System Maintenance

When working with 2.11 BSD on the PiDP-11, one should not forget that this operating system was designed at a time, when every larger PDP-11 installation had a system operator, who would make regular tape backups and perform other maintenance tasks as required.

A minimum of maintenance and precautions is therefore required to keep the system (and the user) in a sane state. The recommendations below are very preliminary and might very likely change with future releases of the PiDP-11 software.

1. Shut down the system properly after each use

I recommend that you login as root (or do a “su root”), and type

```
shutdown -h now
```

Then wait for the simh prompt before shutting down the Raspberry Pi. This might take a short while.

2. Make regular backups of the system

This is much easier on a virtual system as compared to an original PDP-11. I propose that you just make in regular intervals a backup copy of

```
/opt/pidp11/systems/211bsd/2.11BSD_rq.dsk
```

preferrably on an external device such as an usb stick.

3. Run a disk check in regular intervals

Basically, one should do a fsck disk check every time during bootup. But because this takes several minutes, it might not always be desider. If the system is booted up automatically into multi-user mode, this check is done automatically. But for respectable reasons the PiDP-11 software is currently set up to boot to single user mode, from where the user has to go to the multiuser mode with <control>d.

As a minimum, I recommend to do a disk check every 5 boots, and a disk check is absolutely required to be done if the system has not been shut down properly after the last usage (see 1 above)

Boot as usual into the signe user mode. You will see the following prompt:

```
erase, kill ^U, intr ^C
#
```

Now, execute a full fsck check. Note that this SHOULD NOT be done while in multiuser mode! Type

```
fsck -p -t scratch
```

After a short while, the message

```
/dev/ra0a: 58 files, 2806 used, 5010 free
```

or similar should be displayed. Then the program will continue, see below. If this is not the case, and you get a message that /dev/ra0a had to be corrected and the # prompt appears, DO NOT type any further commands! Instead, while the #prompt is displayed, depress HALT on

the PiDP-11 front panel, then restart shimh or simply reboot your Raspberry Pi. Repeat the “fsck –p -t scratch” in single user mode as described above.

If /dev/ra0a is ok, “fsck –p -t scratch” will continue after the first message “/dev/ra0a: ...”. Be patient now. The check of /dev/ra0h and /dev/ra0g will probably take around 4 minutes without any visible action other than the blinking front panel. Minor problems on these file systems will be fixed automatically, and it is ok to boot now to multiuser mode with <ctrl>d, because these file systems are not mounted in signle user mode.

If manual fixes are required, read the “man fsck” manual page first and then apply them in single user mode, or go back to your last backup.

If everything is ok or was fixed automatically, the # prompt will appear and you can now go into multi user mode.

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