INSTALLATION MANUAL POSTGRESQL 16

DOCUMENT VERSION 2. 05

Introduction

Photo Supreme is “Digital Asset Management” software. Photo Supreme makes it possible to manage your image files by categorizing them. It will categorize the files based on the available details of the file, this includes technical photo details, but also the location of the file on disk, etc. Apart from those properties you can add tags to the images, enrich the files with descriptions, or add custom information. This may sound like a very time-consuming task, but once you have worked yourself through that, you will benefit from the many advantages. With Photo Supreme at hand, you will be able to quickly retrieve your images using all kinds of criteria or combinations.

The PostgreSQL version of Photo Supreme is available for Windows as well as macOS platforms. As its name suggests, this version uses the popular open-source database system PostgreSQL. PostgreSQL is a free and open-source object-relational database management system with an emphasis on extensibility and standards-compliance. A database server its primary function is to store data, securely and supporting best practices, and retrieve it later, as requested by other software applications, be it those on the same computer or those running on another computer across a network (including the Internet). It can handle workloads ranging from small single-machine applications to large Internet-facing applications with many concurrent users. Recent versions also provide replication of the database itself for security and scalability. *[source: Wikipedia]*

This manual describes how to install and configure the PostgreSQL database.
This manual also describes how to get Photo Supreme up and running with an existing instance of PostgreSQL. To install Photo Supreme on an existing PostgreSQL instance, it is required that full access to the PostgreSQL instance is available to you and that PostgreSQL is installed and configured following the instructions in this document. It will not be possible to install Photo Supreme on a PostgreSQL instance for which you do not have full authorization/access.

Note that there is no “one configuration fits all” possibility. Hence, the configuration settings in this manual are indicative and can be tailored to the specific needs for the hardware that runs PostgreSQL on.

Installing PostgreSQL

If you are new to PostgreSQL or when you are installing a completely new PostgreSQL installation, then you can use these guidelines. This document explains how to install PostgreSQL version 16.x and how to configure the installation for running Photo Supreme. The installation of PostgreSQL is straight forward and doable for novice, as well as skilled computer users.

In general, when installing PostgreSQL for use with Photo Supreme then you must make sure that remote connections are enabled. When you are planning to install PostgreSQL on a separate (server) configuration then also take note that you must configure the server’s firewall software to allow access over the PostgreSQL TCP/IP port (default 5432) and grant connections to the pg_ctl.exe program (Windows).

This document assumes that you have downloaded the full version of the PostgreSQL software. Photo Supreme is tested with 12.0, 13.1, 14.3, 15.1, and 16,1 but should work with every 12.x, 13.x, 14.x, 15.x, and 16.x version. The PostgreSQL software can be downloaded here.

https://www.postgresql.org/download/

After downloading the PostgreSQL setup package, you are ready to install it. When you install the software then use the standard settings. When prompted for a PostgreSQL Data Folder then it is recommended to point to a folder outside of the PostgreSQL installation folder. That will make it easier to include that folder in your backup.
You'll be prompted to enter the super user password. Make sure that you write this password down as you'll need it in the future. Also write down what your PostgreSQL data folder is.

Antivirus Software

If you have any antivirus software installed, you **must** exclude the data directories that are to be used by PostgreSQL and **must** exclude postgresql.exe process.

Antivirus software can interfere with PostgreSQL's operation, because PostgreSQL requires file access commands in Windows to behave exactly as documented by Microsoft, and many antivirus programs contain errors or accidental behavior changes that cause these commands to misbehave subtly. Most programs do not care because they access files in simple ways. Because PostgreSQL is continuously reading from and writing to the same set of files from multiple processes, it tends to trigger programming and design mistakes in antivirus software, particularly problems related to concurrency. Such problems can cause random and unpredictable errors, or even data corruption.

Antivirus software is also likely to dramatically slow down PostgreSQL's operation. For that reason, you should at least exclude postgres.exe and the data directories so the scanner ignores them.

Configuring PostgreSQL

After you have installed the software, it is required that you make a small change to allow remote connections (connections from other computers to the database). To do so we need to customize the file **pg_hba.conf**. This file is stored in your data folder as configured during installation.
Open this file in any text editor (on Windows for example with Notepad, on macOS you can use TextEdit).

Start your text editor and load the **pg_hba.conf** file from the configured data folder.

Find the IPv4 entry for:
host all all 127.0.0.1/32 scram-sha-256
And find the IPv6 entry for:
host all all ::1/128 scram-sha-256

Configure this block as below to allow TCP/IP connections from other machines.

```
# TYPE  DATABASE        USER            ADDRESS                 METHOD

# "local" is for Unix domain socket connections only
local   all             all                                     scram-sha-256
# IPv4 local connections:
host    all             all             127.0.0.1/0             scram-sha-256
# IPv6 local connections:
host    all             all             ::1/0                   scram-sha-256
# Allow replication connections from localhost, by a user with the
# replication privilege.
local   replication     all                                     scram-sha-256
host    replication     all             127.0.0.1/32            scram-sha-256
host    replication     all             ::1/128                 scram-sha-256
```

After making the change, save your **pg_hba.conf** file and restart the computer for the changes to go into effect.

NOTE: When you are planning to connect to PostgreSQL on a separate (server) then you must configure the server's firewall software to allow access to the PostgreSQL TCP/IP port (default 5432) and grant connections to the pg_ctl.exe program (Windows).

Optional PostgreSQL performance configuration

In the light of modern computer hardware, the default PostgreSQL settings are very conservative. It's recommended to make some changes to gain additional performance. To do so, we'll need to customize the **postgresql.conf** file. This file is stored in your data folder as configured during installation.
Open this file in any text editor (on Windows for example with Notepad, on macOS you can use TextEdit).

Start your text editor and load the **postgresql.conf** file from the configured data folder.

Some of the performance recommendations depend on your hardware configuration.

max_connections

Find the configuration setting for max_connections. Make sure that it is enabled (remove any leading # character before the name).

Set max_connections to a value, about 25 times the number of concurrent Photo Supreme users that you plan to use this database. E.g., if 5 users will use Photo Supreme concurrently then set it to a value of 125 or higher. If, for some reason, you run into the database error "**Too many clients already**" while using Photo Supreme then bump up this value.

```
#------------------------------------------------------------------------------
# CONNECTIONS AND AUTHENTICATION
#------------------------------------------------------------------------------

# - Connection Settings -

listen_addresses = '*'      # what IP address(es) to listen on;
                    # comma-separated list of addresses;
                    # defaults to 'localhost'; use '*' for all
                    # (change requires restart)
port = 5432             # (change requires restart)
max_connections = 100           # (change requires restart)
#superuser_reserved_connections = 3 # (change requires restart)
#unix_socket_directories = ''   # comma-separated list of directories
                    # (change requires restart)
#unix_socket_group = ''         # (change requires restart)
#unix_socket_permissions = 0777     # begin with 0 to use octal notation
                    # (change requires restart)
#bonjour = off              # advertise server via Bonjour
                    # (change requires restart)
#bonjour_name = ''          # defaults to the computer name
                    # (change requires restart)
```

shared_buffers

Find the configuration setting for shared_buffers. Make sure that it is enabled (remove any leading # character before the name).

Set shared_buffers to a value, about 25% of the internal memory of the server hardware. E.g., if your server holds 8GB of internal memory then set it to a value of 2048MB.

effective_cache_size

Find the configuration setting for effective_cache_size. Make sure that it is enabled (remove any leading # character before the name).

Set effective_cache_size to a value, about 50% of the internal memory of the server hardware. E.g., if your server holds 8GB of internal memory then set it to a value of 4GB.

work_mem

Find the configuration setting for work_mem. Make sure that it is enabled (remove any leading # character before the name).

Set work_mem to 32MB. This setting is a per-operation setting so don't push the limits.

maintenance_work_mem

Find the configuration setting for maintenance_work_mem. Make sure that it is enabled (remove any leading # character before the name).

Set maintenance_work_mem to 512MB.

These are all recommended changes to make. Save the changes with the Save button in the toolbar. Then, to reload the changed configuration in PostgreSQL, click the run button to reload the changed configuration.

cpu_tuple_cost

Find the configuration setting for cpu_tuple_cost. Make sure that it is enabled (remove any leading # character before the name).

Set cpu_tuple_cost to 0.03.

After making the change, save your **postgresql.conf** file and restart the computer for the changes to go into effect.

Restart the PostgreSQL service

In general, the easiest way to restart the PostgreSQL service is by rebooting the machine on which you have installed PostgreSQL.
It is highly recommended that you reboot instead of following the manual instructions below.

If you prefer to start the service manually then follow these instructions:

For Windows

On Windows, you can restart the PostgreSQL service from the Services.

1. Open the Control Panel
2. Search the Control Panel for the text “Services” (enter this without quotes in the search box on top)
3. Start the Administrative Tools -> View Local Services
4. Find the postgresql service in the list (on mine it is called postgresql-x64-13)
5. Right click on the service and select “Restart”

For macOS

On macOS you can restart the PostgreSQL service from Terminal

1. Start Terminal
2. Enter sudo –s
3. Enter your OSX administrator password.
4. Stop the service (replace the last two number of the version number with the one that you installed):

```
launchctl stop com.edb.launchd.postgresql-14
```

5. Start the service (replace the last two number of the version number with the one that you installed):

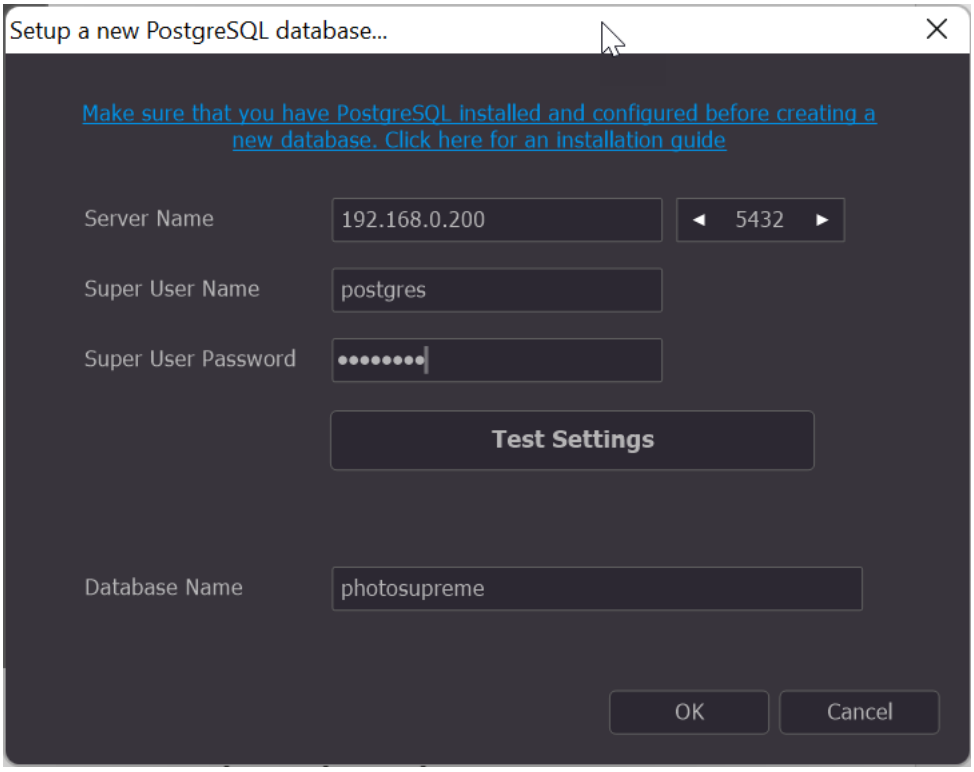
   launchctl start com.edb.launchd.postgresql-14

Installing Photo Supreme for PostgreSQL

Now that you have installed and configured PostgreSQL, you're ready to install Photo Supreme. If you already had PostgreSQL installed before installing it for Photo Supreme, then please read the chapter above and make sure that your database is configured correctly.

Download the software from our website https://www.idimager.com/ and double click the downloaded setup package. That starts the installation process. The installation process is straight forward, so nothing special there. At the end of the installation, you can launch Photo Supreme.

Since this is the first time that you run Photo Supreme for PostgreSQL, it will ask you to setup a new catalog for Photo Supreme. If you do not get the dialog below then try starting Photo Supreme while holding down the Ctrl+Alt+Win (Windows) orCtrl+Opt+Cmd (macOS) keyboard combination.

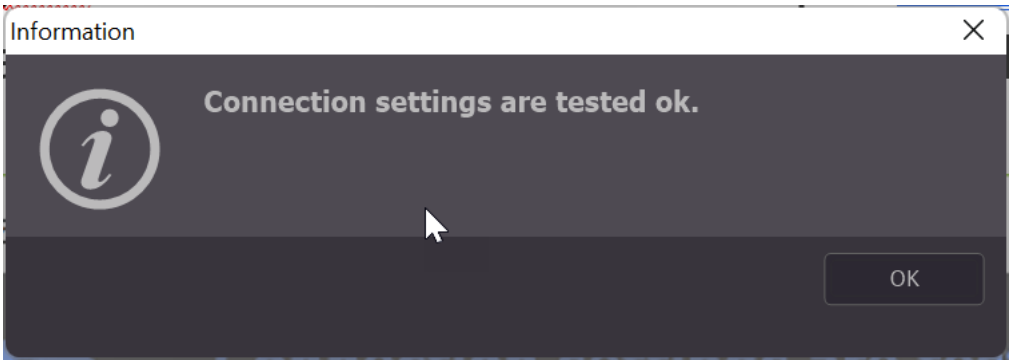


1. Enter the Hostname or TCP/IP address of the server/computer that runs the database instance.

2. Enter the PostgreSQL Super User password. This is the password that you have entered during the installation process. If you don't know this password, then ask

your database or network administrator. Without access of a super user, you will not be able to setup a database.

3. Click “Test Settings” to verify that the software can establish a connection with the PostgreSQL database. To test the connection, PSU will try to connect to the default “postgres” database. The entered Super User Name must have access to this default database in order to test the connection. If all is well, you will get this message.

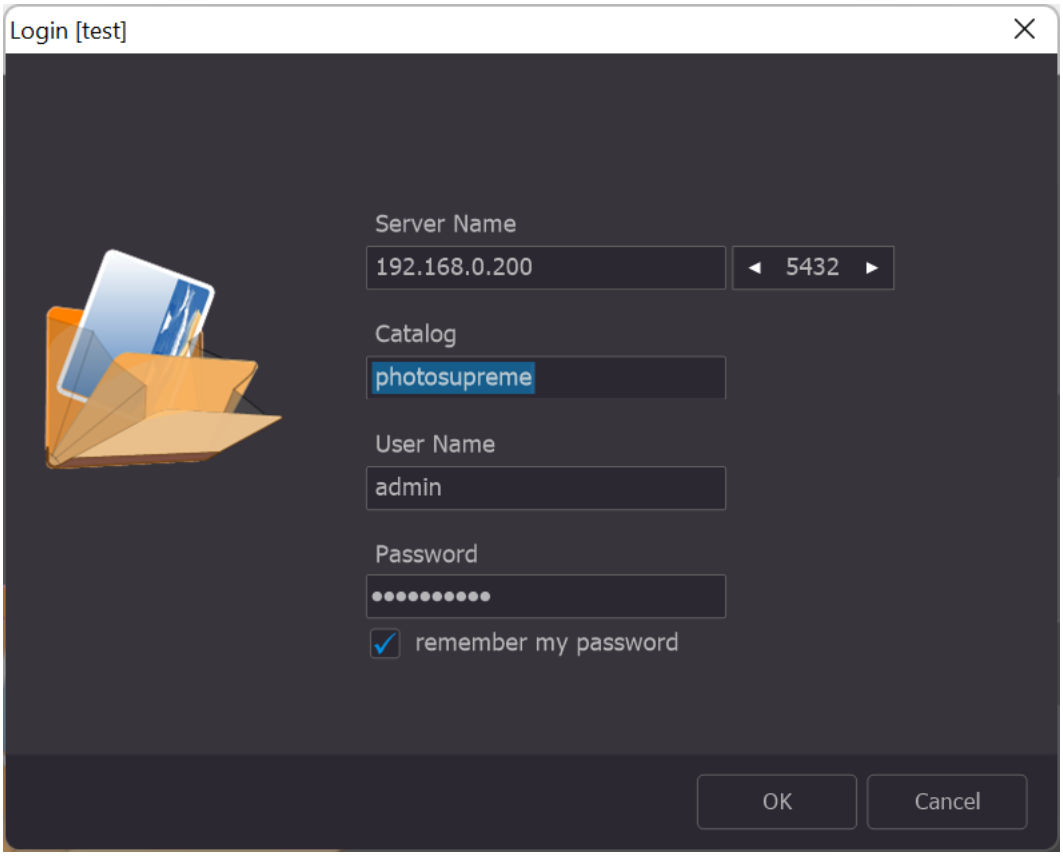


4. Optionally name your catalog. Default is “photosupreme” and if you’re planning to have just one catalog then it’s recommended to leave the name unchanged.
5. Click OK and let Photo Supreme create your catalog. Photo Supreme creates two databases. The catalog database (named after the name entered in step 4) and the thumbs database, named after the Catalog database with the _thumbs suffix, e.g., **photosupreme** and **photosupreme_thumbs**.

   Once the database is created, you get this message:

6. Keep the admin password in your records. This is the application password needed to open Photo Supreme. This is not the database password, nor is it the PostgreSQL Super User password. Click OK to confirm the message.

7. By default, a login dialog will be displayed. The default password (master2004) is pre-filled. You can click OK to continue and login.



8. **Congratulations. You are now ready to use Photo Supreme with PostgreSQL**.