PostGIS

Version 1.0

Built at 2021-01-28T06:54:19

1 Installing PostGIS

The following table lists the latest PostGIS versions and their corresponding Advanced Server versions. The PostGIS version required by your Advanced Server installation is version-specific, but the documented and supported functionality of each version is the same. The information in this guide applies to each version listed in the table below.

PostGIS Version	Supported Advanced Server Versions	Supported Platforms
PostGIS 3.0.2	Advanced Server 13	RHEL/CentOS 7 and RHEL/CentOS 8 - x86_64 RHEL/CentOS 7 - ppc64le Debian 9x Stretch and 10x Buster Ubuntu 18.04 LTS Bionic Beaver and Ubuntu 20.04 LTS Focal Fossa Windows 64 x86 Interactive Installer
PostGIS 3.0.1	Advanced Server 12	RHEL/CentOS 6 and RHEL/CentOS 7 x86_64 RHEL/CentOS 7 - ppc64le Debian 9x Stretch and 10x Buster Ubuntu 18.04 LTS Bionic Beaver Windows 64 x86 Interactive Installer
PostGIS 3.0.2	Advanced Server 12	RHEL/CentOS 7 - x86_64 and RHEL/CentOS 8 - x86_64
PostGIS 3.0.2	Advanced Server 11	RHEL/CentOS 7 - x86_64
PostGIS 2.5.4	Advanced Server 12	RHEL/CentOS 6, RHEL/CentOS 7 - x86_64, and RHEL/CentOS 8 - x86_64 RHEL/CentOS 7 - ppc64le Debian 9x Stretch and 10x Buster Ubuntu 18.04 LTS Bionic Beaver Windows 64 x86 Interactive Installer SLES 12
PostGIS 2.5.4	Advanced Server 11	RHEL/CentOS 6, RHEL/CentOS 7 - x86_64, and RHEL/CentOS 8 - x86_64 RHEL/CentOS 7 - ppc64le Debian 9x Stretch Ubuntu 18.04 LTS Bionic Beaver Windows 64 x86 Interactive Installer SLES 12

PostGIS Version	Supported Advanced Server Versions	Supported Platforms
PostGIS 2.5.4	Advanced Server 9.6	RHEL/CentOS 7 - x86_64
PostGIS 2.5.3	Advanced Server 12	RHEL/CentOS 6, RHEL/CentOS 7 - x86_64, and RHEL/CentOS 8 - x86_64 RHEL/CentOS 7 - ppc64le Debian 9x Stretch Ubuntu 18.04 LTS Bionic Beaver Windows 64 x86 Interactive Installer
PostGIS 2.5.1	Advanced Server 11	RHEL/CentOS 6 and RHEL/CentOS 7 - x86_64 RHEL/CentOS 7 - ppc64le
PostGIS 2.4.6	Advanced Server 9.6, 10 and 11	RHEL/CentOS 6 and RHEL/CentOS 7 - x86_64 RHEL/CentOS 7 - ppc64le Windows 64 x86 Interactive Installer
PostGIS 2.3.8	Advanced Server 9.6 and 10	RHEL/CentOS 6 and RHEL/CentOS 7 - x86_64 RHEL/CentOS 7 - ppc64le Windows 64 x86 Interactive Installer
PostGIS 2.1.9	Advanced Server 9.5	RHEL/CentOS 6 and RHEL/CentOS 7 - x86_64 RHEL/CentOS 7 - ppc64le Windows 64 x86 Interactive Installer

Installing PostGIS on a CentOS Host

You must install Advanced Server before installing PostGIS. For details about installing and configuring Advanced Server, see the EDB Advanced Server Installation Guide available at the EDB website.

Before creating the repository configuration file, you must have credentials that allow access to the EnterpriseDB repository. For information about requesting credentials, visit the EDB website.

Perform the following steps to install PostGIS:

1. To create the repository configuration file, assume superuser privileges and invoke one of the following platform-specific commands:

   On CentOS 6 and 7:

   ```
   yum -y install https://yum.enterprisedb.com/edbrepos/edb-repo-latest.noarch.rpm
   ```

   On CentOS 8:

```
dnf -y install https://yum.enterprisedb.com/edbrepos/edb-repo-latest.noarch.rpm
```

2. Replace the `USERNAME:PASSWORD` placeholder in the following command with the username and password of a registered EnterpriseDB user:

```
sed -i "s@<username>:<password>@USERNAME:PASSWORD@" /etc/yum.repos.d/edb.repo
```

3. Before installing PostGIS, execute the following command to install the Extra Packages for Enterprise Linux (EPEL) release package:

   On CentOS 6:

```
yum -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-6.noarch.rpm

sed -i "s@^#baseurl=@baseurl=@;s@^mirrorlist=@#mirrorlist=@" /etc/yum.repos.d/epel.repo
```

   On CentOS 6, you need to install the SCL repository:

```
yum -y install centos-release-scl
```

   On CentOS 7:

```
yum -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
```

   On CentOS 8:

```
dnf -y install epel-release
```

4. On CentOS 8, enable the PowerTools repository to satisfy package dependencies:

```
dnf config-manager --set-enabled PowerTools
```

5. On CentOS 8, disable the built-in PostgreSQL module:

```
dnf -qy module disable postgresql
```

6. Install `PostGIS` with one of the following platform-specific commands:

   On CentOS 7, to install PostGIS version for EDB Advanced Server version (EPAS) 13.0:

```
yum -y install edb-as13-postgis3
```

   Note

   To install a specific major version of PostGIS, specify the complete version and operating system type. For example to install version 3.0.2 on Advanced Server version 13, the command is `yum -y install edb-as13-postgis3-3.0.2`.

   On CentOS 8, to install PostGIS version for EDB Advanced Server version (EPAS) 13.0:

```
dnf -y install edb-as13-postgis3
```

On CentOS 6 and 7, to install PostGIS versions for older versions of EDB Advanced Server:

```
yum -y install edb-as<xx>-postgis-<y.y.y>
```

Where *<xx>* is the Advanced Server version and *<y.y.y>* is the PostGIS version you want to install. For example, to install PostGIS 2.5.4 on Advanced Server 12, execute the following command:

```
yum -y install edb-as12-postgis-2.5.4
```

On CentOS 8, to install PostGIS versions for older versions of EDB Advanced Server:

```
dnf install edb-as<xx>-postgis-<y.y.y>
```

Where *<xx>* is the Advanced Server version and *<y.y.y>* is the PostGIS version you want to install.

When you install an RPM package that is signed by a source that is not recognized by your system, yum may ask for your permission to import the key to your local server. If prompted, and you are satisfied that the packages come from a trustworthy source, enter `y` and press `Return` to continue.

Note

After installing PostGIS with a package manager, you must manually create a template database and the required PostGIS extension.

Installing PostGIS on a RHEL Host

You must install Advanced Server before installing PostGIS. For details about installing and configuring Advanced Server, see the EDB Advanced Server Installation Guide available at the EDB website.

Before installing the repository configuration file, you must have credentials that allow access to the EnterpriseDB repository. For information about requesting credentials, visit the EDB website.

Perform the following steps to install PostGIS:

1. To create the repository configuration file, assume superuser privileges and invoke one of the following platform-specific commands:

   On RHEL 6 and 7:

   ```
   yum -y install https://yum.enterprisedb.com/edbrepos/edb-repo-latest.noarch.rpm
   ```

   On RHEL 8:

   ```
   dnf -y install https://yum.enterprisedb.com/edbrepos/edb-repo-latest.noarch.rpm
   ```

2. Replace the `USERNAME:PASSWORD` placeholder in the following command with the username and password of a registered EnterpriseDB user:

```
sed -i "s@<username>:<password>@USERNAME:PASSWORD@" /etc/yum.repos.d/edb.repo
```

3. Before installing PostGIS, execute the following command to install the Extra Packages for Enterprise Linux (EPEL) release package:

   On RHEL 6:

```
yum -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-6.noarch.rpm

sed -i "s@^#baseurl=@baseurl=@;s@^mirrorlist=@#mirrorlist=@" /etc/yum.repos.d/epel.repo
```

   On RHEL 6, you need to install the SCL repository:

```
yum -y install centos-release-scl
```

   On RHEL 7:

```
yum -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
```

   On RHEL 8:

```
dnf -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-8.noarch.rpm
```

4. Enable additional platform-specific repositories:

   On RHEL 7, enable the `optional, extras`, and `HA` repositories to satisfy package dependencies:

```
subscription-manager repos --enable "rhel-*-optional-rpms" --enable "rhel-*-extras-rpms"  --enable "rhel-ha-for-rhel-*-server-rpms"
```

   On RHEL 8, enable the `codeready-builder-for-rhel-8-*-rpms` repository to satisfy EPEL packages dependency:

```
ARCH=$( /bin/arch )

subscription-manager repos --enable "codeready-builder-for-rhel-8-${ARCH}-rpms"
```

5. On RHEL 8, disable the built-in PostgreSQL module:

```
dnf -qy module disable postgresql
```

6. Install `PostGIS` with one of the following platform-specific commands:

   On RHEL 7, to install PostGIS version for EDB Advanced Server version (EPAS) 13.0:

```
yum -y install edb-as13-postgis3
```

Note

To install a specific major version of PostGIS, specify the complete version and operating system type. For example to install version 3.0.2 on Advanced Server version 13, the command is `yum -y install edb-as13-postgis3-3.0.2`.

On RHEL 8, to install PostGIS version for EDB Advanced Server version (EPAS) 13.0:

```
dnf -y install edb-as13-postgis3
```

On RHEL 6 and 7, to install PostGIS versions for older versions of EDB Advanced Server:

```
yum -y install edb-as<xx>-postgis-<y.y.y>
```

Where *<xx>* is the Advanced Server version and *<y.y.y>* is the PostGIS version you want to install. For example, to install PostGIS 2.5.4 on Advanced Server 12, execute the following command:

```
yum -y install edb-as12-postgis-2.5.4
```

On RHEL 8, to install PostGIS versions for older versions of EDB Advanced Server:

```
dnf install edb-as<xx>-postgis-<y.y.y>
```

Where *<xx>* is the Advanced Server version and *<y.y.y>* is the PostGIS version you want to install.

When you install an RPM package that is signed by a source that is not recognized by your system, yum may ask for your permission to import the key to your local server. If prompted, and you are satisfied that the packages come from a trustworthy source, enter `y` and press `Return` to continue.

After installing PostGIS with a package manager, please note that you must manually create a template database and the required PostGIS extension.

Installing PostGIS on a RHEL/CentOS 7 PPCLE Host

Before installing the repository configuration, you must have credentials that allow access to the EnterpriseDB repository. For information about requesting credentials, visit the EDB website. Perform the following steps to install PostGIS on a RHEL/CentOS 7 PPC64LE Host.

1. Create the Advance Toolchain repository configuration file:

```
rpm --import
https://public.dhe.ibm.com/software/server/POWER/Linux/toolchain/at/redhat/RHEL7/gpg-pubkey-6976a827-5164221b

cat > /etc/yum.repos.d/advance-toolchain.repo <<EOF

# Beginning of the configuration file
```

```
[advance-toolchain]
name=Advance Toolchain IBM FTP
baseurl=https://public.dhe.ibm.com/software/server/POWER/Linux/toolchain/at/redhat/RHEL7
failovermethod=priority
enabled=1
gpgcheck=1
gpgkey=ftp://public.dhe.ibm.com/software/server/POWER/Linux/toolchain/at/redhat/RHELX/gpg
-pubkey-6976a827-5164221b
# End of the configuration file
```

2. To create the EnterpriseDB repository configuration file, assume superuser privileges and invoke the following command:

```
yum -y install https://yum.enterprisedb.com/edbrepos/edb-repo-latest.noarch.rpm
```

3. Replace the `USERNAME:PASSWORD` placeholder in the following command with the username and password of a registered EnterpriseDB user:

```
sed -i "s@<username>:<password>@USERNAME:PASSWORD@" /etc/yum.repos.d/edb.repo
```

4. Before installing PostGIS, execute the following command to install the Extra Packages for Enterprise Linux (EPEL) release package:

```
yum -y install https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
```

5. On RHEL 7, enable the `optional, extras`, and `HA` repositories to satisfy package dependencies:

```
subscription-manager repos --enable "rhel-*-optional-rpms" --enable "rhel-*-extras-rpms"  --
enable "rhel-ha-for-rhel-*-server-rpms"
```

6. Invoke the following command to install PostGIS:

   To install PostGIS version for EDB Advanced Server version (EPAS) 13.0:

```
yum -y install edb-as13-postgis3
```

   Note

   To install a specific major version of PostGIS, for example 3.0.2, for Advanced Server version 13:

```
yum -y install edb-as13-postgis3-3.0.2
```

   To install PostGIS for older versions of EPAS:

```
yum -y install edb-as<xx>-postgis-<y.y.y>
```

   Where *<xx>* is the Advanced Server version and *<y.y.y>* is the PostGIS version you want to install.

For example, to install PostGIS 2.5.4 on Advanced Server 12, execute the following command:

```
yum -y install edb-as12-postgis-2.5.4
```

Installing PostGIS on a Debian/Ubuntu Host

You must install Advanced Server before installing PostGIS. For details about installing and configuring Advanced Server, see the EDB Advanced Server Installation Guide available at the EDB website.

To install a package on a Debian or Ubuntu host, you must have credentials to access the EnterpriseDB repository. If you need EnterpriseDB credentials, visit the EDB website for credentials.

The following steps will walk you through using the EnterpriseDB repository to install a Debian package. When using the commands, replace the `username` and `password` with the credentials provided by EnterpriseDB.

1. Assume superuser privileges:

   ```
   sudo su –
   ```

2. Configure the EnterpriseDB repository.

   On Debian 9, Ubuntu 18, and Ubuntu 20:

   ```
   sh -c 'echo "deb https://username:password@apt.enterprisedb.com/$(lsb_release -cs)-edb/
   $(lsb_release -cs) main" > /etc/apt/sources.list.d/edb-$(lsb_release -cs).list'
   ```

   On Debian 10:

   a. Set up the EnterpriseDB repository:

   ```
   sh -c 'echo "deb [arch=amd64] https://apt.enterprisedb.com/$(lsb_release -cs)-edb/
   $(lsb_release -cs) main" > /etc/apt/sources.list.d/edb-$(lsb_release -cs).list'
   ```

   b. Substitute your EnterpriseDB credentials for the `username` and `password` placeholders in the following command:

   ```
   sh -c 'echo "machine apt.enterprisedb.com login <username> password <password>" >
   /etc/apt/auth.conf.d/edb.conf'
   ```

3. Add support to your system for secure APT repositories:

   ```
   apt-get install apt-transport-https
   ```

4. Add the EDB signing key:

   ```
   wget -q -O - https://apt.enterprisedb.com/edb-deb.gpg.key  | sudo apt-key add -
   ```

5. Update the repository metadata:

```
apt-get update
```

6. Install the Debian package:

```
apt-get -y install edb-as<xx>-postgis-<y.y.y>
```

Where *<xx>* is the Advanced Server version and *<y.y.y>* is the PostGIS version you want to install.

For example, to install the PostGIS 3.0.2 package for Advanced Server 13, execute the following command:

```
apt-get -y install edb-as13-postgis-3.0.2
```

Installing PostGIS on an SLES 12 Host

You can use the Zypper package manager to install PostGIS on an SLES 12 host. Zypper will attempt to satisfy package dependencies as it installs a package, but requires access to specific repositories that are not hosted at EDB.

1. Assume superuser privileges.

```
sudo su -
```

2. Use the following command to add the EDB repository to your SLES host:

```
zypper addrepo https://zypp.enterprisedb.com/suse/edb-sles.repo
```

3. Invoke the following command to refresh the metadata:

```
zypper refresh
```

4. Install `SUSEConnect` to register the host with SUSE to allow access to SUSE repositories:

```
zypper install SUSEConnect
```

5. Register the host with SUSE to allow access to SUSE repositories and replace `'REGISTRATION_CODE'` and `'EMAIL'` with your SUSE registration information:

```
SUSEConnect -r 'REGISTRATION_CODE' -e 'EMAIL'
SUSEConnect -p PackageHub/12.4/x86_64
SUSEConnect -p sle-sdk/12.4/x86_64
```

6. Install the following repository for PEM dependencies:

```
zypper addrepo
```

```
https://download.opensuse.org/repositories/Apache:/Modules/SLE_12_SP4/Apache:Modules.repo
```

7. Refresh the metadata:

```
zypper refresh
```

8. Install OpenJDK (version 1.8) for Java based components:

```
zypper -n install java-1_8_0-openjdk
```

9. Then, use the zypper utility to install PostGIS:

```
zypper -n install edb-as12-postgis
```

Installing PostGIS on a Windows Host

You must install Advanced Server before installing PostGIS. If you have used the graphical Setup wizard to install Advanced Server, you can use StackBuilder Plus to add PostGIS to your installation. For details about using the graphical installer to install and configure Advanced Server, see the EDB Advanced Server Installation Guide for Windows available at the EDB website.

1. Open StackBuilder Plus and select your Advanced Server installation from the drop-down list on the Welcome window. Click Next to continue to the application selection page.

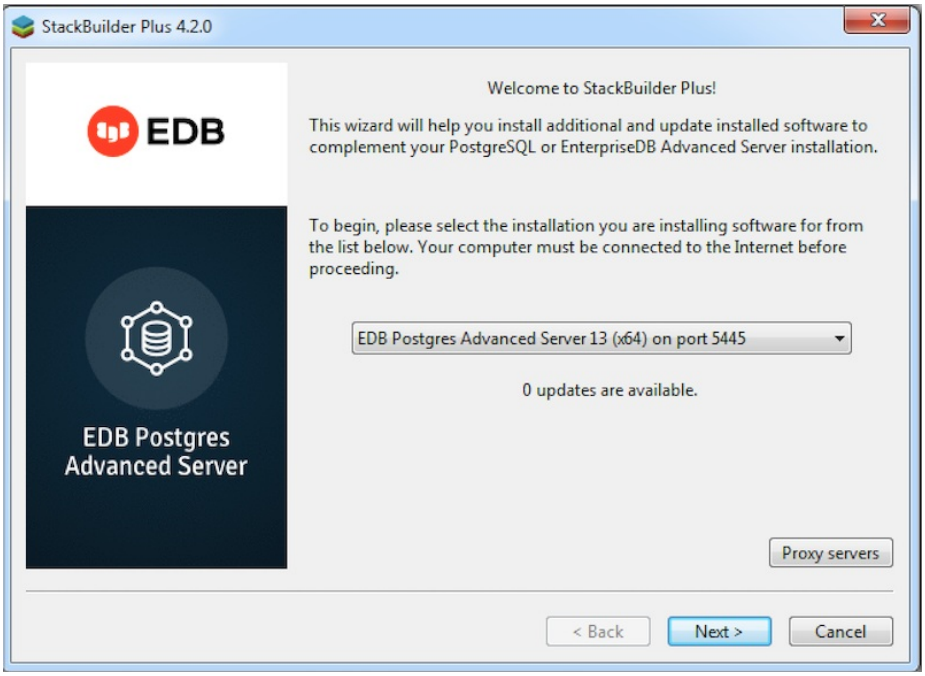

Fig. 1: The StackBuilder Plus Welcome window

2. Expand the Spatial Extensions node, and check the box next to the PostGIS version. Click Next to continue.

3. The selected packages and the default download directory where the package will be installed are displayed; change the locations if required. Click Next.

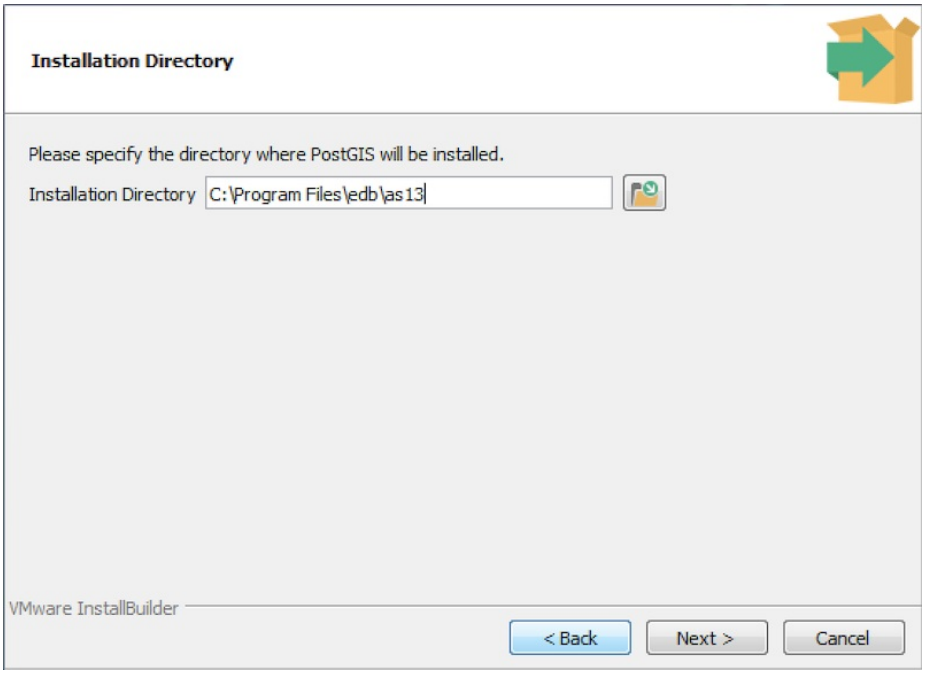

Fig. 2: The Installation Directory window

4. Once you have downloaded the installation files, a confirmation message is displayed. Click Next to start the PostGIS installation.

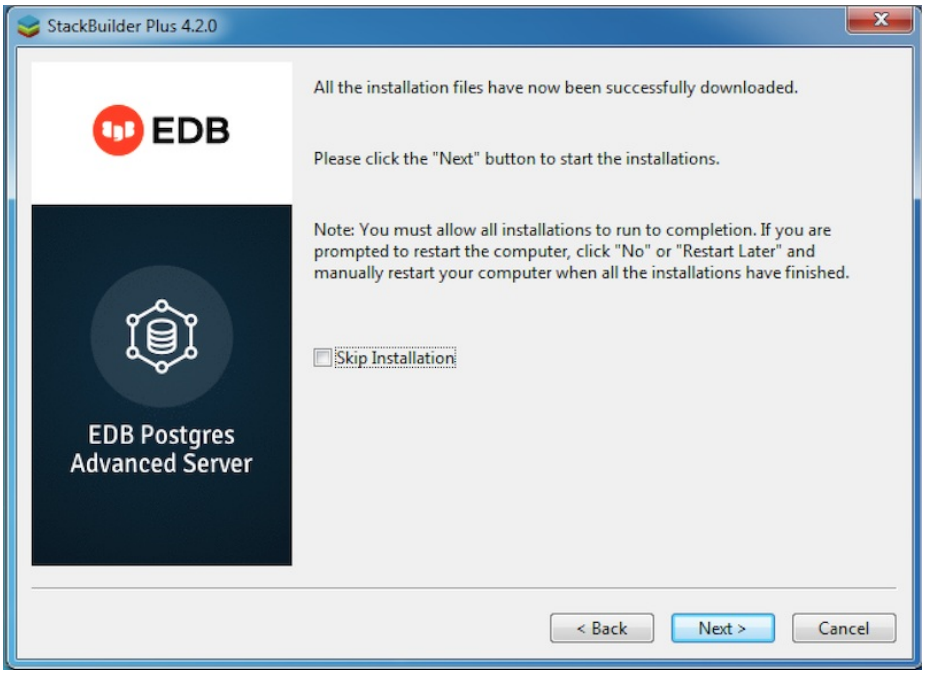

Fig. 3: Installing Postgis

5. Select an installation language and click OK.

6. The PostGIS welcome screen is displayed. Click Next.

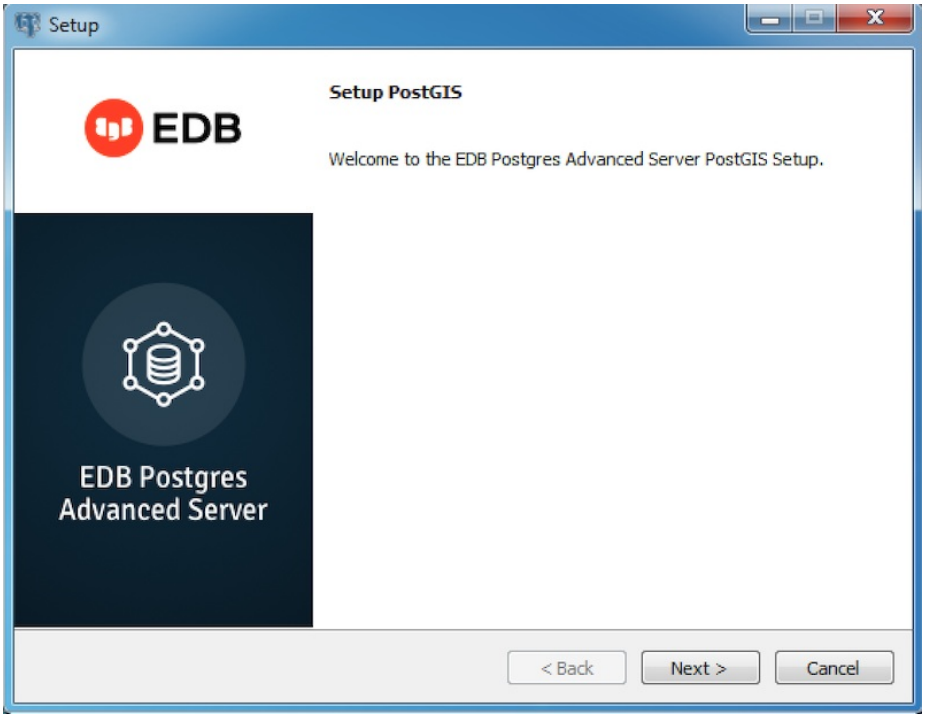

Fig. 4: The Postgis welcome window

7. Use the Installation Directory field to specify the directory in which you wish to install the PostGIS software. Click Next to continue.

8. Use fields on the EDB Postgres Advanced Server Installation Details window to provide connection information for the Advanced Server host:

   - Use the Host field to identify the system on which Advanced Server resides.
   - Provide the name of the role that PostGIS will use for connections to the server in the User Name field.
   - Provide the password associated with the role in the Password field.
   - Use the Port field to identify the listener port that Advanced Server monitors for client connections.

     Then, click Next to continue.

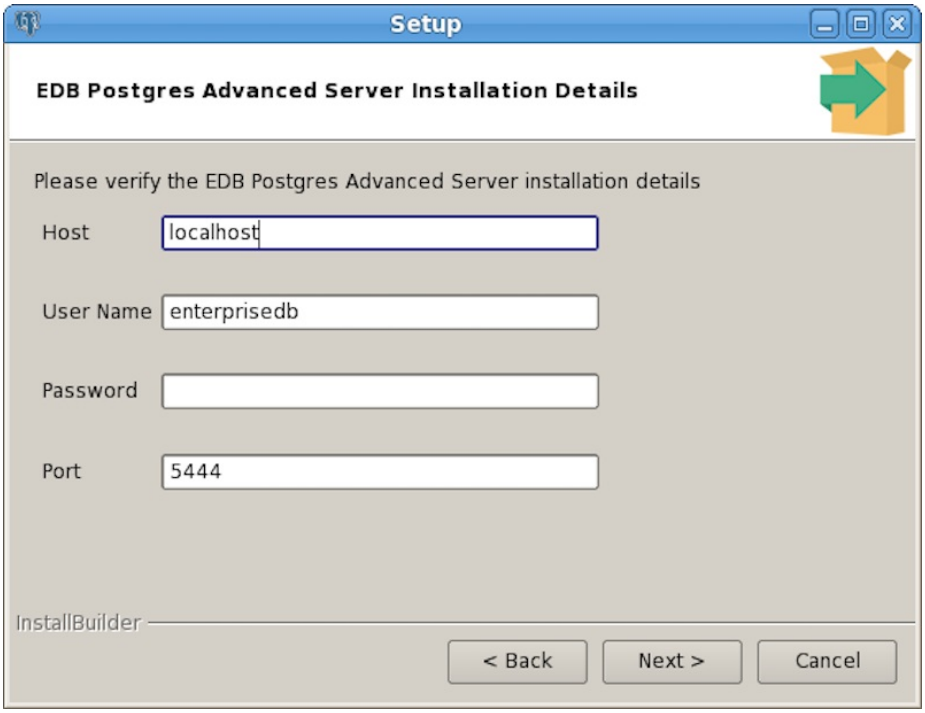

Fig. 5: The Advanced Server installation details window

9. The Ready to Install window notifies you when the installer has all of the information needed to install PostGIS on your system. Click Next.

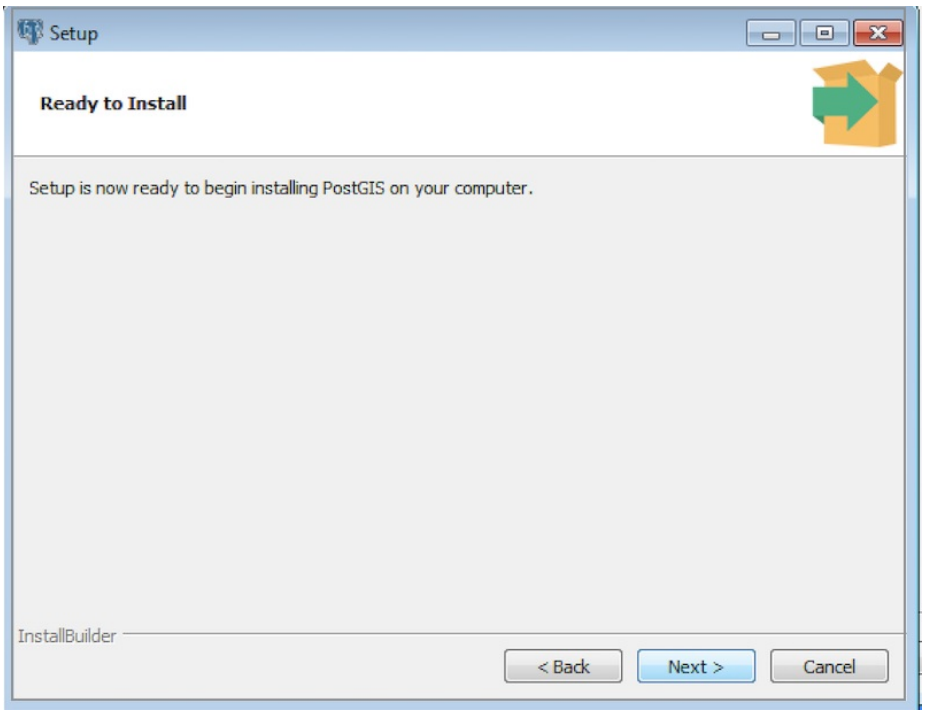

Fig. 6: The ready to install window

10. Progress bars inform you as the installation progresses; click Finish to exit the installer when the PostGIS installation completes.

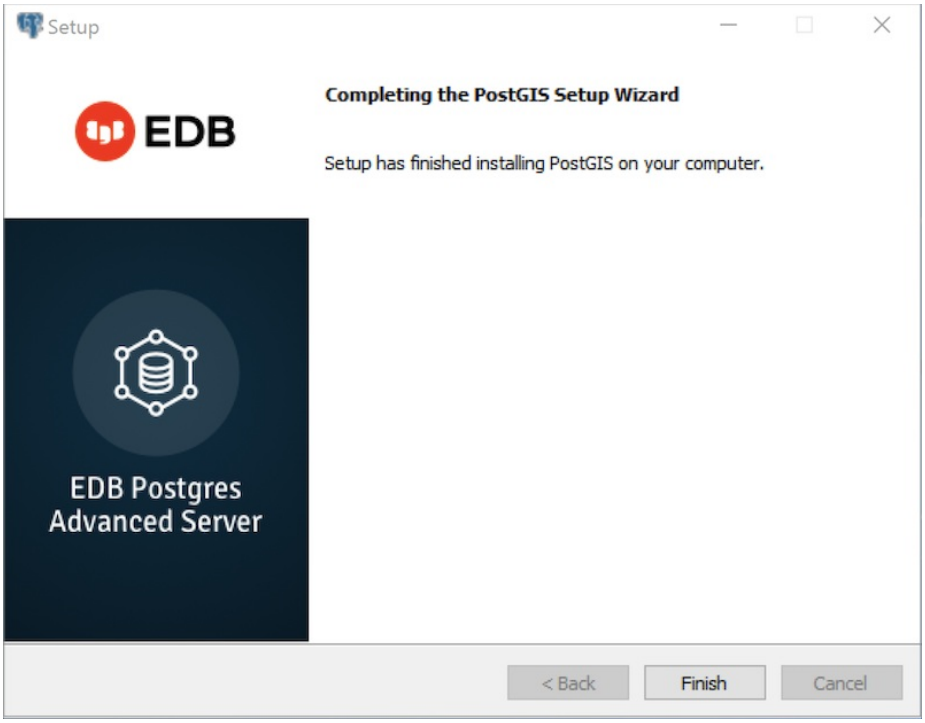

Fig. 7: The installation is complete

StackBuilder Plus will install PostGIS, and create the `template_postgis` database and PostGIS functions.

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2 Creating Extensions

After installing PostGIS, create a PostGIS database and the extensions in each database you wish to use PostGIS extensions. You must not create the extensions in the `postgres` or `edb` database.

1. Before creating the `postgis` database, we recommend creating a superuser to administer the database. To create the user, navigate into the bin directory under your Advanced Server installation and connect to the server with the psql client:

   ```
   ./psql -d edb -U enterprisedb -h 127.0.0.1
   ```

2. Then, to create a privileged role, invoke the following command:

   ```
   CREATE ROLE gisadmin LOGIN PASSWORD 'password' SUPERUSER;
   ```

3. Log out of psql, then connect as `gisadmin`:

   ```
   edb=# \q
   ./psql -d edb -U gisadmin -h 127.0.0.1
   ```

4. Use the following commands to create the `postgis` database owned by `gisadmin`:

```
CREATE DATABASE postgis;
```

5. Use the `\c` command to switch to the `postgis` database, and use the `CREATE EXTENSION` command to create the PostGIS Extensions:

```
\c postgis
CREATE EXTENSION postgis;
CREATE EXTENSION postgis_topology;
CREATE EXTENSION fuzzystrmatch;
CREATE EXTENSION address_standardizer;
CREATE EXTENSION address_standardizer_data_us;
CREATE EXTENSION postgis_tiger_geocoder;
CREATE EXTENSION postgis_sfcgal;
CREATE EXTENSION postgis_raster;
```

When connected with pgAdmin, you should now see PostGIS extensions, functions, tables, and trigger functions beneath the `postgis` database public schema. The `postgis` database is now geospatially enabled and can be used as a template to create new Geospatial databases.

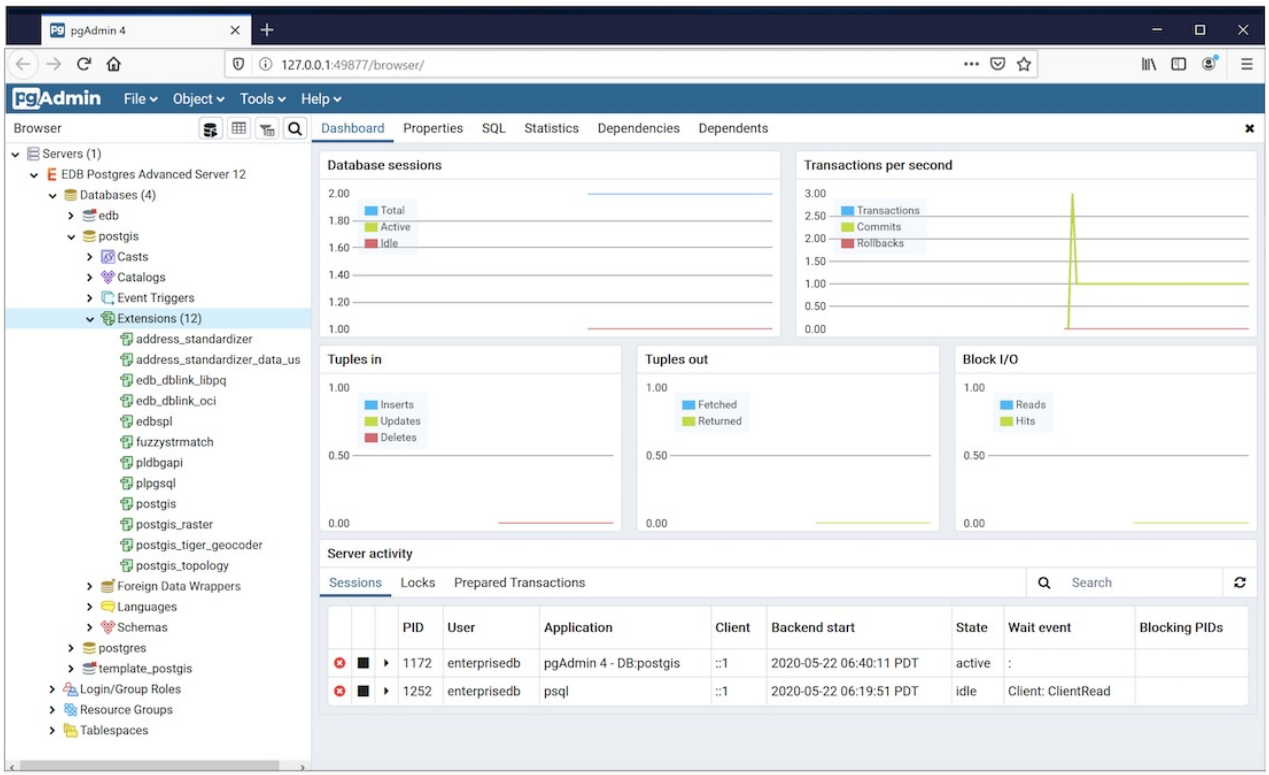

Fig. 1: Extensions on PgAdmin

3 Upgrading PostGIS

You can upgrade PostGIS for the same Advanced Server branch as well as for the different Advanced server branch.

The following example walks you through upgrading PostGIS from 2.5.4 to 3.0.2 of the same Advanced Server branch 11:

1. Install PostGIS 3.0.2.

2. To update extensions, connect to the database (where you have already added extensions) with the psql client application, and execute the following commands:

```
edb=# alter extension postgis update TO “3.0.2”;
WARNING:  unpackaging raster
WARNING:  PostGIS Raster functionality has been unpackaged
HINT:  type `SELECT postgis_extensions_upgrade(); to finish the upgrade. After upgrading, if you want to drop raster, run: DROP EXTENSION postgis_raster;
ALTER EXTENSION
edb=# SELECT postgis_extensions_upgrade();
NOTICE:  Packaging extension postgis_raster
NOTICE:  Updating extension postgis_topology from 2.5.4 to 3.0.2
NOTICE:  Updating extension postgis_tiger_geocoder from 2.5.4 to 3.0.2
                 postgis_extensions_upgrade
--------------------------------------------------------------------
 Upgrade completed, run SELECT postgis_full_version(); for details
(1 row)
```

The following example walks you through upgrading PostGIS from 2.5.4 for Advanced server 11 to 3.0.2 for Advanced server 12:

1. Stop the EDB Postgres Advanced Server 11 server service:

```
systemctl stop edb-as-11
```

2. Assume the superuser privileges and install the EDB Postgres Advanced Server 12 server:

```
yum install edb-as12-server
```

3. Navigate to the bin directory and initialize the cluster:

```
./edb-as-12-setup initdb
```

4. Change the `pg_hba.conf` file authentication setting to `trust` (these should be reversed after compatibility check). For more information about modifying the `pg_hba.conf` file, see the PostgreSQL core documentation available at PostgreSQL website.

```
vi /var/lib/edb/as12/data/pg_hba.conf
```

```
# "local" is for Unix domain socket connections only

local   all    all                trust

# IPv4 local connections:
```

```
host    all    all  127.0.0.1/32  trust
```

5. Install the PostGIS package:

```
yum install edb-as12-postgis-2.5.4
```

6. Set appropriate permissions to the `/tmp` directory:

```
chmod 777 /tmp
```

7. Change the current directory to `tmp` and switch to an `enterprisedb` user:

```
cd /tmp

su enterprisedb
```

8. Execute the following command to upgrade to EDB Postgres Advanced Server 12:

```
/usr/edb/as12/bin/pg_upgrade -d /var/lib/edb/as11/data/ -D /var/lib/edb/as12/data/ -U
enterprisedb -b /usr/edb/as11/bin/ -B /usr/edb/as12/bin/ -p 5444 -P 5445 -c

/usr/edb/as12/bin/pg_upgrade -d /var/lib/edb/as11/data/ -D /var/lib/edb/as12/data/ -U
enterprisedb -b /usr/edb/as11/bin/ -B /usr/edb/as12/bin/ -p 5444 -P 5445 --link
```

9. Execute the following command to upgrade to PostGIS 3.0.2 for Advanced Server version 12:

```
yum upgrade edb-as12-postgis* -y
```

10. To update extensions, connect to the database (where you have already added extensions) with the psql client application, and execute the following commands:

```
edb=# alter extension postgis update to '3.0.2';
WARNING: unpackaging raster
WARNING: PostGIS Raster functionality has been unpackaged
HINT: type `SELECT postgis_extensions_upgrade(); to finish the upgrade. After upgrading, if
you want to drop raster, run: DROP EXTENSION postgis_raster;
ALTER EXTENSION
edb=# SELECT PostGIS_Extensions_Upgrade();
NOTICE: Packaging extension postgis_raster
NOTICE: Updating extension postgis_topology from 2.5.4 to 3.0.2
NOTICE: Updating extension postgis_tiger_geocoder from 2.5.4 to 3.0.2
postgis_extensions_upgrade
--------------------------------------------------------------
Upgrade completed, run SELECT postgis_full_version(); for details
(1 row)
edb=# SELECT postgis_full_version();
                            postgis_full_version
-----------------------------------------------------------------------------------------------------------------------------
---------------------------------------
```

```
POSTGIS="3.0.2 2fb2a18" [EXTENSION] PGSQL="120" GEOS="3.8.1-CAPI-1.13.3"
PROJ="7.1.1" GDAL="GDAL 3.1.3, released 2020/09/01" LIBXML="2.9.1" LIBJSON="0.11"
TOPOLOGY RASTER
(1 row)
```

4 Using PostGIS

The following examples use PostGIS functions to create and query spatial objects. For more information about the PostGIS functions, please consult the official PostGIS documentation.

The following command creates a table named `roads` table that will hold GIS data and a geometry column.

```
CREATE  TABLE roads ( ID int4, NAME varchar(128) );
```

Then, use the PostGIS `AddGeometryColumn` function to add a column to the table:

```
SELECT AddGeometryColumn( 'roads', 'geom', -1, 'GEOMETRY', 2 );
```

Use the following SQL commands to insert data into the table `roads`. This data consists of the geometry of the type of `Linestring` (a line between 2 points):

```
INSERT INTO ROADS (ID,GEOM,NAME ) VALUES (1,ST_GeomFromText('LINESTRING(0 10,0
0)',-1),'Beacon Road');
INSERT INTO ROADS (ID,GEOM,NAME ) VALUES (2,ST_GeomFromText('LINESTRING(0 0,0
10)',-1),'Violet Road');
INSERT INTO ROADS (ID,GEOM,NAME ) VALUES (3,ST_GeomFromText('LINESTRING(0 0,10
0)',-1),'Skelton Street');
INSERT INTO ROADS (ID,GEOM,NAME ) VALUES (4,ST_GeomFromText('LINESTRING(0 0,10
10)',-1),'Fifth Avenue');
INSERT INTO ROADS (ID,GEOM,NAME ) VALUES (5,ST_GeomFromText('LINESTRING(0 10,0
0)',-1),'Main Street');
INSERT INTO ROADS (ID,GEOM,NAME ) VALUES (6,ST_GeomFromText('LINESTRING(10 0,0
0)',-1),'Lipton Street');
```

You can use the GIST function to create an index on the geometry column:

```
CREATE INDEX roads_index ON roads using GIST (geom);
```

`AsText(geometry)` is a PostGIS functions that returns a text representation of the geometry:

```
SELECT id, ST_AsText(geom) AS geom, name FROM ROADS order by id;

 id |       geom        |     name
```

```
----+----------------------+---------------
  1 | LINESTRING(0 10,0 0)  | Bacon Road
  2 | LINESTRING(0 0,0 10)  | Violet Road
  3 | LINESTRING(0 0,10 0)  | Skelton Street
  4 | LINESTRING(0 0,10 10) | Fifth Avenue
  5 | LINESTRING(0 10,0 0)  | Main Street
  6 | LINESTRING(10 0,0 0)  | Lipton Street
(6 rows)
```

After an index has been created, the `&&` operator can be used in a query:

```
 SELECT NAME, ST_AsText(GEOM) FROM ROADS WHERE GEOM && SetSRID('BOX3D(10
10,10 10)'::box3d,-1);

    name     |        astext
-------------+----------------------
 Fifth Avenue | LINESTRING(0 0,10 10)
(1 row)
```

The `BOX3D` function is used to specify a bounding box. The `&&` operator uses the index to quickly reduce the result set down to only those geometries which have bounding boxes that overlap the specified area.

You can use the `~=` operator to check if two geometries are geometrically identical:

```
 SELECT ID, NAME FROM roads WHERE GEOM ~= ST_GeomFromText('LINESTRING(0 10,0
0)',-1) order by id;


 id |    name
----+-------------
  1 | Bacon Road
  5 | Main Street
(2 rows)
```

5 Uninstalling PostGIS

This section walks you through uninstalling PostGIS.

Uninstalling PostGIS on a CentOS/RHEL Host

To uninstall PostGIS on a CentOS/RHEL host, assume the identity of the root user and invoke the

following command:

On CentOS/RHEL 7 for EPAS version 13:

```
yum -y erase edb-as13-postgis3*
```

On CentOS/RHEL 6 and 7 for older versions of EPAS:

```
yum erase edb-as<xx>-postgis-*<y.y.y>
```

Where <*xx*> is the Advanced Server version and <y.y.y> is the PostGIS version you want to uninstall.

On CentOS/RHEL 8 for EPAS version 13:

```
dnf -y erase edb-as13-postgis3*
```

On CentOS/RHEL 8 for older vesions of EPAS:

```
dnf erase edb-as<xx>-postgis-*<y.y.y>
```

Uninstalling PostGIS on a Debian/Ubuntu Host

To uninstall PostGIS on a Debian or Ubuntu host, invoke the following command:

```
apt-get remove edb-as<xx>-postgis-<y.y>*
```

Where <*xx*> is the Advanced Server version and <y.y> is the PostGIS version you want to uninstall

Uninstalling PostGIS on an SLES Host

To uninstall PostGIS on an SLES host, assume the identity of the root user and invoke the following command:

```
zypper remove edb-as12-postgis*
```

Uninstalling PostGIS on a Windows Host

The PostGIS graphical installer creates an uninstaller that you can use to remove PostGIS. The uninstaller is created in the installation directory that you have specified while installing PostGIS (default is `C:\Program Files\edb\as13`).

1. Navigate into the directory that contains the uninstaller and assume superuser privileges. Open the uninstaller and click `Yes` to begin uninstalling PostGIS:

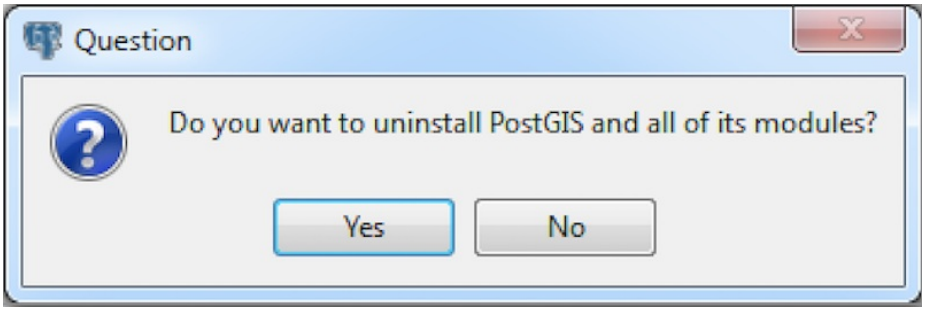

Fig. 1: The Uninstaller opens

2. The uninstallation process begins. Click OK when the uninstallation completes:

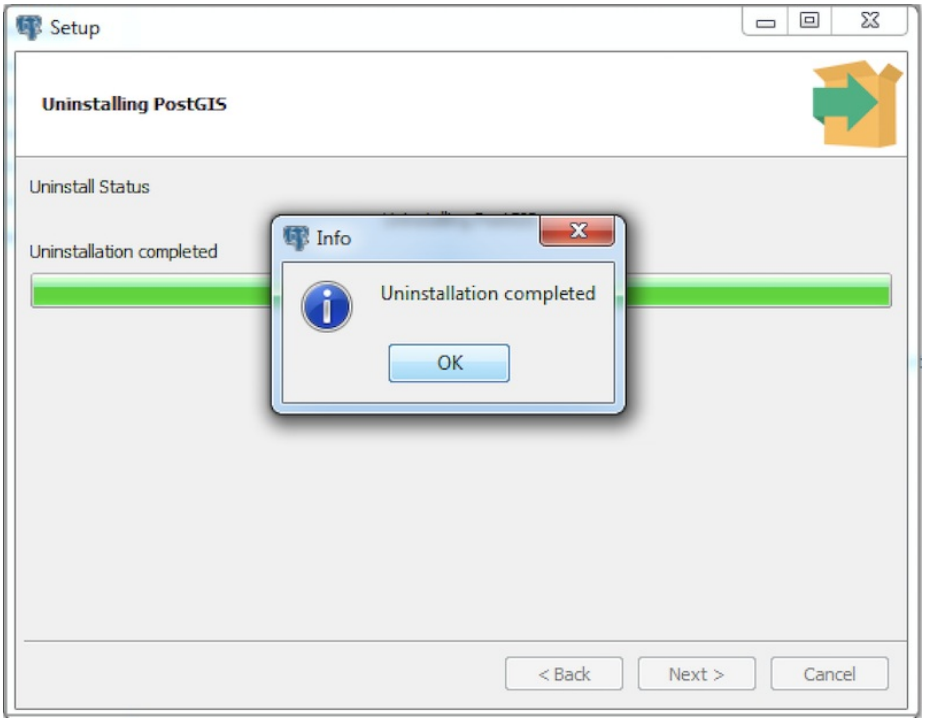

Fig. 2: Uninstallation is Complete