ArcSWAT 2012.10_7.26 Release Notes
Updated 8/10/23

AcrcGIS Compatibility:
ArcSWAT 2012.10_7.26 is compatible with ArcGIS 10.7.1, build 11595.

SWAT2012.exe Version:
The SWAT2012.exe Revision 681 is packaged with ArcSWAT 2012.10_7.26.

Changes from Version 2012.10_7.24:

1. Fixed a bug in the printing of the .LID files

Changes from Version 2012.10_7.23:

2. Fixed a potential bug that occurred when rewriting fig.fig after editing point source time series types
3. Set point source salt data to occur only with daily time series option
4. Updated daily point source input file example

Changes from Version 2012.10_5.22:

5. Fixed a bug that occurred in writing missing values for pcp file
6. Upgraded to SWAT Rev 681
7. Allow up to 1900 stations for the solar, relative humidity, and wind stations

Changes from Version 2012.10_4.19:
IMPORTANT: Older SWAT projects created prior to the current ArcSWAT version should run the new "Database Update" utility found under the "Write Input Tables" menu. This utility will update the tables in your SWAT project database (e.g., "gw", "hru") to make sure all the correct columns are in the table and assign default values for the new columns. The utility will also copy new parameter "range" tables from the current SWAT2012.mdb distributed with the ArcSWAT to the SWAT2012.mdb database associated with your current ArcSWAT project. You should select all tables when you run the database update.

1. Additional parameters added to the .HRU file and interface.
2. Additional parameters added to the .BSN file and interface
3. A new interface added for editing the new Low Impact Development (.LID) files for urban BMPs.
4. Updates to the output file reading and database import for several files when using the calendar date option.

Changes from Version 2012.10_3.18:

1. The maximum number of allowable solar, wind, or relative humidity weather stations has been increased from 1800 to 5400.
2. Additional error checking added to the reading of weather files.
3. The writing of SWAT text input files has been improved for very large models with high numbers of subbasins and HRUs. The new method is more efficient at loading data tables into memory, and should minimize the chances of "memory errors" when writing files for large models.
4. For sub-daily precipitation files, the header line for the pcp.pcp file has been corrected.
5. For some SWAT output files (e.g., output.pst and output.swr), importing the asci text files into the SWATOutput.mdb database was not occurring properly. There errors have been corrected.
6. When sing the ArcSWAT US STATSGO soils database, problems could occur when the domain of the watershed being modeled spanned more than 1 state. This has been corrected.
7. In the Run SWAT user interface, the option for user specification of RCH, SUB, and HRU output parameters could sometimes lead to unexpected outputs being printed. The approach to user selection of printed output parameters has now been improved.
8. The MasterProgress table in the SWAT project database was modified to add a "DoneModelRun" column that is switched to a value of "1" after a successful SWAT model run is completed. This flag can also be set to a value of 1 if a user wishes to import SWAT ascii text output files into an Access database from a SWAT simulation run outside of the ArcSWAT interface.

Changes from Version 2012.10_2.17:

IMPORTANT: Older SWAT projects created prior to the current ArcSWAT version should run the new "Database Update" utility found under the "Write Input Tables" menu. This utility will update the tables in your SWAT project database (e.g., "gw", "hru") to make sure all the correct columns are in the table and assign default values for the new columns. The utility will also copy new parameter "range" tables from the current SWAT2012.mdb distributed with the ArcSWAT to the SWAT2012.mdb database associated with your current ArcSWAT project. You should select all tables when you run the database update.

1. tblOutputVars: In the previous ArcSWAT version, the "Database Update" utility was not copying the new "tblOutputVars" table from the newly installed "SWAT2012.mdb" database into previously created projects. This has been fixed now.
2. There had been some reports of output files (such as output.rch) not getting imported to the SWAT output database correctly when the user selected output variables option was chosen. Some database checks have been added to help prevent this error.
3. The new "ElevationBand" table is now automatically created when running "Write SWAT Input Tables". This addresses an error that could occur if a user did not run the "Database Update" utility prior to writing the SWAT input tables.

Changes from Version 2012.10_2.16:

IMPORTANT: Older SWAT projects created prior to the current ArcSWAT version should run the new "Database Update" utility found under the "Write Input Tables" menu. This utility will update the tables in your SWAT project database (e.g., "gw", "hru") to make sure all the correct columns are in the

table and assign default values for the new columns. The utility will also copy new parameter "range" tables from the current SWAT2012.mdb distributed with the ArcSWAT to the SWAT2012.mdb database associated with your current ArcSWAT project. You should select all tables when you run the database update.

1. Automatic elevation band delineation: Inputs to allow automatic delineation of elevation bands have been added to the HRU Definition interface as a new tab to the form. Users can now specify the minimum difference between subbasin minimum elevation and maximum elevation in order for bands to be delineated, as well as the number of elevation bands for those subbasins meeting the criteria. Elevation bands are delineated such that each band has equal area.
2. Subbasin elevation band re-calculations in "SUB" file edit: When editing subbasin parameters, users can now change the number of elevation bands for the subbasin, and the interface will automatically determine the elevation band elevations and fractions. For this to be functional, the SWAT model will need to have had basin delineation occur with ArcSWAT Version 2012.10_1.17.
3. From the "Run SWAT" interface, users can now choose which RCH, SUB, and HRU parameters will be printed in the output files.
4. Additional error checking was added to soils database code to look for missing soils.
5. The CROP table in the SWAT2012.mdb database was updated with new crops
6. When using the US STATSGO soils database, the selection of which component to choose was modified from the old method of choosing the first SEQN value, to now choose the component with the maximum percentage of the map unit.
7. Units for rooting depth printed in the .SOL file were corrected.
8. The default operation schedules in the "OpSchedules" table in the SWAT2012.mdb database can now be date based in addition to heat unit based.
9. A new definition for the iEvent variable was incorporated.
10. The input file formatting of observed reservoir outflows was modified to be able to accommodate larger values.
11. A new HRU delineation method based on a user's target number of HRUs in the watershed was added.
12. The Cropland Data Layer (CDL) lookup table was added into the SWAT2012.mdb database, and as an option in the Land Use analysis tab during land use/soils/slope overlay.
13. A bug in how the output.mgt file was importing into the SwatOutput.mdb database was fixed.
14. The required location for custom SWAT executables (swatUser.exe) was changed to be the project's TxtInOut folder. This allows different custom SWAT executables to be used with different projects.

Changes from Version 2012.10_2.15:

1. A bug was introduced in version 2012.10_2.15 that occurred during watershed delineation. The bug occurred when users added their own outlet points to the delineation, beyond the automatically generated outlets. The result was most often an error message that prevented delineation from continuing to completion. Version 2012.10_2.16 corrects this problem.

Changes from Version 2012.10_2.14:

IMPORTANT: Older SWAT projects created prior to the current ArcSWAT version should run the new "Database Update" utility found under the "Write Input Tables" menu. This utility will update the tables in your SWAT project database (e.g., "gw", "hru") to make sure all the correct columns are in the table and assign default values for the new columns. The utility will also copy new parameter "range" tables from the current SWAT2012.mdb distributed with the ArcSWAT to the SWAT2012.mdb database associated with your current ArcSWAT project. You should select all tables when you run the database update.

2. Updated the CROP table to include several new crops in the SWAT2012 database.
3. Modified writing of atmo.atm file to only write the file if average annual value option is chosen. Users can supply their own atmo.atm monthly values by choosing an IATMO value of "1". In addition, the same deposition values specified in the .BSN file are written as one line for every subbasin in the watershed.
4. The DEM, Land use, and soils raster datasets can now be read in from a file geodatabase.
5. The header line in the .RES files was modified to be compatible with SWAT-CUP.
6. The handling of split sub-landuses during HRU delineation has been modified for the case exempt land uses are specified. In this version, if a parent land use is specified as being "exempt" from the land use threshold, then all sub-land uses will also be exempt.
7. New parameters in the HRU table and .hru files have been added to the interface.
8. New parameters in the BSN table and .bsn file have been added to the interface.
9. The SWAT executable has been updated to version 627.

Changes from Version 2012.10_1.13:

1. Corrected a bug in the printing of "Residue Management" and "Generic Conservation Practice" operations in the .OPS files.
2. Added error checking to the writing of all SWAT ascii input files that specifies which subbasin or HRU has an error that causes the printing error.
3. Added new code to automatically print the .SUB files in the .OPS files get re-written.
4. Fixed some issues associated with the new "Database Update" functionality available from the "Write Input Tables" menu to ensure cleaner operation. This should fix issues associated with "PR_W1" and "PR_W2" in the WGN table interfaces.
5. Modified the printing of the "CH_EQN" parameter in the ".rte" file to print as an integer for SWAT-CUP compatibility.
6. Modified the option of applying point sources to every subbasin. Due to occasional issues with applying this option for user defined streams, the point source geographic locations are now set to be the "label point" of the subbasin. The point source location will no longer appear coincident with a reach. This has no impact on the model simulation.
7. Update the reading of "output.pot" to be compatible with latest output format from SWAT.exe. File can now be read into the SWATOutput.mdb database.
8. Updated the version of SWAT-Check to most recent (2/26/14) version.
9. Updated the version of the swat2012.exe to Rev. 622.

Changes from Version 2012.10_0.12:

1. Added a new item to the "Write Input Tables" menu. The new item, "Database Update", launches an interface that allows the user to select ArcSWAT tables to update to the database structure compatible with the current ArcSWAT version. Important: Running this new utility is necessary when using ArcSWAT for a project that was created with an earlier version of ArcSWAT. Otherwise, interface errors or crashes are more likely to occur. It is best to select all tables to get checked for updates.
2. Fixed a bug in the User Weather stations editing interface that occurred when updating values for the PR_W1 and PR_W2 parameters.
3. Updated some "ArcAPEX" message box text to say "ArcSWAT".
4. Fixed a bug related to the printing of observed reservoir outflow time series that caused error messages to occur when the starting date of the simulation was earlier than the starting date of the reservoir operation.
5. Fixed a bug in the "res" table to correctly set the value of the "RES_SUB" parameter to be equal to the subbasin. This bug did not result in any errors in the printing of .res files or simulations.
6. Updated default and range values for some PND and GW table parameters.

Changes from Version 2012.10_0.11:

7. Updated the .GW interface to add new parameters.
8. Updated printing of PCPmm in the .WGN files to handle values 1000 and greater.
9. Fixed a bug in the editing of Manning's overland flow values in crop database.
10. Modified the land use change functionality to make subsequent land use changes cumulative on the land use changes specified earlier in the model run period.
11. Fixed a bug in the assignment of lat and long to the point sources in the MonitoringPoint feature class. The values were reversed when running user defined watersheds and streams and when the user chooses to add a point source to each watershed.

Changes from Version 2012.10_0.10:

1. Modified the point source/inlet editing interface regarding how the type of point source/inlet (constant, daily, etc.) is checked, reducing the chance for errors to be encountered.
2. Modified the header line in the .hru files to print "Slope:" instead of "Slope". This was necessary for SWAT-CUP compliance.
3. Modified the ranges for PLAPS and TLAPS in the "subrng" table in the SWAT2012.mdb database.
4. Fixed the printing of the pcp.pcp and tmp.tmp files so that lat, lon, and elevation are printed correctly.
5. Fixed a problem with the .sub file editing interface regarding the flag to use subbasin specific .sno files. There were situations where this flag (SUBSNOW in the sub table) was being unintentionally set back to a value of "0".

Changes from Version 2012.10_0.9:

6. Fixed an issue introduced in 2012.10_0.9 with the delineation of HRUs when the split HRUs option was used AND the new split HRU land classes were not already part of the original land use class. The split HRUs were not getting created correctly in 2012.10_0.9.
7. Updated the WGN tables in the "ArcSWAT_WeatherDatabase.mdb" database. Problems with dew point temperature and half hour rainfall intensity value identified in the previous version of the database have been fixed.

Changes from Version 2012.10_0.8:

8. Calculation of closest weather stations to each subbasin: A bug was fixed that could occur if the distance from the weather station to the subbasin "center" was equal to 0. In these situations, the second closest station was selected. This issues had been corrected.
9. Assignment of subbasin Lat/Long: The subbasin Lat and Long attributes (in watershed feature class) were modified so that they are first calculated as the centroid of the subbasin. If the centroid falls outside the subbasin boundary, then the subbasin lat/long is calculated as the "label point" of the subbasin. The "label point" will always be within the subbasin boundary.
10. RunSWAT: When the SWAT model is run, the "swat2012.exe" file is now deleted from the TxtInOut folder once the process finishes (change made for SWAT-CUP).
11. CHLA_SUBCO: The min, max, and default values for this parameter were modified in the swat2012.mdb database.
12. Watershed Delineation: Parts of the watershed delineation code were modified to help improve stability, particularly during stream delineation.
13. Atmo.Atm: The writing of this file was corrected. Values for atmospheric deposition are now stored in the BSN tables and are editable through the bsn edit interface.
14. Reading weather station location files: Problems associated with reading in text files of weather station location (found on some computers) was fixed.
15. HRU Splitting: The process of splitting HRUs into sub-HRUs was found to potentially result in duplicate HRUs (same subbasin, land use, soil, slope). The HRU splitting process was re-written to correct this potential problem.
16. Measured PET File: The documentation on how to handle and format measured PET data was corrected in the ArcSWAT documentation.
17. Irrigation Sources: The use of reservoirs as irrigation sources was not being handled correctly. One of the problems was in associated printing of the .mgt files. Another problem was in the sorting of the irrigation sources in the MGT interface. These issues have been corrected.

Changes from Version 2012.10_0.7:

1. The default subbasin channel slope (CH_S1) had been set to the mean subbasin slope (the SLO1 field in the Watershed feature class). The more appropriate value to use is the longest flow path slope (the CSL field in the Watershed feature class). The default value for the CH_S1 value is now set to the longest flow path slope.

2. In the .hru files, the parameter CFDEC was only being printed out 1 digit to the right of the decimal. The precision has been increased to 3 digits to the right of the decimal.
3. In the .bsn file, the parameter PC_BSN was only being printed out 2 digit to the right of the decimal. The precision has been increased to 3 digits to the right of the decimal.
4. In the BSN edit interface, the CN_FROZ was assigned to either "inactive" or "active". Now, the parameter takes a specific value (default = 0 .000862) and prints that to the .bsn file.

ArcSWAT 2012 Version Notes:

ArcSWAT for SWAT 2012 includes several changes from ArcSWAT for SWAT 2009. Some of the more significant updates include the following:

1. SSURGO Soils Integration: Integration with SSURGO-based spatial soils dataset and has been included in the Land Use/Soils/Slope Overlay process. In addition, a national database of SSURGO soils attributes has been developed. This database can be downloaded from the SWAT web site at: http://swat.tamu.edu/software/arcswat/ .
2. Expanded Weather Database: An expanded monthly weather database for the United States is now included with the ArcSWAT install package. This database, "ArcSWAT_WeatherDatabase.mdb", contains monthly weather statistics (for the SWAT weather generator) for over 18,000 stations. There are four different time periods represented, allowing for comparative analysis suitable for climate change studies. These time periods include, 1960 – 1990, 1970-2000, 1980-2010, and 1960-2010.
3. Updated ArcSWAT Table Management: The interface for writing of default SWAT input tables has been re-designed. In addition to the change to the user interface, the back-end processing which creates the default tables is now conducted without the use of ESRI ArcObjects software. This has allowed a significant expansion in the functionality of the ArcSWAT companion software, SWATEditor. SWATEditor can now process and the weather data and generate all input tables, no longer requiring ArcGIS for this purpose.
4. Users can now change the weather inputs multiple times without needing to re-write and/or edit the SWAT input tables before re-running the model. **Note: ArcSWAT 2012 no longer supports dBase format weather input files. Only text files are allowed. See that ArcSWAT 2012 documentation for format requirements.**
5. New DRAINMOD Sub-Surface Drainage: New options for simulating sub-surface drainage have been added to SWAT and the ArcSWAT interface. The new DRAINMOD drainage option follows is accessible through the HRU table editing interface.
6. Urban BMPs: Four new urban BMPS can now be simulated with SWAT 2012 and can be parameterized using the ArcSWAT interface. The new BMPs include Detention Ponds, Wet Ponds, Retention/Irrigation Basins, and Sedimentation/Filtration Basins. These BMPs can be accessed from the PND table editing interface.
7. Expanded Output Files: A significantly larger number of SWAT output files can now be read into the SWATOutput database. There are now 15 different SWAT output files that can be imported for analysis.

8. SwatCheck: SWAT model output in the output.std file can now be analyzed for possible errors or unreasonable values through the SwatCheck program, accessed directly from ArcSWAT.
9. Updates to the SWAT 2012 model executable: The SWAT2012 model executable includes some changes to the SWAT2009 model executable. In some cases, results obtained from the SWAT2012 model will not be the same as the SWAT2009 model.