**Instructions for installing the   
Standard Method Automated Records Tool   
(SMART)**

# Acknowledgements

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# Introduction

All SMART software is installed on a UNIX server with access to the Water Science Center’s National Water Information System (NWIS) database. The software uses PERL and EXPECT.

# Install Steps

1. Create the SMART home directory.

* A standard location like /usr/opt/SMART is recommended with a minimum partition size of 5GB.

1. Create a default local UNIX user for SMART.

* The recommend userid is “smartman” and default unix group is “nwuser”.
* A national UNIX uid for “smartman” is 31931.
* Verify smartman user has been established with correct uid and gid:

1. **getent passwd smartman**

smartman:md5genpw:31931:31300:SMART Default User:/usr/opt/SMART:/bin/tcsh

1. **getent group nwuser**

nwuser::31300:

1. Add userid “smartman” to UNIX group “nwaw”.

* Verify smartman belongs to UNIX group nwaw:

1. **getent group nwaw | grep smartman**

nwaw::31308:smartman

1. As user ‘ingres’ run accessdb and add an Ingres user for “smartman”.
2. As user ‘ingres’ update the Ingres group nwis\_select to add “smartman” as a member of the group.
3. Change ownership and group of the SMART home directory to smartman and nwuser.

* **cd /usr/opt/SMART**
* **chown smartman SMART**
* **chgrp nwuser SMART**
* **chmod 775 SMART**

1. Copy and extract the gzipped tarball from your download area to the SMART home directory using the newly the created “smartman” userid.

* su – smartman
* cd /usr/opt/SMART
* cp /”your download directory”/installSMART.tar.gz .
* gunzip installSMART.tar.gz
* tar –xvf installSMART.tar

1. Run script to create SMART control file to edit.

* ./installSmart-1.pl

1. Edit smartCntrl2Edit control file created in step 6 for your science center. Refer to the Reference section for detailed information on individual control settings.

* cp smartCntrl2Edit smartCntrl
* ./installSmart-2.pl
* chmod 755 cleanLogs.pl

1. Test the installation

* Login as smartman and change directories to the directory where the SMART code resides.
* Have someone import and save a discharge measurement into SiteVisit
* Run the command line version of smart using the station number and measurement date of the measurement the user just added to Site Visit.

1. Create a SMART queue using the command line version of SMART.  
   **clsmart.pl –sn 12345678 –sd YYYYMMDD**  
   where 12345678 is the USGS station number and  
   YYYYMMDD is the year, month, and day on which the measurement was made.
2. Issue the command   
   **thesubroutines/spr.pl**  
   This will execute the code that process the measurement and send the summary report. NOTE: Once the execution of the SMART scripts is being controlled by cron, DO NOT issue the command. “thesubroutines/spr.pl”. The scripts being run by cron will perform this step.
3. Add getblob and cleanlogs to the crontab file. The first entry runs the script to create a queue file every minute. If that script finds the code to process the queue not running it will start that script. If the script is running it will look for new queues when it completes processing the current queue. The second entry runs the clean log script at 3:00 AM every morning.

* \* \* \* \* \* /users/datas/smartman/code/getblob.sh > /dev/null

1. 0 3 \* \* \* /users/datas/smartman/code/cleanLogs.pl > dev/null
2. Copy the script clsmart.pl to a directory where any user can execute the script.
3. Recommend to copy the script to /usr/opt/bin.

# Reference

The following information will provide information on how to make changes to the smartCntrl2Edit created in Step 8. Modify smartCntrl2Edit for your Water Science Center. This file contains the information SMART needs to function properly. Lines beginning with “#” are comments. Variables and their values are the lines that begin with a text string followed by a colon followed by a blank and some value. As an example “SMARTHOME: /users3/project/jkiesler/code/SMART/smartdev” sets the value of the variable SMARTHOME to “/users3/project/jkiesler/code/SMART/smartdev”. All directories follow the following rule. If the value starts with a slash (/) it is assume this is a fully qualified pathname and that pathname will be used to create the directory. If the entry does not begin with a slash, it is assume the directory is a subdirectory to SMARTHOME

* 1. MINBETWEENRUN – The number of minutes between each execution of SMART. This must match the value entered in the cron tab file. Default is 1 minute. Also note, that if you choose to limit the hours SMART runs, the first time SMART runs it will only look back MINBETWEENRUN minutes.
  2. MIN2LOOKBACK – The number of minutes SMART should look back for new site visits. Default 20 minutes. SMART will keep track of site visits that have been processed and will process data from a site visit only once during the look back period.
  3. DAYLIMIT – If the measurement is older than the DAYLIMIT days, the measurement will not be processed, default is 120 days. A summary report will be produced and e-mailed to the users. The summary report will note the measurement was too old to process
  4. NORPTLIMIT – If the measurement is older than NOPRTLIMIT days not only will SMART not process the discharge measurement but no e-mail will be sent to the users. This parameter is used for entering historical data. Default is 365 days.
  5. MAXLOGAGE – Number of days after which the log files are deleted, default is 183 days, approximately 6 months
  6. STATUSLINES – Number of messages to maintain in the status file “smartStatus.txt”, default is 10.
  7. SMARTHOME – Location of the SMART code. This should have been modified by the install software.
  8. SMARTSUBS – name of the directory containing the scripts the main software uses to “preliminarily process a discharge record”. Default is a subdirectory to SMARTHOME.
  9. SMARTLOGS – name of the directory where the details logs of SMART’s activity are written.
  10. SMARTORIGFILES – name of the directory where SMART writes the original XML files used to store the site visit information into NWIS. Once SMART has retrieved the needed data from the file such as gage height corrections (future functionality), user supplied shift corrections (future functionality), and the name of the user who submitted the measurement, the original XML file is deleted.
  11. SMARTRPTTEM – name of the directory where the SMART summary reports that are e-mailed to the users are written.
  12. SMARTQUEUES – name of the directory where the SMART writes the queues to be processed. The queues contain the station number and site visit identifiers of site visits SMART should process.
  13. EXPECTDIR – name of the directory where SMART writes the EXPECT script used to enter gage height and shift corrections and the log file documenting SMART’s actions. The scripts and log files currently are not deleted after the data are entered into NWIS. After SMART has been released and successfully running in multiple Water Science Centers an update will be made to delete the scripts and log files using the MAXLOGAGE parameter described above.
  14. SMARTQUARANTINE – quarantine directory where SMART writes files of measurements that it could not process.
  15. SMARTSUPPORT –The Lotus Internet group for SMART Help. Each Water Science Center needs to add one or more persons after the Lotus Internet group. A coma should be used to separate entries. The members of the Lotus Group and the local users added to the entry will receive e-mails from SMART. The most significant e-mails the group receives are the e-mails identifying which discharge measurements have been moved to the quarantine directory and need to be evaluated to determine the why SMART could not process the measurement.
  16. SITESPECIFIC – name of the file containing station specific data values. See the SMART user instructions for more information about this data file.
  17. INCLUDE – name of the file that contains a list of sites that SMART will process. If this file exists and contains a list of sites only the sites in this file will be processed by SMART. The include file has precedence over the exempt file. If there is a list of include sites, the exempt file will never be evaluated.
  18. EXEMPT – name of the file that contains a list of sites that SMART will not process. This file is only used if the INCLUDE file does not exist.
  19. USEGO2 – Y or N, use the go2 filters located on the local server to send e-mail.
  20. GO2DIR – name of the local directory where Office of Surface Water’s go2 script is located. The “SENDTO.control” file can be used to direct the mailing of the SMART summary reports.
  21. USEGO2SIMS –Y or N, use the SIMS/RMS information go2 now uses to determine who gets the e-mail. You can use both the local go2 filters and the SIMS/RMS data.
  22. GO2SIMSURL – the URL SMART uses to retrieve the SIMS/RMS data. This should not be changed unless specifically requested by the SMART support staff.
  23. NWISWEBSTATUS – Points to the rdb files used to update the flow conditions shown on NWIS Web. Generally only the server name (srv1dinind) needs to be changed wherever it occurs in the entry.
  24. NWISWEB – name of the rdb file that tells NWIS web which DDs to display. This is a standard NWIS directory and only the server name (srv1dinind) needs to be change wherever it occurs in the entry
  25. NWISDB – name of the NWIS data base for the Water Science Center, full name as an example “srv1dinind::nwisin”
  26. DBNUM – number of the primary NWIS database for the Water Science Center, should be “01” for all WSCs.
  27. PEAKDEF – maximum rise for an event to be identified. The current default value of 0.33 feet works for many locations and sizes of watersheds.
  28. MAXSHIFT – maximum shift allowed. If SMART calculates a shift greater than this value, the shift is not applied and the user is sent a warning message.
  29. NOTUSERS – a list of user ids to receive the e-mail containing the summary report. Anyone on this list will receive all e-mails generated by SMART. Please remove “jkiesler”, entry there only as an example.
  30. SUMRPTQALLSITETYPES – Y or N, generate a SMART summary report for all site types, Y is yes generate a report regardless of site type, N is no generate a report only for STREAM site types.
  31. APPLYGHCOR – Y or N, apply type 1 gage height corrections returned in the upload file to NWIS, yes or no. Type 1 data corrections currently are passed back to NWIS by the ART software. As type 1 data corrections are returned by SWAMI, expected to be in a 4.11 version of SWAMI, automated entry of data corrections for SWAMI files will be available.
  32. APPLYSHIFTCOR – Y or N, apply shift corrections yes or no
  33. SWDIR – Fully qualified pathname to the surface-water review directory. Default is /SWR
  34. STOREINSWR – Y or N, store the summary reports in the surface-water review directories. SMART creates the directory smartReports within the water year to store the report.

# Qualifiers

1. To email the summary report to the user who made the site visit and/or discharge measurement SMART looks for the user name in the original data. For SMART to function properly the user name in the original data file must be the Lotus internet user identifier, ie. jkiesler not Jay Kiesler.