

DRAFT 3 -- How to create a micro-SD card to run DV4mini on a Raspberry Pi 2 or 3 with Ubuntu MATE on a Mac or a Windows machine. --- Friday, September 2, 2016

1. Go to <https://ubuntu-mate.org/download/> and download the current release of Ubuntu Mate for the Raspberry Pi (currently 16.04.1) – pick a direct download and you will have a compressed file ending in **.xz** of 1.1 GB or so after a bit of time...
2. Decompress the **.xz** file with your favorite decompressor and you should have a file named: **ubuntu-mate-16.04-desktop-armhf-raspberry-pi.img**
3. Using ApplePi-Baker on a Mac or Win32DiskImager on a PC, burn the image to a micro-SD card (8GB or larger, Class 10 or better is recommended)
4. Install the micro-SD card in your Raspberry Pi 2 or 3 plus the DV4mini, an HDMI monitor, USB mouse, USB keyboard, a wired Ethernet cable or wireless dongle on a 2 or a wired Ethernet cable on a 3. (I recommend a wired connection until you get everything loaded then you can switch to WiFi when needed.)
5. Apply a suitable power supply and wait for the system to ask a few questions for username, password, language, location etc. and install the software (takes time).
6. At this point you will have a full Ubuntu MATE system complete with many applications, Firefox, Onboard keyboard (if needed) and lots more. It will open a welcome window which includes a red “Raspberry Pi Information” button that you need to click. That will open a new screen and allow you to resize the system to fill the SD card. Click the button and it will be done. (only needs to be done the first time you start the system.)
7. When done open a terminal window (Applications > System Tools > MATE Terminal) and run the following commands: (Linux is case sensitive on all commands -- when asked for a password use the one created in step 5)
 - a. `sudo apt update -y`
 - b. `sudo apt full-upgrade -y`
 - c. `sudo rpi-update`
 - d. `sudo apt install mono-complete -y`
 - e. `sudo apt install xrdp -y`
 - f. `sudo apt autoremove -y`
 - g. `sudo reboot`
8. [Recently these files were removed, so I have put a copy on my website] Using Firefox on MATE go to **wirelesshold.com/manuals.aspx** and near the bottom of the page click on **here** download three files from the Linux that are on the bottom of the page that opens. Open the **Linux_ARMHF32bit/** (yes the 32bit folder) and download:

- a. dv4mini.exe
 - b. dv_serial
 - c. xref.ip
9. Open your Home folder on the desktop and these three files and perhaps others should be in your **Downloads** Folder. Open the Downloads folder and select all three files and then right click and select **Copy to... Home Folder** from the menu that appears.
10. Open your home folder and right click on the icon for dv4mini.exe. Select the tab marked Permissions and near the bottom check the box marked Allow executing file as program. Repeat this process for dv_serial.
11. When done open a terminal window (Applications > System Tools > MATE Terminal) and run the following command: (the .exe is required)
 - a. **sudo mono dv4mini.exe**
12. The DV4mini Control panel should open, find your DV4mini, allow you to input your DMR/CCS7 ID:, Location, QTH Locator, set the mode, power, frequencies, and connect.
13. Once you have it working the only command you need to issue is the from step 11 or if you wish open the home folder, right click on the icon for dv4mini.exe and select Make Link. This will create a shortcut that you can drag to the desktop and rename if you wish. When you double click on the new icon it will start the software.
14. In step 6.e. you installed a server that will allow you to use a remote desktop client on another device (phone, tablet, computer, laptop) to access (securely) the pi so you can remove the keyboard, mouse and operate from any client on the same network. If you are using another network, you will need to open a rourther port to allow access to your Pi's network.
15. To update the Ubuntu software periodically issue the following commands in a terminal window.
 - a. sudo apt update -y
 - b. sudo apt full-upgrade -y
 - c. sudo rpi-update
 - d. sudo reboot
16. Enjoy! Problems/Errors/Suggestions? Email me at KB8AOB@arrl.net. 73 Rich