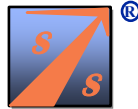


Using the SAS-1 as a Count Station And Converting Archive Files to PRN Files

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The SAS-1 as a Count Station

The SAS-1 has the capability to archive traffic flow measurements for five lanes for up to several weeks depending on the size of the installed non-volatile memory (1 Mbit, 2 Mbit, or 4 Mbit) and the selected update period (5, 10, 15, 30, or 60 minutes). The SAS-1 continually updates the archive data independent of it's default mode of operation. The archive storage is circular so that when the archive grows to the maximum size, the oldest measurement data is discarded to make room for the most recent.

SAS Monitor and Setup (Ver 6.01.01) provided by SmarTek Systems includes tools to setup the SAS-1 archive parameters, retrieve the SAS-1 archived data, and to convert the archive data file to PRN Volume files (Dmmdnnn.prn). To use the SAS-1 as a Vehicle Count Station, the following steps should be followed:

- 1) Setup/Edit the SAS-1 Archive Header using SAS Monitor.
- 2) Send the Header Records to the SAS-1 (**this clears the SAS-1 archive**).
- 3) Set the SAS-1 Date and Time (**this clears the SAS-1 archive**).
- 4) Wait for the SAS-1 to collect the data (days or weeks).
- 5) Retrieve the archive data file from the SAS-1.
- 6) Convert the archive data files to PRN Files (**must have corresponding header files**).

Setup/Edit the SAS-1 Archive Header

- 1) From SAS Monitor's main display, open the SAS-1 Header Editor by clicking the Archive/Edit SAS Archive Header menu item. The editor opens with all fields filled in with default values. These values may be edited or an existing SAS Archive Header File may be opened to use previously edited values.

File Name for Archive in PC

File
File Names and Update Period
Update Per (minutes) 15 No Changes Yet
File Name Data Archive to be Saved as in the PC (8 Characters xxxxxxxx.ahx) XXXXXXXX.ahx
Associated Header File used for Specific Conversion (8 Characters yyyyyyyy.hdr) YYYYYYYY.hdr

Calibration Parameters for Vehicle Type and Prevailing Speed
Lane Number 5 4 3 2 1
Calibration for Short Truck (Feet) 47 47 47 47 47 Speed Adjust Increment (mph) 1
Trailer (Feet) 70 70 70 70 70 No Detect TimeOut (Sec) 120
Prevailing FreeFlow Speed (mph) 65 65 65 65 65
Peak Power Avg Cap Per Lane (db) 10.00 10.00 10.00 10.00 10.00

Code Settings
Station Location and Description (Text) SmarTek SAS-1 Archive Header Location F
Station ID Number A12345 State (FIPS Code) Alabama County Code 000
Functional Class Code R-Prin Art-Interstate Classification Count Method No Classification
Posted Rt Category Other Posted Rt No. 000000 Foot Notes No Restriction
Concurrent Rt Category Other Concur Rt No. 000000 No. of Lanes 5
SAS Zone 5 SAS Zone 4 SAS Zone 3 SAS Zone 2 SAS Zone 1
Direction of Travel E-W or SE-NW E-W or SE-NW E-W or SE-NW E-W or SE-NW E-W or SE-NW
Lane of Travel 4th fr R-M 3rd fr R-M 2nd fr R-M 1st fr R-M Right-Most

Update Period Field

File Name for Corresponding Header Used for PRN File Conversion in PC



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- 2) To open an existing archive header file (.hxx), click the File/Open Archive Header File menu item. Select and open the desired file using the standard Windows Open File Dialog Window.
- 3) Edit each parameter by either clicking in the upper/lower part of the value field or typing in the text fields. The lower part of the editor window consists of the set of standard federal reporting codes, while the upper part consists of parameters used by the SAS-1 to calibrate commercial truck and tractor trailer classification/counting and the archive update period. **One field in the upper right area specifies the file name (.ahx) that the retrieved SAS-1 data archive will be stored as in the SAS Monitor \Arch_Data\ sub-folder. The other field in the upper right area specifies the file name of an associated Header file (.hdr) that is used when the SAS-1 Archive Data File (.ahx) is converted to PRN Volume Files.** Both of these file names must be eight (8) characters or less and must be valid names relative to Windows file name rules.
- 4) To save the edited archive header file (.hxx) to the SAS Monitor \Arch_Data\ sub-folder, click the File/Save Archive Header File menu item. Specify the desired file name using the standard Windows Save File Dialog Window.

Sending the SAS-1 Archive Header Records to the SAS-1

- 1) To send a specific archive header file (.hxx) to the SAS-1, click the Sensor/Send Header Records to SAS menu item on the SAS Monitor main display.
- 2) Click the Yes button in response to the question "You are going to send a new header record to SAS-1...Continue?".
- 3) Select and open the desired file using the standard Windows Open File Dialog Window. This starts the process of sending the archive header records to the SAS-1. The status of this process is shown in the status line in the lower left part of the main SAS Monitor display. If the process is not successful, the Start/Stop button on SAS Monitor's main display will show "Stop". Click the Stop button and retry the send process.

Sending the archive header file (.hxx) to the SAS-1 will reset and clear any existing data in the SAS-1 archive non-volatile storage space (existing archive data will be lost).

Setting the SAS-1 Date and Time

- 1) To set the date and time in the SAS-1 click the Sensor/Set SAS Date and Time menu item.
- 2) Click the Yes button in response to the question "You are setting SAS Date and Time... Continue?". The status of this process is shown in the status line in the lower left part of the main SAS Monitor display. If the process is not successful, the Start/Stop button on SAS Monitor's main display will show "Stop". Click the Stop button and retry the set date and time process.

Setting the SAS-1 Date and Time will reset and clear any existing data in the SAS-1 archive non-volatile storage space (existing archive data will be lost).



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Collecting the Traffic Data

The SAS-1 will collect traffic flow data for all 5 lanes and update the archive as specified by the Update Period parameter in the Archive Header File (5, 10, 15, 20, 30, or 60 min). After sending a header file to the SAS-1 or setting the date and time in the SAS-1, data archiving begins after the next full data write period. For example, let the archive period be set at 15 minutes and the Set Date and Time command be sent to the SAS-1 at 1:01:55 PM. The first archive record would be captured at 1:30:00 PM (data from 1:15 to 1:30) and the SAS-1 would write the archive records at 2:15:00 PM. The SAS-1 captures 4 intervals of data before writing the data to non-volatile flash memory. The time stamp for each written record corresponds to the end of the data interval.

Retrieving the Archive Data from the SAS-1

- 1) To retrieve the archive data from the SAS-1, click the Sensor/Get SAS Archive Data menu item. The progress of the retrieval process is shown in the status line at the lower right area of SAS Monitor's main display. If the process is not successful, the Start/Stop button on the SAS Monitor main display will show Stop. Click the Stop button and retry the Get Archive process.

The screenshot displays the SAS Monitor interface. On the left, a table titled "Lanes or Zones" shows data for 5 lanes. The data is as follows:

| | 5 | 4 | 3 | 2 | 1 |
|----------------|------|------|------|------|------|
| <i>Contr</i> | 43 | 67 | 91 | 115 | 139 |
| <i>Size</i> | 23 | 23 | 23 | 23 | 23 |
| <i>Sens</i> | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 |
| <i>AVL</i> | 11 | 11 | 11 | 11 | 11 |
| <i>Ocal</i> | 0.50 | 0.50 | 0.50 | 0.50 | 0.50 |
| <i>Cnt-All</i> | | | | | |
| <i>Cnt-CT</i> | | | | | |
| <i>Cnt-TT</i> | | | | | |
| <i>Spd</i> | | | | | |
| <i>OpSen</i> | | | | | |
| <i>CalcSn</i> | | | | | |

On the right side of the interface, there are several buttons: "Stop", "Save Par", "Save Image", and "Zones To Edge". A green box labeled "Retrieval Process Status" points to a status line at the bottom right that reads "Archive Data Download Completed Successfully...". Another green box points to the "Stop" button. A third green box points to the "OpSen" and "CalcSn" rows in the table.

The downloaded archive data is stored in the SAS_Monitor \Arch_Data\ sub-folder with a date and time stamp prefix on the filename specified in the Archive Header File (.hnx).

20011116_094313_I95Rt123.ahn

yyyy mm dd hh mm ss

File Name Specified in Archive Header



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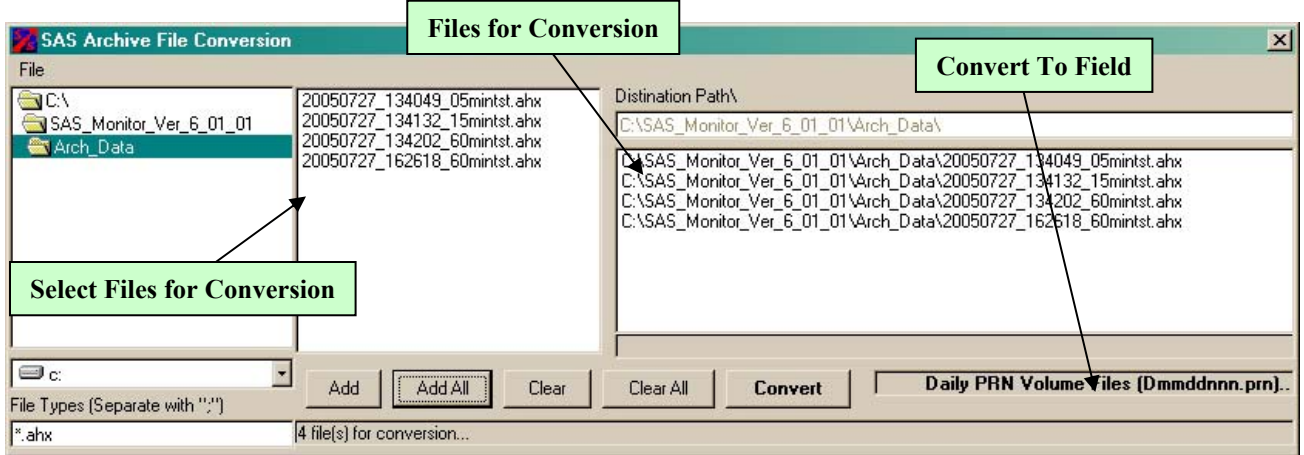
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Converting the Archive Data from the SAS-1 to Another Format

Note: When converting to a PRN Volume file, an associated PRN File Header (.hdr) is required. The associated header (.hdr) files must be prepared in advance and located in the SAS Monitor \Arch_Data\ sub-folder. See page 6 for instructions on PRN File Header set up.

- 1) To convert each SAS Archive Data file (.ahx) to a Spread Sheet Ready File (.atx) and PRN files, click the Archive/Decode SAS Archive menu item. This opens the SAS Archive File Conversion Window.



- 2) Click on the file for conversion in the middle pane to select the file.
- 3) Click the Add button to add the highlighted file to the conversion list in the right pane. Click the Add All button to select and add all files to the conversion list. To clear a file(s) from the list for conversion click on the file to select and then click the Clear button. To clear all files from the conversion list click the Clear All button.
- 4) Click in the upper/lower part of the "Convert To" field to select the file format that each Archive Data File (.ahx) will be converted to.
- 5) To start the conversion process, Click the Convert button. The number of files left for conversion is shown in the bottom line of the window. When the number of files is 0, the process is finished.

The converted files are stored in the SAS_Monitor \Arch_Data\ sub-folder. In addition to the selection in the "Convert To" field, the Archive Data Files (.ahx) are converted to a space delimited spread sheet ready file with the file named as follows:

20011116_094313_I95Rt123.atx

yy yy dd hh mm
mm ss

File Name Specified in Archive Header



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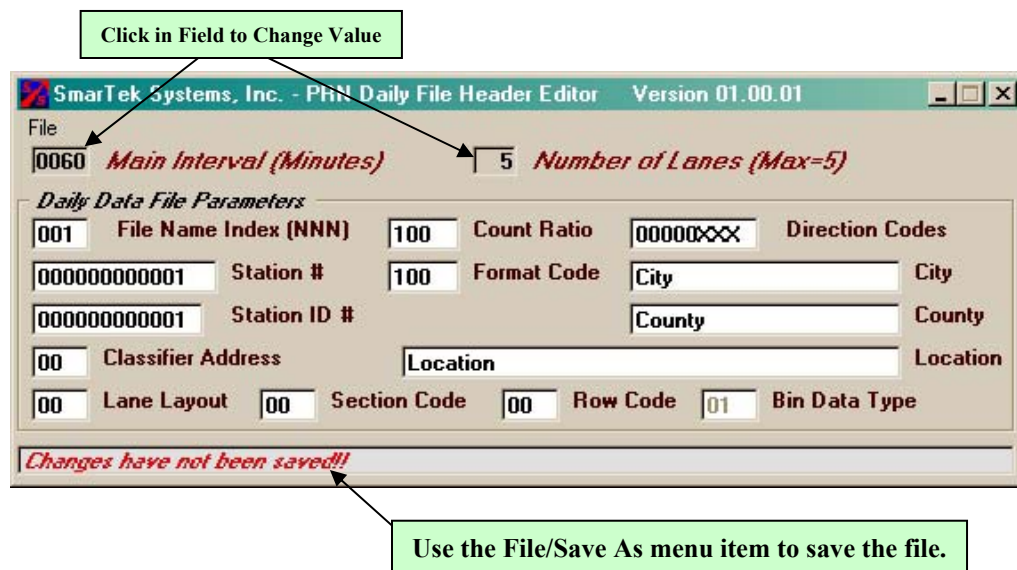
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Using the PRN Daily Volume File Header Editor

- 1) To convert each SAS Archive Data File (.ahx) to PRN files, associated header files (.hdr) must be present in the same folder as the SAS Archive Data File (.ahx) to be converted. **Each PRN Volume File Header (.hdr) must be named to match the name specified in the SAS Archive Data File Header (sent to and stored in the SAS-1 as previously described).**
- 2) Open the PRN Daily Volume File Header Editor. The editor opens with all fields filled in with default values. These values may be edited or an existing PRN File Header may be opened (File/Open) to use previously edited values using the standard Windows Open File Dialog Window.



- 3) Click the File/Save As menu item to name and save the PRN Daily Volume File Header (.hdr).

Note: When converting to PRN Daily Volume Files, the associated header (.hdr) files must be located in the same folder as the SAS Archive Data Files (.ahx).

The parameters shown above are named in accordance with Section 11.02 Daily Data File Format/ File Format Descriptions-TDP Autopoll Telemetry & Report Generator Manual, Pages 11-1 through 11-6 (04/03/95; Ver 1.0).



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