

Installing Debian Linux on the PrisonBook.

Version 0.1 by Sark - @crtduke on Twitter

Partition a hard drive as standard DOS partition table. Make three partitions, all primary (no extended partitions) - one big one, one for swap that's several gigabytes, and one at the end of the disk that's about 700 megabytes or so.

In this example, we have /dev/sdb1, the root partition, /dev/sdb2, which we will use as swap later, and /dev/sdb3 which will be the bootloader (and the installer disc).

| Disk: /dev/sdb | | | | | | |
|---|------|-----------|-----------|-----------|--------|----------|
| Size: 447.13 GiB, 480103981056 bytes, 937703088 sectors | | | | | | |
| Label: dos, identifier: 0x284e1dfe | | | | | | |
| Device | Boot | Start | End | Sectors | Size | Id Type |
| /dev/sdb1 | | 2048 | 922748927 | 922746880 | 440G | 83 Linux |
| /dev/sdb2 | | 922748928 | 936136703 | 13387776 | 6.4G | 83 Linux |
| >> /dev/sdb3 | * | 936136704 | 937703087 | 1566384 | 764.8M | 83 Linux |

Now, dd the Debian installer disc image onto the last partition. Be **VERY** sure you have the right device here, as you can easily overwrite the wrong thing if you're not careful. Pay attention to what drive you're working with. In this case, my blank drive is /dev/sdb, but your case may vary.

As root:

```
dd if=debian-12.5.0-amd64-netinst.iso of=/dev/sdb3
```

Put the drive into the PrisonBook.

Select Install, rather than graphical install.

Select English, United states, then it'll give you an error saying it can't find the installation media and asks if you want to retry. Select no. At the red screen hit continue. This brings you back to a menu.

Select "Execute a shell", and hit continue.

type :

```
mount /dev/sda3 /cdrom
```

and hit enter. then type:

```
exit
```

Select "Detect and mount installation media", and wait for it to load all the installer components.

Go through the menus and connect it to your wifi.

Set the hostname to whatever, leave domain blank.

Set root password, create your user account/password.

Select time zone.

The menu comes up asking to force UEFI installation, hit no, we won't be using the bootloader anyway.

At the partition disks menu, select manual partitioning.

You will see your three partitions here, we're going to define the first two and leave the last one alone. Select the first one and hit the "Use as" menu, and select EXT4. Change mount point to / (root). Done with this partition.

Select the second partition, go to use as, select swap area. Done with this partition.

select "Finish partitioning and write changes to disk". Confirm with Yes at the next screen.

Wait for it to format the root and swap partitions.

Wait for it to go through and install the base system.

Select "execute a shell" from the menu again, we need to unmount the installer disc so the package manager configuration will work.

type :

```
umount /cdrom
exit
```

Select "configure the package manager"

This hits an error for whatever reason, so select "change mirror" , hit enter twice, selecting United States, then deb.debian.org

Hit enter when it asks for HTTP proxy information.

Select no when it asks about the package popularity contest.

At software selection, I prefer XFCE to the other options, so I deselected GNOME and selected XFCE. I also selected SSH server and left the rest blank. But you can pick what you want. Then hit "continue"

Wait for it to retrieve and install the software.

Now it'll hit an error trying to load GRUB since it can't read the installer disc - because you unmounted it earlier. This is fine, because we do not want to install GRUB anyway, that'll just brick the drive and give you that error about the hard drive having been changed. Select "No" from this prompt.

It'll ask if you want to install Grub to your primary drive. Select "No". Then from the next screen, where it asks you where you want to install it, select <Go back> from the lower left.

Select "Continue without boot loader", and hit Continue when it reminds you that you'll have to boot manually.

Now you're at the end of the installation. Hit "Continue" on the installation complete screen to reboot the computer. This will bring us right back to the Debian installer disc screen, since we haven't got any other boot loader.

Now, back at the installer disc menu, hit C to get a grub command line. Type the following three lines exactly:

```
set root=(hd0,1)
linux /vmlinuz root=/dev/sda1
initrd /initrd.img
boot
```

Now the screen will flash to a black screen full of text, and start loading your installation and bring you to a login prompt. Log in as root.

Now, you're in the OS you just installed! But typing grub commands every time you want to boot your computer is a pain. Let's fix that. Open a terminal window.

type:
`mount /dev/sda3 /media/cdrom`

It'll give us an error about that being write protected - it's an .iso, an image of a CDROM, you can't just edit the files. Or can you?.... (evil grin emoticon here)

type:
`cp /media/cdrom/boot/grub/grub.cfg .`

Don't forget that end period. That just copied the grub configuration file from the installer disc to root's home directory. The file itself is still read only though.

type:
`chmod 666 grub.cfg`

OK. Now we need to edit the file. You can use any editor you like, but if you're not real familiar with Linux, I'll suggest mousepad, because it's basically just Notepad and easy to use.

So, type:
`mousepad grub.cfg`

This brings up a simple, familiar editor. This is the grub configuration file. Scroll down until you get to the menu entry for "Graphical Install". We're going to hijack this one.

Change the entry that looks like this:

```
menuentry --hotkey=g 'Graphical install' {  
    set background_color=black  
    linux    /install.amd/vmlinuz vga=788 --- quiet  
    initrd   /install.amd/gtk/initrd.gz  
}
```

To be this:

```
menuentry --hotkey=g 'Boot!' {  
    set background_color=black  
    set root=(hd0,1)  
    linux    /vmlinuz root=/dev/sda1  
    initrd   /initrd.img  
}
```

And yes that is a "z" at the end of vmlinuz, not an x. (it's a compressed kernel, after all)

OK, now, that will make that entry boot our install, but we don't want to wait there until we hit enter, we want it to boot straight away. So just above that menu entry, add a set timeout line, like so (added line is in red):

```
insmod play
play 960 440 1 0 4 440 1
set timeout=3
set theme=/boot/grub/theme/1
menuentry --hotkey=g 'Boot!' {
```

This gives us three seconds, you can change it to be any other number if you want though. You might still need to hop in and interrupt it if something breaks.

Now, we're almost done. You can really edit this as much as you like, and clear out a bunch of other menu entries. But for now, we're leaving most everything alone because it's easier to explain. BUT, we don't want our edited version of this file to be any bigger than it was before. So, scroll down to the end of the file and delete the last bit that says:

```
menuentry --hotkey=s 'Install with speech synthesis' {
    set background_color=black
    linux    /install.amd/vmlinuz vga=788 speakup.synth=soft --- quiet
    initrd   /install.amd/gtk/initrd.gz
}
```

Make sure you delete the whole menuentry section and it's closing curly bracket.

OK. Now... save this file and close Mousepad (or exit the editor). Go back to the terminal. We need to go about replacing the original file with this new one we made. But... we can't just copy the file over since it's an iso filesystem and read only. We can cheat a little though. The file will be contiguous in the installer disc, so if we know where it starts, we can just kinda slap new bytes over the top of the old ones. We'll also need more tools to do this though.

In your new terminal window, type:

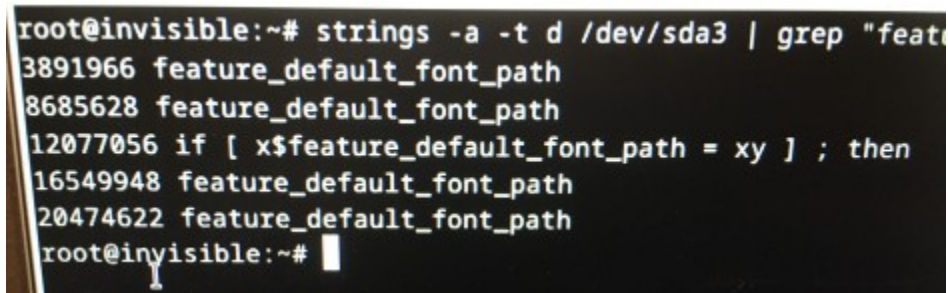
```
umount /media/cdrom
apt-get install binutils
```

Hit enter to confirm, it should only take a few seconds to install binutils. This gives us the all important 'strings' command. Now, to find that file, we're going to search for the text at the beginning of it.

In the terminal, type:

```
strings -a -t d /dev/sda3 | grep "feature_default_font_path"
```

This will return every occurrence of that phrase on the installer disc, along with a number in front of it - this is the block that data exists on the disc.



```
root@invisible:~# strings -a -t d /dev/sda3 | grep "feature_default_font_path"
3891966 feature_default_font_path
8685628 feature_default_font_path
12077056 if [ x$feature_default_font_path = xy ] ; then
16549948 feature_default_font_path
20474622 feature_default_font_path
root@invisible:~#
```

It shows up several times, but only once do you see the entire phrase as "if [x\$feature_default_font_path = xy] ; then" In this case, it's preceded by the number 12077056. Now, this block should be the same for anyone that does this using the exact same installer disc that I did. But obviously, it's good for you to check yourself in case something shifts.

Now, we're going to take our modified file, and just jam it in over the top of the old one.

type (carefully!!!):

```
dd if=grub.cfg of=/dev/sda3 bs=1 conv=notrunc seek=12077056
```

It's vital that you type it exactly and get the number right. Failure to do so will most likely screw up the installer disc partition. Now, you can always rewrite this again from your other PC, but that's a pain.

Now... cross your fingers and type:

```
reboot
```

The Debian installer screen comes up, sits there for three seconds, then kinda looks like it glitches/hangs for a couple more seconds, then the screen goes black, text scrolls, and your login prompt appears. You now have a fully working, booting, PrisonBook running a full install of Debian.

Now, this is of course, an ugly hack. But it works around the fact that the PrisonBook won't boot most things, normal EFI partitions, etc. Using an OS installer disc gets us around all that. Are there better ways to do this? Probably. But hey, this works, and it's not too hard.