



Soil Survey Geographic Database (SSURGO) Bulk Downloader for ArcGIS Pro

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1. Overview

The following sections detail the instructions for installing the SSURGO Bulk Downloader into ArcGIS Pro and for using the SSURGO Bulk Downloader tool.

SSURGO data is delivered as a series of datasets on [Web Soil Survey \(WSS\)](#), delivered in zip files. There are over 3,000 SSURGO datasets for the United States and Island Territories, but WSS only allows you to download a single SSURGO dataset at a time. The SSURGO Bulk Downloader can download many datasets at once, and, unlike WSS, it will unzip (i.e., extract) the files as part of the download process.

This guide assumes the following:

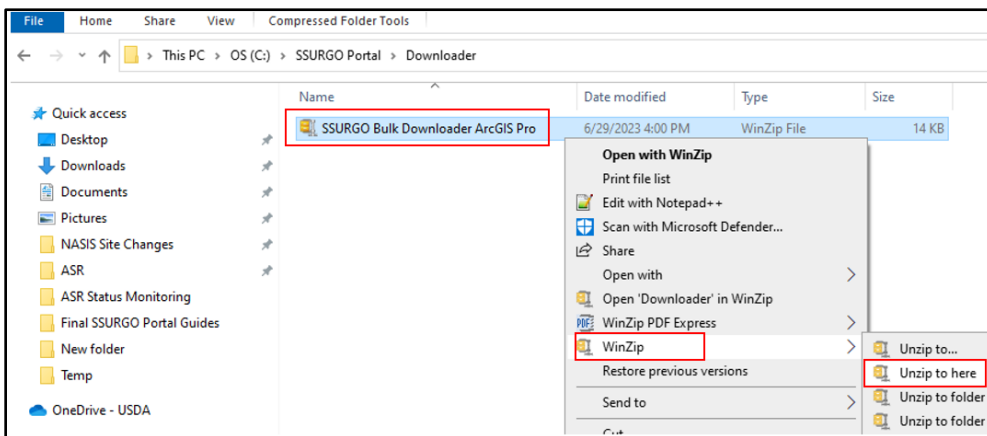
- You have ArcGIS Pro 2.6 or greater installed on your computer.¹
- Your operating system is Microsoft Windows 10 or greater.²

2. SSURGO Bulk Downloader Installation

The SSURGO Bulk Downloader tool comes in a zip file. You will need to unzip (i.e., extract) the contents after downloading the file. You can store the tool in any local directory. To install the SSURGO Bulk Downloader, complete the following steps:

1. Download SSURGO Bulk Downloader ArcGIS Pro.zip from the [SSURGO Portal webpage](#) to the directory of your choice and unzip (extract) the contents.

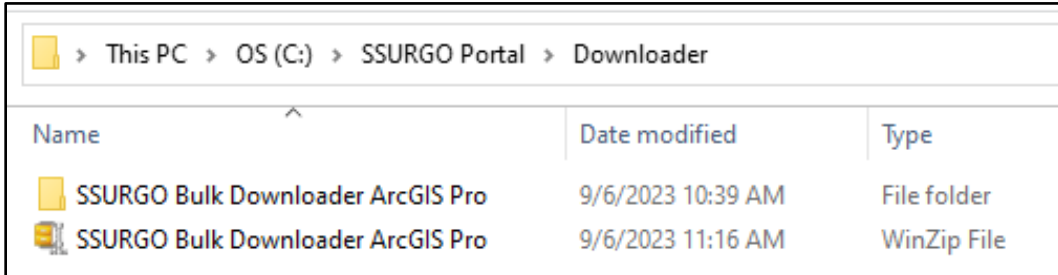
The example below shows file extraction through **WinZip**, but, depending on your software, you may have to use **Extract All** or some other option to extract the contents.



¹ The developers tested SSURGO Bulk Downloader on ArcGIS Pro 2.6, 2.7, and 3.0.

² The developers tested SSURGO Bulk Downloader on Windows 10 and 11.

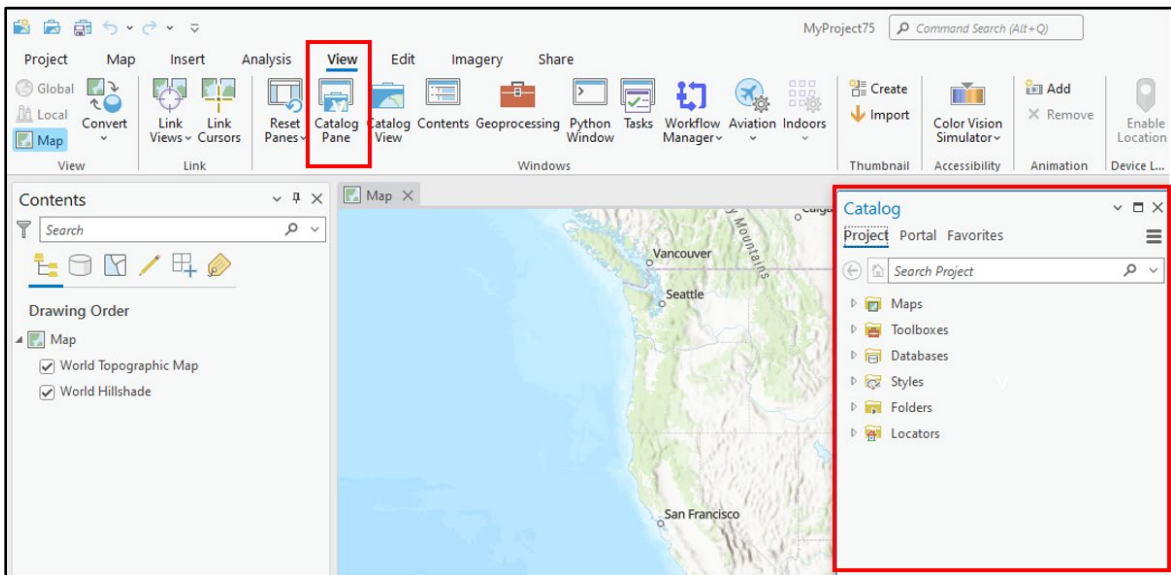
You should see the information below once you extract the data. The actual tool is in the SSURGO Bulk Downloader folder.



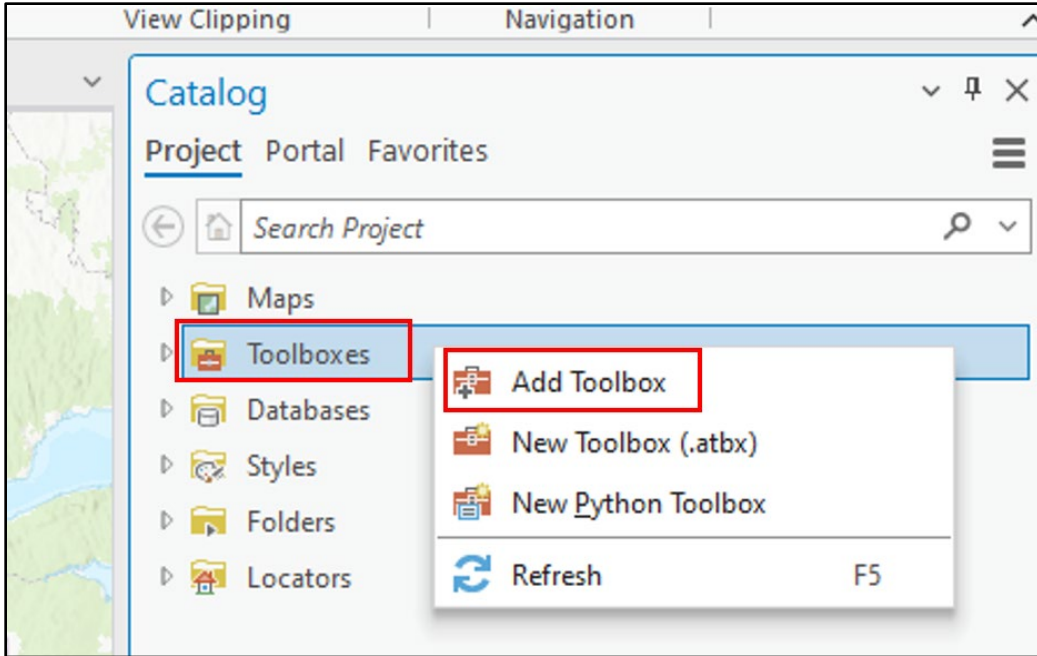
Name	Date modified	Type
SSURGO Bulk Downloader ArcGIS Pro	9/6/2023 10:39 AM	File folder
SSURGO Bulk Downloader ArcGIS Pro	9/6/2023 11:16 AM	WinZip File

2. Add the SSURGO Bulk Downloader tool to ArcGIS Pro.

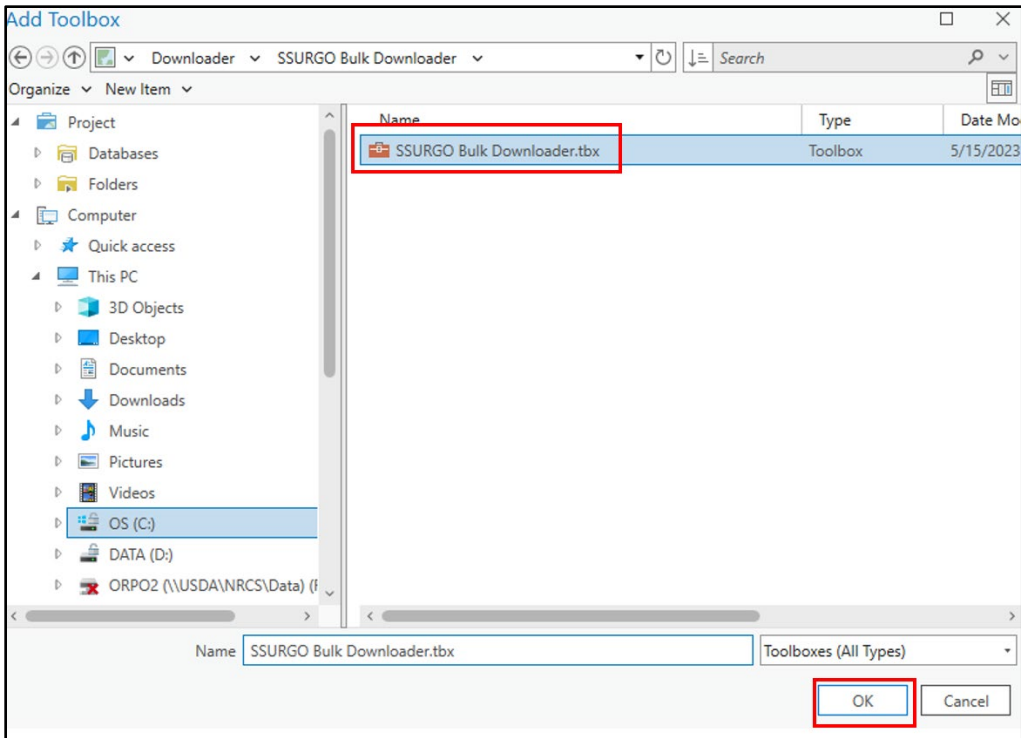
Open an ArcGIS Pro project. If the Catalog isn't already open, click on the **View** tab and then click **Catalog Pane**, which should open the Catalog on the right side of the application by default.



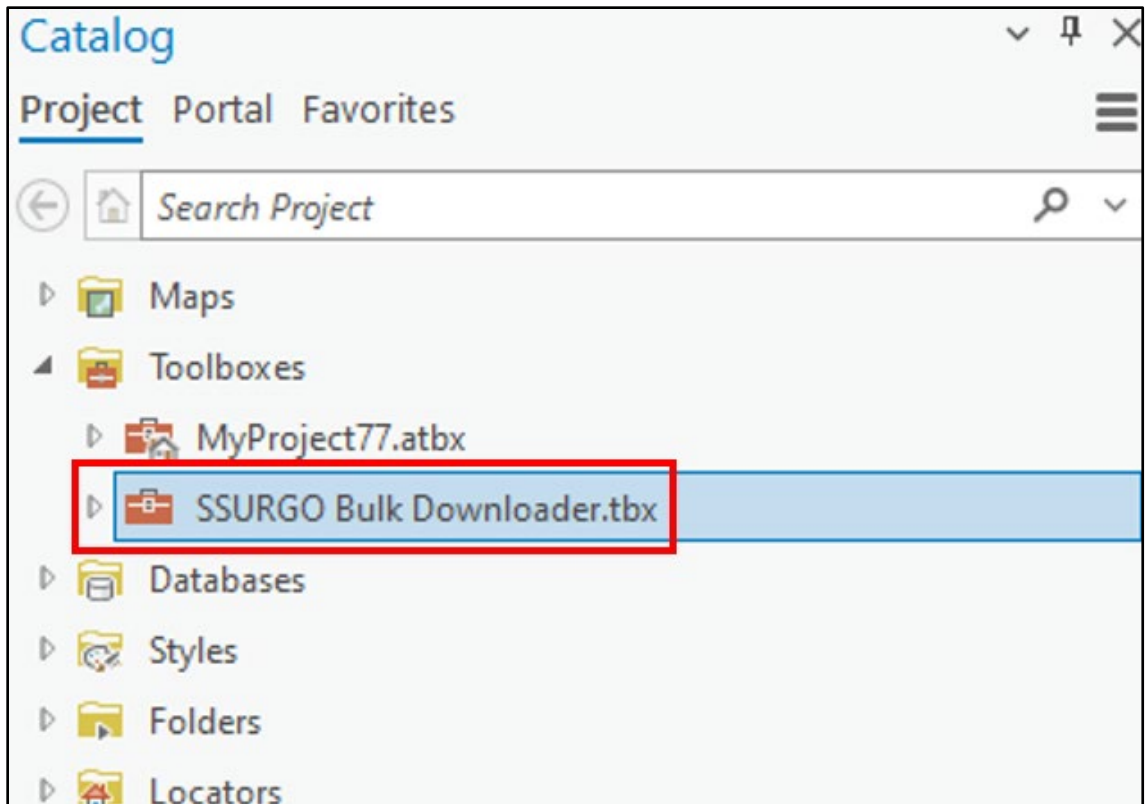
3. In the **Catalog** pane, right click on **Toolboxes**, and select **Add Toolbox**.



4. Navigate to the location of the SSURGO Bulk Downloader.tbx file and click **OK**. The file is in the SSURGO Bulk Downloader you unzipped (extracted) in step 1. The .tbx extension is the ArcGIS Toolbox file format.



- The step above added the SSURGO Bulk Downloader toolbox to the project.



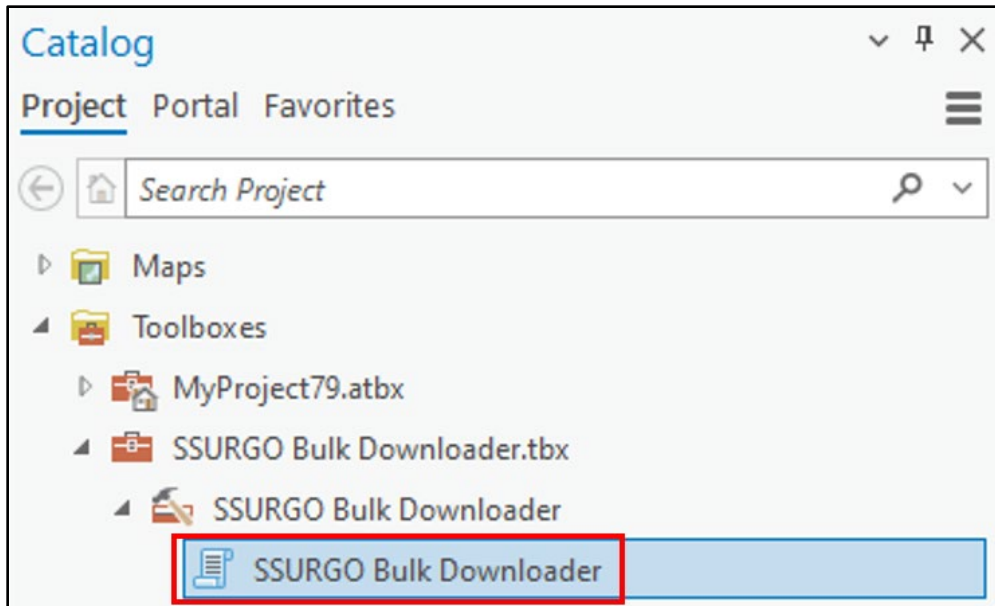
Note: To make the toolbox available in all future ArcGIS Pro projects, right click on the SSURGO Bulk Downloader.tbx file and select **Add to Favorites**. Doing this will permanently add the toolbox to the Favorites section of the Catalog pane and it will be available in new projects. It will not appear in the Toolboxes section of the Catalog pane, but it can be run from the Favorites section.

3. Using SSURGO Bulk Downloader

This section assumes you have an open ArcGIS Pro project with the SSURGO Bulk Downloader toolbox installed in the Toolboxes folder and the Catalog pane is open. If the SSURGO Bulk Downloader Toolbox is not installed or the Catalog pane is not visible, refer to section 2 for additional guidance.

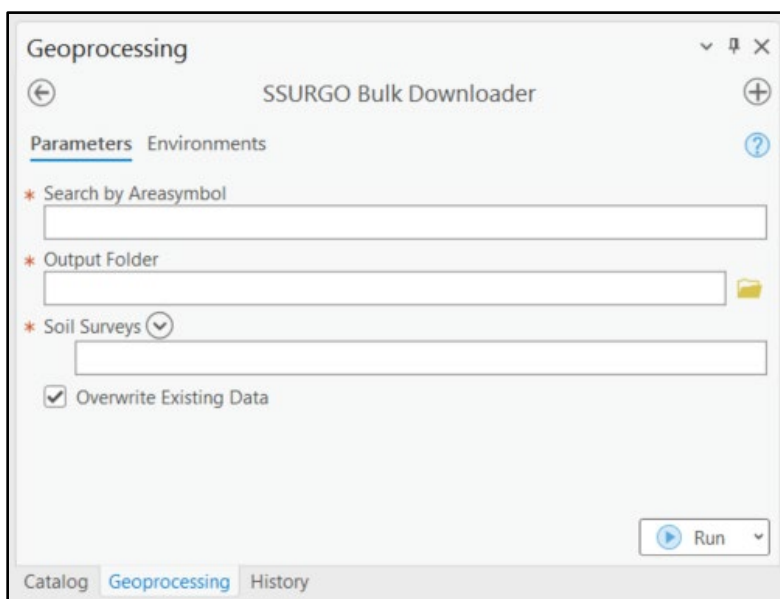
To begin using the SSURGO Bulk Downloader, complete the following steps:

1. Under **Toolboxes** in the ArcGIS Pro project **Catalog**, descend to the script icon and double click it to launch the **SSURGO Bulk Downloader**.



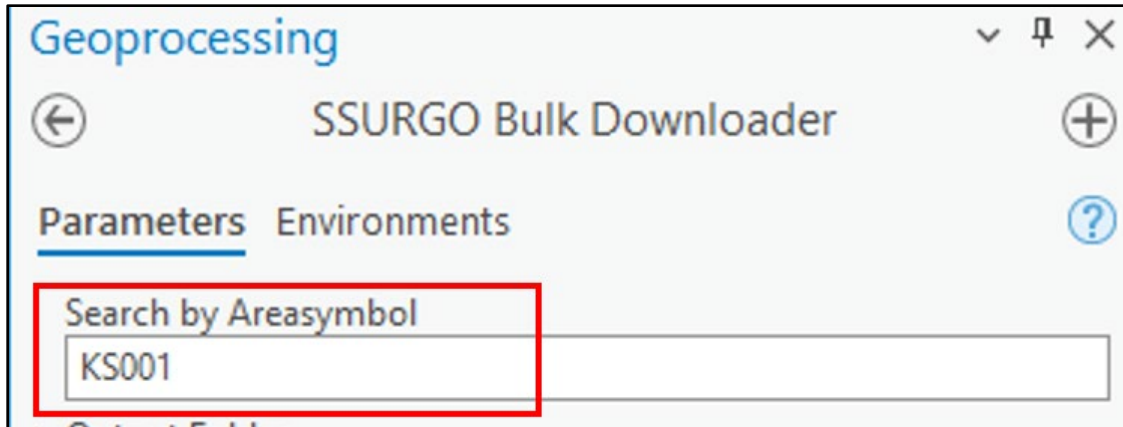
Note: You could also launch the tool from the Favorites section of the Catalog pane if you added it to your favorites.

2. The tool will open in the **Geoprocessing** pane. A series of **Parameters** appear, which all need valid values before the tool will run. The guide discusses this below. Access guidance for each parameter by hovering over the red asterisk adjacent to each field. The **Environments** tab does not apply for this tool.



3. Enter a value in **Search by Areasymbol**. You can search for area symbols several ways. The following pages show three different options.

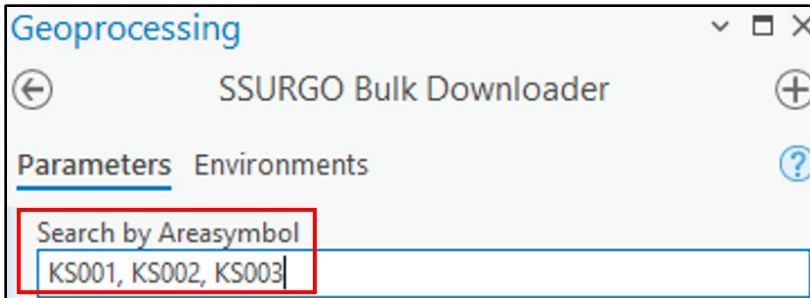
Option One: You can enter a single soil survey area symbol. For example, you can enter “KS001” and it will download the SSURGO data for KS001 – Allen County, Kansas.



Option Two: You can use the asterisk (*) symbol to search for more than one soil survey area symbol. For example, you can enter “KS*” to retrieve all SSURGO data for the entire state of Kansas.



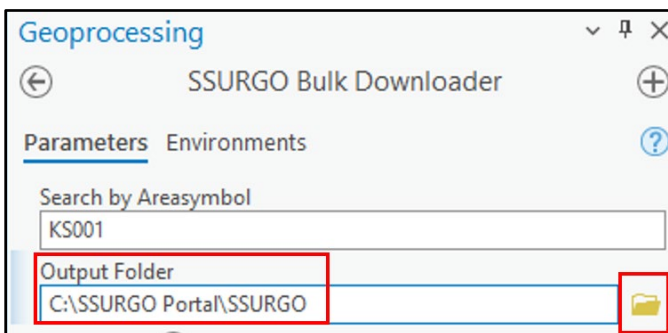
Option Three: You can enter a list of area symbols separated by commas to download more than one soil survey area symbol. For example, you can enter “KS001, KS002, KS003” to retrieve the SSURGO data for these three soil survey areas.



Notes:

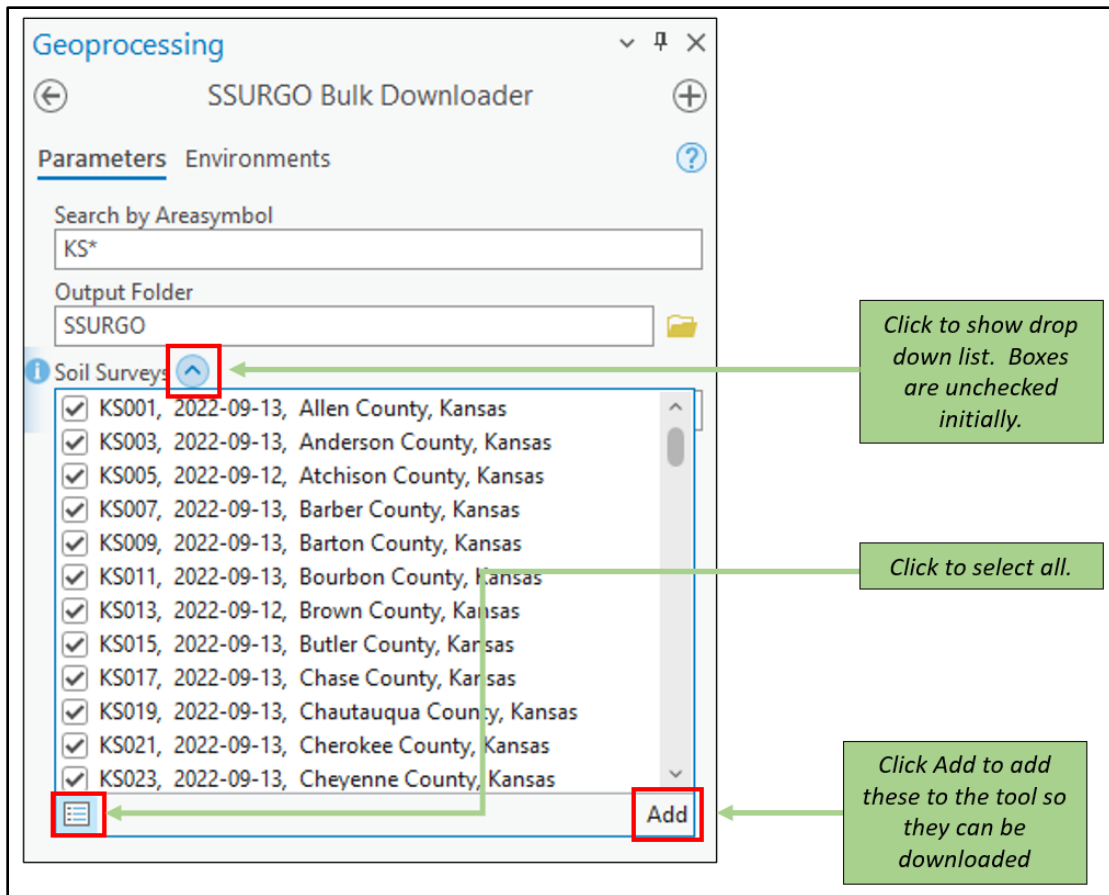
- (a) An asterisk (*) is a wildcard.
- (b) After you enter a value in the Search by Areasymbol parameter and click out of the box, the tool executes the search and the soils surveys will populate the Soil Surveys section below, although you need to expand the list.
- (c) If you include search terms that yield no match results, those search terms will simply be ignored by the tool (i.e., ‘HI701, ZZ*’ will match only HI701 and ZZ* will be disregarded).
- (d) With one exception, the format for Areasymbols is two letters for the U.S. state or territory followed by a three-digit number (i.e., HI701).
- (e) The quotation marks used in the guide are not necessary. The tool removes single and double quotes before the search string is parsed.
- (f) This field is not case sensitive, so for example, hi701, HI701, and HI701 all work.
- (g) If you include special characters other than the wildcard (“*”), the tool prompts you to remove them before the tool can run successfully.

4. Select **Output Folder** by clicking the folder icon on the right of the **Output Folder** parameter. The Downloader stores the SSURGO downloads here.



- Select soil surveys to download by clicking the arrow next to **Soils Surveys** and then choosing the ones you want to download. You can select all by clicking the box at the bottom right after the dropdown list appears. Click **Add** to finish.

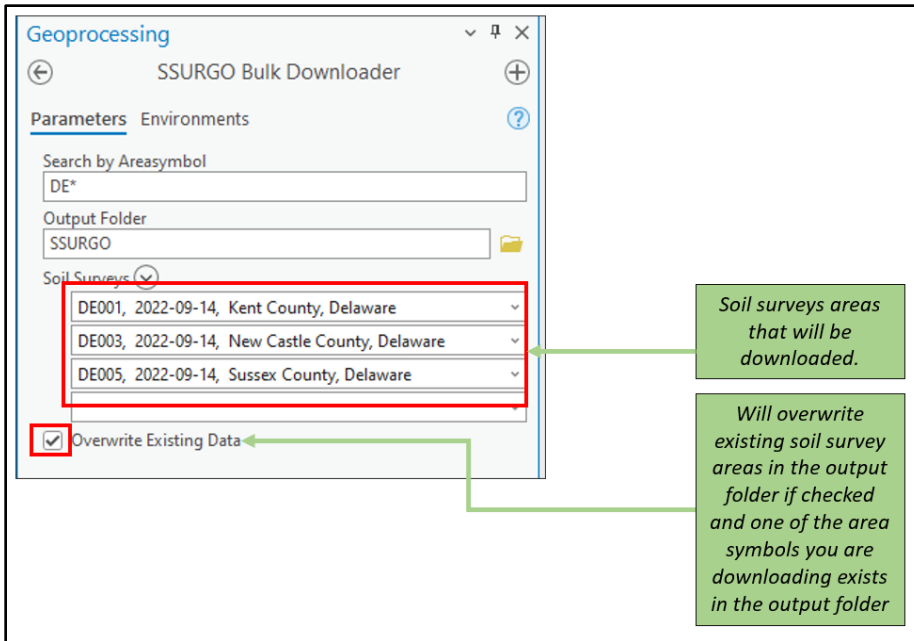
The example shows “KS*” as the search parameter, so the tool returned all soil survey areas for Kansas.



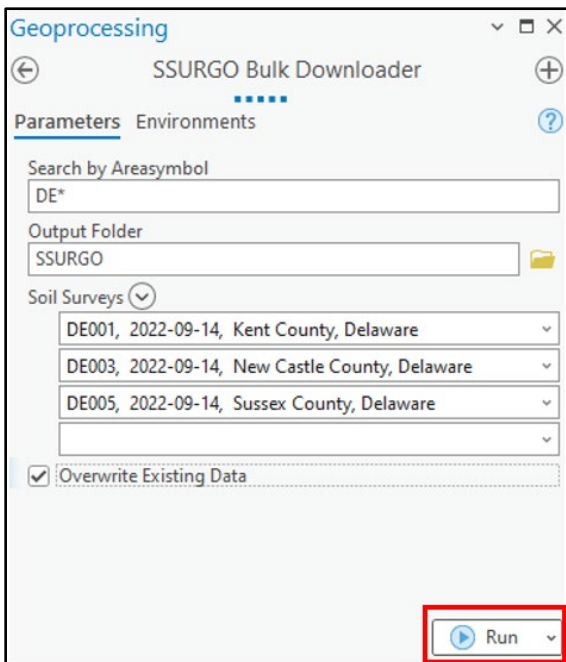
Notes:

- The down-arrow opens the dropdown list.
- Individual items can be clicked, or the icon on the bottom-left of the list toggles the checkboxes on and off.
- After you make the selections, click **Add**.
- WARNING:** Loading the entire list of nearly 3,400 Areasympols can take as long as 5 minutes.

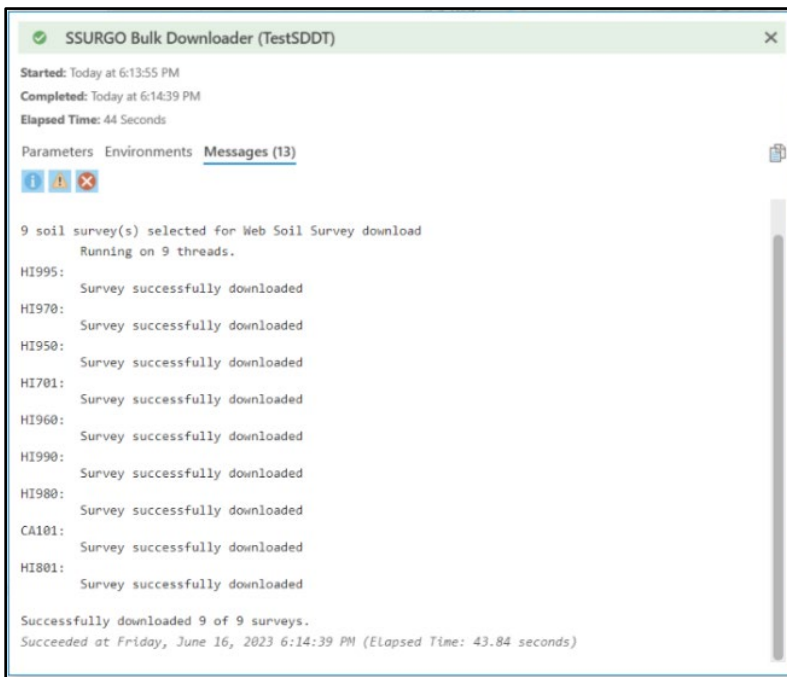
- After clicking **Add**, the final list of soil survey areas to be downloaded appears. The **Overwrite Existing Data** box is checked by default. You can either leave it checked, which will overwrite any SSURGO data in the output folder that uses an area symbol you are downloading, or you can uncheck the box. Typically, you will want to overwrite the data to ensure you are using the most up-to-date SSURGO information from Web Soil Survey.



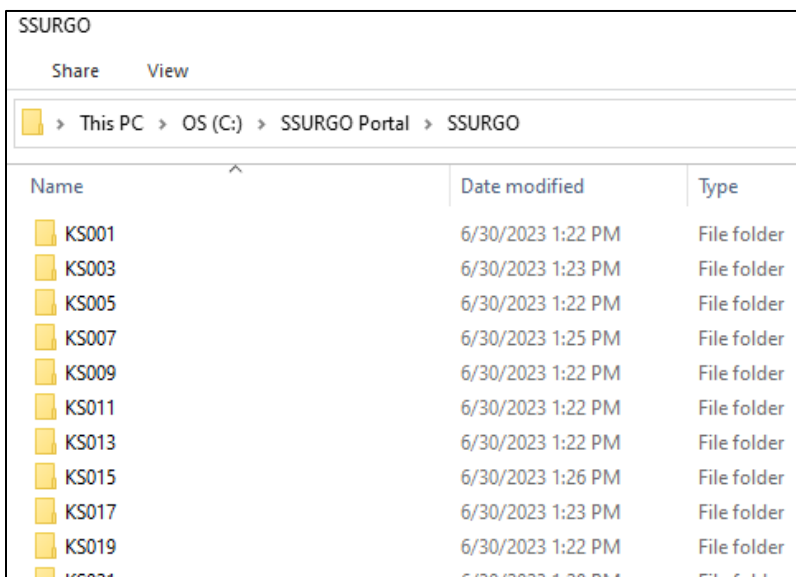
- Click **Run** to download SSURGO data.



The status bar at the bottom of the tool shows the tool is working. For more details, click on the **View Details** link at the bottom of the tool. **Note that some large Areasymbols can take many minutes to download and downloading all Areasymbols can take several hours.** Below is a screenshot of the tool details after a run has been completed. The downloaded datasets will be in the selected output folder.



You should also see the SSURGO files in the output folder.



When downloading numerous soil survey areas, such as the entire SSURGO dataset, failures may occur due to issues on the server. If this happens, the tool may not have downloaded some soil surveys. Below is a screen shot of the final log messages that list the soil surveys that did not download. Rather than trying to download all the soil surveys again, you can make a comma-delimited string from the error log, paste it into the **Search by Areasymbol** parameter, and rerun the tool. This will download the soil surveys that failed. In this example, you make the list: CA013, CA011, CA041, CA031, CA033, CA021, CA053.

```
Successfully downloaded 0 of 7 surveys.  
⚠  
7 surveys failed to load:  
⚠ CA013  
⚠ CA011  
⚠ CA041  
⚠ CA031  
⚠ CA033  
⚠ CA021  
⚠ CA053  
Failed script SSURGO Bulk Downloader...  
❗ Failed to execute (DownloadSSURGObyAreasymbol).  
Failed at Friday, June 16, 2023 6:38:05 PM (Elapsed Time: 3 minutes 50 seconds)
```