

## NAME

sacopy — stand-alone copy/verify

## SYNOPSIS

[This program must be booted-up in the same manner as the UNIX operating system.]

## DESCRIPTION

*Sacopy* is a stand-alone copy/verify program, that is, it must be booted into core just as the UNIX operating system is. When the boot program issues its prompt, the operator must type "sacopy" followed by a carriage-return in order to load *sacopy* into core and execute it.

*Sacopy*, because it is a stand-alone program and because it performs its copies in an efficient, contiguous manner (via its own device drivers), is the best procedure to use for performing normal system backup. The current record size used is 10240 bytes, ie, 20 512-bytes blocks. *Sacopy* has good error recovery. It attempts smaller block sizes on read errors and gives up only as a last resort.

It begins with the following message on the system tty:

**Mode: copy, vrfy, or vcopy?**

The user should enter **copy** for copy only, **vrfy** for verify only or **vcopy** for copy with verification. After receiving the selected mode, it then prompts for the source device via a "from:" request. To this prompt the operator must type the name of one of the available devices on the system.

The program next asks for the destination device by issuing a "to:" prompt. Again, the operator must type the name of one of the available devices on the system.

If the name typed by the operator is not found, *sacopy* will print "invalid device" and reissue the "from:" or "to:" names. It suffices to type a carriage-return to either of the above prompts. In this case *sacopy* will list the current device abbreviations which may be input. Currently available devices are described below.

*Sacopy* then indicates the number of 512-byte blocks to be copied and proceeds with the copy operation.

Any errors encountered while reading or writing a mag tape are noted and the operator is asked if processing should proceed with the prompt "proceed?". If processing is to continue, the operator types "y" (yes) to the prompt. Any other response is interpreted as "no" and *sacopy* restarts.

When a copy has been completed, an error summary is produced, and *sacopy* prompts for the next copy by typing "next copy" when "from:" and "to:" as before.

The operator halts *sacopy* by depressing the machine's "halt" switch.

*Sacopy* may be given the from and to arguments when it is initially booted. Type

```
sacopy <from> <to>
```

in response to the boot prompt.

*Sacopy* will copy any block size from the mag tape. If the destination is also a mag tape the block size is preserved. If the destination only is a mag tape, the block size is 10240 bytes.

If *sacopy* is copying tape to tape, it will copy to an input EOF. If it is copying to or from any device with a fixed logical size, it will copy the minimum of the input and output sizes.

## DEVICES

nulldev - infinite source of zeros and sink of anything  
rk0 - rk drive 0

rk1 - rk drive 1  
 rp0 - first half of an RP03 disk  
 rp1 - second half of an RP03 disk  
 rputil - first 3400 blocks on an RP03 disk  
 rf0 - rf drive 0 - 1024 blocks  
 tc0 - tc11 DECTAPE unit 0  
 tc1 - tc11 DECTAPE unit 1  
 tc2 - tc11 DECTAPE unit 0 - multitape  
 tc3 - tc11 DECTAPE unit 1 - multitape  
 rx0 - rx11 floppy unit 0  
 rx1 - rx11 floppy unit 1  
 tm0 - tu10 drive 0 - with rewind  
 tm1 - tu10 drive 1 - with rewind  
 tm4 - tu10 drive 0 - without rewind  
 tm5 - tu10 drive 1 - without rewind  
 hp0 - cylinders 0 to 119 of an RP06 disk (drive 0)  
 hp1 - cylinders 120 to 239 of an RP06 disk  
 hp2 - cylinders 240 to 359 of an RP06 disk  
 hp3 - cylinders 360 to 479 of an RP06 disk  
 hp4 - cylinders 480 to 599 of an RP06 disk  
 hp5 - cylinders 600 to 719 of an RP06 disk  
 hp6 - cylinders 720 to 814 of an RP06 disk  
 hp7 - cylinders 455 to 479 of an RP06 disk (OSG swap)  
 hputil - first 5016 blocks of an RP06 disk  
 hp9 - cylinders 12 to 22 of an RP06 disk (OSG util swap)  
 hp10 - cylinders 23 to 119 of an RP06 disk  
 hp11 - unused minor device of an RP06 disk  
 hp12 - cylinders 120 to 131 of an RP06 disk  
 hp13 - cylinders 132 to 144 of an RP06 disk  
 hp14 - cylinders 145 to 164 of an RP06 disk  
 hp15 - cylinders 165 to 239 of an RP06 disk  
 hp16 - unused minor device of an RP06 disk  
 hp17 - unused minor device of an RP06 disk  
 hp18 - unused minor device of an RP06 disk  
 hp32 - cylinders 0 to 119 of an RP06 disk (drive 1)  
 hp33 - cylinders 120 to 239 of an RP06 disk (drive 1)  
 hp34 - cylinders 240 to 359 of an RP06 disk (drive 1)  
 hp35 - cylinders 360 to 479 of an RP06 disk (drive 1)  
 hp36 - cylinders 480 to 599 of an RP06 disk (drive 1)  
 hp37 - cylinders 600 to 719 of an RP06 disk (drive 1)  
 hp38 - cylinders 720 to 814 of an RP06 disk (drive 1)  
 hp64 - cylinders 0 to 119 of an RP06 disk (drive 2)  
 hp65 - cylinders 120 to 239 of an RP06 disk (drive 2)  
 hp66 - cylinders 240 to 359 of an RP06 disk (drive 2)  
 hp67 - cylinders 360 to 479 of an RP06 disk (drive 2)  
 hp68 - cylinders 480 to 599 of an RP06 disk (drive 2)  
 hp69 - cylinders 600 to 719 of an RP06 disk (drive 2)  
 hp70 - cylinders 720 to 814 of an RP06 disk (drive 2)  
 hs3 - RJS03 disk  
 hs4 - RJS04 disk  
 ht0 - tu16 drive 0 - 800 bpi - with rewind  
 ht1 - tu16 drive 1 - 800 bpi - with rewind

ht4 - tul6 drive 0 - 800 bpi - without rewind  
 ht5 - tul6 drive 1 - 800 bpi - without rewind  
 ht8 - tul6 drive 0 - 1600 bpi - with rewind  
 ht9 - tul6 drive 1 - 1600 bpi - with rewind  
 ht12 - tul6 drive 0 - 1600 bpi - without rewind  
 ht13 - tul6 drive 1 - 1600 bpi - without rewind

Note that the disk minor device areas for the *hp* units are defined in *hpmap.c*. The above example may not represent the actual disk layout.

## DIAGNOSTICS

As mentioned above, the response "invalid device" is printed whenever a device name is not found.

"Nodev called" is an internal error which should never occur.

"Source and Destination cannot be same"

"Next Copy" is printed whenever sacopy has finished or aborted the current copy.

"Unexpected EOF."

"Copy Prematurely Terminated." - a read from the input device has returned a zero for the number of bytes read and more data is expected.

"Input record size (nnn)"

"Not a multiple of 512"

"Copy Aborted" - Mag tapes must have a block size which is a multiple of 512.

"Tape <xxx> error"

"mtcs2: <nnn>"

"mtds: <nnn>"

"mter: <nnn>"

"Proceed?" - This message indicates a tape read or write error as described by <xxx>. The three octal number printed correspond to the tul6 mag tape registers. Consult the *PDR//Peripherals Handbook*, Chapter 4. It is unwise to continue after a write error. If the answer given is yes for a read error, some bad data may be copied.

"Tape <xxx> error"

"mts:"

"Proceed?:" - As above, but pertaining to a tul0.

"Bad Sectors <xxx>" - What follows is a list of bad sectors on the device <xxx>.

"No Bad Sectors on <xxx>" - Normal termination report for disks.

"Error List Full" - Too many bad sectors were encountered. *Sacopy* will print the bad sectors encountered thus far and restart.

## BUGS

Be careful with any two logical names referring to the same physical tape drive.

*Sacopy* from mt0 to mt4 will scribble the tape.

*Vcopy* does not work correctly with non-rewind tape drives or on bootable tapes.

