nLIGHT

GreenScreen Installation Guide

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GreenScreen Overview

This document will detail how to setup SensorView to use the GreenScreen plug-in. This will entail installing and setting up a database (PostgreSQL), a driver to connect to the database, a DSN for the data source, initializing the database, starting GreenScreen, and configuring GreenScreen options in SensorView.

Setting Up PostgreSQL

Setting up PostgreSQL on a computer requires downloading and installing the application, configuring the database to accept remote connections, and restarting the database server.

- PostgreSQL is a separate product that is maintained and developed entirely separate from SensorView and is in no way affiliated with nLight, SensorSwitch, or Acuity Brands.

- For the remainder of this document the phrase "X.Y" will refer to major and minor versions of the version of PostgreSQL being installed; for example: 9.0.

- GreenScreen is compatible with PostgreSQL versions 9.0 or higher.
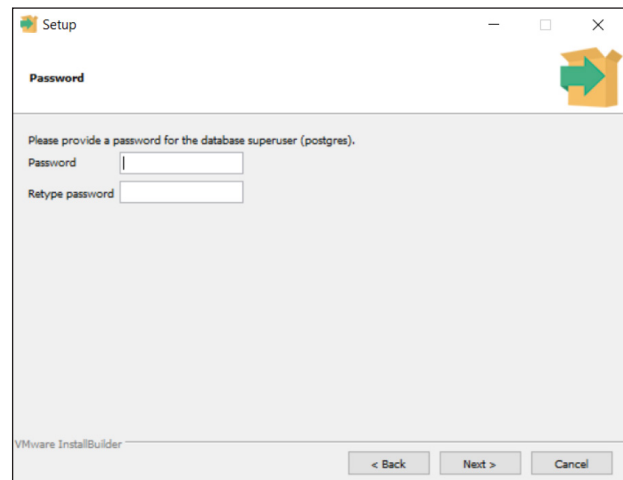
Installing PostgreSQL

SensorView can use an existing PostgreSQL database or a dedicated one. Which option is most appropriate is at the discretion of the system owner.

1. **Download PostgreSQL at:** https://www.enterprisedb.com/downloads/postgres-postgresql-downloads. 32 bit (x86) versions for Windows are recommended for GreenScreen.

2. **Enter a preferred password. Take note of these credentials** as those will be the default login account and password for all access to the PostgreSQL database.
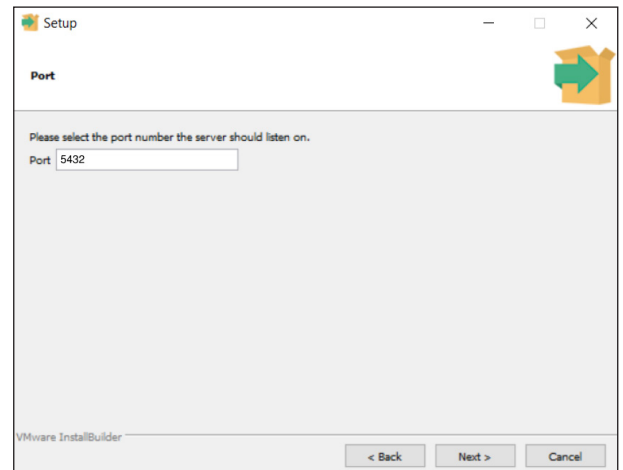
NOTE

Passwords may only use alpha-numeric characters (numbers, lowercase and uppercase letters) with no special characters.

3. **Enter the desired port number.** GreenScreen can be configured to use any port. Port 5432 is the default port, assuming this port is not already in use by another application, and is typically the port that is used for a GreenScreen setup.
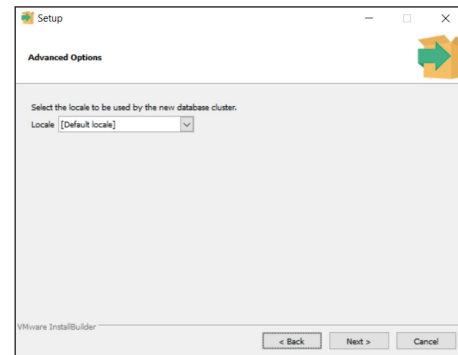
4.   **Select a locale.** [Default locale] is used for most GreenScreen installations.

Installing a PostgreSQL Driver

For SensorView to connect and control the PostgreSQL database a driver must be installed on the machine running SensorView.

1.   **Download an ODBC driver from the following location:** https://ftp.postgresql.org/pub/odbc/versions.old/msi/psqlodbc_09_03_0400.zip
     Newer ODBC drivers can be downloaded from this location: https://www.postgresql.org/ftp/odbc/versions.old/msi/

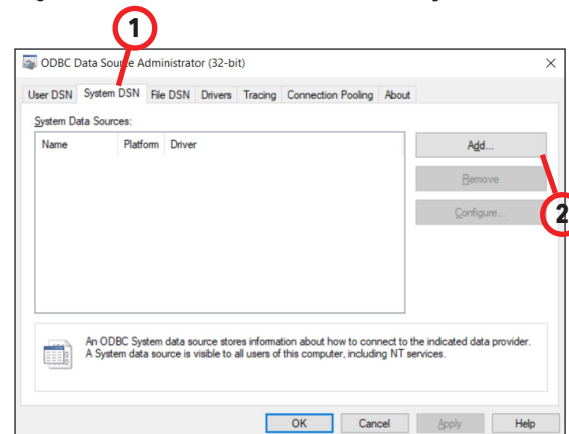2.   **Open the downloaded .zip file and install the driver.**

DSN Configuration

DSNs provide a way to configure a datasource connection in a standard consistent way that can be used throughout the machine. A DSN must be configured to allow SensorView and GreenScreen to connect to the database; this must be done on the machine running SensorView. A DSN consists of a name, database, server, port, user, password, and SSL connection requirements. Locating the correct DSN configuration tool varies depending on the specific version of Windows and whether or not it is 64 bit.

1.   **Open ODBC.**
     a.   ODBC can be quickly accessed by performing a search in the Start Menu for "ODBC."
     b.   Alternatively, to configure a DSN for all 64 bit variants of Windows go to **Start Menu -> Run -> type C:\Windows\SysWOW64\ odbcad32.exe** and press **Enter** (Assuming Windows is installed to C:, otherwise substitute correct system path).
     c.   Alternatively, to configure a DSN for Windows 7 32bit/Windows 10 32bit go to **Start Menu -> Control Panel -> System and Security -> Administrative Tools -> Data Sources (ODBC).**

2.   **Select** the tab **System DSN** (callout 1 to the right), then press **Add** (callout 2).

3.   **Select PostgreSQL Unicode** from the list.

4.   **Select Finish** and a form will appear with additional fields to fill out (see figure below). Fill out the form with the following values:

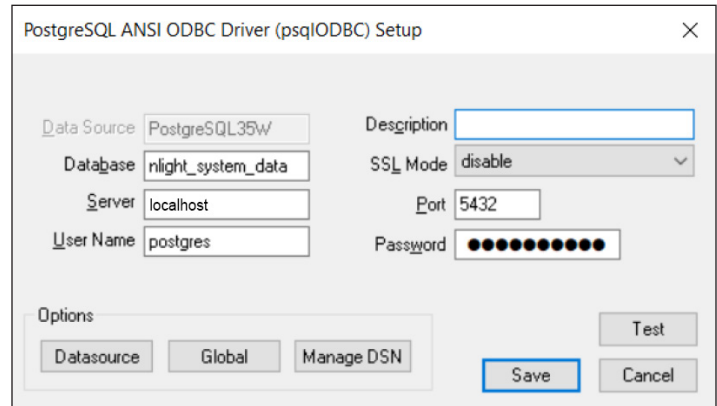|	
Data Source	A custom name for the DSN that will be put into SensorView
Database	nLight_system_data
Server	IP Address or hostname of machine running PostgreSQL server. (127.0.0.1 or localhost for local computer)
Port	Port PostgreSQL was configured to run on (by default 5432)
User name	Account name and password for the database user (refer to **Super User Creation**)
Password	
SSL Mode	As appropriate for the database (disabled by default)

5. **Select Save.**

   NOTE

   Make record of the Data Source information as this must be entered into SensorView in later steps.

   NOTE

   Ensure that your configuration is done under System DSN. Configuring a setup matching the above in any other location (such as attempting to build a driver under the "User DSN" tab instead of the "System DSN" tab) will result in GreenScreen failing to run.

Setting Up GreenScreen

In order to configure and run SensorView the plug-ins component must be installed. For new installs this can be accomplished by making sure that plug-ins is checked during the feature select portion of the SensorView install. For existing installations, run the installer and select **Modify**, then check plug-ins and push modify. Once the plug-in components have been installed, open SensorView and go to the **Admin** page and select **Plugins**.

Configure Administrator Email (Optional)

GreenScreen will notify the administrator via email if it encounters any issues while attempting to start. To configure email notification the administrator use of SensorView must have an email address entered; additionally the Mail Server section (found at **Admin->Setup->Mail Server**) must be filled out to allow for email to be sent from SensorView. Notification emails will be sent if the host Windows service fails.
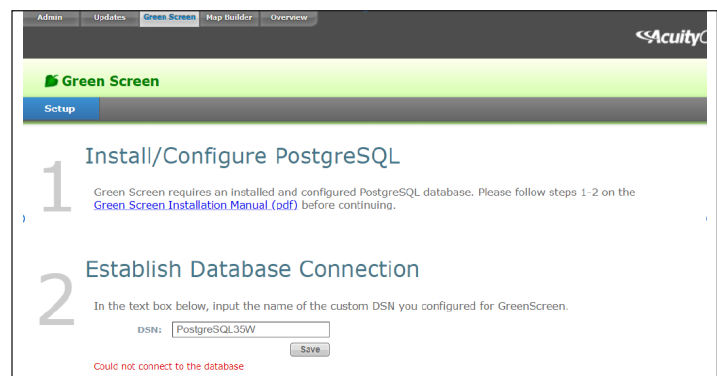
Database Initialization

Once PostgreSQL, the database driver, and the system DSN have been set up and configured, the last step is to build the GreenScreen database and start the service.

1. **Go to the GreenScreen tab in SensorView.**

2. **Input the name of the custom DSN that was previously configured and SensorView will build the database (upon hitting save).** The default DSN is PostgreSQL35W.

   NOTE

   If the credentials supplied in the DSN do not have the create database privilege, then SensorView will prompt for credentials that do. SensorView will use those credentials to create the database and give ownership to the credentials in the DSN. Afterwards the other, higher, set of credentials will be discarded.

Starting GreenScreen

In order to start GreenScreen, the plug-ins component must have previously been installed (**Setting Up GreenScreen**); if this has not been done then there will be no **Plugins** tab. Proceed to the Admin screen in SensorView and select **Plugins**. The host service should already be running; if it is not then the username, password, and domain (optional) must be filled out, then start the **nLight Plugin Host Service** (callout 2, to the right). Once this is running GreenScreen can be started and stopped in the top window (callout 1, to the right).

Configuring GreenScreen Operations

On this page options can be set that will configure how GreenScreen will compute savings and what units to display them in.

1. **Select** the preference for displaying savings in kWh or dollars.

2. **Select** your generation type (how the utility generates electricity).

3. **Optional -** enter your cost for energy for any or all periods.

4. **Identify** general periods of occupancy.

5. **Click Save Settings.**

Savings - Display Options

SensorView can be configured to show savings in dollars or kWh. For CO2 savings, the generation type for the electricity can be selected that will be used to determine CO2 savings.

Electrical Rates

SensorView can handle four different rates for billing. Settings for rates will only be used if SensorView is set to display savings in dollars.

Baseline Periods

During these periods, SensorView will assume the building is occupied. Energy savings (whether in dollars or kWh) are relative to how much energy would have been spent, with all control points in the system being on for the duration of the baseline periods. Refer to the GreenScreen data sheet for a more detailed explanation of savings analysis.

Once SensorView has a valid Data Source which can connect to the database, it will display the current size of the database and the state of hosting service in the bottom left corner of the screen.

Troubleshooting - Configuring PostgreSQL to Allow Remote Connections

This step is only necessary if SensorView and the PostgreSQL database reside on separate computers. By default, PostgreSQL will not allow any remote connections; to change this, administrative access to the host machine for the database is required.

1. Go to the directory PostgreSQL was installed at (by default **C:\Program Files\PostgreSQL**)

2. Open the file at **X.Y\data\pg_hba.conf**; this file can be opened in notepad or any generic text editor. For additional documentation on how to configure **pg_hba.conf**, as well as any questions, refer to:

Version of PostgreSQL	URL
9.0	http://www.postgresql.org/docs/9.0/static/auth-pg-hba-conf.html

3. For all database versions, adding the following line to the bottom of the file to allow ALL remote connections to the database:
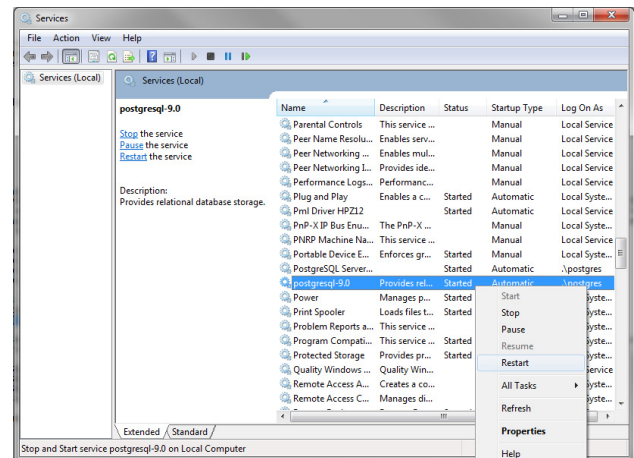
host all all 0.0.0.0/0 md5

NOTE
Allowing all connections is a potential security risk that should be weighed by system owners.

4. Save the changes and close the file. PostgreSQL will now accept remote connections from the configured host. PostgreSQL must be restarted before the changes made to **pg_hba.conf** will take effect. If no changes were made to **pg_hba.conf** then this step is unnecessary.

5. Go to **Start Menu -> Control Panel -> System and Security -> Administrative Tools -> Services**. In the services window select the following service:

Version of PostgreSQL	Example Service Name
9.0 (32 bit)	postgresql-9.0-PostgreSQL Server 9.0
9.0 (64 bit)	Postgresql-x64-9.0

6. Right click on the relevant service name and select **Restart**; this will restart the database server, per the figure to the right.

7. Configure the firewall on the computer running PostgreSQL to allow for incoming connections on whichever port PostgreSQL was configured to listen on. This will vary depending on the firewall software in use.
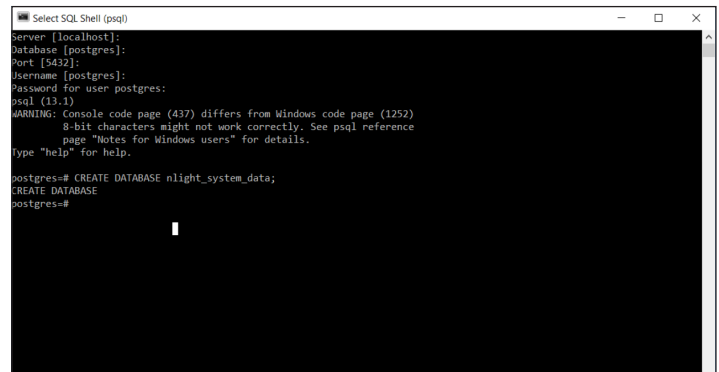
If the database fails to create, a database with name nlight_system_data may need to be created. This can be done through opening SQL Shell (psql).

The commands shown in the image to the right should be entered to create the database. Once the database is created, it should be visible from the Postgres Admin application.

NOTE
When interacting with command-line interfaces, pressing enter confirms the information that is recommended in brackets. If the information in brackets needs to be updated, simply type what should replace the recommended information.

NOTE
When entering passwords in command line interfaces, text will not show up as you are typing, so do not assume that an error has occurred. Type your password fully and press Enter.