Guide to running the Raspbian version of Linux on the VIA APC Single-Board Computer

This is a step-by-step guide to downloading and installing Raspbian on a microSD card along with various housekeeping tasks such as moving the partition on the memory card from the default 2GB to the actual card capacity and getting/installing the latest updates for Python and Scratch. This process should provide a 'dual-boot' option to the user: run the supplied Android OS from the on-board Flash memory or power-up with the Raspbian boot microSD card plugged in and run Raspbian instead.

Step 1. Get Raspbian image onto a microSD card.

1. If you don't already have a PC running Linux then you will need an Internet-connected Windows PC with an SD Flash memory card reader. It's most likely that your reader will only take full size SD cards so make sure you have a microSD card with an adapter (many are sold with an adapter anyway). The minimum card capacity is 2GB, but get at least a 4GB card so you have space for new application programs, with a minimum speed rating of Class 4. Think of the card as the hard-disk drive of your APC. Cards up to 32GB capacity will work.

2. Download to your PC the program that transfers an image file to a Flash memory card: It's called Win32DiskImager and can be downloaded for free from https://launchpad.net/win32-image-writer/+download. You actually download a ZIP file which then needs extracting into a suitable folder on your PC. You need the version of the file called win32diskimager-binary.zip.

3. Now download the Raspbian image file (it will also be .zipped) from the Raspbian website: http://www.raspbian.org/ApricotImages and extract it to a suitable folder.

4. Plug the SD card into the reader slot then run Win32DiskImager, browse to the apc_apricot_r3.img file just downloaded and select the drive letter for the card reader, in this case G. Note that the program will not allow selection of C: drive, which is just as well because this process is not a simple file copy: all existing data on the target drive is lost.

Figure 1 Disk Imager ready to write

5. Click on **Write** and watch the progress bar. It will take a few minutes. Plug the microSD card into the APC and power-up. If it works you should get a nice GUI screen after you have logged in as 'apc' with password 'apc'. The latter should be changed as soon as possible.

Step 2. Expand the image to make all the card capacity available.

1. This step is only necessary if your card is larger than 2GB. It involves resizing a partition on the card to use all its remaining capacity. Hence if it's a 4GB card there should be 2GB of unallocated space. A special program called GParted is used for this purpose and this is supplied with the Raspbian distro. There is a problem though: the partition to be resized will be in use so GParted will refuse to re-size it. The way I got around it, there are others, was to Flash the Raspbian image on to another card. This card can be a mere 2GB in size because we are only to going use it as a boot disk to run Raspbian and GParted. Meanwhile the 'real' boot card is slotted into a card reader plugged into a spare USB socket. Useful that APC has four USB sockets! Reboot the APC and login.

2. From the menu at the top select System → Administration → GParted. Type in your login password for authentication.

3. Select the drive, the one in the reader, from the menu in the top right corner. It should have an address like /dev/sdb. There'll only be two to choose from: the other will be the boot drive in the normal slot.
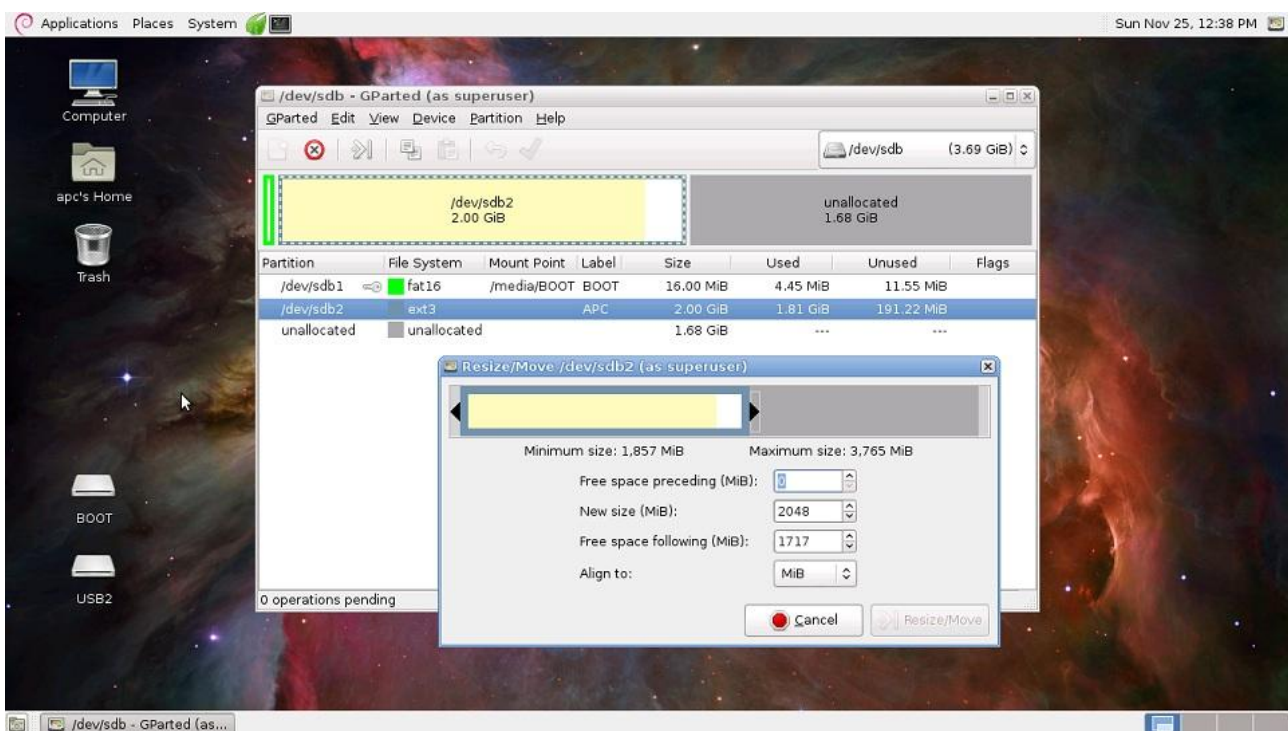

Figure 2 Ready to Resize Partition

4. Select the ext 3 partition. From **Partition** on the menu click on **Unmount**. Click on the **Resize** button. This opens another window containing a box with an arrow on each end. See Figure 2.

5. Drag the right-hand arrow to the end of the box then click on **Resize/Move.** Finally, click on the green tick button to accept the change. That's it! Now shutdown, swap the resized version into the board microSD card slot and reboot to check. The second card can be re-sized as well using the same procedure if required.

Step 3. Set up RTC and get latest updates.

1. Set up the clock/calendar by selecting from the top menu: System → Administration → Time and Date. You will be asked for the password again. Note that the RTC is maintained while the system is shutdown as long as a power supply is left connected.
2. Make sure you have an Internet connection – connect your Router to the RJ45 socket.
3. Now open a Terminal window from the top menu: Applications → Accessories → Terminal.
4. Type in the command line:
    sudo apt-get update && sudo apt-get dist-upgrade
    After some activity you will be asked if you want to continue. Type y <enter>. The update process may take up to an hour!

Step 4. Install latest version of Python and Scratch.

1. Type the command line into a Terminal window:
    sudo apt-get install python3.2
    This will get you a version of Python 3 which may be run from a Terminal window.
2. Type the command line into a Terminal window:
    sudo apt-get install scratch
    Scratch will appear in the Applications menu and may be run by clicking on the menu item. Right-click on the menu item and you will be able to install a Scratch icon on the Desktop.