



# Soil Survey Geographic Database (SSURGO) Portal Installation Instructions

August 2023



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## 1. Overview

The following sections detail the instructions for downloading and installing Python, SSURGO Portal, and DB Browser.

### 1.1. Required Software

- Python 3.10.2
- SSURGO Portal

### 1.2. Optional Software

- DB Browser

**Note:** The developers recommend the latest version of the DB Browser.

### 1.3. Assumptions

This guide assumes the following:

- Your operating system is Windows 10 or greater.<sup>1</sup>
- You have permission to install software.<sup>2</sup>
- You use Microsoft Edge for your web browser.<sup>3</sup>
- You have not already installed Python on your computer.<sup>4</sup>
- You have not already installed DB Browser on your computer.
- You use WinZip for handling .zip files.

## 2. Python Installation

SSURGO Portal requires Python. All development and testing of SSURGO Portal were done on Python 3.10.2; therefore, the developers recommend installing Python 3.10.2. SSURGO Portal should also work with Python 3.9 and 3.11 versions, but these were not thoroughly tested. The portal will not work with versions of Python that are older than 3.9 or newer than 3.11.

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<sup>1</sup> While SSURGO Portal is designed to work with Windows 10, it should work with Windows 11 and Ubuntu.

<sup>2</sup> If the user lacks the correct permissions, the user may need assistance to install the required and recommended software.

<sup>3</sup> SSURGO Portal can run in other browsers besides Microsoft Edge and will launch in whatever default browser is set.

<sup>4</sup> Python is included with ArcGIS, ArcGIS Pro, ArcGIS Desktop, and QGIS. If a user has this version of Python, it will not affect Python 3.10.2 installation.

Once installed, Python runs in the background; further interaction with Python is not necessary.

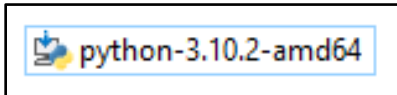
To install Python, complete the following steps:

1. Download **Python 3.10.2** from the [Python.org website](https://www.python.org/).
2. Select **Windows Installer (64-bit)** under the **Files** section.

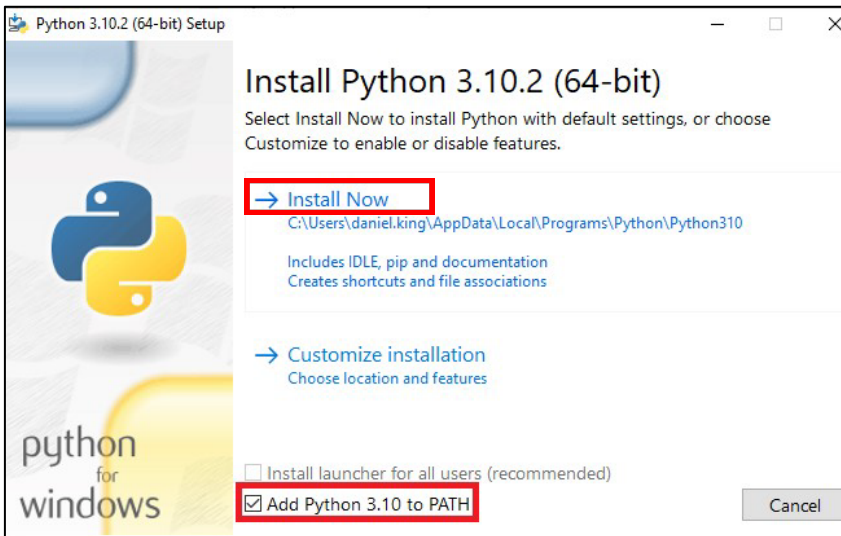
Version	Operating System	Description	MD5 Sum	File Size	GPB
<a href="#">Gzipped source tarball</a>	Source release		67c92270be6701f4a6fed57c4530139b	25067363	<a href="#">SIG</a>
<a href="#">XZ compressed source tarball</a>	Source release		14e8c22458ed7779a1957b26cde01db9	18780936	<a href="#">SIG</a>
<a href="#">macOS 64-bit universal2 installer</a>	macOS	for macOS 10.9 and later	edced8c45edc72768f03f66cf4b4fa27	39805121	<a href="#">SIG</a>
<a href="#">Windows embeddable package (32-bit)</a>	Windows		44875e70945bf45f655f61bb82dba211	7541211	<a href="#">SIG</a>
<a href="#">Windows embeddable package (64-bit)</a>	Windows		f98f8d7dfa952224fca313ed8e9923d8	8509629	<a href="#">SIG</a>
<a href="#">Windows help file</a>	Windows		342cabb615e5672e38c9906a3816d727	9575352	<a href="#">SIG</a>
<a href="#">Windows installer (32-bit)</a>	Windows		ef91f4e873280d37eb5bc26e7b18d3d1	27072760	<a href="#">SIG</a>
<a href="#">Windows installer (64-bit)</a>	Windows	Recommended	2b4fd1ed6e736f0e65572da64c17e020	28239176	<a href="#">SIG</a>

**Note:** Windows Installer (64-bit) can be downloaded anywhere; however, the developers recommend using the default folder.

3. Once the download is complete, go to the **python-3.10.2-amd64** file and double-click to launch the installation.

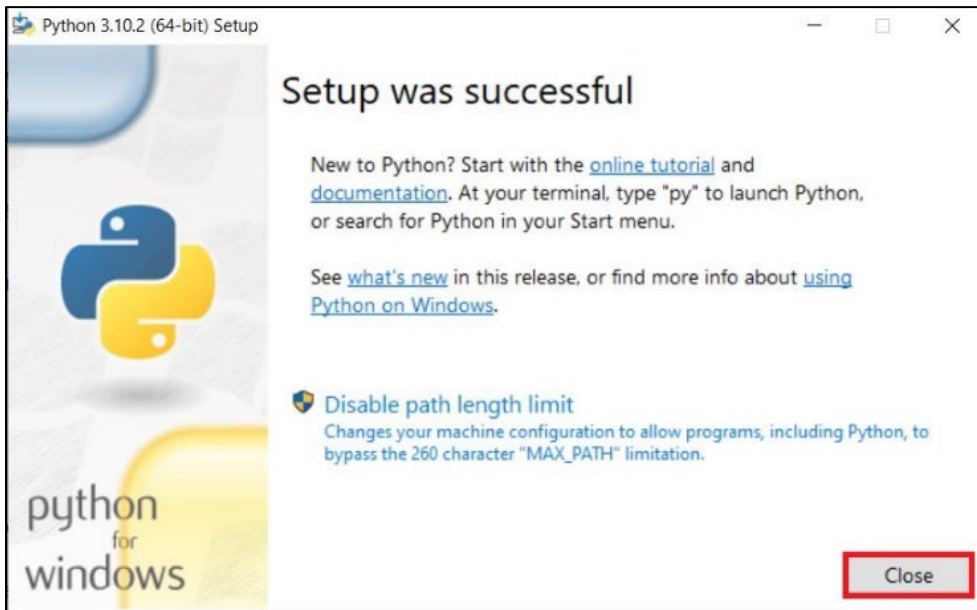


Select the **Add Python 3.10 to PATH** checkbox and click **Install Now**.



**Note:** Advanced Python users may want to use **Customize installation**, but most users will want to select **Install Now**.

4. Click **Close** on the **Setup was successful** dialog box.



## 3. SURGO Portal Installation

### 3.1. Download and Initialization Instructions

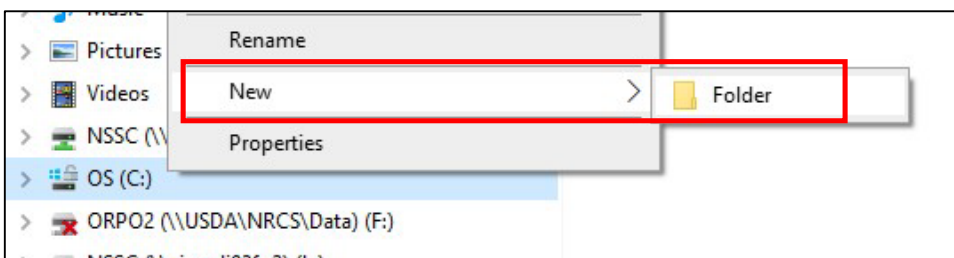
SSURGO Portal comes in a zip file, which you will download to a local folder and unzip. While not required, the developers recommend creating a folder on the **C:\** drive entitled **SSURGO Portal**. If using a different folder, avoid placing the SSURGO Portal on a remote server or in the Cloud.

**Note:** *This guide references the C:\SSURGO Portal folder.*

SSURGO Portal is a Python application executable file and has a .pyz extension. The .pyz file comes in a zip file, which you must unzip (i.e., extract). Once unzipped, a file with the .pyz extension should appear. Opening this .pyz file runs SSURGO Portal, which will open in your default browser.

To install SSURGO Portal, complete the following steps:

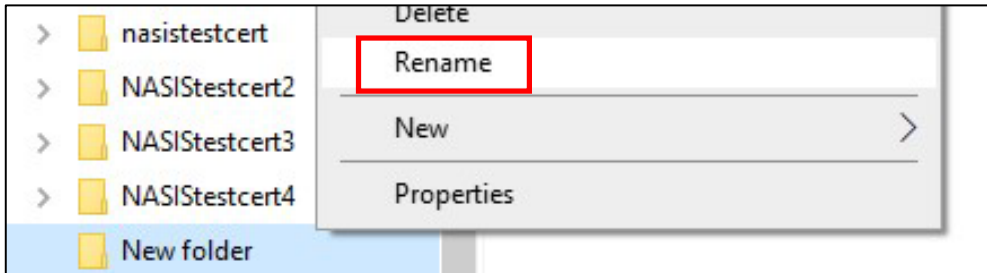
1. Open **Windows File Explorer**, right-click on the **C:\** drive, select **New**, and then select **Folder**.



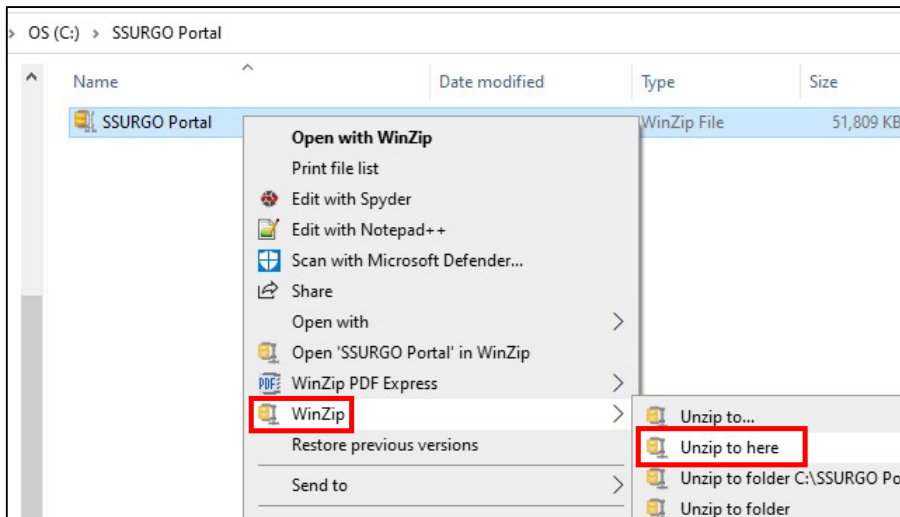
- Name the folder **SSURGO Portal**.



- You can rename the folder by right-clicking on the newly created folder and **Rename**.



- [Click this link](#) to download the SSURGO Portal.zip file. Download the file to **C:\SSURGO Portal**.
- In Windows File Explorer, go to the **SSURGO Portal.zip** file, right-click, and select **Unzip to here**.

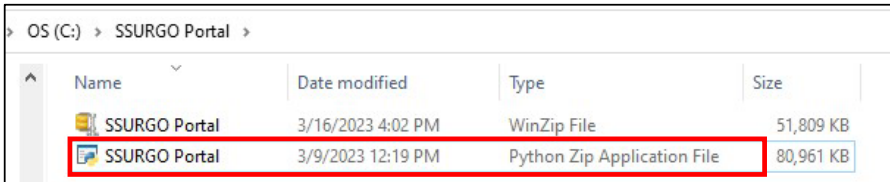


**Notes:** This step and screenshot are using WinZip 27.0. If using a different version of WinZip or other software, the interface may appear different. If you don't have WinZip installed, you may need to use **Extract All**.

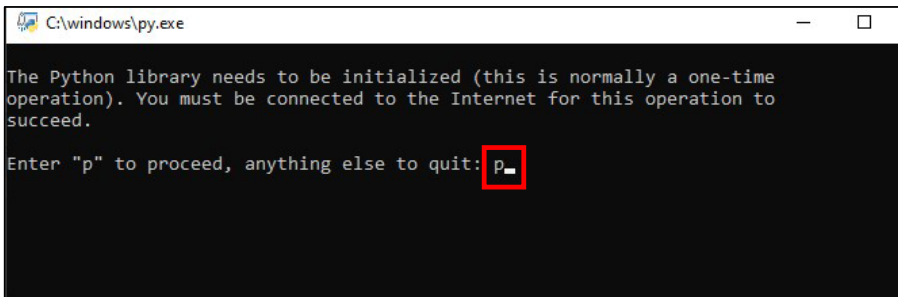
The action adds a **Python Zip Application File** called **SSURGO Portal** to the **C:\SSURGO Portal** folder, as depicted in the figure below. Under **Type**, it may read **PYZ**. This is the file used to run SSURGO Portal.

You can delete the WinZip file as it is no longer needed.

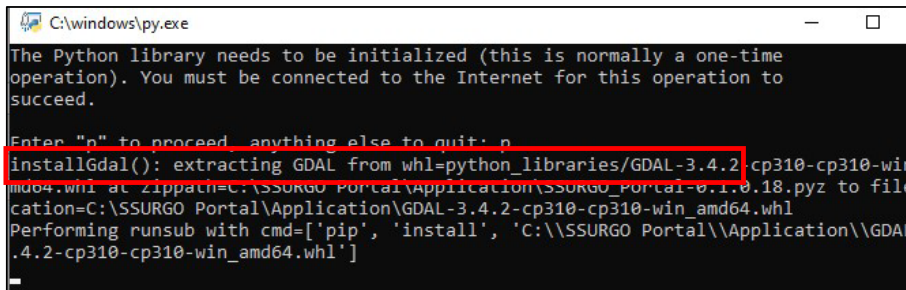
Double-click on the SSURGO Portal Python Zip Application File (or SSURGO Portal PYZ file).



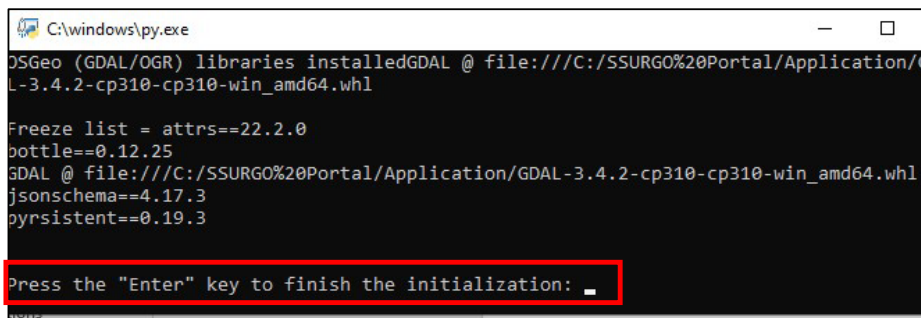
6. A CMD window opens with a set of instructions. Type **p** and then press the **Enter** key.



A message about Geospatial Data Abstraction Library (GDAL) installation appears.

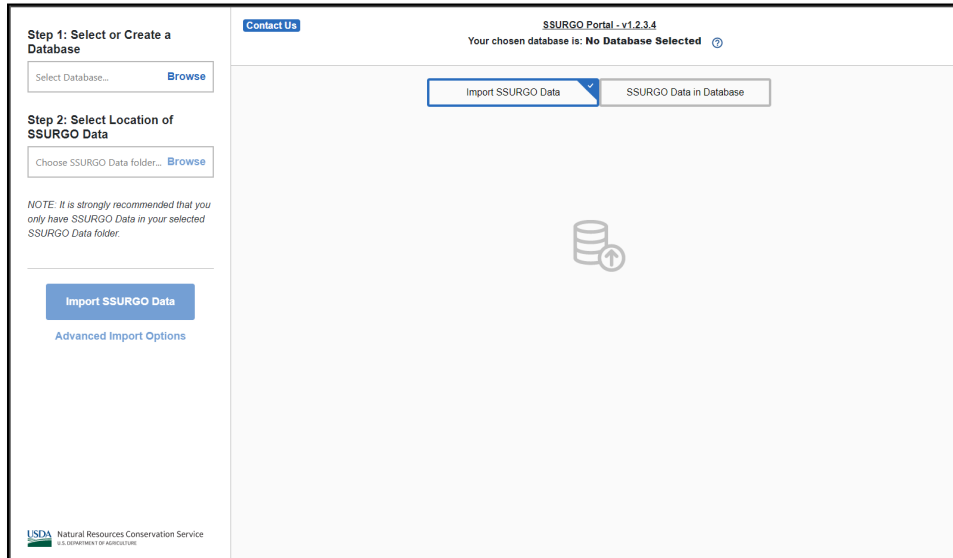


7. When the window displays **Press the "Enter" key to finish the initialization**, press **Enter**.



**Note:** You only need to enter **p** in the **CMD** prompt once during the installation process.

- Confirm that the installation was successful by double-clicking on the **SSURGO Portal Python Zip Application File**. **SSURGO Portal** should open in the default browser; you should see the following.



- The CMD prompt opens again and displays the following screen. You do not need to enter anything. You can minimize the screen, but **do not close** the CMD prompt. If you close the CMD prompt, SSURGO Portal will stop working.

```

SSURGO Portal - DO NOT CLOSE
This command line interface is an integral part of the SSURGO Portal application. When the webpage is closed this interface will self terminate. If closed while the application is in use, the application will break and will have to be restarted.
Bottle v0.12.25 server starting up (using WSGIRefServer())...
Listening on http://localhost:8083/
Hit Ctrl-C to quit.

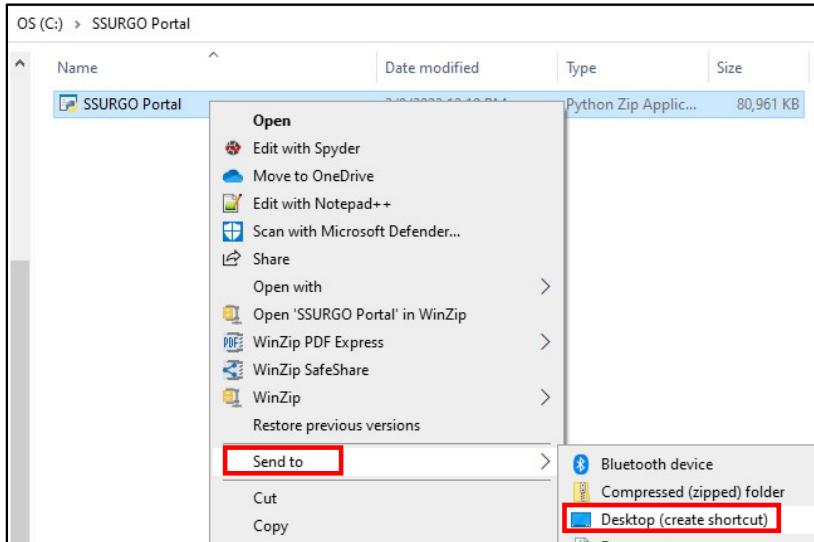
127.0.0.1 - - [28/Mar/2023 16:29:42] "GET /startUp HTTP/1.1" 303 0
127.0.0.1 - - [28/Mar/2023 16:29:42] "GET /SSURGOPortalUI HTTP/1.1" 200 92767
127.0.0.1 - - [28/Mar/2023 16:29:42] "GET /static/css/ssungo_portal_style.css HTTP/1.1" 200 18725
127.0.0.1 - - [28/Mar/2023 16:29:45] "GET /static/css/bootstrap.min.css HTTP/1.1" 200 163873
127.0.0.1 - - [28/Mar/2023 16:29:45] "GET /static/jquery-3.6.0.min.js HTTP/1.1" 200 89501
127.0.0.1 - - [28/Mar/2023 16:29:45] "GET /static/popper.min.js HTTP/1.1" 200 18593
127.0.0.1 - - [28/Mar/2023 16:29:45] "GET /static/bootstrap.min.js HTTP/1.1" 200 59219
127.0.0.1 - - [28/Mar/2023 16:29:46] "GET /static/ssungo_portal_scripts.js HTTP/1.1" 200 90456
127.0.0.1 - - [28/Mar/2023 16:29:46] "GET /static/images/nrcs-color-lockup.svg HTTP/1.1" 200 22333
127.0.0.1 - - [28/Mar/2023 16:29:46] "GET /static/images/QuestionMark.svg HTTP/1.1" 200 1258
127.0.0.1 - - [28/Mar/2023 16:29:46] "GET /static/images/refreshIcon.svg HTTP/1.1" 200 647
127.0.0.1 - - [28/Mar/2023 16:29:46] "GET /static/images/warningIcon.svg HTTP/1.1" 200 1019
127.0.0.1 - - [28/Mar/2023 16:29:46] "GET /static/images/infoIcon.svg HTTP/1.1" 200 469
127.0.0.1 - - [28/Mar/2023 16:29:46] "GET /static/images/databaseUploadGrayIcon.svg HTTP/1.1" 200 3390
127.0.0.1 - - [28/Mar/2023 16:29:46] "GET /static/images/emptyDatabaseIcon.svg HTTP/1.1" 200 4787
127.0.0.1 - - [28/Mar/2023 16:29:46] "GET /static/images/eject-fill.svg HTTP/1.1" 200 339
127.0.0.1 - - [28/Mar/2023 16:29:46] "GET /static/images/closeIcon.svg HTTP/1.1" 200 326
127.0.0.1 - - [28/Mar/2023 16:29:46] "GET /static/images/caret-up-fill.svg HTTP/1.1" 200 265
127.0.0.1 - - [28/Mar/2023 16:29:47] "GET /static/images/SSURGOLocationExample.svg HTTP/1.1" 200 34228
127.0.0.1 - - [28/Mar/2023 16:29:47] "GET /static/images/arrow-left-circle.svg HTTP/1.1" 200 370
127.0.0.1 - - [28/Mar/2023 16:29:47] "GET /static/images/changePathToEdit.svg HTTP/1.1" 200 901
127.0.0.1 - - [28/Mar/2023 16:29:47] "GET /static/images/searchIcon.svg HTTP/1.1" 200 919
127.0.0.1 - - [28/Mar/2023 16:29:47] "GET /static/images/plusIcon.svg HTTP/1.1" 200 936
127.0.0.1 - - [28/Mar/2023 16:29:47] "GET /static/images/rightArrow.svg HTTP/1.1" 200 317
127.0.0.1 - - [28/Mar/2023 16:29:47] "GET /static/images/SSAsInDatabaseIcon.svg HTTP/1.1" 200 6798
127.0.0.1 - - [28/Mar/2023 16:29:48] "GET /static/images/DeleteSSAsFromDatabaseIcon.svg HTTP/1.1" 200 6856
127.0.0.1 - - [28/Mar/2023 16:29:48] "GET /static/images/failedIcon.svg HTTP/1.1" 200 316
127.0.0.1 - - [28/Mar/2023 16:29:48] "GET /static/images/checkmarkFillGreen.svg HTTP/1.1" 200 335
127.0.0.1 - - [28/Mar/2023 16:29:48] "GET /static/images/background-checkmark-tabs.svg HTTP/1.1" 200 1307
127.0.0.1 - - [28/Mar/2023 16:29:48] "POST /serverStatus HTTP/1.1" 200 17
127.0.0.1 - - [28/Mar/2023 16:29:48] "GET /static/images/ncss.svg HTTP/1.1" 200 2635
127.0.0.1 - - [28/Mar/2023 16:29:48] "POST /SSURGOPortalUI HTTP/1.1" 200 533
  
```



## 3.2. Create a Desktop Shortcut

To create an optional, but recommended, shortcut and run SSURGO Portal from this location, complete the following steps:

1. In **Windows Explorer**, go to the **SSURGO Portal.pyz** file, right-click, select **Send to**, and select **Desktop (create shortcut)**.



2. The following icon appears on your desktop. Double-click the icon to open SSURGO Portal.



## 4. DB Browser Installation

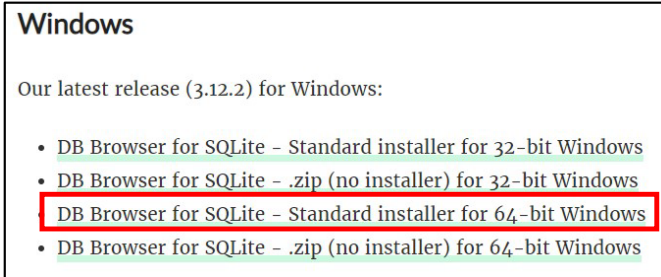
### 4.1. Download Instructions

While optional, DB Browser is the recommended tool for viewing the contents of the SQLite SSURGO template database and for using SQL to query the database. Its use is similar to how Microsoft Access allows users to view and query Access Database files (.mdb and .accdb). You can view the database through ArcGIS Desktop, ArcGIS Pro, QGIS, and any other applications that work with SQLite and GeoPackage databases.

At the time this guide was written, DB Browser 3.12.2 was the most current version. Presumably newer versions will replace 3.12.2, and the developers anticipate that they will open SQLite SSURGO template databases.

To install the DB Browser, complete the following steps:

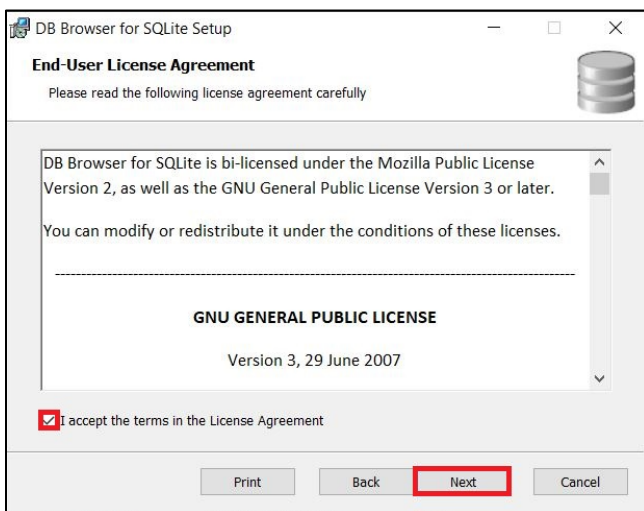
1. Download **DB Browser 3.12.2** from <https://sqlitebrowser.org/dl/>.
2. Select **DB Browser for SQLite – Standard installer for 64-bit Windows**.



3. Click **Next** on the Setup Wizard window.

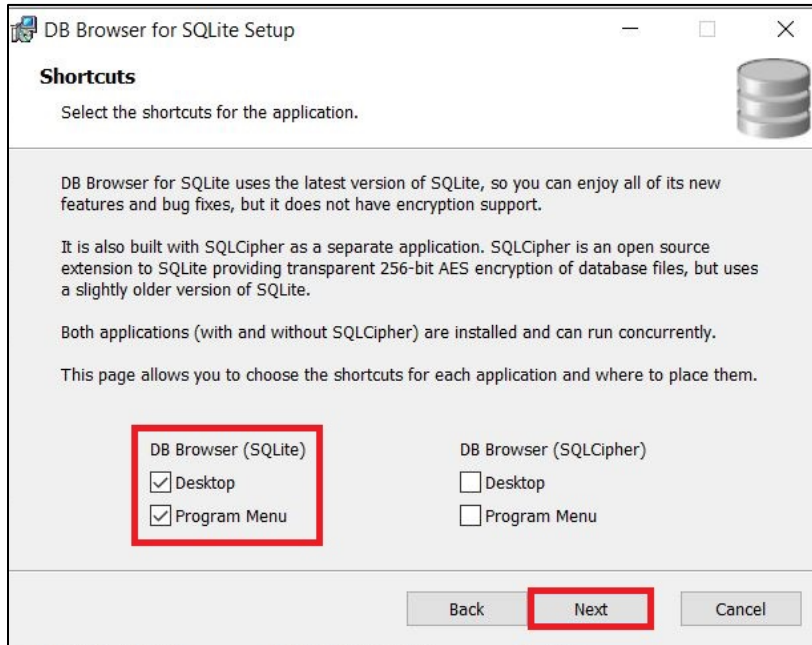


4. Click the **I accept the terms in the License Agreement** checkbox and click **Next**.

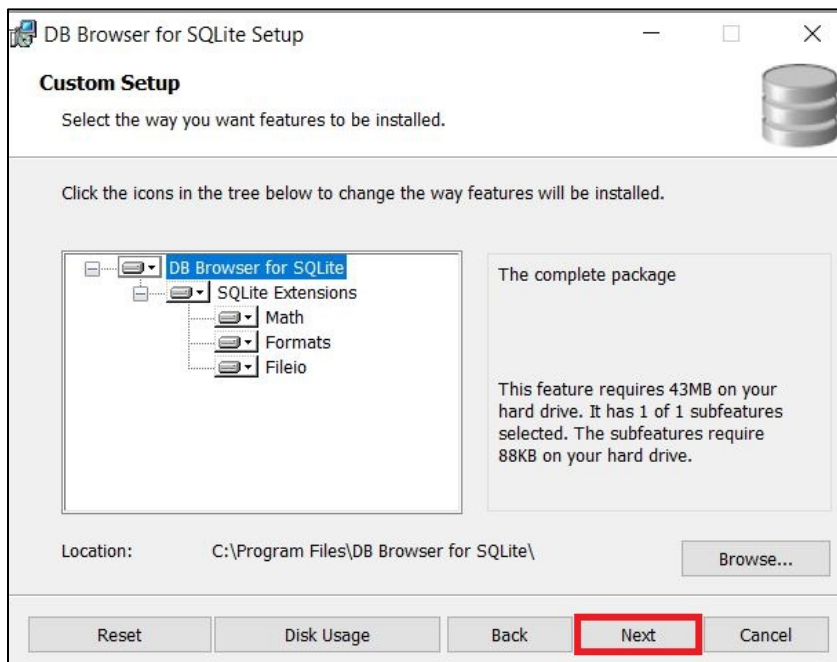


- Under **DB Browser (SQLite)**, click the **Desktop** and **Program Menu** checkboxes and click **Next**.

**Note:** This action creates a shortcut on both the desktop and the program menu.

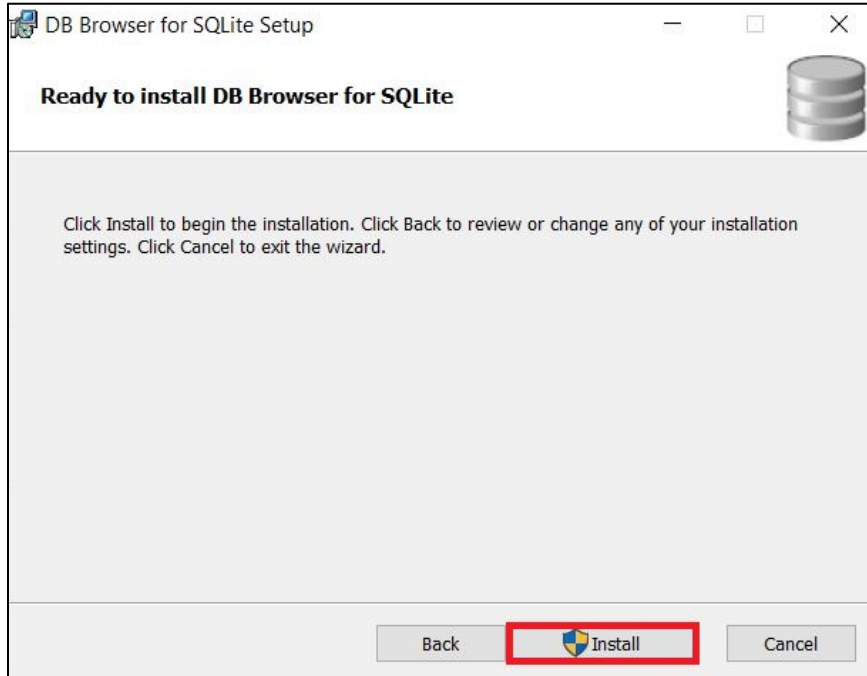


- Ensure **DB Browser for SQLite** is highlighted on the **Custom Setup** window and click **Next**.

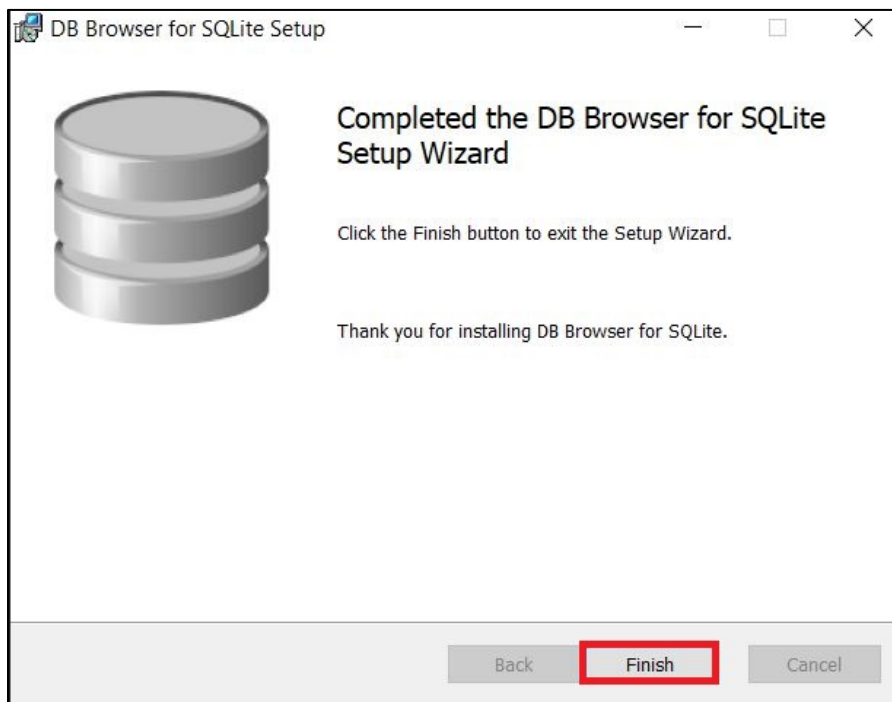


- Click **Install** on the **Ready to Install DB Browser for SQLite** window.

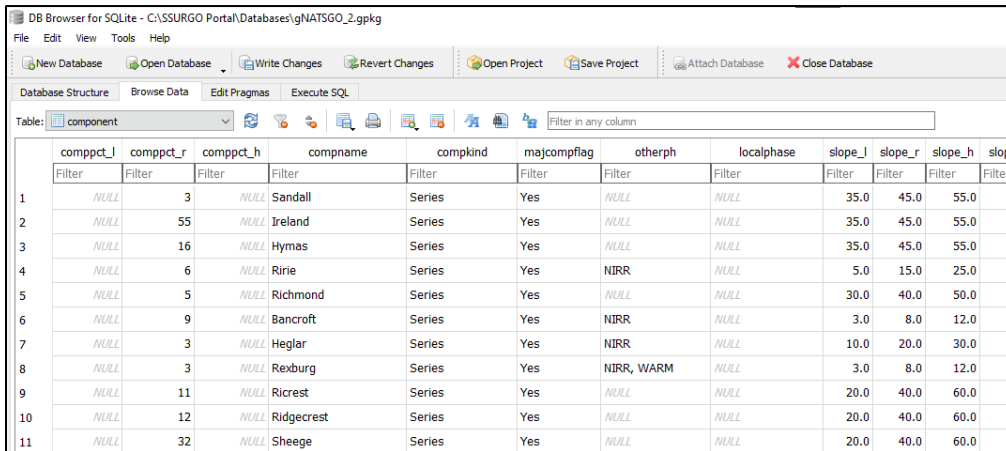
**Note:** If unable to install due to the lack of correct permissions, you will need assistance.



- Click **Finish** on the **Completed the DB Browser for SQLite Setup Wizard** window.



Below is an example of an SQLite SSURGO template database viewed with DB Browser 3.12.2.



	comppct_l	comppct_r	comppct_h	compname	compkind	majcompflag	otherph	localphase	slope_l	slope_r	slope_h	slope
1	NULL	3	NULL	Sandall	Series	Yes	NULL	NULL	35.0	45.0	55.0	
2	NULL	55	NULL	Ireland	Series	Yes	NULL	NULL	35.0	45.0	55.0	
3	NULL	16	NULL	Hymas	Series	Yes	NULL	NULL	35.0	45.0	55.0	
4	NULL	6	NULL	Ririe	Series	Yes	NIRR	NULL	5.0	15.0	25.0	
5	NULL	5	NULL	Richmond	Series	Yes	NULL	NULL	30.0	40.0	50.0	
6	NULL	9	NULL	Bancroft	Series	Yes	NIRR	NULL	3.0	8.0	12.0	
7	NULL	3	NULL	Heglar	Series	Yes	NIRR	NULL	10.0	20.0	30.0	
8	NULL	3	NULL	Rexburg	Series	Yes	NIRR, WARM	NULL	3.0	8.0	12.0	
9	NULL	11	NULL	Ricrest	Series	Yes	NULL	NULL	20.0	40.0	60.0	
10	NULL	12	NULL	Ridgecrest	Series	Yes	NULL	NULL	20.0	40.0	60.0	
11	NULL	32	NULL	Sheege	Series	Yes	NULL	NULL	20.0	40.0	60.0	

## 4.2. Set Up SQLite Databases to Open in DB Browser by Default

Microsoft Windows can be set to always use DB Browser to open SpatialLite and GeoPackage databases. While this is optional, the developers recommend it because it makes it possible to click on the SQLite SSURGO Template database in Windows File Explorer and have it open in DB Browser.

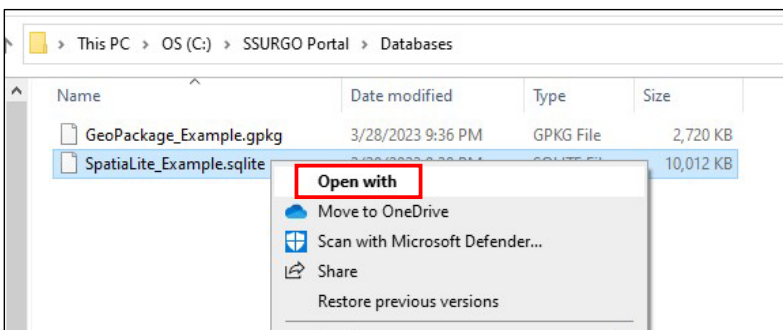
Perform this step after creating an SQLite SSURGO Template database using SSURGO Portal. In SSURGO Portal, there is an option to create either a GeoPackage or a SpatialLite SQLite database.

For each template version, complete the following steps:

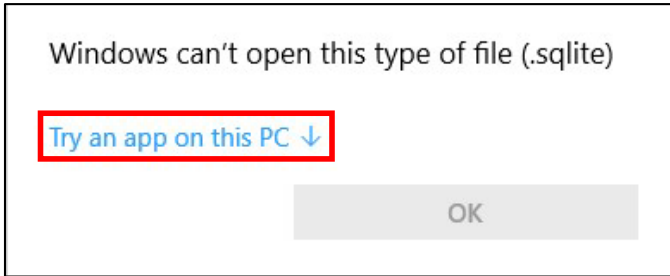
1. Using Windows File Explorer, go to the location of the SQLite SSURGO Template databases.

**Note:** GeoPackage SQLite files have a **.gpkg** extension, and the SpatialLite SQLite files have an **.sqlite** extension.

2. Right-click on an **SQLite SSURGO Template** database and select **Open with**.



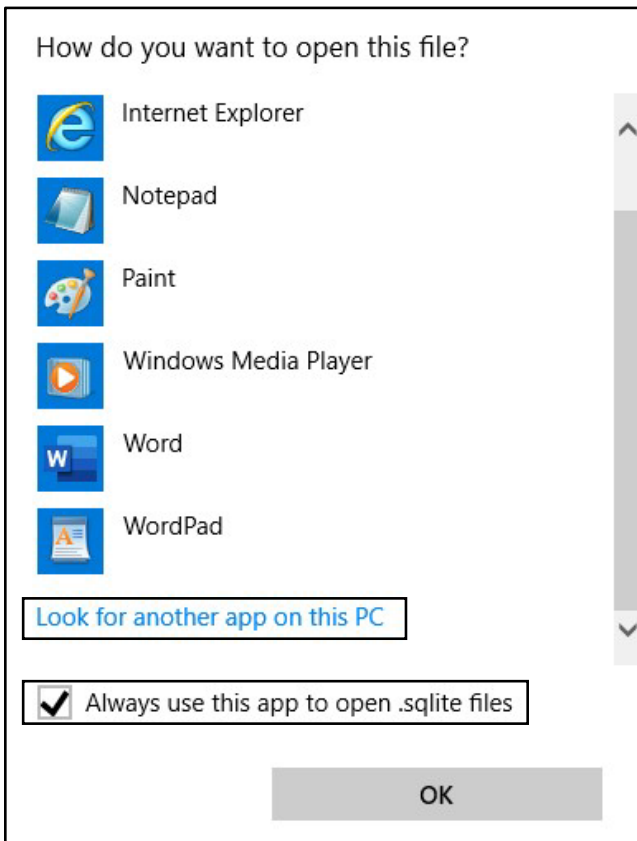
3. Click **Try an app on this PC**.↓



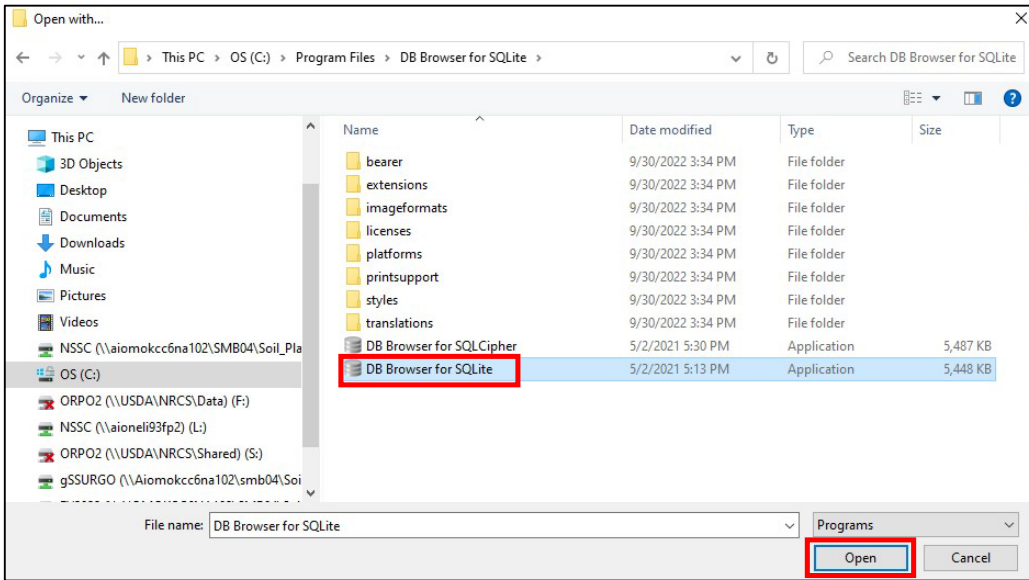
4. Click the **Always use this app to open .sqlite** checkbox and then click **Look for another app on this PC**.

**Note:** It may be necessary to scroll to the end of the list of apps to see the **Look for another app on this PC** option.

The message states either **.gpkg** or **.sqlite**, depending on the database chosen in Step 2.



5. Go to where DB Browser was installed, click **DB Browser for SQLite**, and then click **Open**.



This action opens the DB Browser and the selected SQLite SSURGO Database in DB Browser. You should see the DB Browser database icon for all SQLITE and GPKG files in Windows Explorer.

