

```
grep          groups          grub-macbless      grub-mkstandalone
grepdiff      grpck              grub-menulst2cfg  grub-mount
gresource     grpconv           grub-mkconfig     grub-ntldr-img
groff         grpunconv         grub-mkdevicemap  grub-probe
grog          grub-bios-setup   grub-mkfont       grub-reboot
grops         grub-editenv      grub-mkimage      grub-render-label
grotty        grub-file         grub-mklayout     grub-script-check
groupadd      grub-fstest       grub-mknetdir     grub-set-default
groupdel      grub-glue-efi     grub-mkpasswd-pbkdf2 grub-syslinux2cfg
groupmems     grub-install     grub-mkrelpath
groupmod      grub-kbdcomp      grub-mkrescue
```

sungwon@linux:~/Documents/xv6-ssu/templates/xv6\_ssu\_init\$ grep -nr "starting sh"

Binary file user/init.o matches

user/init.c:23: printf(1, "init: starting sh\n");

Binary file user/\_init matches

Binary file fs.img matches

sungwon@linux:~/Documents/xv6-ssu/templates/xv6\_ssu\_init\$ cat user/init.c

// init: The initial user-level program

```
#include "types.h"
#include "stat.h"
#include "user.h"
#include "fcntl.h"
```

```
char *argv[] = { "sh", 0 };
```

```
int
main(void)
{
    int pid, wpid;

    if(open("console", O_RDWR) < 0){
        mknod("console", 1, 1);
        open("console", O_RDWR);
    }
    dup(0); // stdout
    dup(0); // stderr

    for(;;){
        printf(1, "init: starting sh\n");
        printf(1, "ID: 20160402\nName: Sungwon\n");
        pid = fork();
        if(pid < 0){
            printf(1, "init: fork failed\n");
            exit();
        }
        if(pid == 0){
            exec("sh", argv);
            printf(1, "init: exec sh failed\n");
            exit();
        }
        while((wpid=wait()) >= 0 && wpid != pid)
            printf(1, "zombie!\n");
    }
}
```

sungwon@linux:~/Documents/xv6-ssu/templates/xv6\_ssu\_init\$

```
sungwon@linux:~/Documents/xv6-ssu/templates/xv6_ssu_init$ make qemu-nox
qemu-system-i386 -nographic -drive file=fs.img,index=1,media=disk,format=raw -drive file=xv6.img,index=0,media=disk,format=raw -smp 2 -m 512
xv6...
cpu1: starting 1
cpu0: starting 0
sb: size 1000 nblocks 941 ninodes 200 nlog 30 logstart 2 inodestart 32 bmap start 58
init: starting sh
ID: 20160402
Name: Sungwon
$ ls
.              1 1 512
..            1 1 512
README        2 2 2170
cat           2 3 13156
echo          2 4 12384
forktest      2 5 13064
grep          2 6 14600
init          2 7 13000
kill          2 8 12428
ln            2 9 12324
ls            2 10 14372
mkdir         2 11 12520
rm            2 12 12500
sh            2 13 21552
stressfs      2 14 13120
usertestfs    2 15 54640
wc            2 16 13604
zombie        2 17 12160
console       3 18 0
$
```