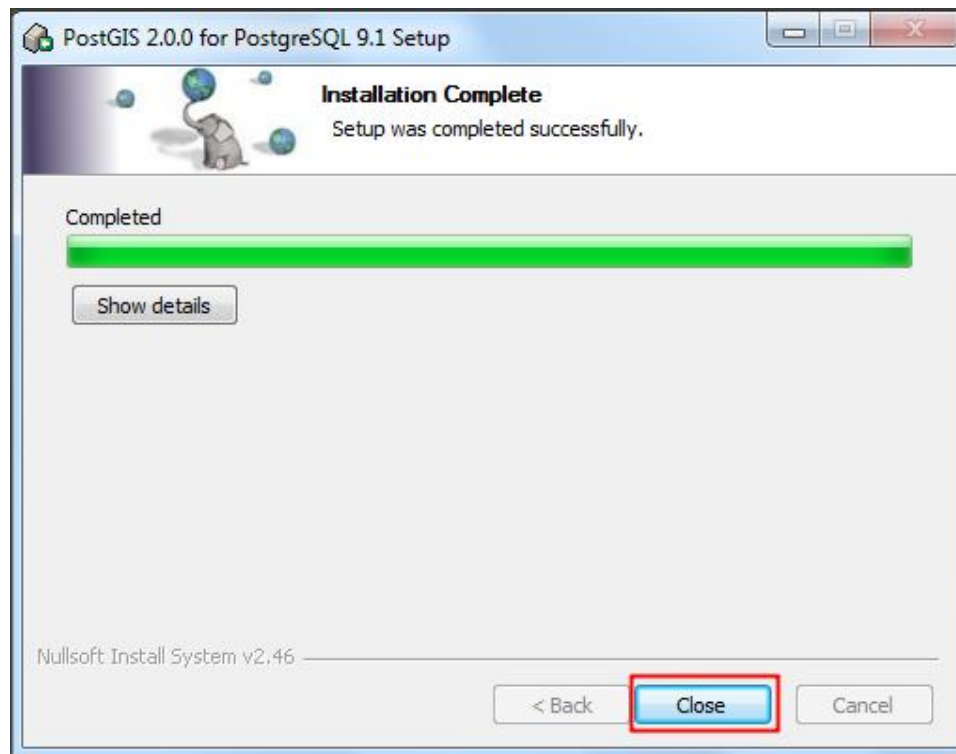


When installation is completed, the following message appears. Click 'Yes'.

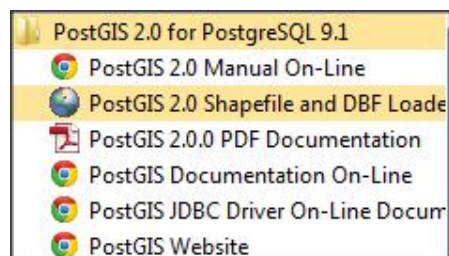


DSS Installation

The following dialog appears, click 'Close' to finish installation.



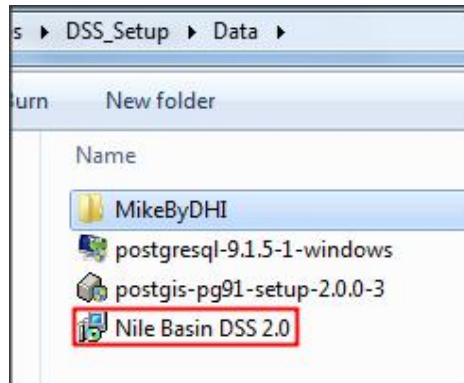
A new program group called 'PostGIS 2.0 for PostgreSQL 9.1' is now created under 'All Programs' in the 'Start menu'.



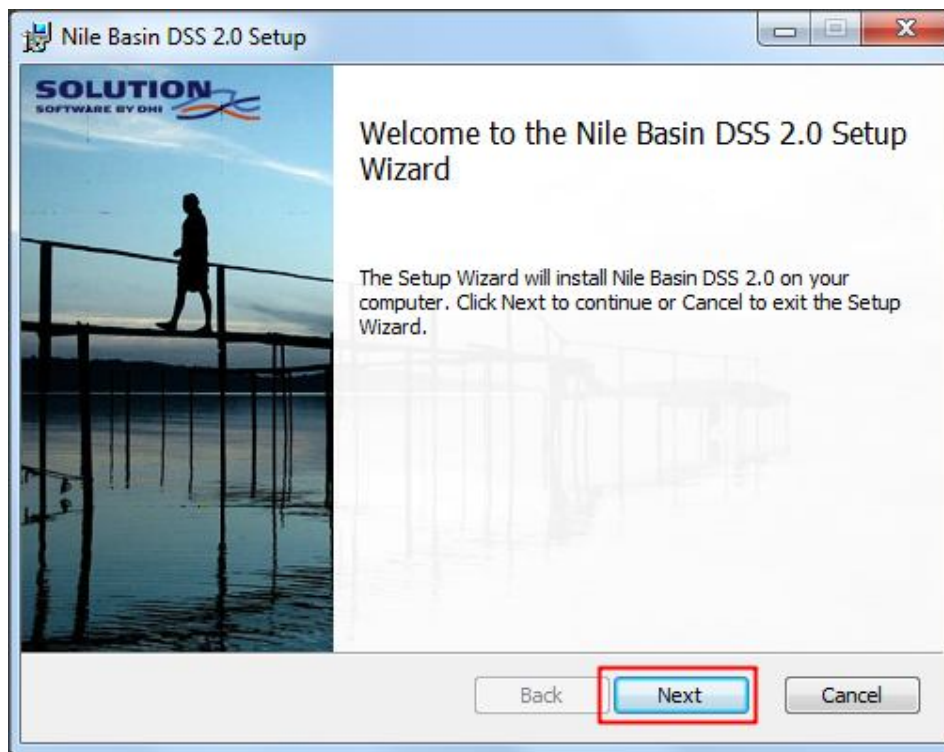
DSS Installation

DSS installation

Open the **..\\DSS_Setup\\Data** folder. Double click on 'Nile Basin DSS 2.0' (or 'Nile Basin DSS 2.0.msi' if file extensions are being shown).



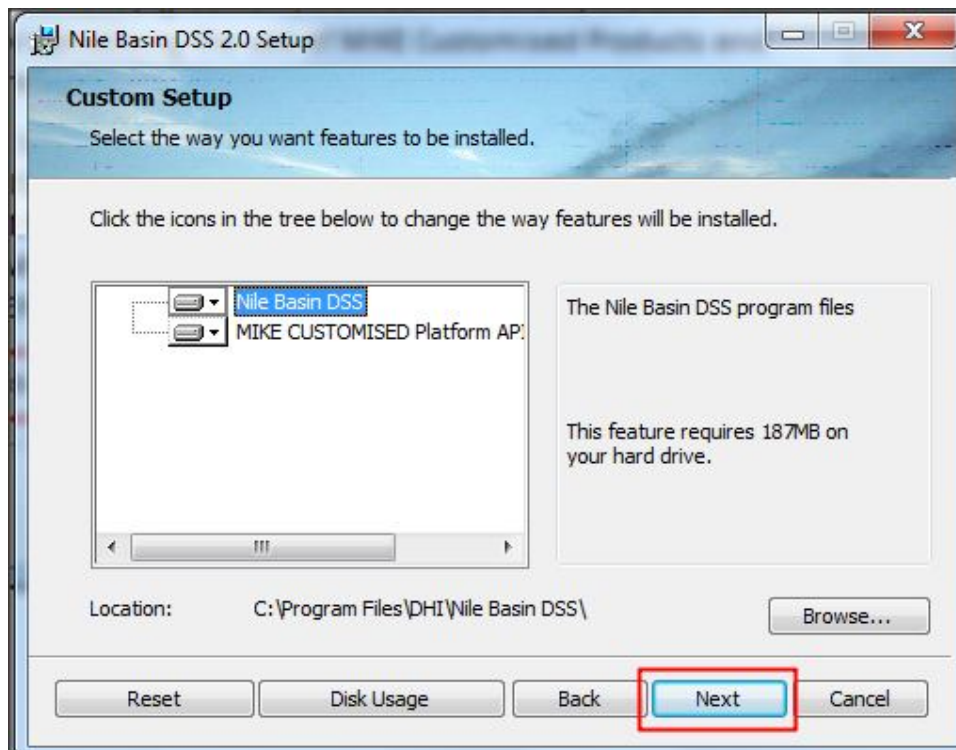
The following dialog appears, click 'Next' to start the installation.



Read and accept the license agreement. Click 'Next'.

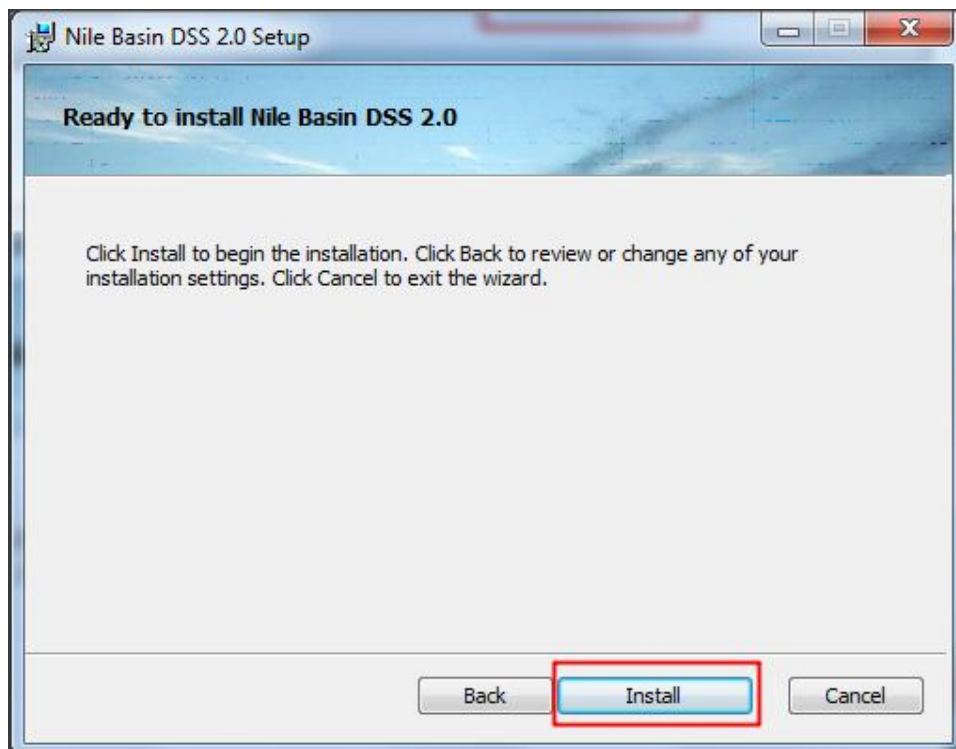


The Custom setup dialog appears, click 'Next' to install:

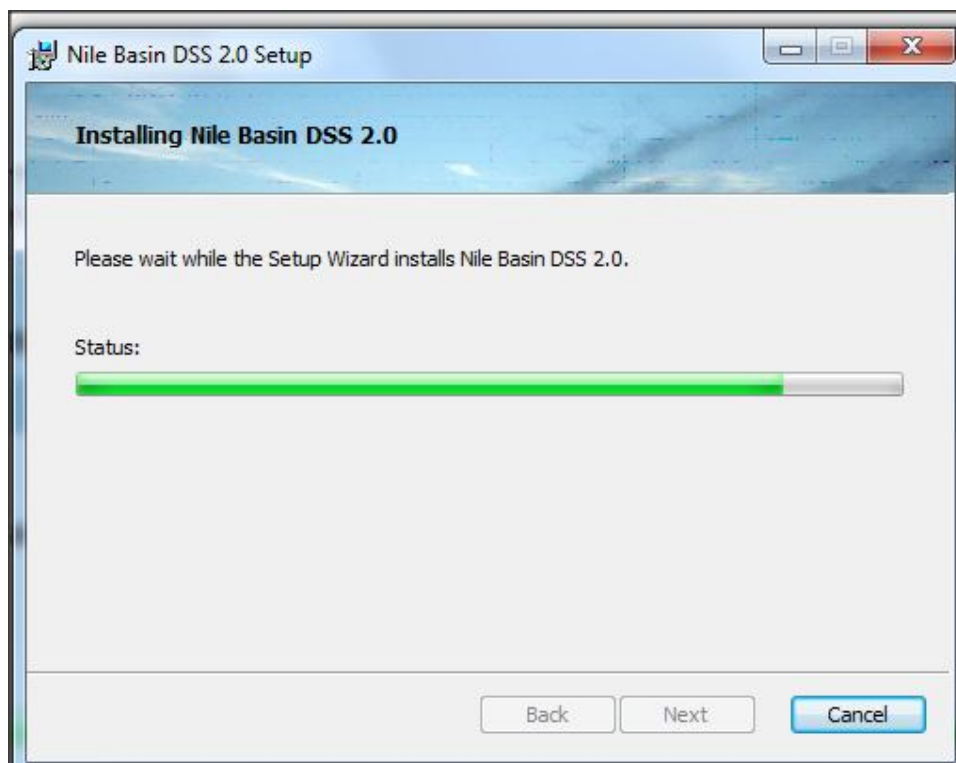


DSS Installation

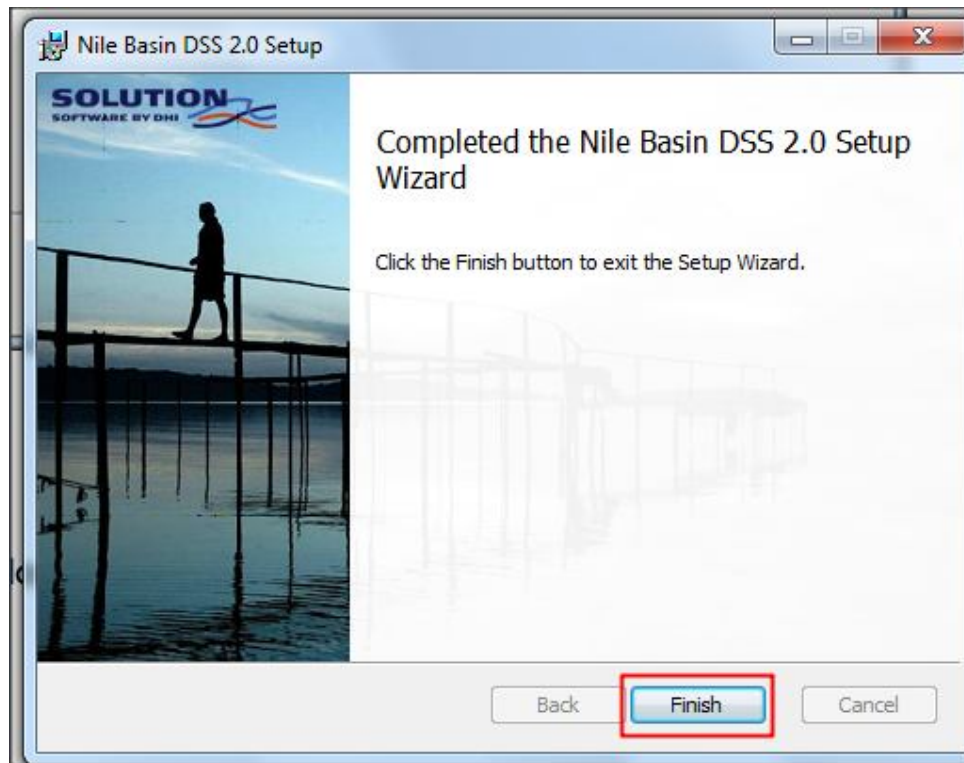
Now you are ready to install the DSS, click 'Install'.



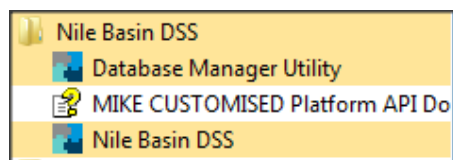
The setup progress dialog appears.



The following dialog appears. Ensure that setup is completed. Click 'Finish' to close the installer.



A new folder called 'Nile Basin DSS' is now created under 'All Programs' in the 'Start menu'.



Review Questions

1. What software packages need to be installed with the DSS?
2. DHI licenses can be local or on a network.
 - True
 - False
3. PostGIS handles spatial data for postgresSQL.
 - True
 - False

Answers

1. A number of different software packages are required in order to install and run the DSS. These are:
 - Modeling tools such as MIKE 11 and MIKE HYDRO to run simulations.
 - PostgreSQL which acts as the database server
 - PostGIS which acts as the GIS extension to PostgreSQL.
2. True.
3. True.

3. References

- Nile Basin Decision Support System help file (DSS Ver. 2.0)
- Nile Basin Decision Support training material (developed in 2013 and 2014)
- DHI training material for the Nile Basin Decision Support (developed in 2012)
- DHI NB DSS 1.2 - Installation guide (Developed in 2013).