Part Number 800-1490-01
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3.2 Source Installation Guide

How to Install the 3.2 Source Tapes to Disk

1. Tape Structure

The source is divided into two directory hierarchies, /usr/src and /usr/src/SCCS_DIRECTORIES. /usr/src contains all read-only versions of the source files. /usr/src/SCCS_DIRECTORIES contains the corresponding SCCS files. There are symbolic links from the /usr/src directories throughout the hierarchy pointing to these SCCS directories. The /usr/src directories will contain all executable files produced by a system build using **make**.

For SUNSRC tapes, the /usr/src directories are contained on tapes 1 through 3. The SCCS directories are on tapes 4 through 6. For WINSRC tapes /usr/src is on tape 1 with the SCCS directories on tape 2.

The two hierarchies can be loaded to a single large disk partition (about 190 MBs), or split over two partitions (SCCS = 61 MBs, /usr/src = 150 MBs). Figure 1 shows a typical source development system.

**Figure 1*

```
pest% df
Filesystem     kbytes    used    avail capacity    Mounted on
/dev/xy0a        7735    5520     1441   79%            /
/dev/xy3a        7413    5051     1620   76%            /proto
/dev/xy3b       58543   42630    10058   81%            /proto/usr
/dev/xy0g       44539   33510     6575   84%            /usr
/dev/xy0e      177183  144214    30741   81%            /usr/src
/dev/xy2a      123023   60392    50390   54%            /usr/src/SCCS_DIRECTORIES
/dev/xy0d       19867    1234    16646    7%            /usr/tmp
buda:/usr/buda  24655    8646    13543   39%            /usr/buda
pest% mount
/dev/xy0a on  /  type 4.2 (rw)
/dev/xy3a on  /proto  type 4.2 (rw)
/dev/xy3b on  /proto/usr  type 4.2 (rw)
/dev/xy0g on  /usr  type 4.2 (rw)
/dev/xy0e on  /usr/src  type 4.2 (rw)
/dev/xy2a on  /usr/src/SCCS_DIRECTORIES  type 4.2 (rw)
/dev/xy0d on  /usr/tmp  type 4.2 (rw)
buda:/usr/buda on  /usr/buda  type ngs (rw,hard)
```

2. Loading the Source to Disk

To install the source, one must first make the appropriate directories:
mkdir /usr/src
mkdir /usr/src/SCCS_DIRECTORIES

Initialize two filesystems, about 150 Mbs for /usr/src and 61 Mbs for /usr/src/SCCS_DIRECTORIES:
newfs -v /dev/rXXX
newfs -v /dev/rYYY

Fsck the new filesystems:
fsck /dev/rXXX /dev/rYYY

Then mount them:
mount /dev/XXX /usr/src
mount /dev/YYY /usr/src/SCCS_DIRECTORIES

For each tape (1 through 3):

Load the tape on the correct drive,
then forward space the tape past the copyright notice.

mt -f /dev/nrxx0 fsf 1

(where xx = ar for 1/4'' Archive drives
where xx = st for 1/4'' SCSI drives
where xx = mt for 1/2'' mt/xy drives)

cd /usr/src

tar xvfpb /dev/nrxx0 <blocksize>

(where <blocksize> = 126 for 1/4'' tapes
where <blocksize> = 20 for 1/2'' tapes)

For each tape (4 through 6):

Load the tape on the correct drive.

mt -f /dev/nrxx0 fsf 1

cd /usr/src/SCCS_DIRECTORIES

tar xvfpb /dev/nrxx0 <blocksize>

3. Supporting Both Sun-2™ and Sun-3™ Architectures

Both Sun™ architectures (68010 and 68020) can be supported with a common source structure. Two machines (a Sun-2 and Sun-3) can contain their own /usr/src structures, but share a set of common SCCS directories. The /usr/src directories exist on a separate partition, but the SCCS directories are mounted directly on a machine of one architecture, and are exported via the NFS and mounted remotely on the machine of the other architecture. This can be expanded as new architectures are developed.

A typical system configuration is shown in Figure 2.

**Figure 2*

Buda (a Sun-2):

```
buda% cat /etc/fstab
/dev/xy0a   /   4.2 rw 1 1
/dev/xy0e   /usr/src 4.2 rw 1 2
/dev/xy0f   /usr/buda 4.2 rw 1 3
/dev/xy0g   /usr 4.2 rw 1 4
/dev/xy0h   /usr/tmp 4.2 rw 1 5
/dev/xy1b   /proto 4.2 rw 1 7
/dev/xy1d   /proto/usr 4.2 rw 1 8
pest:/usr/src/SCCS_DIRECTORIES  /usr/src/SCCS_DIRECTORIES nfs bg,rw,hard 0 0
```

Pest (a Sun-3):

```
pest% cat /etc/fstab
/dev/xy0a   /   4.2 rw 1 1
/dev/xy0d   /usr/tmp 4.2 rw 1 2
/dev/xy0e   /usr/src 4.2 rw 1 3
/dev/xy0g   /usr 4.2 rw 1 4
/dev/xy2a   /usr/src/SCCS_DIRECTORIES 4.2 rw 1 5
/dev/xy3a   /proto 4.2 rw 1 6
/dev/xy3b   /proto/usr 4.2 rw 1 8
buda:/usr/buda /usr/buda nfs bg,rw,hard 0 0
```

Note that the User's directories exist on the Sun-2 (Buda) and are remotely mounted on the Sun-3 (Pest). The SCCS directories, however, exist on the Sun-3, and are remotely mounted by the Sun-2. This assures developers of having the same home directories and a common SCCS source when they login onto either machine.

4. Installing the Symbolic Links

While most of the source code is common to both architectures, there are some differences, especially at the kernel level. Symbolic links are used to designate files used under a particular architecture during a system build. The source tapes themselves are generic, containing both sets of files. Two lists of symbolic links are in /usr/src/symlinks.sun3 and /usr/src/symlinks.sun2. These are used as input to the shell script /usr/src/copylinks. After the source has been restored from tape, run copylinks:

cd /usr/src
copylinks < symlink.sun{2,3}

On a coupled, two machine system, the /usr/src tapes should be restored into /usr/src on each machine, the SCCS tapes need only be installed on either machine (and remotely mounted on the other). /usr/src/copylinks is run on both machines with the corresponding list as input.

5. /usr/src/sun/sys/GENERIC/ makefile

To build a GENERIC kernel, after loading 3.2 SUNSRC and loading the proper links, change directories;

cd /usr/src/sun/sys/conf

Then, run the command:

/etc/config GENERIC which creates the ../GENERIC directory and makefile. Make under this directory will build a kernel.

The same can be done for the LINTed GENERIC kernel, LINT.

6. Copyrights, Etc.