

SOMOS_{WEB} Instructions and Data Files Information

Introduction to SOMOS_{WEB}

The software, user's manual, and data are copyrighted. They are provided for your testing use, but not for sale or distribution. Please send comments and suggestions to:

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This SOMOS_{WEB} release includes the following executable:

SOMOS_SOMO3(vs2.2c) for running SOMO3. This is best for contaminant plume management problems such as optimizing pump and treat (PAT) system design. It requires that you have MODFLOW and MT3DMS simulation model data sets for the site.

Available soon on <http://www.usurf.org/units/wdl>:

SOMOS_SOMO1(vs1.6a) for running SOMO1. SOMO1 is best for hydraulic optimization problems. Common examples are water supply and conjunctive use or containing a contaminant plume by controlling heads. SOMO1 requires calibrated MODFLOW simulation model data sets. With additional data SOMO1 can also be used for transport management, but is not as powerful for complex transport optimization problems as SOMO3.

Go to <http://www.usurf.org/units/wdl> for recent SOMOS updates.

SOMOS structure

- The SOMOS folder contains a BIN and DAT folder.
- The BIN folder contains executables.
- The DAT folder contains input/output of example scenarios (formulations). All the I/O for a particular scenario should be kept in a separate subfolder. To run new scenarios you should form new subfolders within the DAT folder. Within the DAT folder you can make as many folders and subfolders in the DAT folder as desired.

SOMOS installation

- Installation guidelines are in the manual (Section 3 of the Main Body).
- To install SOMOS you must logon as "*administrator*".
- Copy the SOMOS folder and subfolders to the computer (copy directly under a drive)
- Run the install DOS batch executable, located in the SOMOS folder.
- Make sure that CONFIG.SYS (for Windows 95 and 98 systems) or CONFIG.NT (for Windows NT, 2000 and XP systems) declare at least:
 - Files = 30 for SOMO1 and SOMO2 and
 - Files = 60 for SOMO3
- Restart the computer after installation is completed.
- Make sure that the SOMOS folder, subfolders and files are not "read only" (check by right-clicking on the folder and selecting properties).

Data for SOMOS Example Runs

Provided are directories with data for example optimizations using SOMO3:

- SOMO3 runs:
 - EX4: Plume management via transport optimization. The folder includes data used for formulations optimized in the SOMO3 tutorial and additional formulations (see manual main body and Appendix K).
 - Sample Problem: A minimize cost problem subject to cleanup and pumping constraints. A maximum of 3 wells out of 10 candidate wells can be used.
 - Umatilla F1: GA optimization run for Umatilla Formulation 1. Before making this run one has realized that a least-cost strategy will require constructing only 2 extraction wells and much achieve cleanup within 4 years. Therefore, minimizing cost can be achieved by minimizing pumping rate, while installing only 2 wells and achieving cleanup within 4 years. This demonstration run solves that surrogate optimization problem. The optimization run illustrate a stage in the optimization processes performed during the ESTCP project. The SOMOS code has changed somewhat since the time we formally worked on those sites. Therefore, we recently reran the demonstrated optimization problem to test the revised model. For these reasons, and because our heuristic optimizers include random processes, these runs do not necessarily yield the same solutions submitted to the ESTCP project.

Running SOMOS

To run SOMOS, first use the Windows 95/98/NT/2000/XP explorer to move to the bin directory containing the SOMOS executable.

Click on the SOMOS_SOMO3(vs2.2c).exe. The SOMOS interface will appear. Then, click the *Data Files Location* button and select a scenario (for example: \.\DAT\EX4\scenario1a). To run Scenario 1a, click on the "OP2 OR OP3" button.