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To: Mark 5 Development Group

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Subject: StreamStor Utility Programs

There are several Linux command-line utility programs that are useful for providing information about the StreamStor disk subsystem, independent of the Mark 5 IO board and the Mark 5 control program (`Mark5A` or `dimino`). Note that all of these programs will fail if the `Mark5A`, `dimino`, or `drs` control program is running. All of these programs should work OK with the Mark 5 IO board removed from the system.

The first three of these StreamStor utilities are provided by Conduant:

• `ssopen` - This is a simple Linux command-line program that will attempt to open the StreamStor device and then close it. Use `ssopen` after `SSReset` to see when `SSReset` has finished.

• `sstest` - **CAUTION: Running `sstest` WILL overwrite any recorded data on disk module.** The utility program `sstest` is for testing the StreamStor system for proper configuration and functionality. If you have just received your Mark 5 system or you are experiencing problems, running this program will perform a configuration and confidence test to insure that the StreamStor board is working properly. This program can be used to verify installation and configuration of the StreamStor board. Running this program will download and configure the board, report version numbers and capacity information and run a confidence test to verify read/write functionality of the board to insure the hardware is functioning properly. **CAUTION:** The test **WILL** overwrite data previously recorded on the disk module.

• `ssprintVersions` – (only in SDK 8.3 [API Version 10.09] and higher) This program prints out version information about the StreamStor board.

`SSErase` can be used instead of `reset=erase` to erase a disk module when the `Mark5A`, `dimino`, or `drs` control program is not running. (See "Mark-5 Auxiliary Programs" http://www.haystack.mit.edu/tech/vlbi/mark5/docs/AuxProg.pdf

for a description of the `SSErase` program.)

`SSReset` performs a StreamStor card reset and often helps to extricate the system from a no-fair state. Sometimes it helps to enter `SSReset` twice. Also, it is recommend that `SSReset` be used before starting `Mark5A`, `dimino`, or `drs.` With the StreamStor Amazon board used in the Mark 5B+ and in the Mark 5C, `SSReset` takes a long time to finish. With these systems, `ssopen` can be used to see when `SSReset` has finished. If you enter `ssopen` immediately after entering `SSReset`, then `ssopen` will return a response as soon as `SSReset` has finished.

We have written some additional StreamStor utility programs for reporting assorted information about the StreamStor board and the disk modules. These programs are C source code that must be re-compiled for each different StreamStor Driver Version. For information about the Conduant XLR functions used by these programs, see the StreamStor SDK User's Guide, which can be found in the file `$SS/docs/StreamStorUsersGuide.pdf`. Executable versions are available for Driver Version 1001 (SDK 8.3, API Version 10.09).

- `RAMtest` – A very rudimentary test to verify all 512 MB of the StreamStor RAM buffer. Executable is for SDK 9.3 Driver Version 1110 (API Version 11.33). `RAMtest` requires a disk module mounted in Bank A, but does not write on the module.

- `GetBankStatus` – Reports the VSN, status, recording length, and total capacity for the module in each bank.

- `GetSerial` – Reports the model number and serial number of each drive in the selected bank.

- `GetSMART` – Reports the SMART state for each drive in the selected bank.

- `GetDriveTemp` – Only for Hitachi disk drives. Reports the highest temperature ever reached by each disk drive in the selected bank.

- `GetDriveInfo` – Reports the model number, serial number, firmware version, capacity, and SMART state for each disk drive in the selected bank.

- `GetDeviceInfo` – Reports the type and serial number of the StreamStor board, the number of disk drives, the number of ATA buses, and the total capacity for the selected bank.

- `wspeedtest` – Records random data on the disk module from beginning to end, and reports the write speed once every minute. This program is a hacked version of `SSErase` and uses `XLRErase()` with `SS_OVERWRITE_RANDOM_PATTERN` instead of `SS_OVERWRITE_RW_PATTERN`. (See "Mark-5 Auxiliary Programs" http://www.haystack.mit.edu/tech/vlbi/mark5/docs/AuxProg.pdf for a description of the `SSErase` program.)

The source code, make files, and executables for these and a few other utilities can be found in ftp://web.haystack.mit.edu/pub/mark5/utilities/

There is a separate make file for each of these utility programs. Except for `RAMtest` and `GetVersion`, the make files supplied are for Driver Version 1001. To compile the programs for a different Driver Version, change the `-lwdapi`*nnnn* in the make file to match your Driver Version. To compile the source code, enter `make -f <name>.mk.` To compile `wspeedtest,` enter `ccwspeedtest.`

We leave it as an exercise for the reader to combine these programs into a single program with the functionally controlled by command-line flags. Another exercise is to write a 1-page version of `wspeedtest.c.`