Resize Flash Partitions

by Fred Yu

Purpose:

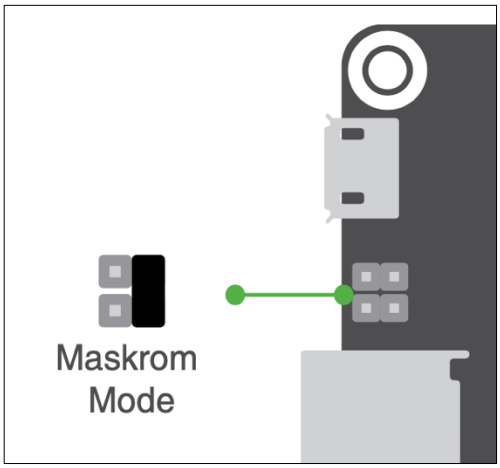
Providing a method to create a minimized image from an existing storage and this image is also able to restore back to the storage (either eMMC or SD card) of the next board.

The environment:

Board: **Tinker Board S**
OS: **Tinker_Board-Debian-Stretch-V2.1.11-20200310.img**
microSD card: **With another Debian installed** (It could be flashed an image thru Etcher or Win32DiskImager under Windows environment or dd under Linux.)

Procedures:

1. Hardware setting:
   Insert microSD card to the Tinker Board S and setting the jumper as **Maskrom Mode** (It would disable eMMC booting priority and force boot from the microSD card.); as shown below:



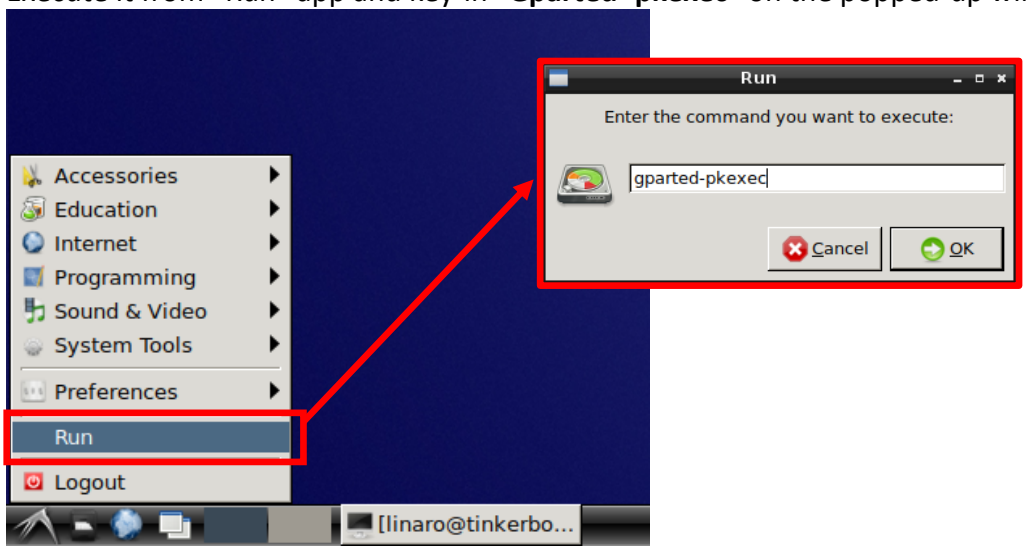
2. Power on the Tinker Board S and it would boot from microSD card
3. Install gparted by the following command: (Ensure the Ethernet/WIFI is workable)

```
linaro@tinkerboard:~$ sudo apt-get install gparted
```

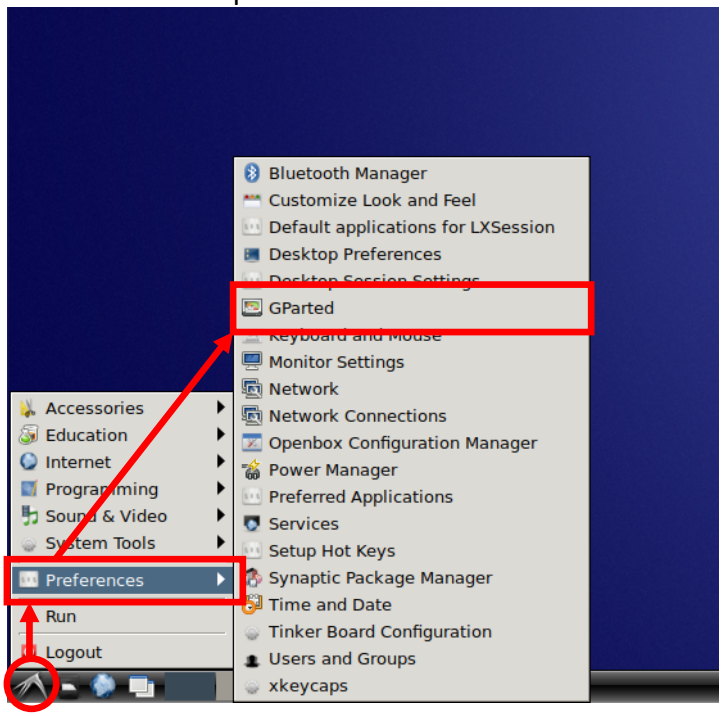
4. There're 3 methods to run Gparted app:
   a) Execute it with following command on Terminal:

```
linaro@tinkerboard:~$ sudo gparted-pkexec
```

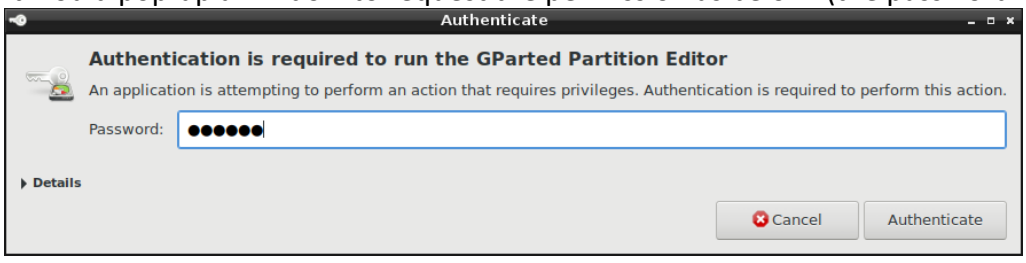
b) Execute it from “Run” app and key-in “**Gparted- pkexec**” on the popped-up window:



c) Execute it from Gparted icon as shown below:

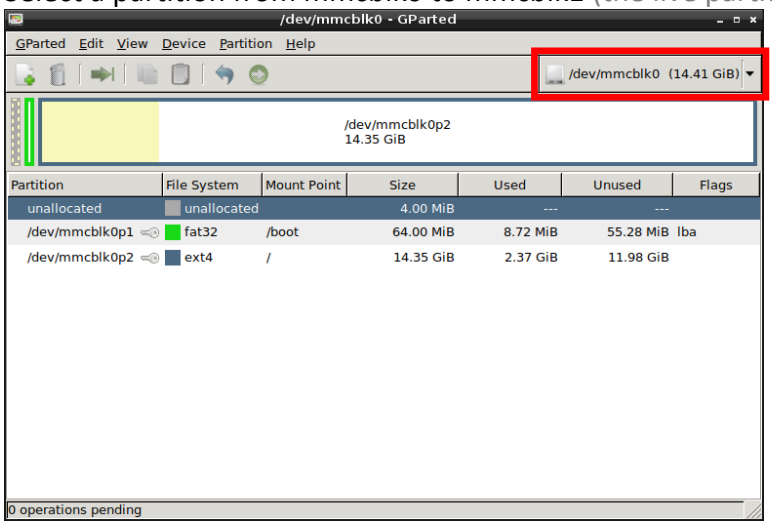


5. It would pop-up a window to request the permission as below: (the password is **linaro**)



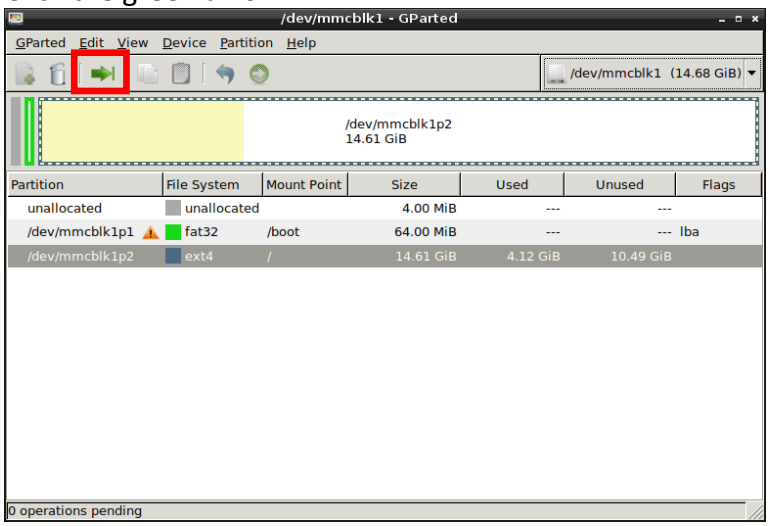
6. **Following steps to resize eMMC thru GParted:**

a) Select a partition from mmcblk0 to mmcblk1 (the live partition cannot be resized)



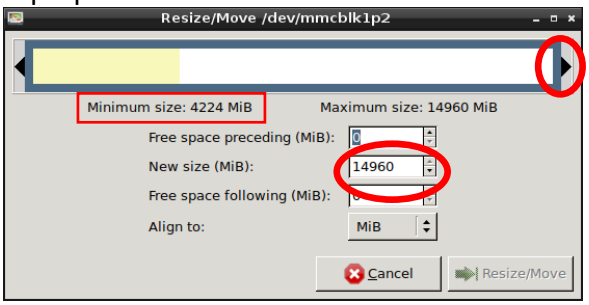
a. Select mmckblk1 which indicates to the eMMC.

b) Click the green arrow



b. Click Green arrow

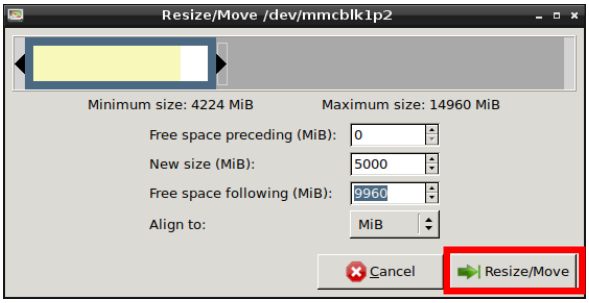
c) Pop-up a resize window



c. You could set the size either one of the ovals.

If you set the new size as the minimum size, it might not work.
It needs some space to process resizing.

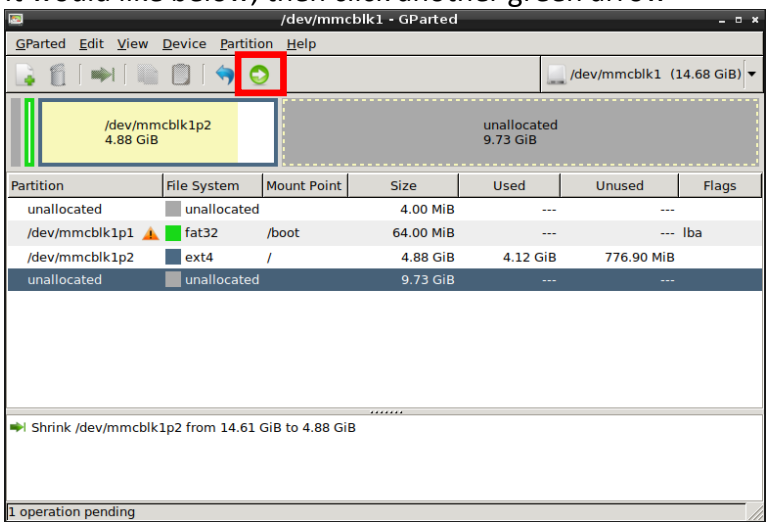
d) After setting resize, it would be like below shown, then click “Resize/Move” to confirm the size



d. After setting the size, click “Resize/Move”.

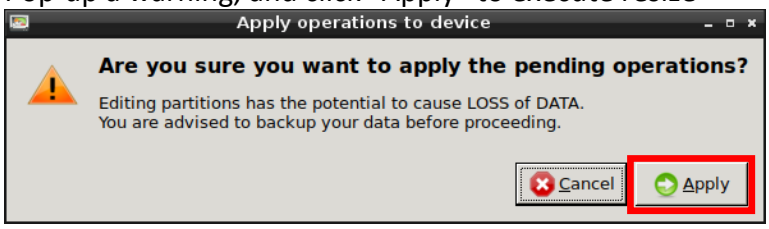
This step just confirms the size, not execute resize yet.

e) It would like below, then click another green arrow



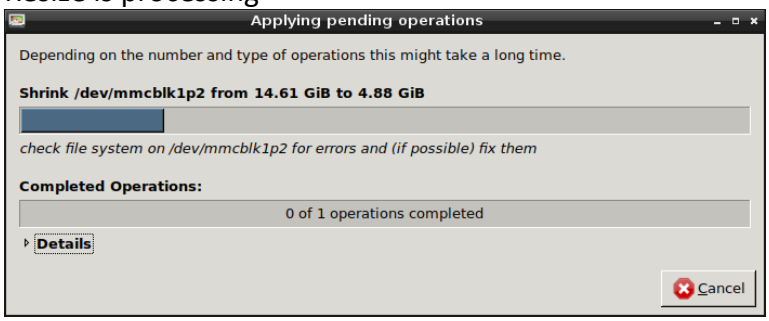
e. Click another green arrow.

f) Pop-up a warning, and click “Apply” to execute resize

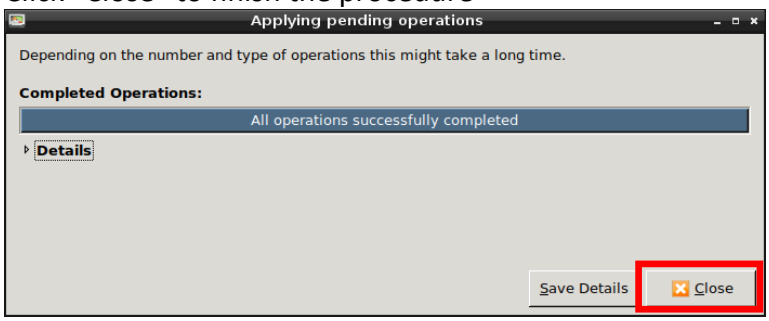


f. Click “Apply” into resize processing.

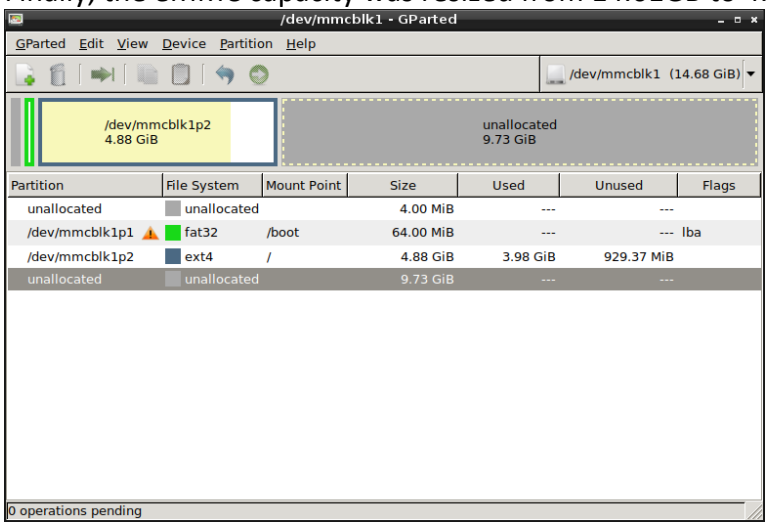
g) Resize is processing



h) Click “Close” to finish the procedure



i) Finally, the eMMC capacity was resized from 14.61GB to 4.88GB



7. **Run the following command before creating image:**

```
linaro@tinkerboard:~$ sudo systemctl enable resize-helper
```

[NOTE]: This step provides recovering whole capacity when restoring the created image back to the storage.

8. Now, this eMMC is ready to be created as an image by dd, such as below:

```
linaro@tinkerboard:~$ sudo dd if=/dev/mmcblk1
of=/home/linaro/Desktop/mmcblk1.img bs=X count=Y conv=noerror,sync
```

[NOTE]:

X means Block size; **Y** means Processing number of blocks.

X*Y has to a little bit bigger than the resized capacity. The dd procedure needs to reserve some space to process. If the reserve space is not enough, the dd procedure would be failed.

For example: For this case, the bs would be 5M and count would be 1000 and the created image size would be 5GB totally.

9. Then the created image could be restored back to the whole storage of the next board, without resizing the capacity again.
Restore image utility: **dd/Win32DiskImager/Etcher**