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ABSTRACT

This memorandum describes a series of UNIX* shell commands that together provide a simplified front-end for the Source Code Control System (SCCS). They furnish the user with the backup and documentation facilities of SCCS while hiding its complex user interface.

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MEMORANDUM FOR FILE

1. Introduction

SCCS (Source Code Control System) is a program development tool available as part of PWB/UNIX.[1] To quote its User's Guide[2] "It [SCCS] provides facilities for storing, updating, and retrieving any version of a file of text, for controlling updating privileges to that file, for identifying the version of the retrieved file, and for recording who made each change, when and where it was made, and why." Obviously, a program that provides such powerful facilities requires a somewhat involved user interface. In fact, the nine SCCS commands (not counting **what** and **help**) average 1 2/3 manual pages and six flags apiece. But not every user of SCCS wishes to make use of all of its power.

This memorandum describes a set of shell commands that act as a simplified front-end to SCCS. In particular, they make available the history taking and backup features of the system while concealing the flags and options. Moreover, the shells do this in a way which hides most of SCCS from the user. The shells are in no way an attempt to replace SCCS, but rather can serve as an introduction to its capabilities. The shells comprising the front-end are intended for relatively small programming projects under the control of a single programmer. They make several assumptions about the environment in which they are used. These assumptions are described below.

The shells, which are listed in Appendix I, have been written and tested on UNIX/TS Version 1.0 and, hence, make use of the Bourne shell.[3] They assume that the user has assigned

to the shell variable $TMP the name of a directory where temporary files (named sccsdscr, sccsfile, sccsdit, and sccserr) can be created and destroyed. This variable should be exported by the user's .profile file.

The shells make use of four auxiliary shells that should be available in the user's bin directory. They are listed in Appendix II and can be used for other purposes than the SCCS front-end. Finally, those shells which print on the line printer assume that the command lpr is available to them for this purpose. In installations where variants such as opr are used, the shells should be amended.

There is a shell command called sccsdoc that, while strictly speaking, is not part of the SCCS front-end, is used for documenting it. sccsdoc assumes that there is an exported shell variable named $BIN which designates the directory where the SCCS front-end shells are stored. This command also assumes that the auxiliary shells are available.

2. Usage

A programmer who intends to use the front-end should establish a directory structure with one sub-directory containing all of the files related to a particular application. The individual files comprising the application are called modules. The application as a whole is called a system. Any number of systems may be under control of SCCS at a given moment.

To mirror this structure, there are two classes of front-end shells, the mod- shells and the sys- shells. The mod- commands take as input the names of one or more modules and perform some function. The sys- commands perform a function on all modules of a system*.

The only evidence a user has that SCCS is being used is that a secondary directory with the name sccs is created for each system using the commands. If the user wants to make use of SCCS directly, this sub-directory can be referred to explicitly. All SCCS files are stored there.

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* The old and rel commands also take a version number which is described in section 3.

3. The Shells

This section documents the individual shells. Each command, except new and ls, has a mod- version and a sys- version. Except for rel and ls, all mod- shells take a list of modules as arguments and all sys- shells take no arguments. All of the shells are described below.

A. **newmod** - if necessary, create the SCCS sub-directory. For each module, prompt for a description and commit the module to SCCS*.

B. **edmod, edsys** - retrieve a set of modules from SCCS, prepared for editing.

C. **cpmod, cpsys** - retrieve a set of modules from SCCS, protected from alteration.

D. **savmod, savsys** - for each module, prompt the user for a comment† and install the changed module under SCCS (savsys only prompts once.)

E. **upmod, upsys** - effectively an abbreviation for savmod followed by edmod (savsys followed by edsys).

F. **prmod, prsys** - produce a source listing for the specified modules.

G. **oldmod, oldsys** - the first argument of these commands is an SCCS version number (e.g. 1.3). They retrieve the specified version of the modules given as the remaining arguments.

H. **lssys** - produce a list of the names of all of the modules under SCCS in the system. The output can be used as input to other shells. (See Appendix I.)

I. **relmod, relsys** - the first argument is an SCCS release number (such as 3). All of the listed modules will have their SCCS version number upgraded to that release (e.g. 3.1).

J. **rmmod, rmsys** - remove the listed modules from current consideration. These commands do not delete earlier versions of the listed modules. Effectively, the state is restored to that which existed just prior to the most recent cp- or ed- or old- command.

K. **diffmod, diffsys** - produce a list of differences between the version of a module currently available and its most recently saved version. This is useful for seeing how much progress

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* This prompt is terminated by EOT (control D).

† In this case, terminated by a non-escaped carriage return.

has been made in changing a module.

L. **prtmod, prtsys** - produce a description of an SCCS module including change history. protection, etc.

M. **sccsdoc** - this shell produces a description of the SCCS front-end including a one-line summary of each command and a source listing of all of the commands.

4. Experience

The SCCS front-end shells have benefitted from a year's refinement. They have grown from a small set of commands to the present twenty-two. Furthermore, they have evolved due to the suggestions of their user community. Further suggestions are, of course, welcome.

Spencer Rugaber

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PWB/UNIX User's Manual, Edition 1.0.
Bell Laboratories, May 1977.

[2] L. E. Bonanni and C. A. Salemi.
"Source Code Control System User's Guide."
TM79-9441-4, April 1, 1979.

[3] S. R. Bourne.
"An Introduction to the UNIX Shell."
TM78-1274-4, July 21, 1978.

SCCS Front-End Shell Programs
Part A: mod-Shells

cpmod

```
for i do
          get -s sccs/s.$i
done
```

diffmod

```
set -e
FILE = $TMP/sccsfile
for i do
          if notfile $i; then continue; fi
          mv $i $FILE
          cpmod $i
          echo differences for $i
          diff $i $FILE
          rm -f $i
          mv $FILE $i
done
```

edmod

```
for i do
                    get -e -s sccs/s.$i
done
```

newmod

```
set -e
if notdir sccs
then
          mkdir sccs
          chmod 0755 sccs
fi
for i do
          echo enter module description for $i
          append $TMP/sccsdscr
          admin -i$i -t$TMP/sccsdscr -fm$i sccs/s.$i
          rm $TMP/sccsdscr
          rm $i
done
```

oldmod

```
VER = $1
shift
for i do
        get -s -r$VER sccs/s.$i
done
```

prmod

```
((for i do
        get -p -s sccs/s.$i | pr
done ) | lpr)&
```

prtmod

```
for i do
        echo info for file $i
        prt -e sccs/s.$i
done
```

relmod

```
DIR = $TMP/sccsdir
OLD = `pwd`
mkdir $DIR
cd $DIR
VER = $1.0
shift
for i do
        get -s -e -r$VER $OLD/sccs/s.$i
        delta -s -y"\"update release number to ${VER}"\" $OLD/sccs/s.$i
done
cd $OLD
rmdir $DIR
```

rmmod

```
for i do
        rm -f $i
        if isfile sccs/p.$i; then rm sccs/p.$i; fi
done
```

savmod

```
for i do
            echo processing $i
            delta sccs/s.$i
done
```

upmod

```
for i do
        savmod $i
        edmod $i
done
```

Part B: sys-Shells

cpsys

```
set `lssys`:cpmod $*
```

diffsys

```
set `lssys`;diffmod $*
```

edsys

```
set `lssys`;edmod $*
```

lssys

```
FILE = $TMP/sccsfile
ls sccs/s.* > $FILE
ed - $FILE << <!
1,\$s/sccs\/s.//
1,\$s/\$/ /
1,\$
w
q
!
cat $FILE
rm $FILE
```

oldsys

```
VER = $1
```

```
set 'lssys';oldmod $VER $*


prsys


set 'lssys';prmod $*


prtsys


set 'lssys';prtmod $*


relsys


DIR = $TMP/sccsdir
OLD = 'pwd'
mkdir $DIR
cd $DIR
get -e -r$1.0 -s $OLD/sccs
delta -s -y"\"update release number to $1"\" $OLD/sccs
cd $OLD
rmdir $DIR


rmsys


set 'lssys'; rmmod $*


savsys


rm $TMP/sccsdscr 2> /dev/null
echo enter reason for save
append $TMP/sccsdscr
delta -y$TMP/sccsdscr -s sccs 2> $TMP/sccserr
grep -v "(ut4)" $TMP/sccserr
rm $TMP/sccserr
rm $TMP/sccsdscr
```

upsys

savsys
edsys

Auxiliary Shell Programs

append

```
case $# in
            1) cat >> $1;;
            2) cat >> $2 < $1;;
            *) echo 'usage: append [from] to';;
esac
```

info (cmdfo contains one-line command descriptions.)

```
for i do grep "$i" $BIN/cmdfo; done
```

notfile

```
test ! -f $1
```

isfile

```
test -f $1
```

notdir

```
test ! -d $1
```

pp

```
(pr $* |pr)&
```

sccsdoc

```
FILE=$TMP/sccsdscr
info sccsdoc >> $FILE
info "mod - " >> $FILE
info "sys - " >> $FILE
pp $FILE $BIN/*mod $BIN/*sys $BIN/sccsdoc
rm $FILE
```