

# System - Template Database Information

---

## General Information

The database was developed in order to facilitate the delivery and use of soil survey data for USDA Natural Resources Conservation Service end-users and cooperators. This database may be used stand-alone or in conjunction with the Soil Data Viewer application. The underlying data structure corresponds to what we refer to as the SSURGO version 2 standard. Although a SSURGO product typically represents both the tabular and spatial aspects of a correlated and published soil survey area, this database may also be used to deliver tabular data for on-going soil survey areas to USDA Field Service Centers.

---

## Contacting Support

Questions about this database should be directed to the National Soil Information System (NASIS) Hotline. The NASIS Hotline, which resides at the National Soil Survey Center in Lincoln Nebraska, is typically staffed from 8:00 AM to 4:30 PM Central Time.

(402) 437-5378 – Steve Speidel  
(402) 437-5379 – Tammy Cheever

e-mail: [hotline@nssc.nrcs.usda.gov](mailto:hotline@nssc.nrcs.usda.gov)

---

## SSURGO Version: 2.0

The SSURGO version defines the underlying data structure of the soil data tables, i.e. which tables and columns are defined, and the relationships between tables. In more technical terms, the SSURGO version is equivalent to the version of the underlying data model. Not all of the tables in this database are included in the SSURGO standard. Tables whose name begins with the string "SYSTEM" are not part of the SSURGO standard. These tables support special functions only available in this particular database implementation.

The first version of SSURGO was modeled on the original State Soil Survey Database (SSSD). This version was referred to as "SSURGO". In early 2001, a new version of SSURGO was released. This version was modeled on the NASIS (National Soil Information System) database. NASIS is the information system that replaced SSSD. The first version of SSURGO that was based on NASIS is referred to as SSURGO version 2.

---

## SSURGO Static Metadata Version: 2.0.2

While the underlying structure of a given version of SSURGO is static, the static metadata associated with a version of SSURGO may still change. New choices may be added to a domain. The wording of a choice in a domain may be updated. Things that lacked a description may eventually be described, and existing descriptions may be updated. Using a template with an outdated version of the static metadata will not prevent data from importing correctly. If you use a template version with an outdated version of the static metadata, you may see entries in choice columns that are not documented in your outdated metadata.

---

## Template Version: 1.19

The template version is the overall version of all tables, queries, forms, reports, macros and modules in the underlying MS Access database, that are not part of the SSURGO standard. This template MS Access database is just one of a number of possible implementations of the SSURGO tabular data. The template version is independent of the SSURGO version.

When corrections or enhancements are made to this database, the template version is always updated. The report section "Template Database Change History" records the changes associated with a particular template version.

---

## Importing Data

Depending on what class of user you represent, this database may already contain soil survey data when you receive it. Since this template database is maintained independent of soil survey data, someone at some point has to import soil survey data into this database.

Although data for more than one soil survey area may be included in a particular export, a typical export contains data for only one soil survey area. Although only part of the tabular data for a soil survey area may be exported, a typical export contains the entire set of tabular data for a soil survey area.

Data from more than one export may be imported into this database. Each export has to be imported independently. A subsequent import cannot contain any data for a soil survey area that already resides in this database, since the current import process is strictly an "add" operation as opposed to a more sophisticated "add/update" operation. If you attempt to process an export that contains data for a soil survey area that already

# System - Template Database Information

## Importing Data

---

resides in this database, that import operation will fail.

MS Access, despite being the incredibly nifty desktop database it is, should not be confused with a genuine high-end database management system such as Oracle or Informix. You may continue to import soil survey data until the maximum allowable size of an MS Access database is reached (1 gigabyte). Of course the larger the MS Access database, the more that performance suffers.

From this point on in this section pertains primarily to the person who is responsible for importing soil survey data into the template MS Access database. If the database that was provided to you already contains soil survey data, someone else performed the following functions for you at an earlier time.

The export function that extracts data for import into this database produces a set of ASCII pipe delimited files that are tarred and gzipped into a single file whose extension is .gz. The user producing the export is permitted to specify the non-extension part of the file name. Before data can be imported into this database, the gzipped file must be unzipped and untarred. This is most easily accomplished by using the shareware program WinZip. When you attempt to unzip the export file using WinZip, WinZip displays the following message:

Archive contains one file:

?????????.tar

Should WinZip decompress it to a temporary folder and open it?

(????????? represents the non-extension part of the export file name that was specified by the user who generated the export.)

Hit the button labeled "Yes" and then select the action "Extract". After you select "Extract", you will be asked to specify the directory into which the individual extracted files should be placed.

After the individual ASCII files have been extracted, open the template MS Access database, select the Macros tab and run the macro named "Import". You will be asked to enter the directory where the files to be imported reside. After you enter the directory pathname, hit the button labeled "OK". At this point, the import dialog box will close and the import will begin.

If any problems occur during the import process, a dialog box describing the problem will be displayed. All problems that occur during the import process are logged in a file named "nasiserr.txt" which is placed in the root directory of your C drive.

One note of caution in regards to handling the export file. Typically the single export file with the extension of .gz is transferred to a PC environment and then unzipped. It is also possible to unzip and untar this file under a UNIX environment and then transfer the individual files to a PC. If you extract the individual files under UNIX and then transfer the individual files to a PC, make sure that you transfer those files in Binary mode. This is necessary because the records in the individual files that are already bundled into a single zip file already employ the PC end-of-record convention (CR-LF). If you extract the export file under UNIX and then transfer the individual files in ASCII mode, the proper PC end-of-record convention will be corrupted and the files will not successfully import.

## Generating Reports

---

This database contains an interface for generating a variety of reports. Reports are divided into two categories, "Soil Reports" and "System Reports". Soil reports present information about the map units and soil components that currently reside in this database. System reports describe the functionality and structure of this template database, as well as documenting the vintage of the soil survey data that currently resides in this database. At this time, no descriptions of the individual soil reports are available. Descriptions of most of the system reports can be found in the section titled "Metadata".

In order to generate soil reports, select the tab labeled "Forms" and then open the form named "Soil Reports". In order to generate system reports, select the tab labeled "Forms" and then open the form named "System Reports". Note that the Soil Reports form has a button for opening the System Reports form, and vice versa. Both forms may be open at the same time.

In order to generate a soil report, you must first select one or more map units to be included in the report. If your database contains data for more than one soil survey area, you may first have to select the appropriate soil survey area before selecting map units. The current soil report interface restricts you to selecting one or more map units for a single soil survey area at a time.

After you have selected the map units you wish to include in the report, select the soil report you wish to generate. If the report you selected does not require any parameters, the button on the lower left of the form will have the caption "Generate Report". Clicking "Generate Report" will display the currently selected report in the "preview window". If the report you selected requires parameters, the button on the lower left of the form will have the caption "Select Parameters". Clicking "Select Parameters" will bring up another form, from which you can make your parameter selections. After making your parameter selection, click the button on the parameter form that is labeled "Generate Report".

# System - Template Database Information

## Generating Reports

---

Once a report has come up in the preview window, you can browse through the report in the preview window, or actually print the report from the preview window. When you are finished browsing or printing the report, you can close the preview window by either clicking the "X" at the top right of the window or by clicking the menu item at the top of the screen labeled "Close".

The System Reports form operates the same as the Soil Reports form except you do not select map units before generating a system report.

All report interface forms may be closed by clicking the button labeled "Exit".

Generating a report by selecting the tab labeled "Reports" and then opening a specific report should be avoided. While this won't break anything per se, the report that is displayed, if any, will be based on map unit selections that were made at some point in the past, and may be based on parameter selections that were also made at some point in the past.

## Metadata

---

There are two kinds of metadata associated with this database, "static" and "dynamic". The static metadata documents the structure of the underlying database. The dynamic metadata documents the tabular soil survey data that currently resides in the database, if any.

The static metadata is independent of what soil survey data currently resides in the database. Note that the static metadata only describes those tables that are considered part of the SSURGO version 2 standard. This database does contain additional tables that are not part of the SSURGO version 2 standard per se.

Below is a brief description of each metadata report. Additional metadata information and data model diagrams are available at <http://nasis.nrcs.usda.gov/documents/metadata>.

### Static Tabular Metadata – Tables

This report provides a narrative description of each table in the SSURGO version 2 standard.

### Static Tabular Metadata - Table Columns

This report describes the columns of each table in the SSURGO version 2 standard. This is the source for column name, data type, field size, precision, minimum, maximum and domain name.

### Static Tabular Metadata - Table Column Descriptions

This report provides a narrative description of every column in every table in the SSURGO version 2 standard.

### Static Tabular Metadata - Unique Indexes

This report documents all unique constraints defined for tables in the SSURGO version 2 standard. The information in this report is probably of little value to the typical end-user.

### Static Tabular Metadata – Relationships

This report documents all relationships between tables in the SSURGO version 2 standard. This information is important for understanding the relationship between various soil attributes and entities. This information is also needed in order to be able to effectively query the database.

### Static Tabular Metadata – Domains

This report documents all static domains associated with columns of tables in the SSURGO version 2 standard. If a column is associated with a static domain, that relationship will be documented in the report titled "Static Tabular Metadata – Table Columns". A particular column may be associated with only one static domain, but a particular static domain may be associated with more than one column. This report is the only source of the actual contents of a static domain.

### Dynamic Metadata - Import Information

This report documents what soil survey data was included in a particular export. It includes a variety of export certification information and metadata.

### Dynamic Metadata - Soil Interpretation Descriptions

If a particular export included soil interpretative results, this report documents the soil interpretations included in that export.

# System - Template Database Information

## Database Security

---

This database has not been secured in any way. Modifying existing database objects can easily result in the disabling of existing functions. Although new database objects may be added, please keep in mind that doing so may make it more difficult to upgrade to a newer version of the template database. This template database is periodically updated and enhanced. You may at some point in time want to retrieve an updated version of this template database. If you have added new database objects to an older template database, and you wish to retain those objects, you are responsible for transferring those objects from the older template database to the new template database.

## Template Database Change History

---

1.19 – 11/29/2001 – Modified function WinPst\_Create\_Data to not abort on null water table depths to top. In reverse engineering water table information, only records where RV water table depth to top is not null are considered, and RV water table depth to top is now substituted when either water table depth to top low or water table depth to top high is null.

Modified all main forms to display template version in the form title bar. This was done to make the template version more prominent and easier to find during support calls.

Numerous changes were made to help make customizing the SSURGO template database easier. Interpretation reports were modified to be completely table driven. This required modifications to the design of tables "SYSTEM – Soil Reports" and "SYSTEM – Soil Reports – Interpretations". A number of new functions were added to retrieve values from these two tables at report generation time. Other modifications were made to the existing contents of table "SYSTEM – Soil Reports" in order to make existing entries consistent with SSURGO template database customization guidelines.

1.18 – 10/15/2001 – Made the following minor metadata corrections, not all of which even pertain to SSURGO per se:  
Description for attribute "initial\_cooperator\_acres\_goal" was updated.  
Description for attribute "update\_cooperator\_acres" was updated.  
Description for domain "soil\_survey\_area\_status" choice "maintenance" was updated.  
Status of domain "taxonomic\_subgroup" choice "lithic-ruptic-entic hapludults" was changed from "obsolete" to "current".

1.17 – 09/19/2001 – Updated SSURGO metadata reports to include metadata version number. Added new function GetSSURGOStaticMetadataVersion.

1.16 – 09/12/2001 – Resynchronized with NASIS data dictionary 5.0.17. SSURGO data dictionary version is now 2.0.2. There were some domain changes and additions, and some attribute descriptions were updated.

1.15 – 07/16/2001 – Corrected an error in function WinPst\_Create\_Data. Changed all format specifications of "#.#" to "0.0". With the previous format specification, water table depths of zero were being converted to "." rather than "0.0".

1.14 – 07/10/2001 – As of NASIS 5.0, plant scientific name is no longer a required field, due to the inclusion of "plants" such as "other annual forbs", etc. This change was mistakenly not implemented in the SSURGO template database. Plant scientific name was made nullable in the following tables:

cocanopycover – Component Canopy Cover  
coeplants – Component Existing Plants  
coforprod – Component Forest Productivity  
copwindbreak – Component Potential Windbreak  
cotreestomng – Component Trees to Manage

1.13 – 06/15/2001 – Added Win-Pst data generation facilities. The following permanent database objects were added:

Table: SYSTEM – Win-Pst Data  
Query: Win-Pst – Input  
Form: Win-Pst Export  
Macro: Win-Pst – Create Data  
Macro: Win-Pst – Export  
Function: Win-Pst Functions.WinPst\_Create\_Data  
Function: Win-Pst Functions.WinPst\_Export

1.12 – 05/22/2001 – Report "Hydric Soils List" was added.

Report "Soil Component Legend" was renamed "Component Legend" and reformatted to be more consistent with other reports.

The display order of the non-manuscript reports in the Soil Reports form "Select Report" combo box list was changed.

# System - Template Database Information

## Template Database Change History

---

The closing and reopening of form "Soil Reports" when importing data was changed to occur only after data has been successfully imported.

1.11 – 04/25/2001 – Report "MANU - Table A1 - Acres by County (2 or 3 counties)" was modified to always append a state alpha FIPS code to the county name. Situations exist where a soil survey crosses a state boundary and includes two counties with the same name. To implement this change, new function "GetCountyOrParishState" was added.

The function "NameCase" was modified to also capitalize any letter following a dash.

Form "Soil Reports" was modified such that when a user selects a report that requires parameters, the caption of button cmdGenerateReport is changed to "Select Parameters". The value of "SYSTEM - Template Database Information.Item Narrative", where "SYSTEM - Template Database Information.Item Name" = "Generating Reports", was updated to reflect this change.

1.10 – 04/18/2001 – Fixed problem with report MANU - Table K1 - Water Features where water table information was not printing for months that had no flooding or ponding. This fix required a change to query "Subreport – Table K1 – Water Features – Subquery" such that the selection criteria for selecting "Subreport - Table K1 - Water Features - Water Table – Months.month" was independent of all other selection criteria.

New report "Soil Component Legend" was added.

1.9 – 04/10/2001 – Changed startup and import procedures as follows:

On startup, if database is empty, the Import form is displayed.

On startup, if database is not empty, the Soil Reports form is displayed.

(The autoexec macro now calls new function StartUp, rather than always opening the Soil Reports form.)

The Import main function now closes the Soil Reports form before the import process begins, and then reopens the Soil Reports form after the import process has completed. This means that the Soil Reports form now always reflects the current contents of the database, immediately after an import.

1.8 – 03/15/2001 – Made the following modifications to improve performance of soil interpretation related reports:

Established primary key for table "SYSTEM – Selected Mapunit Keys".

Established duplicate index on column "depthseq" for table "SYSTEM - Interp Depth Sequence".

Established duplicate index on column "mrulename" for table "cointerp".

Established duplicate index on column "ruledepth" for table "cointerp".

Modified design of the following queries:

"Subreport – Interp Reasons – Interp 1"

"Subreport – Interp Reasons – Interp 2"

"Subreport – Interp Reasons – Interp 3"

1.7 – 03/12/2001 – Because SSURGO Version 2 downloads need to be generated prior to the conversion of the Component Potential Ecosystem table, the SSURGO Version 2 export was reset to export from the Component Potential Ecosystem table rather than from the Component Ecological Site and Component Other Vegetative Classification tables. Due to this change, the criteria for "ecoclasstypename" in query "Subreport - Rangeland Productivity - Eco Site – Subquery" was changed from "NRCS Rangeland Site" to "Range site".

1.6 – 03/08/2001 – All references to SSURGO 2000 were changed to SSURGO version 2. Import main routine was modified to expect "SSURGOV2" in file version.txt. The functions "permanent\_database\_create\_main" and "permanent\_database\_drop\_main" were removed from module "Mains and Miscellaneous" in order to avoid compile error messages when converting database between Access versions.

1.5 – 02/20/2001 – In MUSymCompare changed integer1 and integer2 from "Integer" to "Long", since numeric map unit symbols may exceed 32768.

1.4 – 02/05/2001 – Modified database to sort data immediately after importing rather than when the Soil Reports form is opened.

1.3 – 02/01/2001 – Resynchronized with NASIS data dictionary version 5.0.15.

1.2 – 01/29/2001 – Column label for muaggatt.flodfreqmax changed from "Flooding Frequency – Maximum" to "Flooding Frequency – Maximum".

1.1 – 01/17/2001 - Modified interpretation reason subreport queries and subreports and added a new function (FormattedInterpretationReason) so that interpretation reason fuzzy values will be properly formatted on reports.