Farmland GIS installation process

Scope:

1. Software and hardware requirements
2. Installation of the required applications.
    - PostgreSQL
    - QGIS
    - FGIS database module
    - FGIS mapping module (plugins for QGIS)

Software and hardware requirements

Software:

1. Operating system: Windows 10 64-bit

Hardware minimum requirements:

1. CPU speed: 1 GHz or faster processor
2. RAM: 2 GB for 64-bit
3. Hard disk space: 20 GB
4. Graphics card: DirectX 9 or later with WDDM 1.0 driver.

PostgreSQL installation

PostgreSQL is a powerful, open source object-relational database system with over 30 years of active development that has earned it a strong reputation for reliability, feature robustness, and performance.[1]

Windows-specific Software Requirements

Be sure to apply Windows operating system updates before invoking the PostgreSQL installer. If (during the installation process) the installer encounters errors, exit the installation, and ensure that your version of Windows is up-to-date before restarting the installer.[2]

Hardware Requirements:

The following installation requirements assume you have selected the default options during the installation process. The minimum hardware required to install and run PostgreSQL are:

- 1 GHz processor
- 2 GB of RAM
- 512 MB of HDD

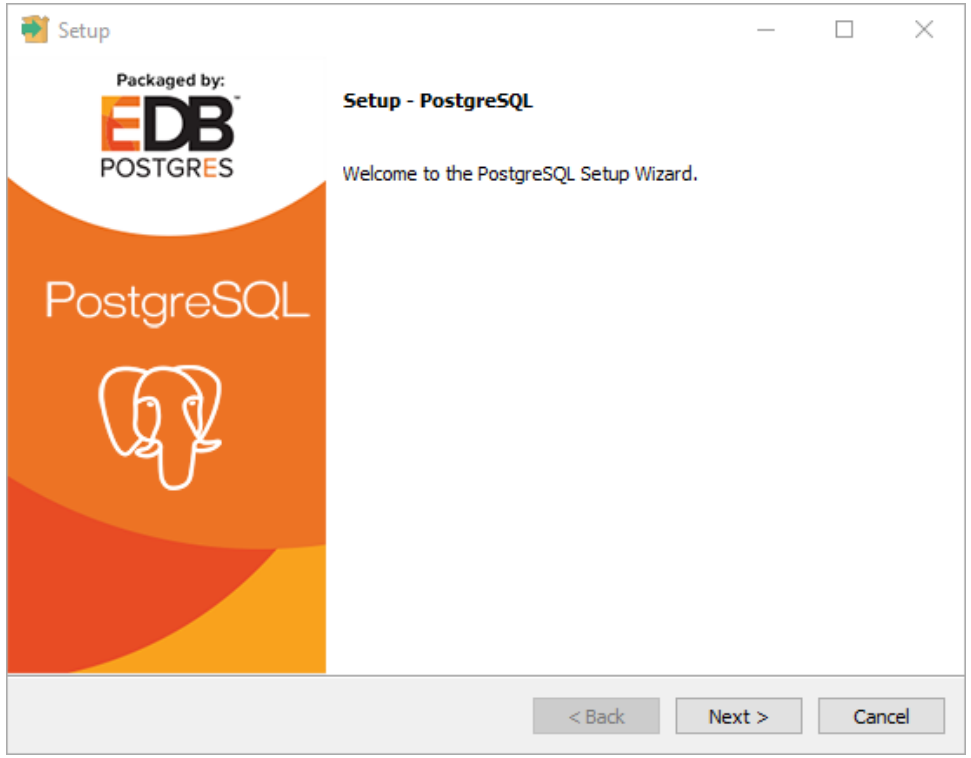
Please note that additional disk space is required for data or supporting components. [3]

Reference 1: https://www.postgresql.org/about/
2,3: https://www.enterprisedb.com/edb-docs/d/postgresql/installation-getting-started/installation-guide-installers/10/PostgreSQL_Installation_Guide.1.07.html#

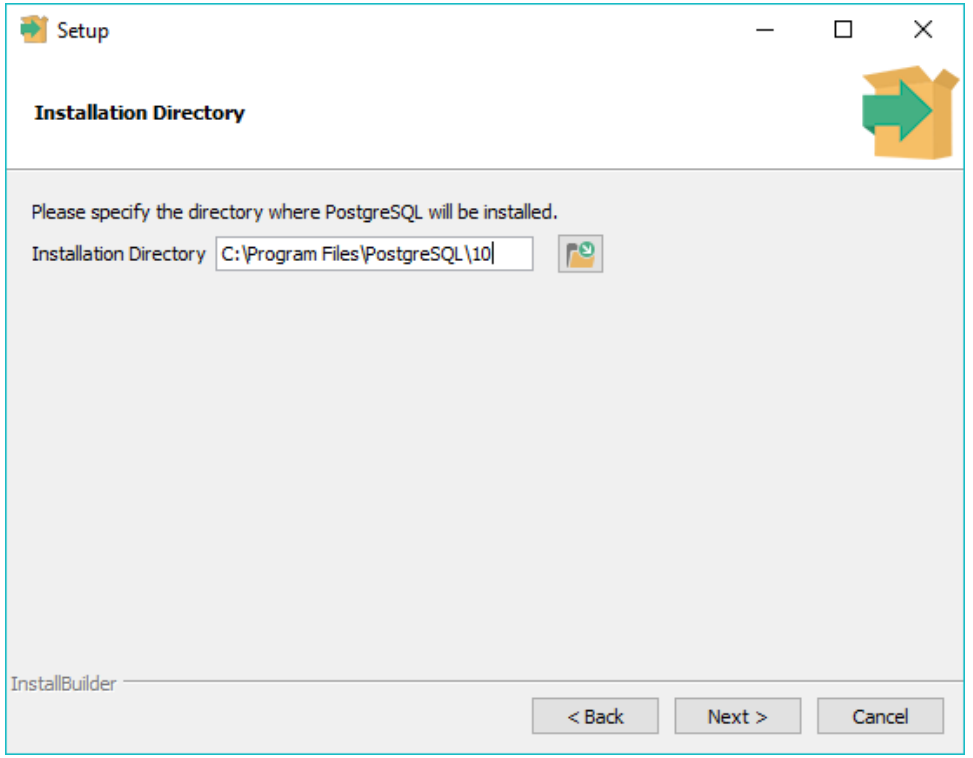
PostgreSQL installation

For Farmland GIS, PostgreSQL version 10.7.1 will be used for the installation.

1. To start the installation. Run “postgresql-10.7-1-windows-x64.exe”
   In Setup interface, click “Next”

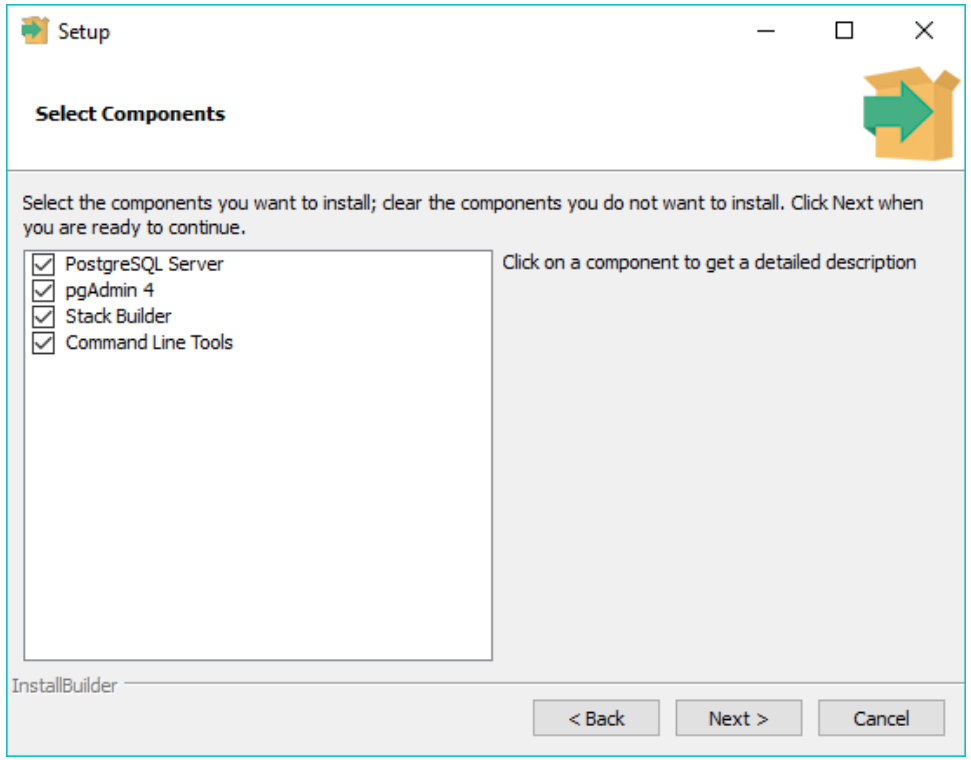


2. Installation directory, leave the Installation as is, click “Next”.

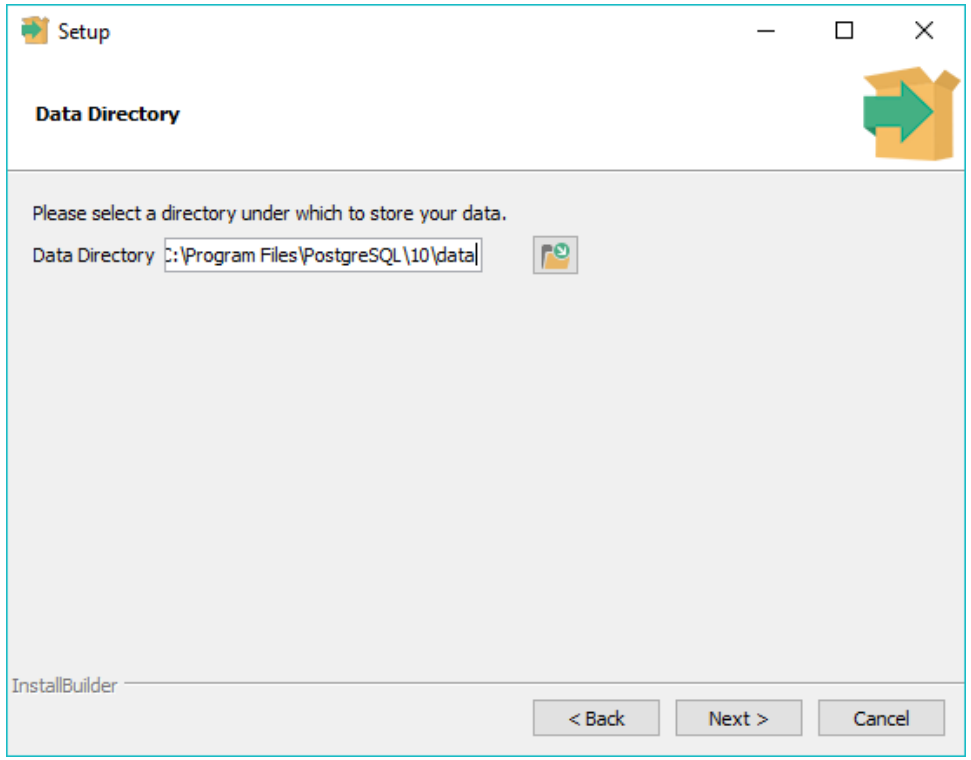


PostgreSQL installation

3. In Select Components, click “Next”.

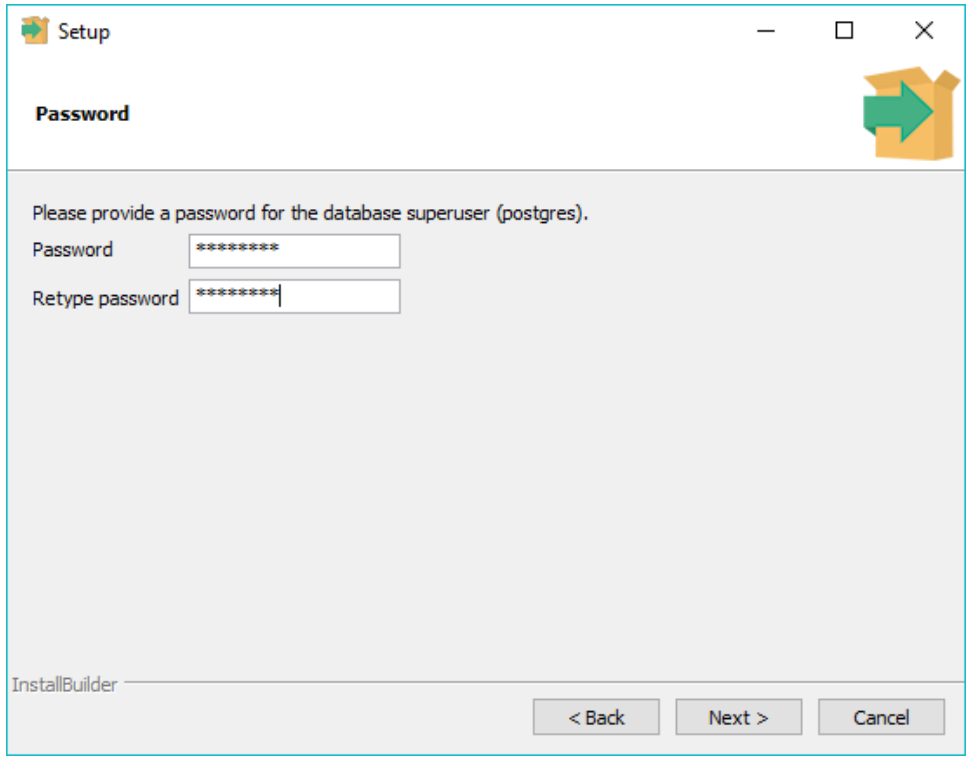


4. In Data directory, leave the directory as is, click “Next”

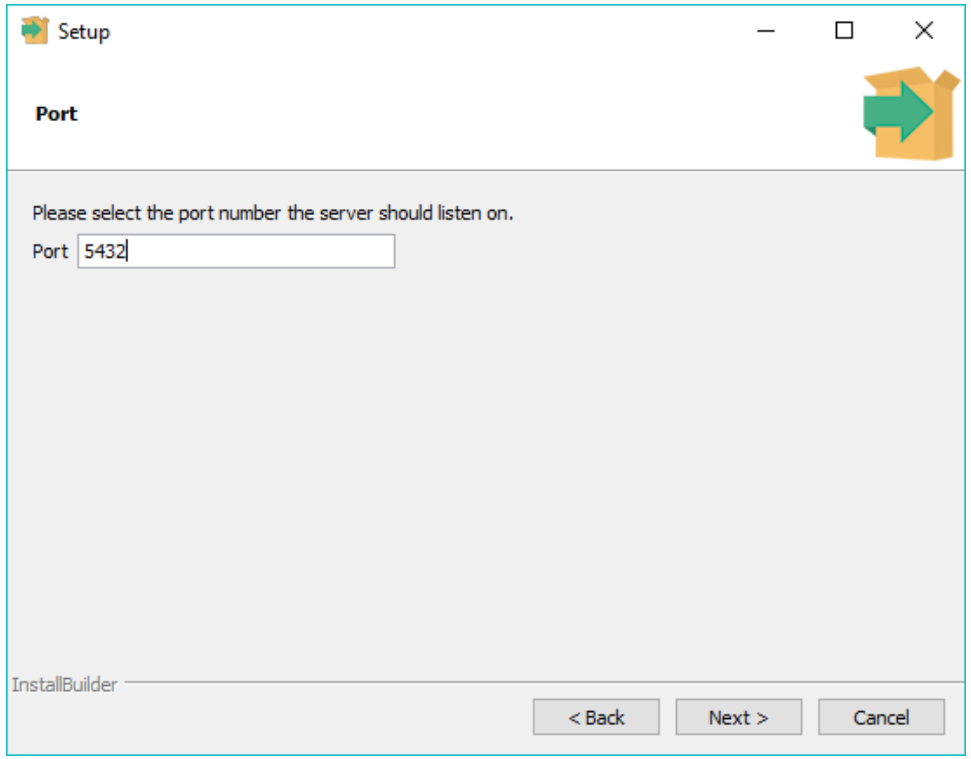


PostgreSQL installation

5. Specify database superuser Password, click “Next”.

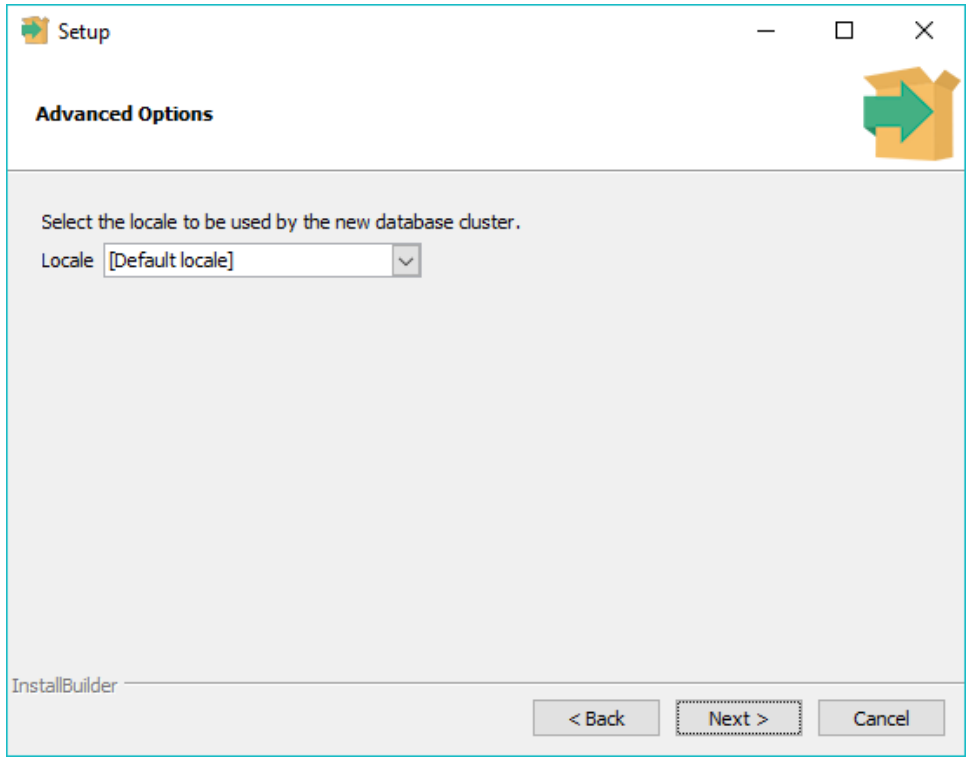


6. Specify Port number, click “Next”.

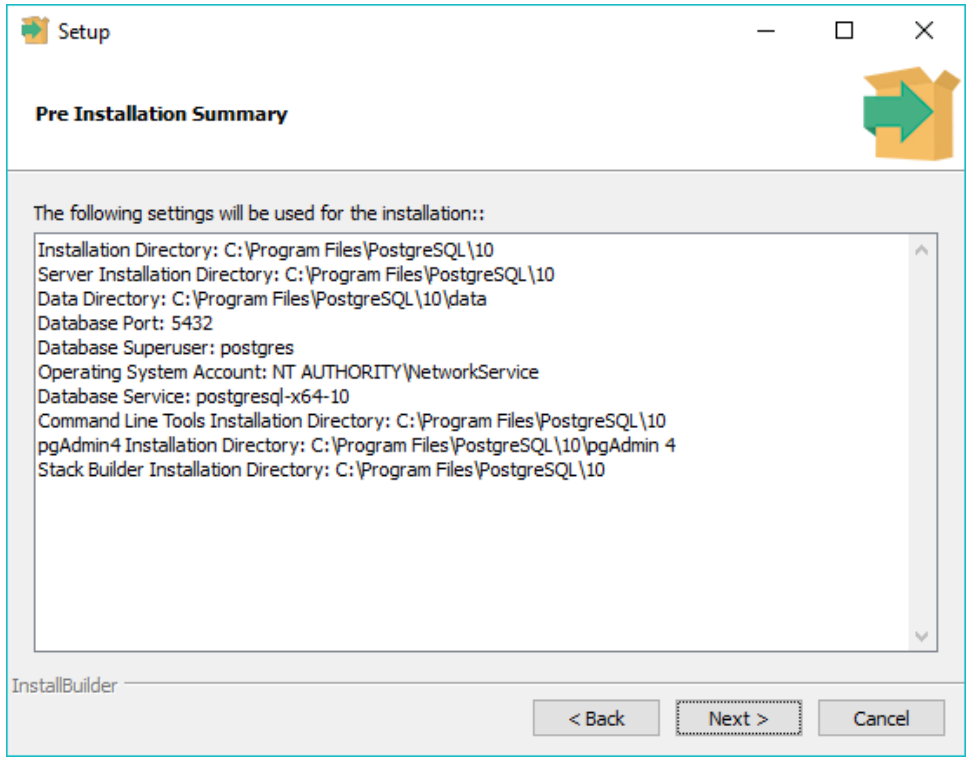


PostgreSQL installation

7. In Advance Options, click “Next”.

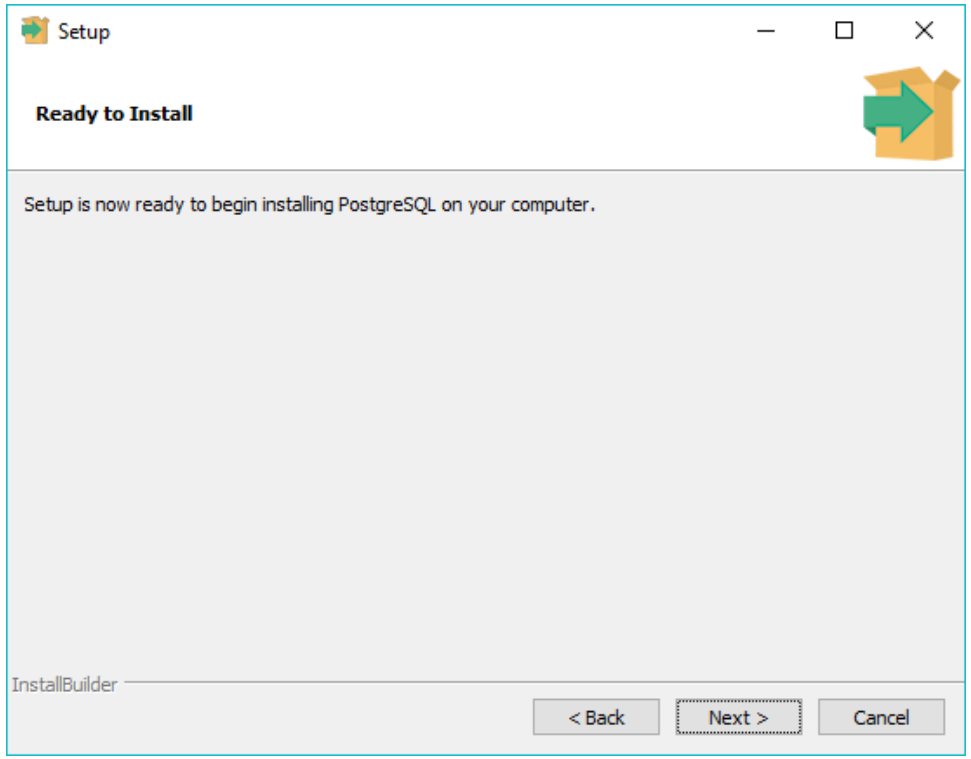


8. In Pre Installation Summary, click “Next”.

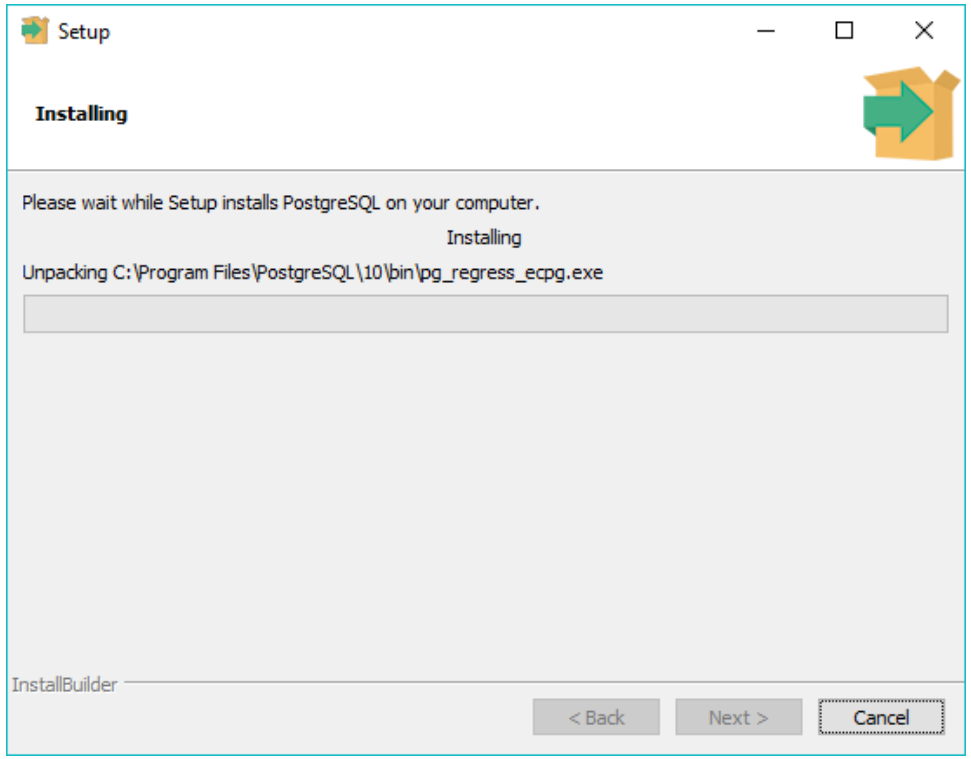


PostgreSQL installation

9. In Ready to Install, click “Next”.

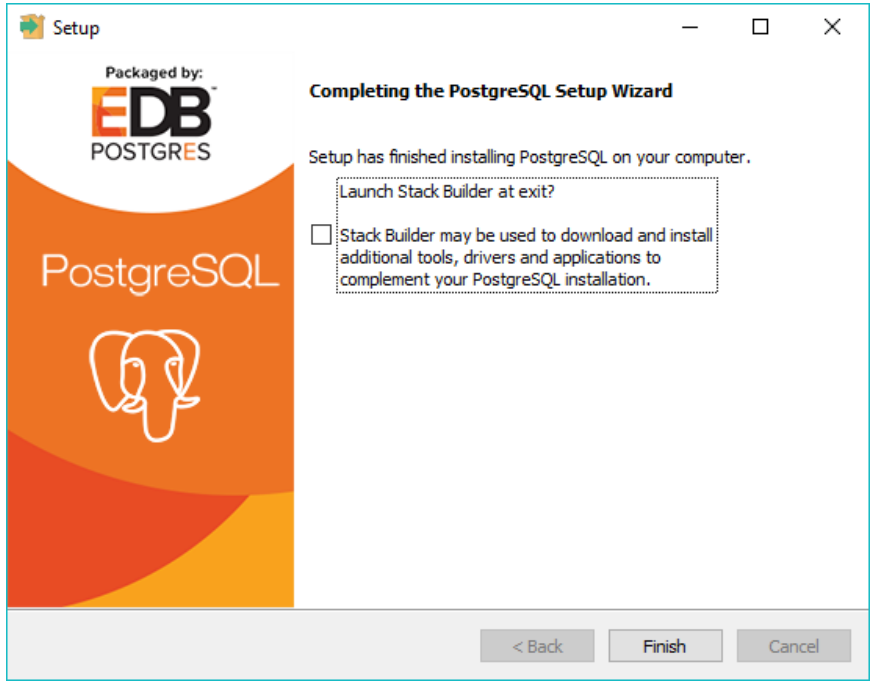


10. PostgreSQL installation starts.



PostgreSQL installation

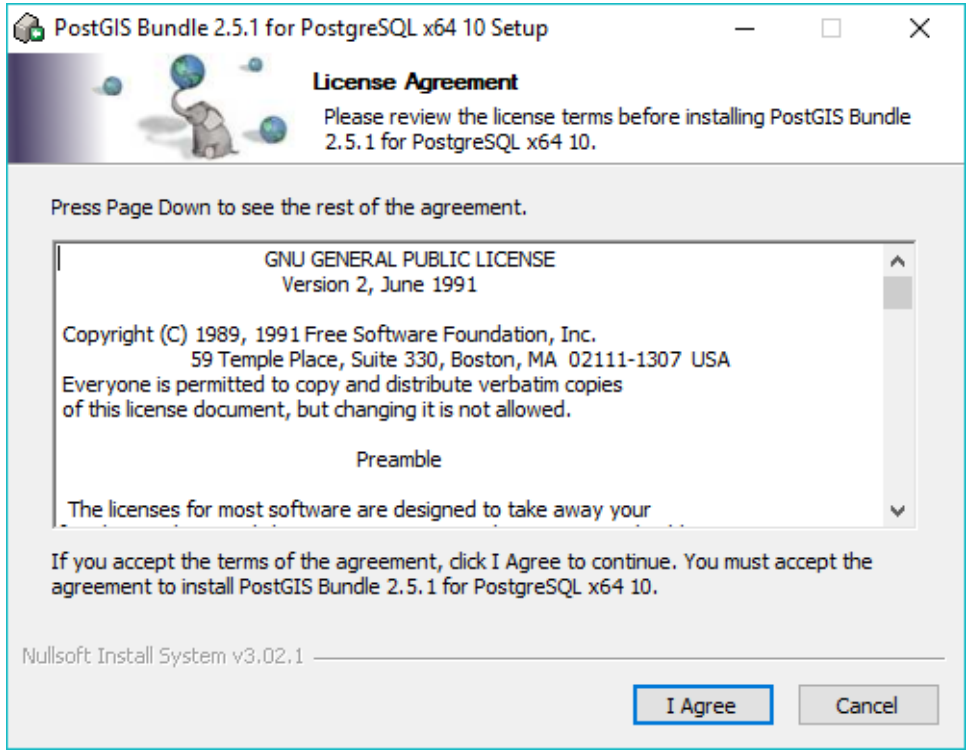
11. In this interface, uncheck “Launch Stack Builder at exit?” then click “Finish”.
    Optionally, check the “Launch Stack Builder at exit ?” allows to download additional tools like “Postgis” from the internet.



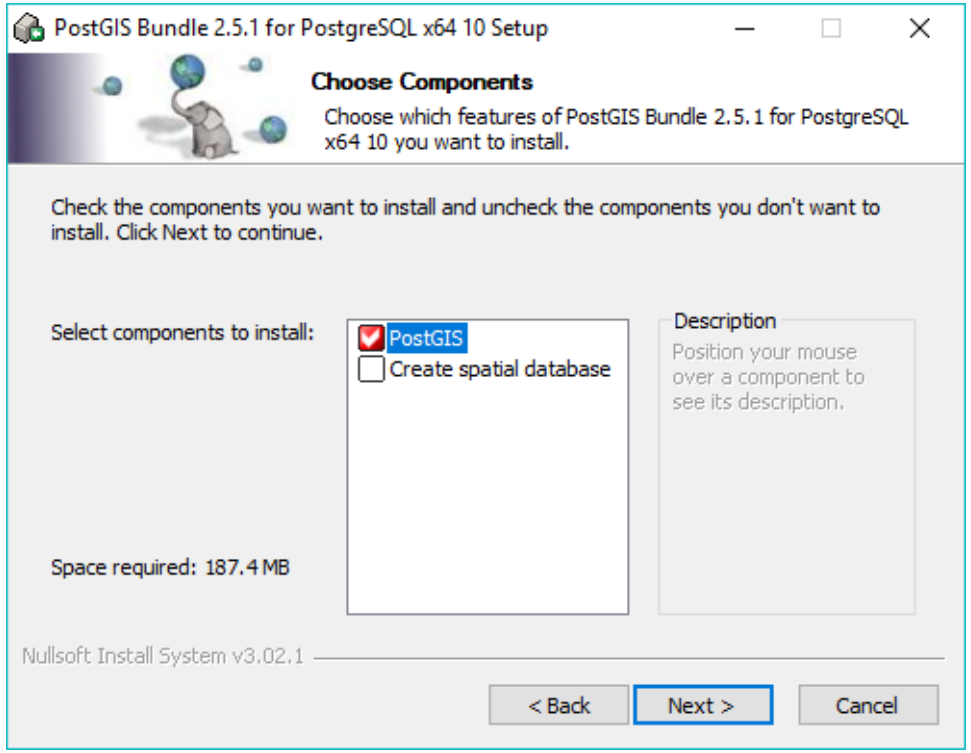
PostGIS installation

PostGIS provides spatial objects for the PostgreSQL database, allowing storage and query of information about location and mapping.

1. To install PostGIS, run “postgis-bundle-pg10x64-setup-2.5.1-1.exe.
   In License Agreement, click “I Agree”.

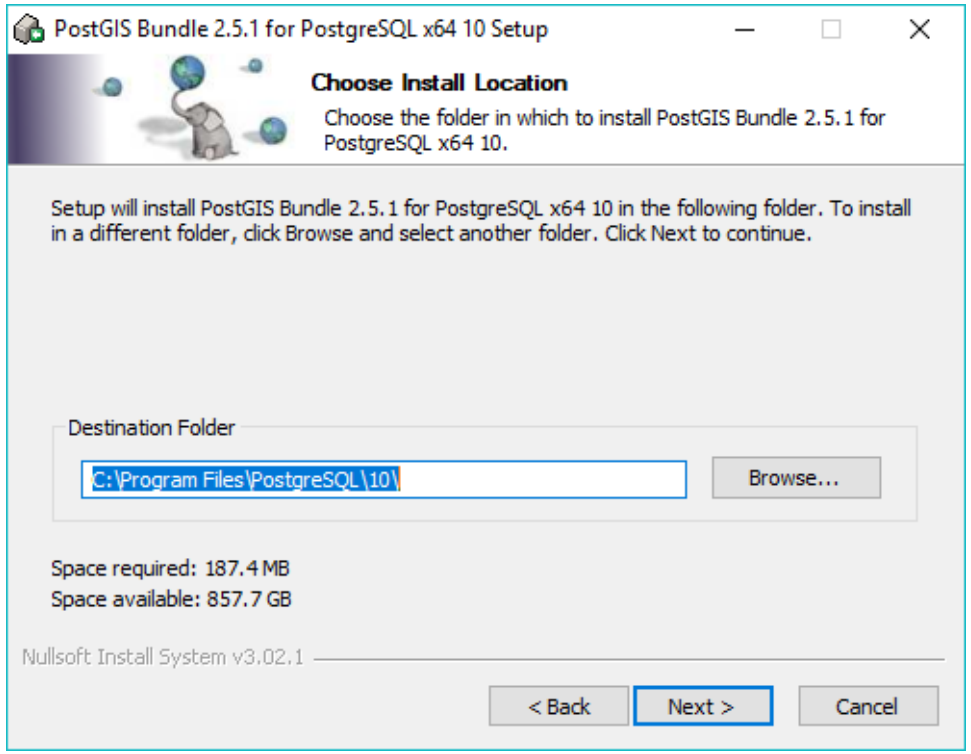


2. In Choose Components, click “Next”.

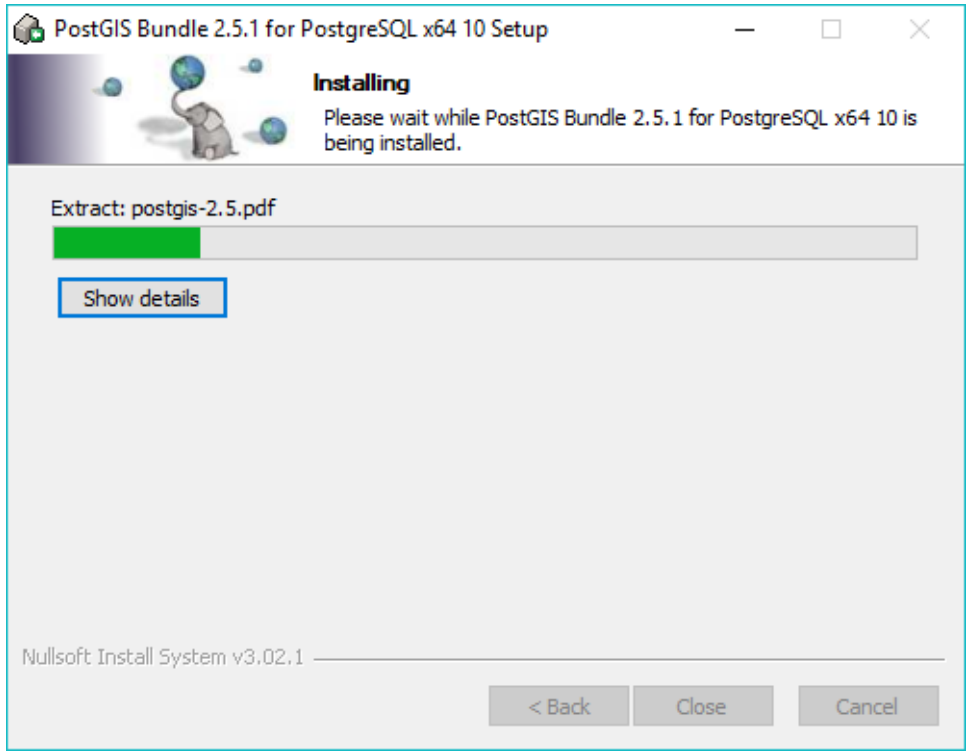


PostGIS installation

3. Choose Install Location, leave the “Destination Folder” as is then click “Next”.

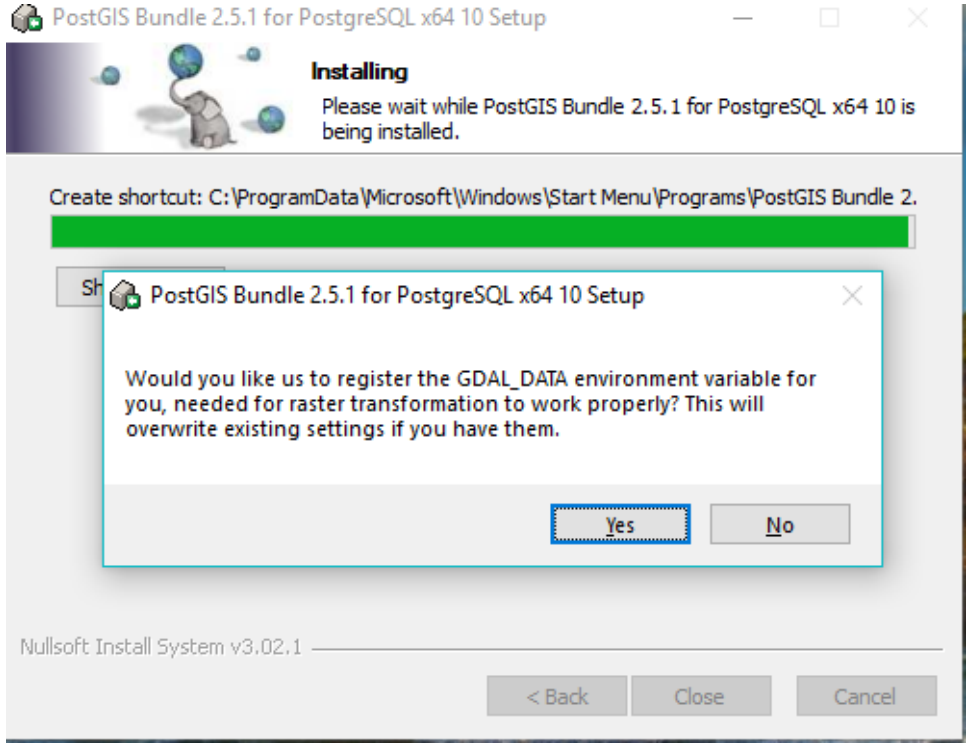


4. PostGIS installation is ongoing, wait until completed.

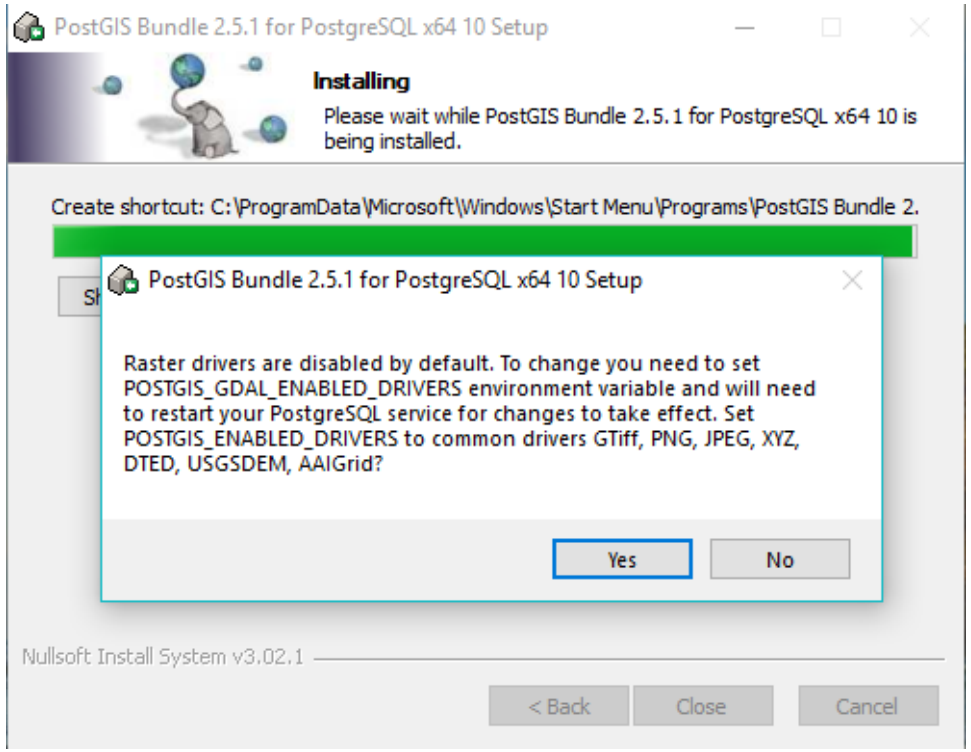


PostGIS installation

5. Click “Yes”

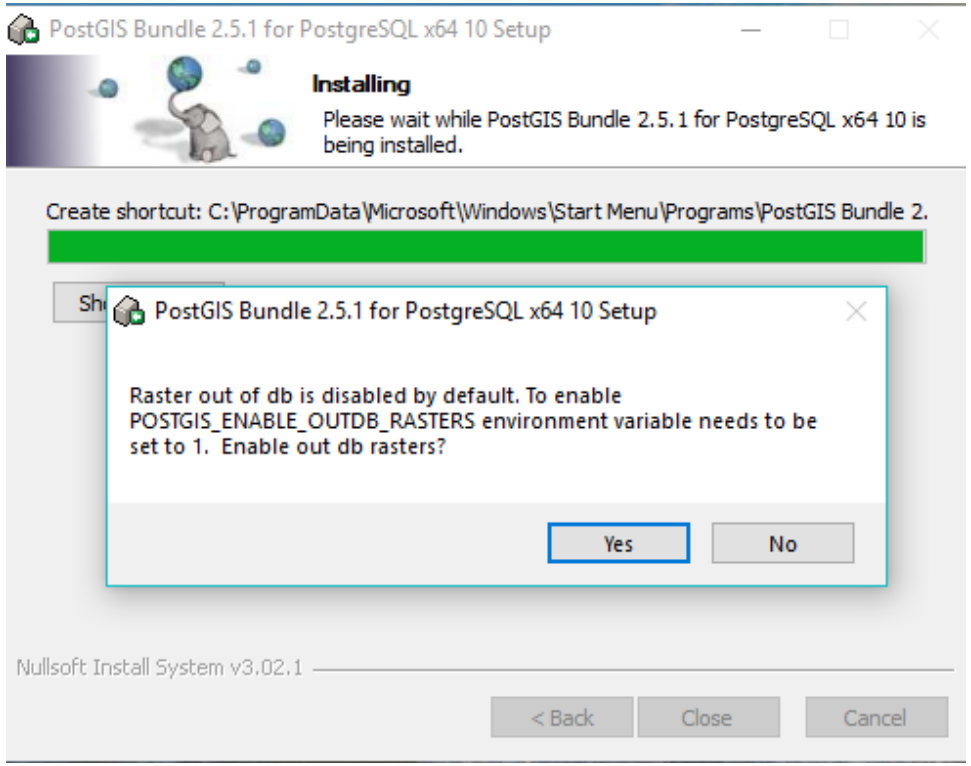


6. Click “Yes”

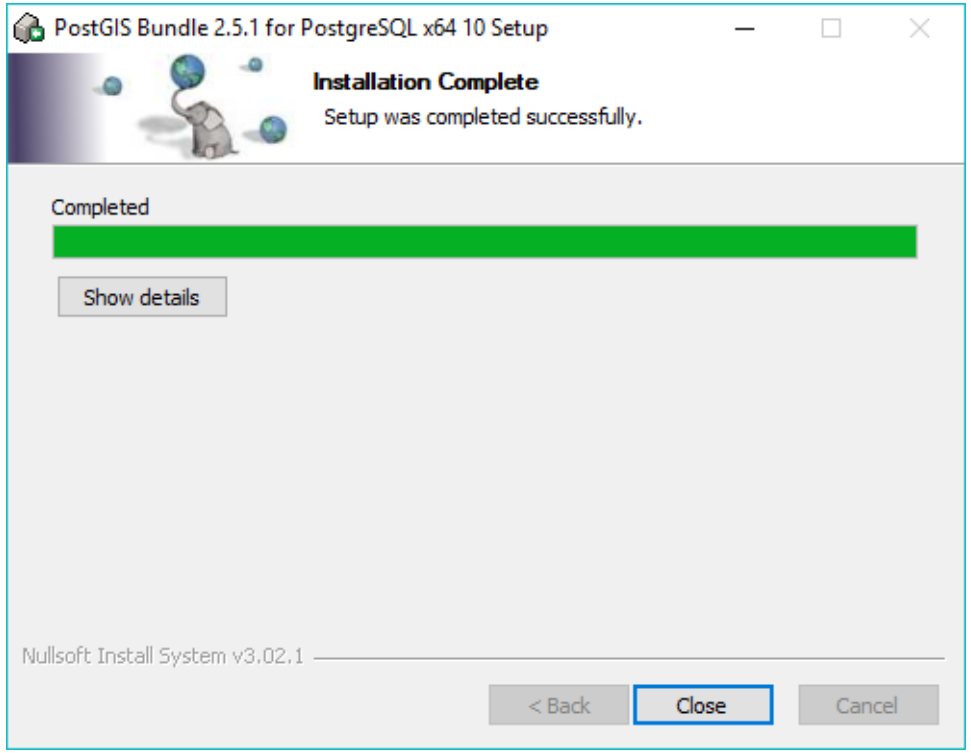


PostGIS installation

7. Click “Yes”

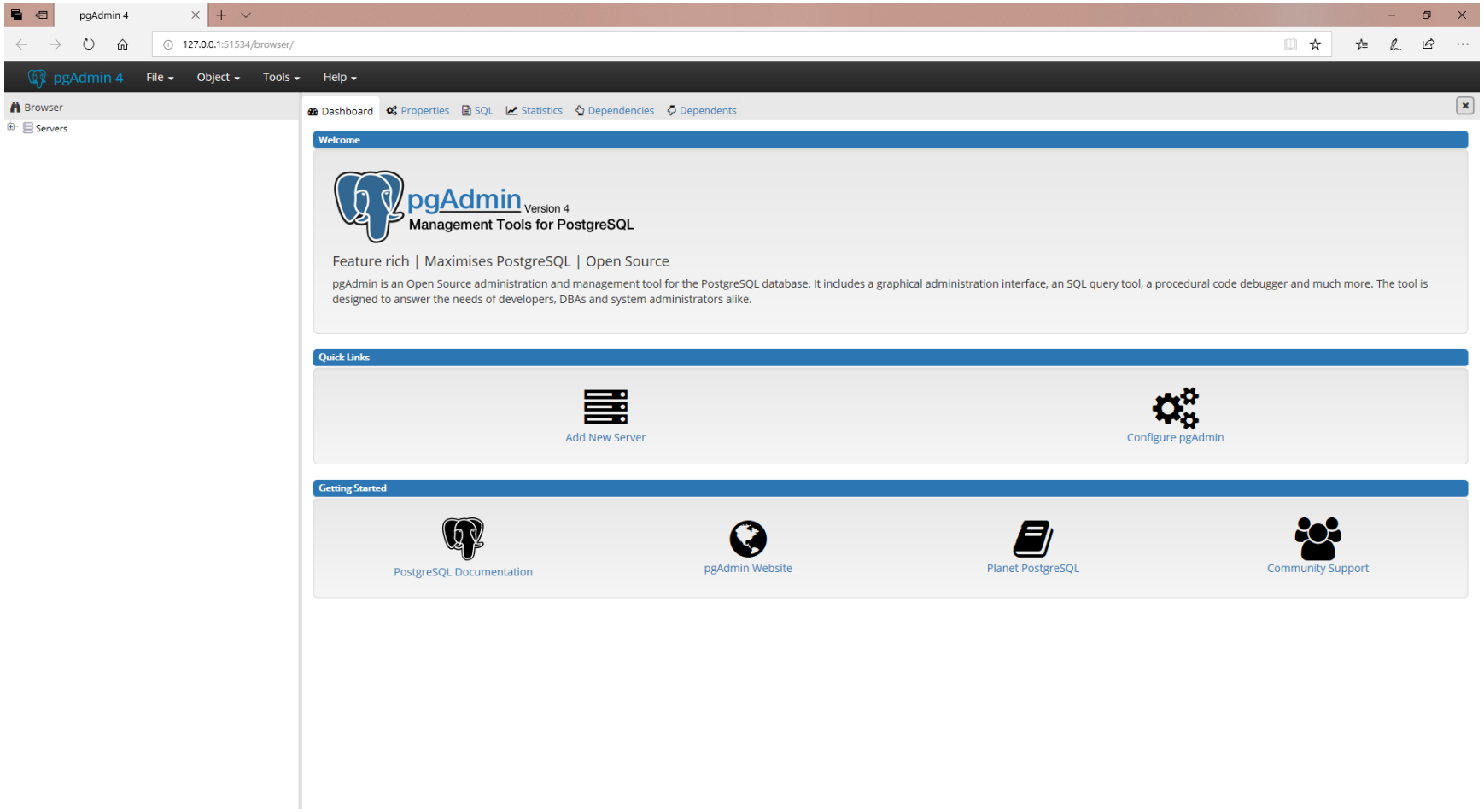


8. Installation complete. Click “Close”.



PostgreSQL interface

Below is the interface of PostgreSQL Management Tools.

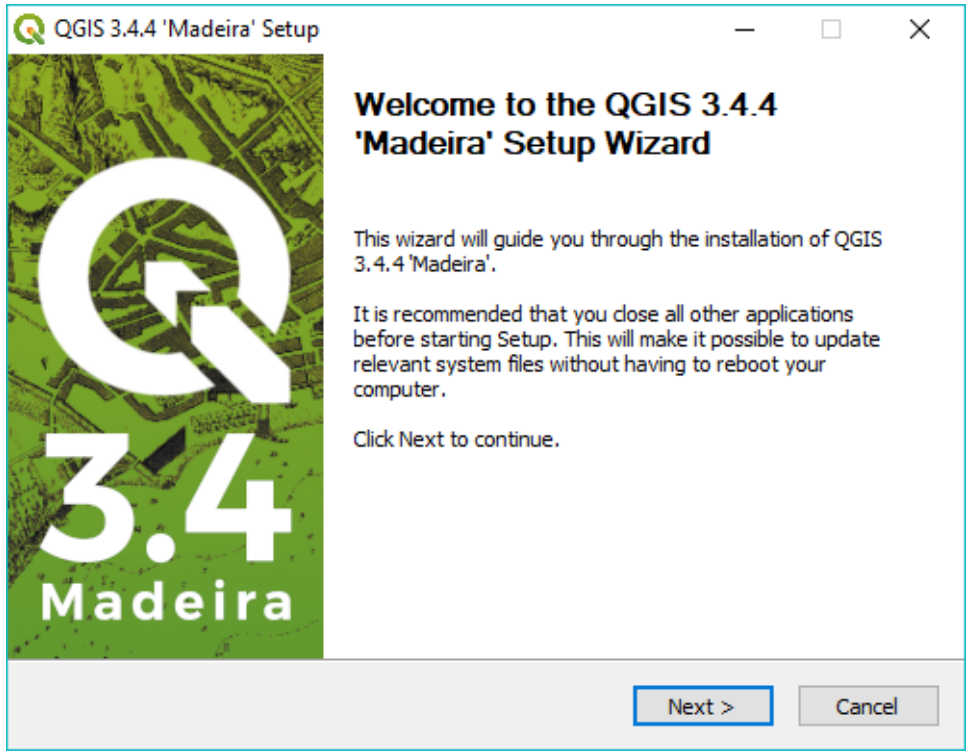


QGIS installation

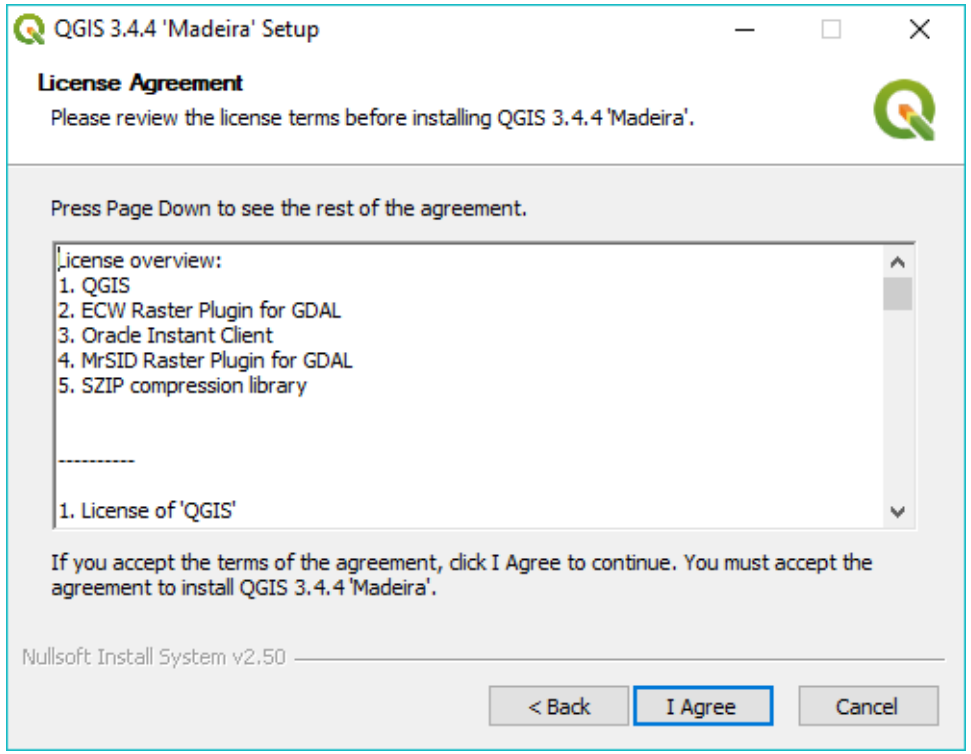
QGIS is a free and open-source cross-platform desktop geographic information system application that supports viewing, editing, and analysis of geospatial data.

For Farmland GIS, QGIS 3.4.4 version will be installed.

1. To install QGIS 3.4.4, run “QGIS-OSGeo4W-3.4.4-1-Setup-x86_64.exe”
   Click “Next”

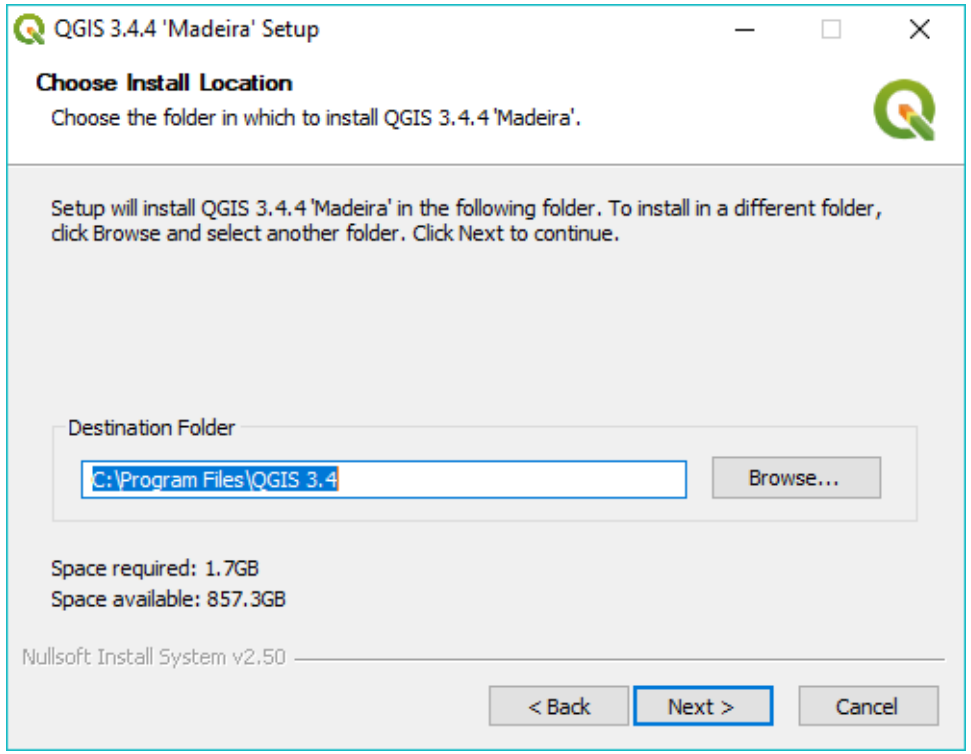


2. Click “I Agree”.

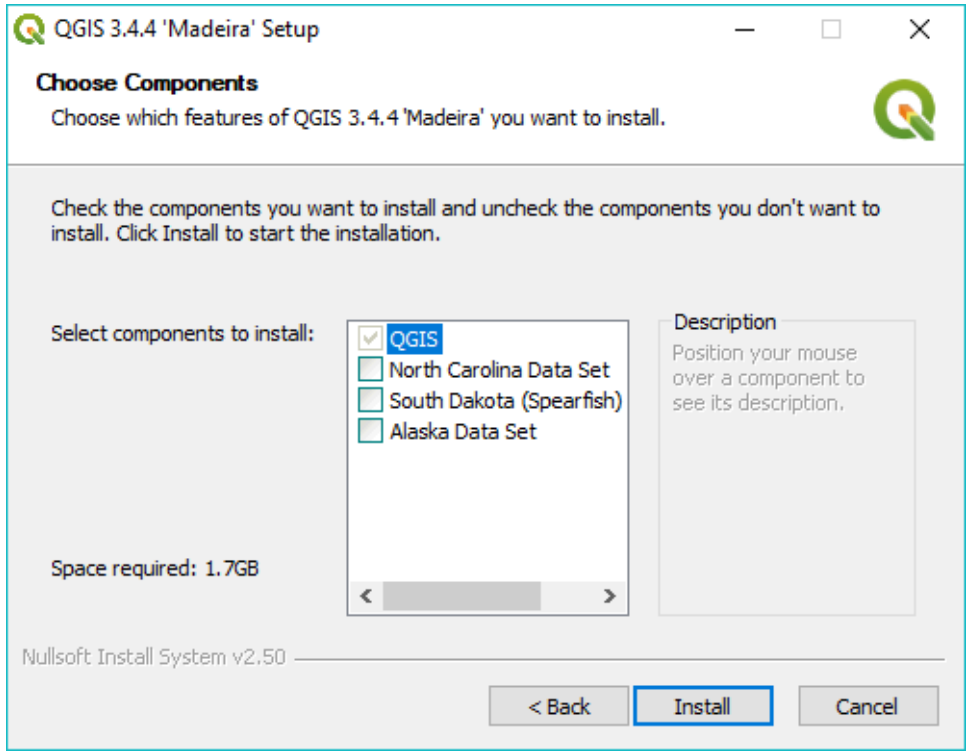


QGIS installation

3. In Choose Install Location, leave the destination folder as is. Click “Next”

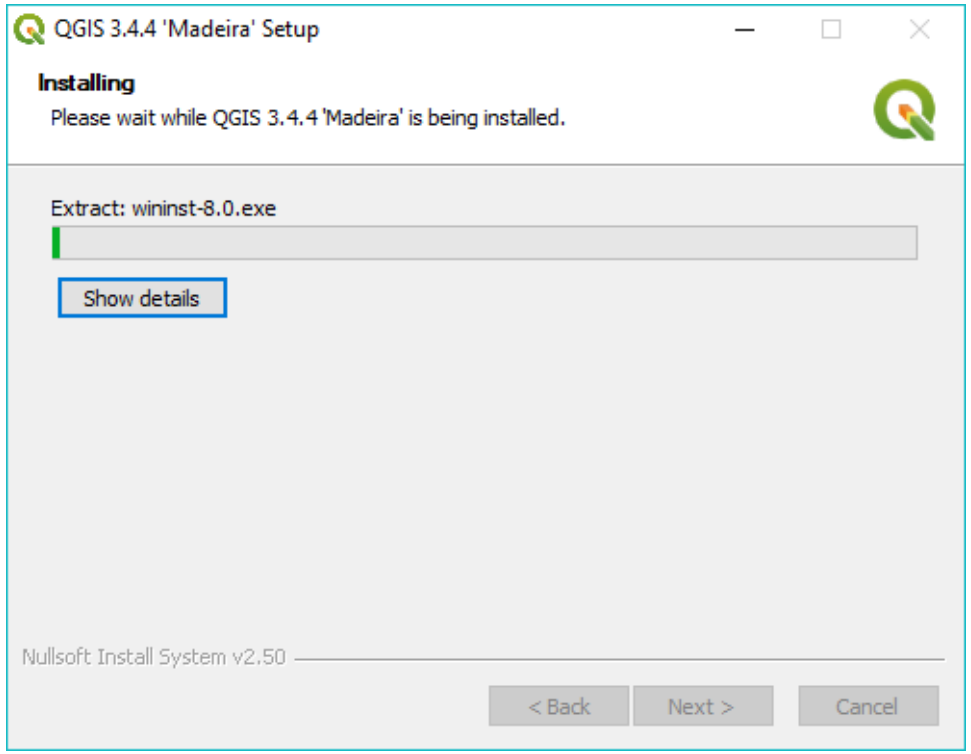


4. In Choose Component, click “Install”.

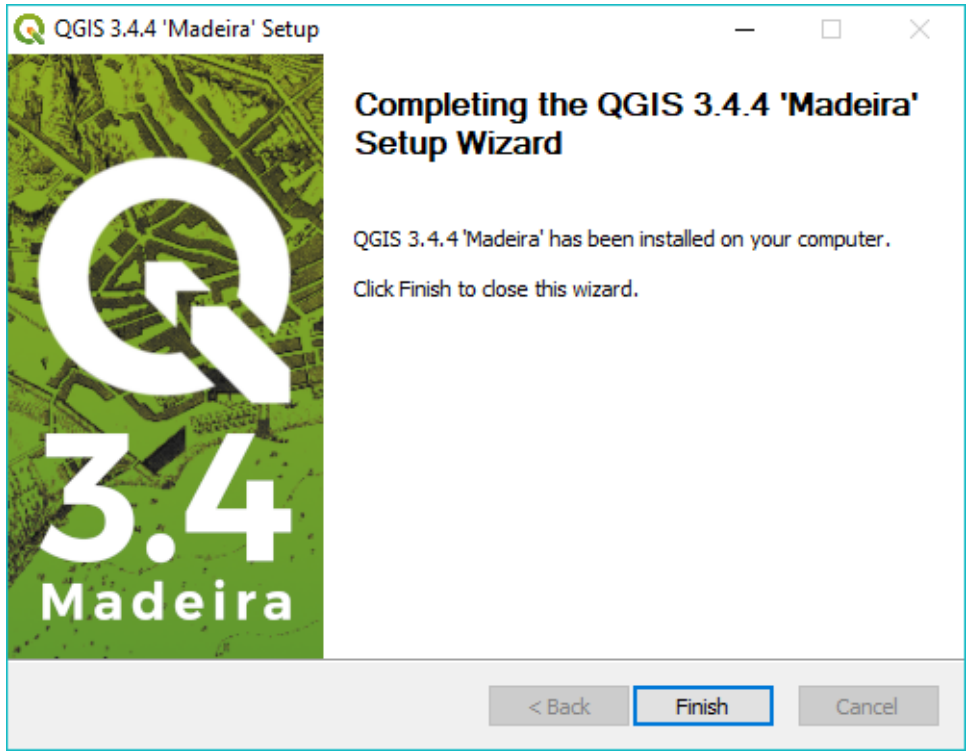


QGIS installation

5. Installation started. Wait until installation is completed.

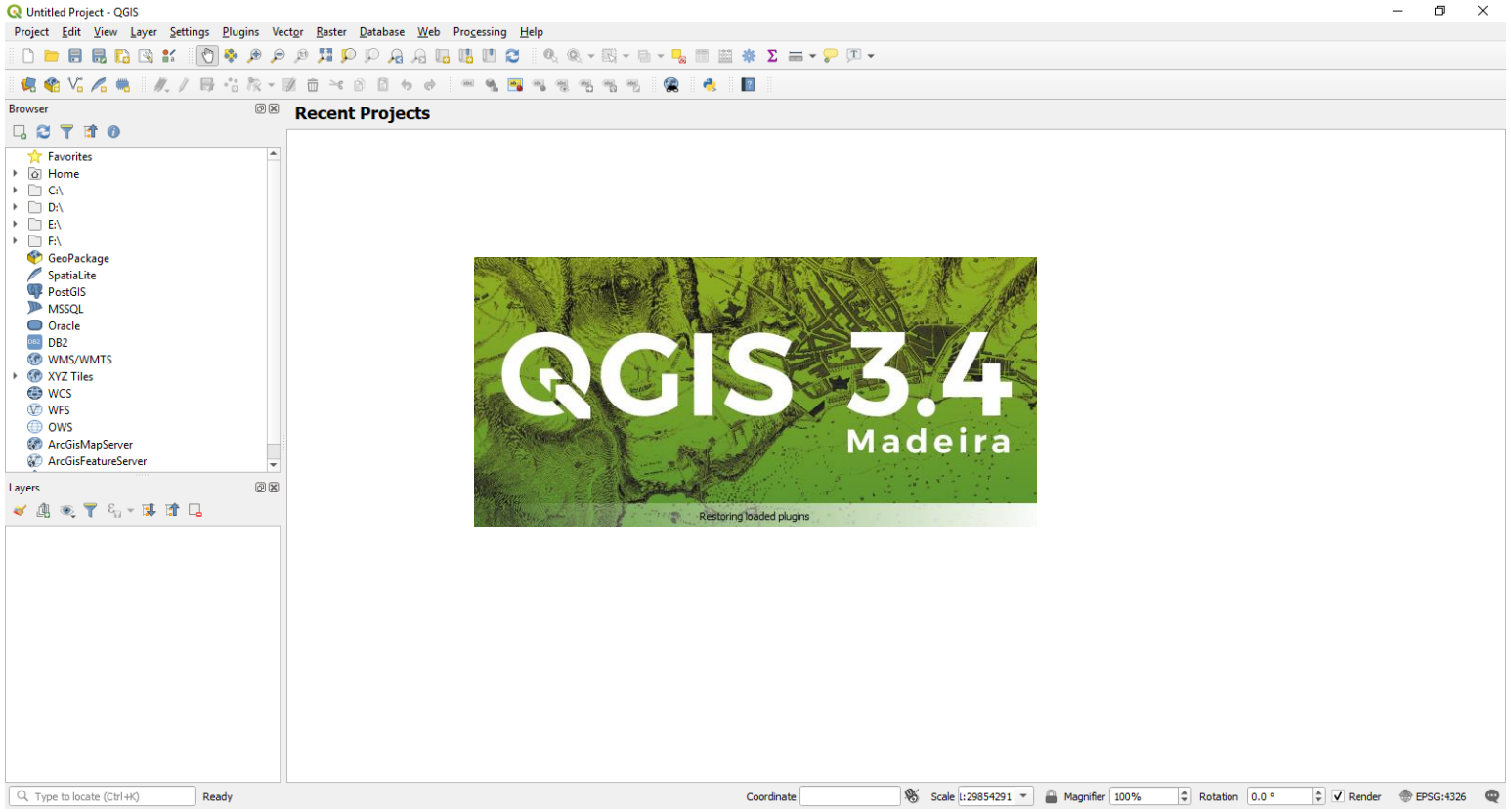


6. Click “Finish”.



QGIS installation

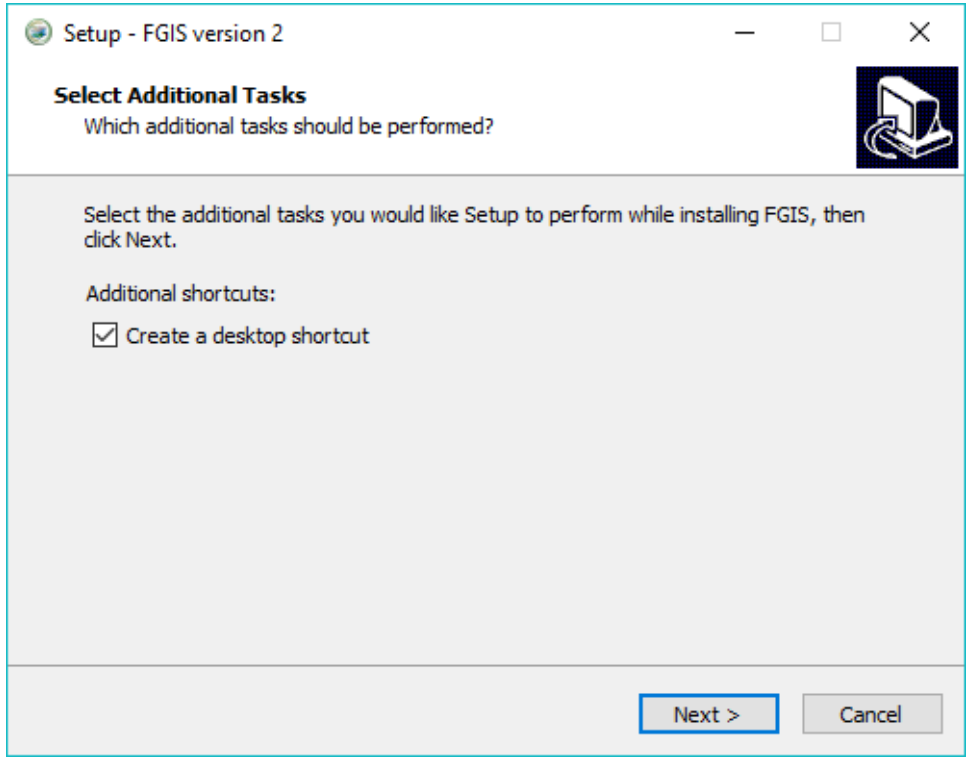
Below is the interface of QGIS 3.4.4



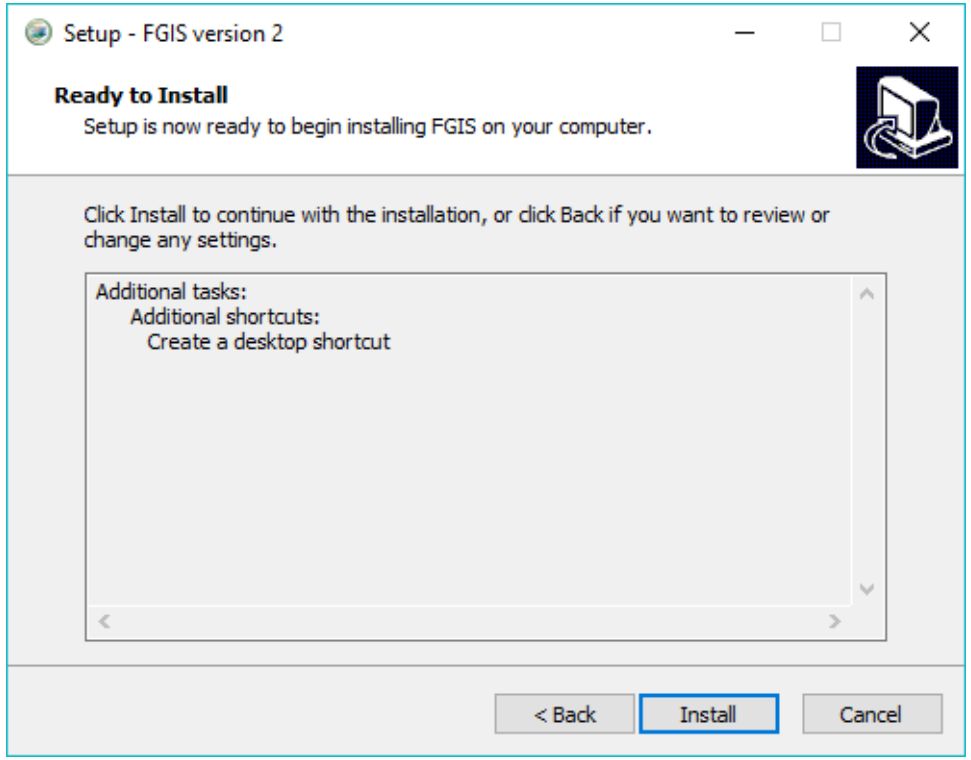
FGIS database module installation

FGIS database module, is for managing farmer's information.

1. To install, run "fgis_setup.exe". Click "Next".

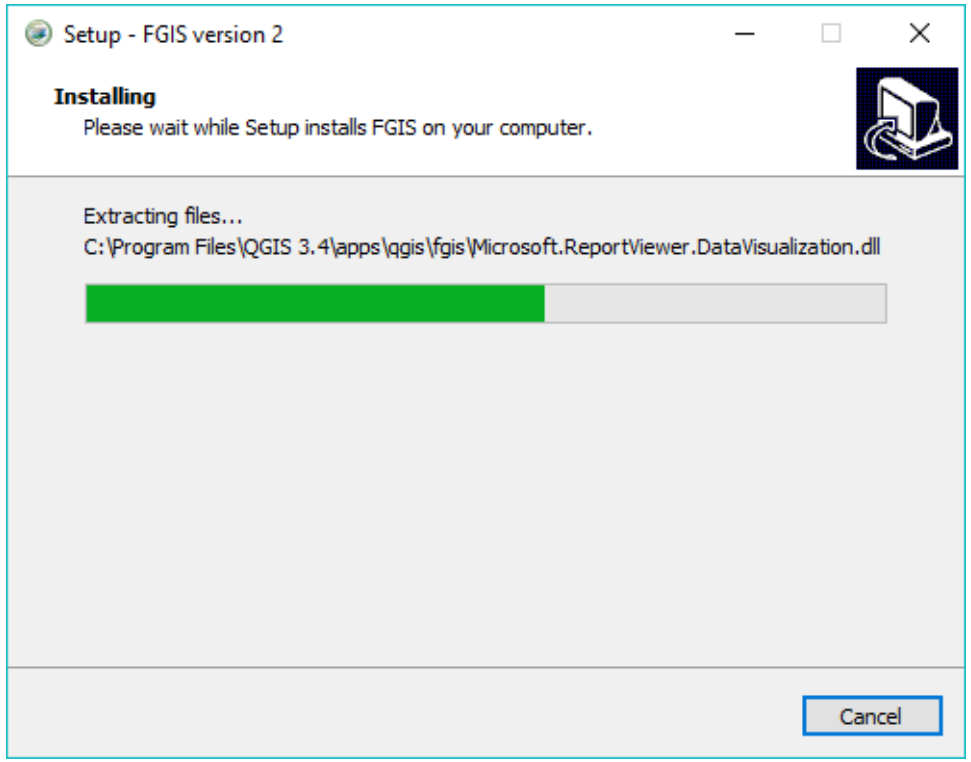


2. Click "Install".

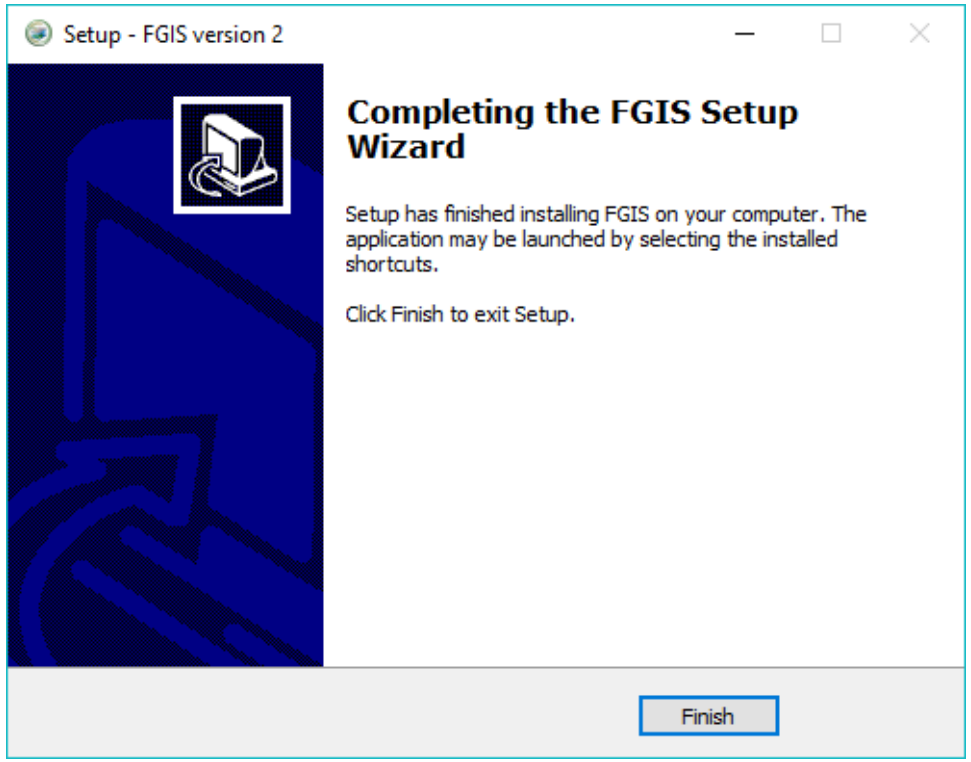


FGIS database module installation

3. Installation in progress. Wait until completed.

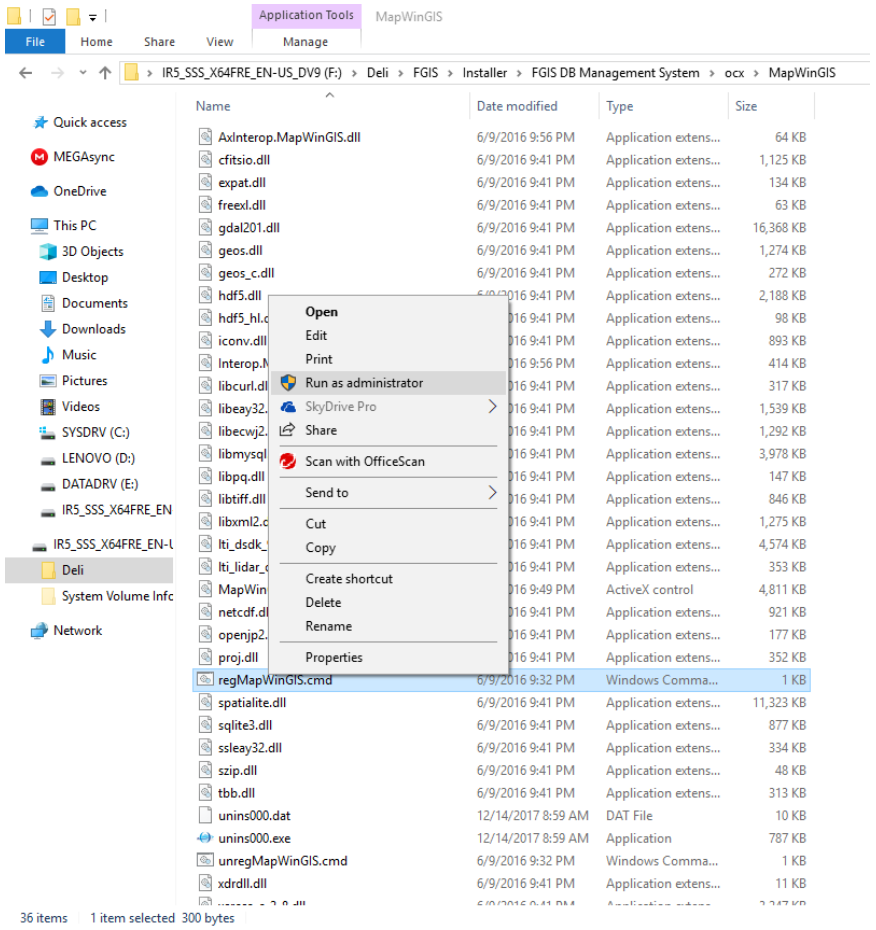


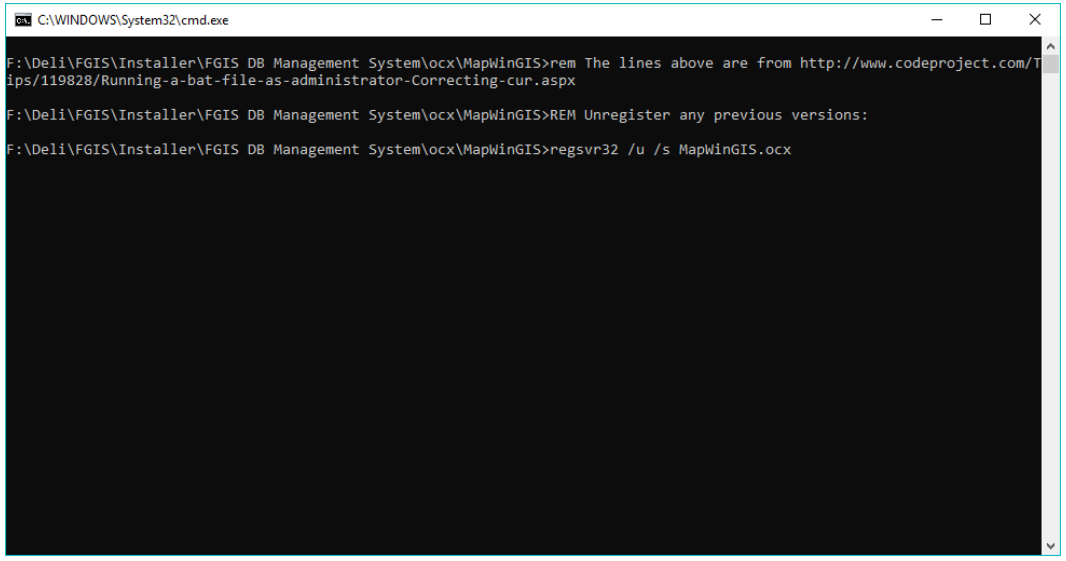
4. Click “Finish” after the installation is completed.



FGIS database module installation

5. Register “MapWinGIS.ocx. The ocx is a component for displaying map information.
   To register the component, right-click “regMapWinGIS.cmd” from \Installer\FGIS DB Management System\ocx\MapWinGIS directory and then click “Run as administrator”.





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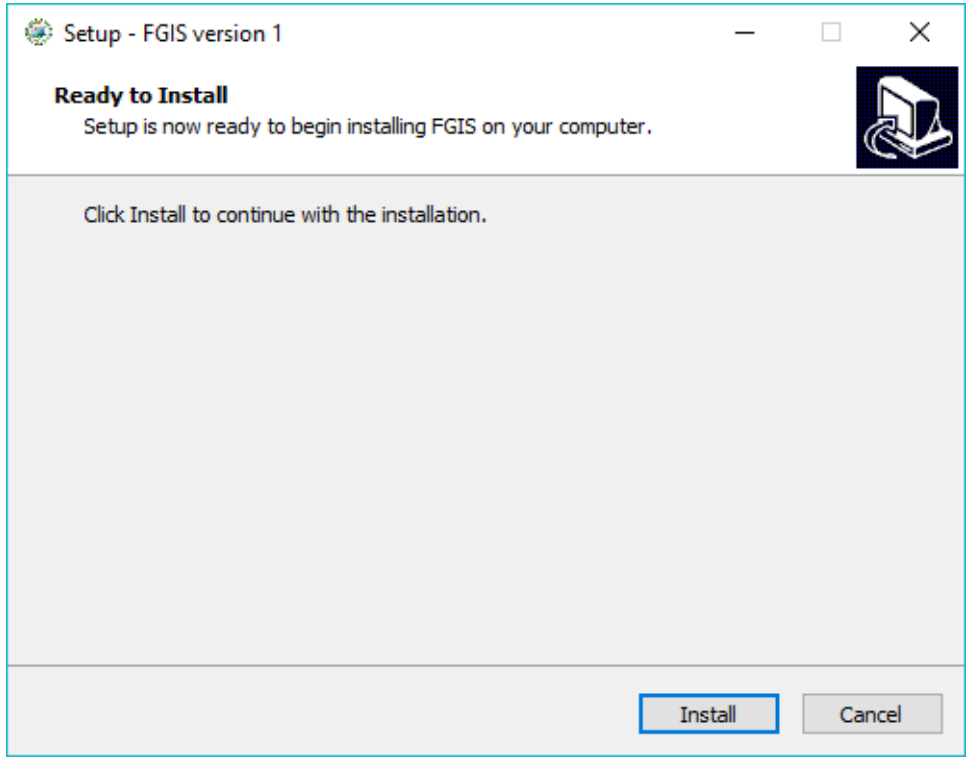
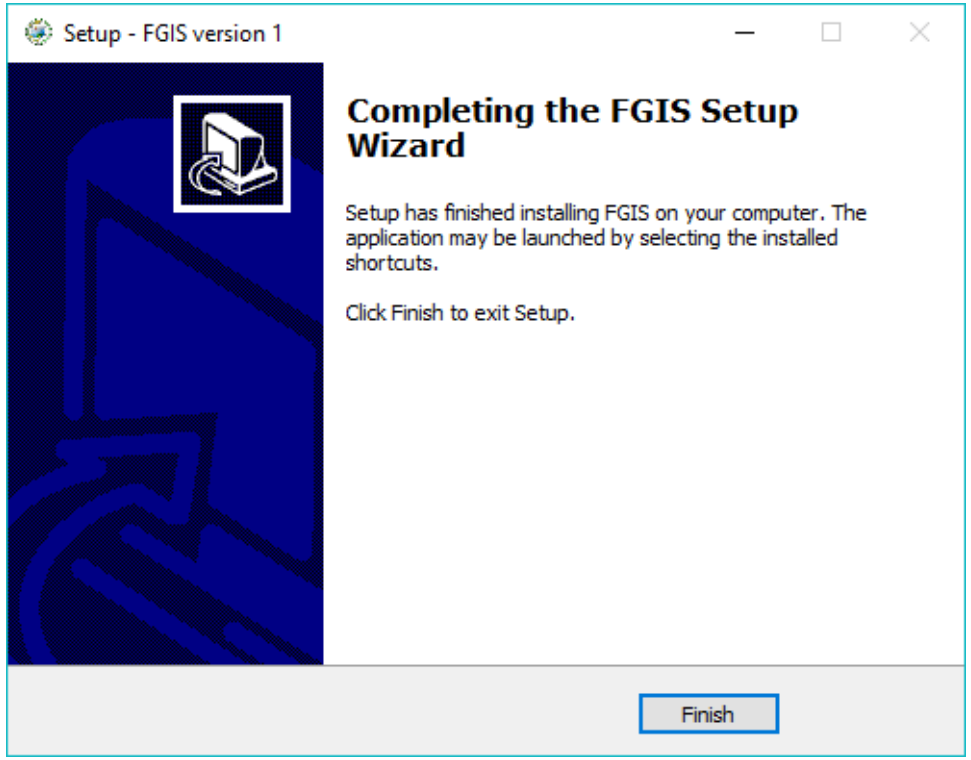
FGIS mapping module installation (QGIS)

FGIS mapping module are customized tools or plugin for QGIS.

1. To install the plugins, run “qgis_setup.exe from \Installer\QGIS 3.4 Plugins directory. Click “Install” to start the installation.

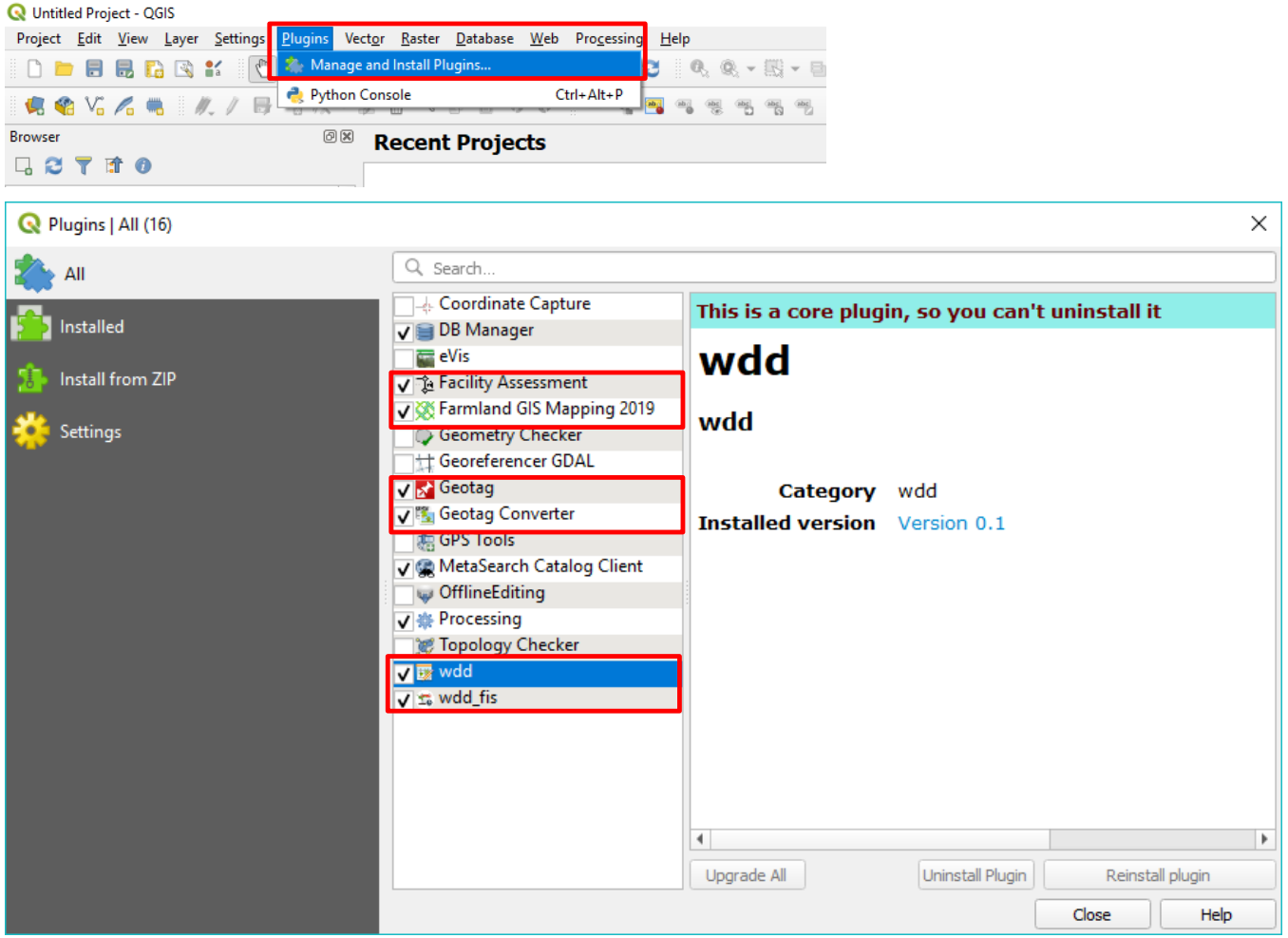


2. Click “Finish”.



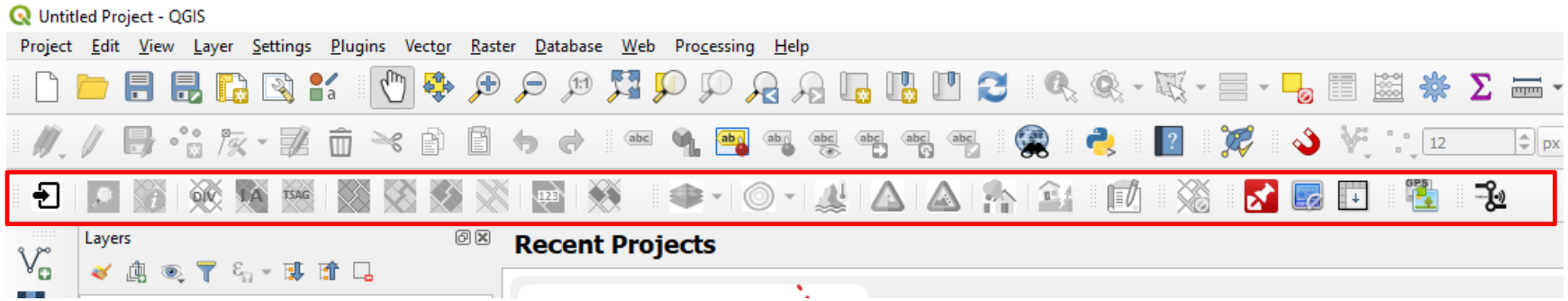
FGIS mapping module installation (QGIS)

3. Install plugins in QGIS
   a. To load the plugins, open QGIS 3.4.
   b. In “Plugins” menu, click “Manage and Install Plugins…”.
   c. In “Plugins” interface, mark the following plugins
      c.1. “Facility Assessment”
      c.2. “Farmland GIS Mapping 2019”
      c.3. “Geotag”
      c.4. “Geotag Converter”
      c.5. “wdd”
      c.6. “wdd_fis”
   d. Click “Close”



FGIS mapping module installation (QGIS)

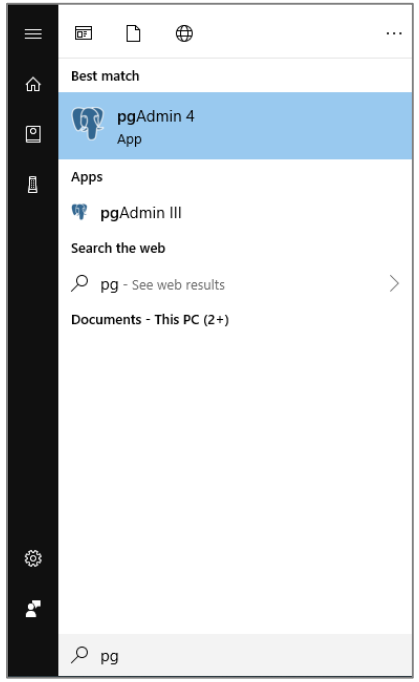
4. After installation, the plugins toolbars should be visible in QGIS toolbars.



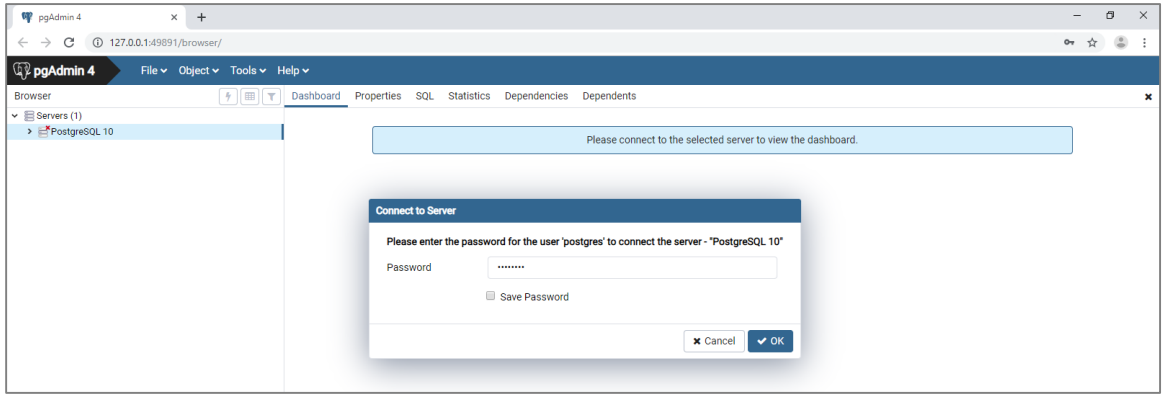
Restore FGIS database

Part of FGIS configuration is the restoration of pre-processed backup files needed by the system to run. The following are backup files need to restore in PostgreSQL database server (1) settings.backup, (2) riskmap.backup and (3) <RIS>.backup

1. To restore the backup files, open “pgAdmin 4” Management tools

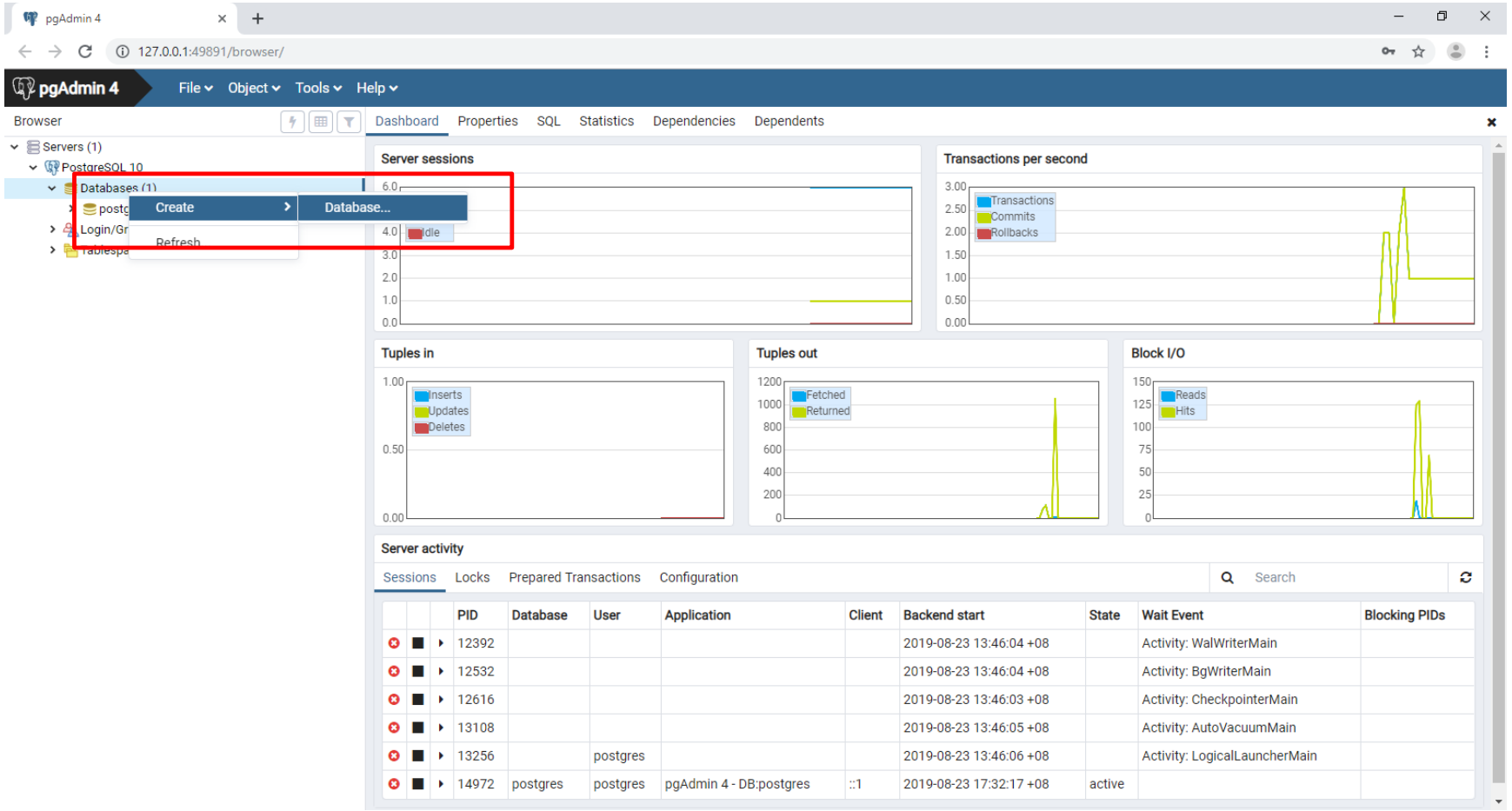


2. Login to PostgreSQL server. Specify the password assigned during the installation PostgreSQL.



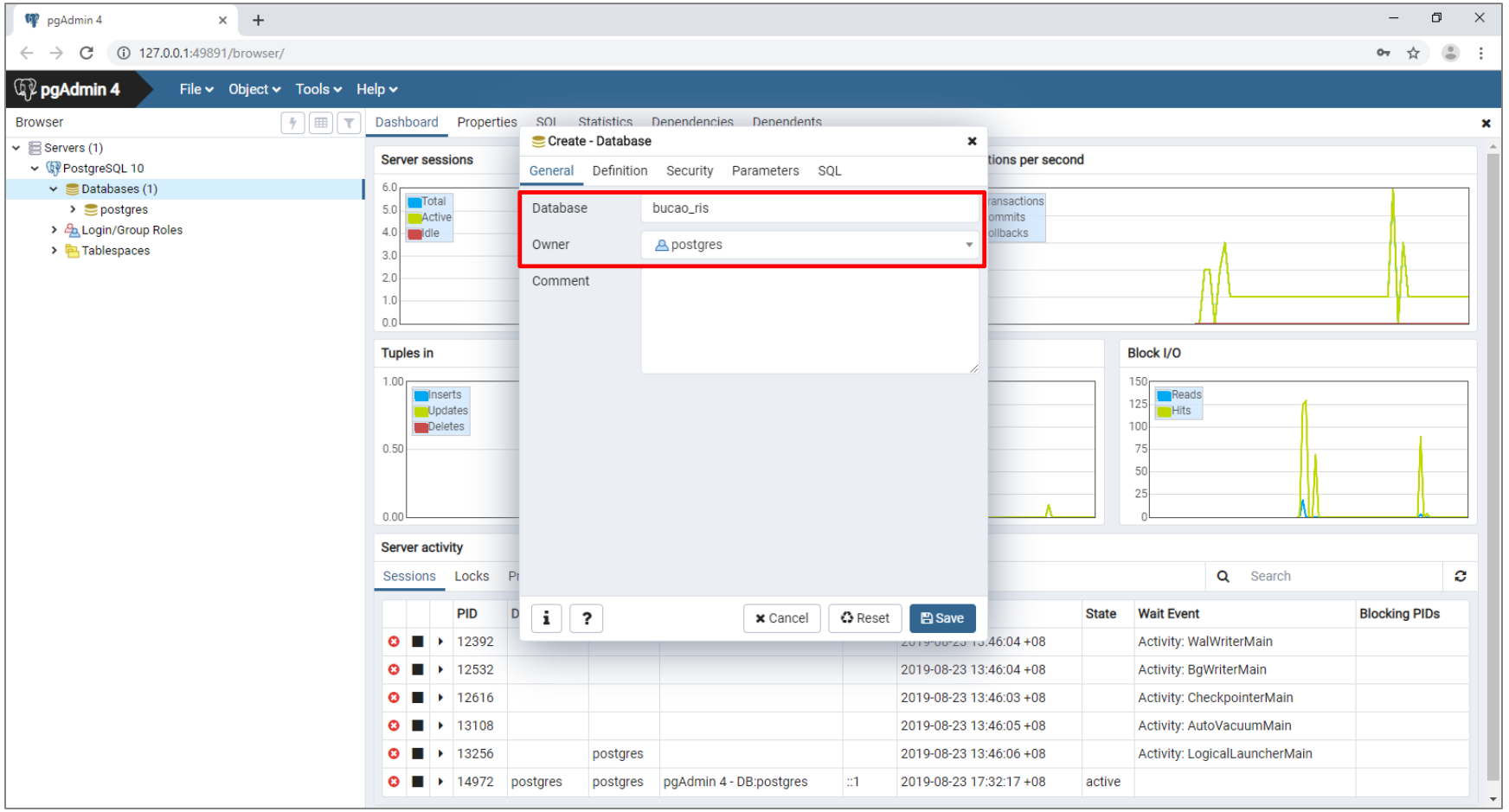
Restore FGIS database

3. Create a Database where the backup will be saved. To create a database, right-click “Databases” on the left panel of the pgAdmin 4 interface.



Restore FGIS database

4. In Create - Database interface, specify database name in “General” tab, for this sample specify the RIS name. Set the Owner to “postgres”. Click “Save”.



Restore FGIS database

5. In Restore (Database) interface,

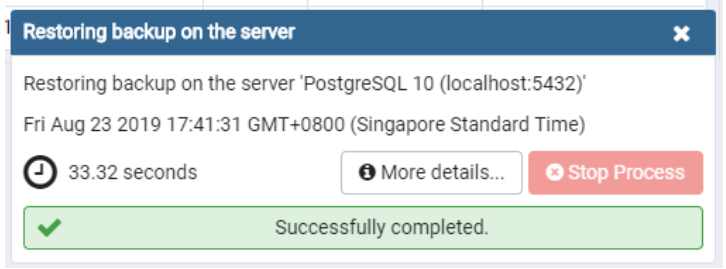
   a. set Format to “Custom or tar”

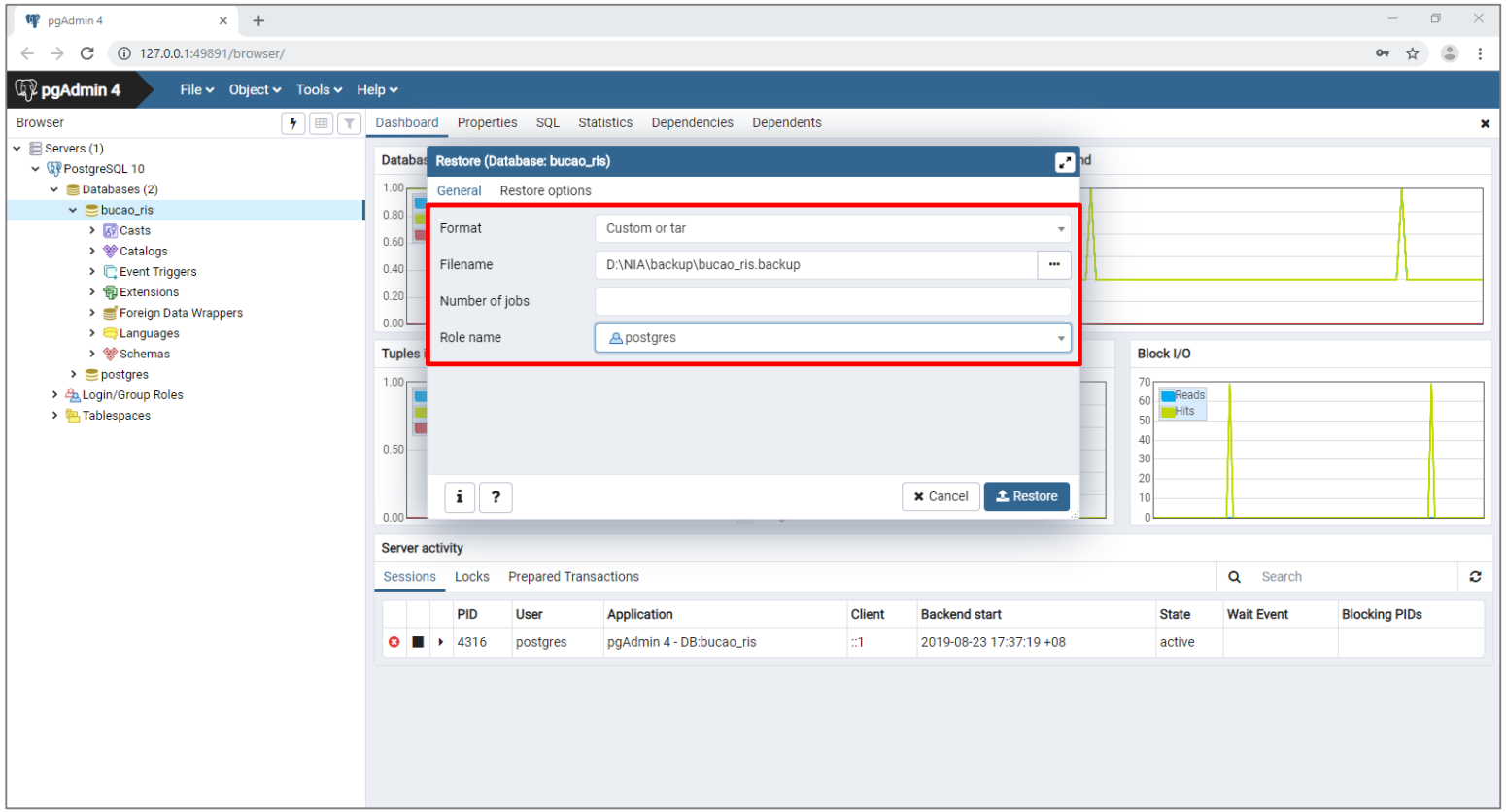
   b. Browse or open the backup file to restore.
      For this sample the ris backup file.

   c. Set the role name “postgres”.

   d. Click “Restore”.

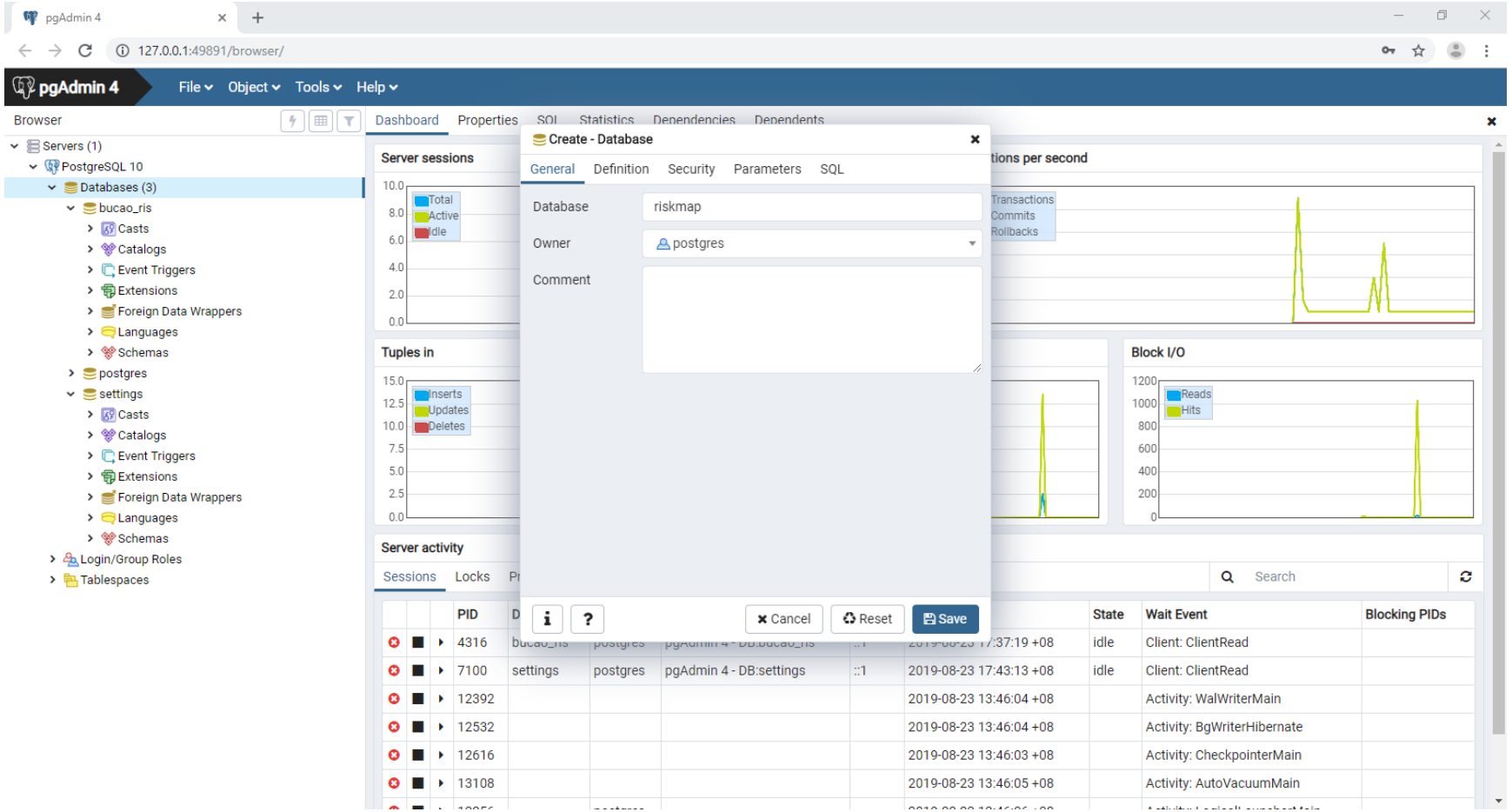
A notification will appear if the process was successful or failed restoration.





Restore FGIS database

6. To restore the “riskmap” backup. Repeat step 3 – 5. Input “riskmap” in database name.



Restore FGIS database

7. To restore the “settings” backup. Repeat step 3 – 5. Input “settings” in database name.