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# Pandaboard Guide: Running Android ICS

Jayneil Dalal(jayneil.dalal@gmail.com)

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#### Abstract

In this guide, I will describe how to run Android ICS(4.0.4) step by step. This guide uses ready made binaries hosted on the Texas Instruments Gforge website. This guide targets beginners who are just getting started on the Pandaboard and want to play around with Android. These instructions will work for Pandaboard as well as Pandaboard ES. These binaries are the only one that support all most all the functionalities out of the box on Pandaboard.

## Setup

- I used an Ubuntu 12.04 64 bit machine.
- I used Pandaboard ES for this guide.
- Throughout the entire procedure, you will need to have an active INTER-NET connection.

### Steps

• Download all the six files hosted on the TI Gforge site below:

 $https://gforge.ti.com/gf/project/panda\_binaries/frs/?action=FrsReleaseBrowse\&frs\_package\_id=293$ 

The files are namely:install-binaries-4.0.4.sh, run-me.sh, userdata.tar.bz2, boot.tar.bz2, system.tar.bz2, linaro-image-tools.tgz.

See the figure below for more details.



- Install the disk utlity software from the Ubuntu Software Center.
- Now, insert your SD card in the card slot on your computer/laptop.
- Make sure that the SD card is not mounted. If it is mounted, then unmount it using disk utility as shown in the figure below:

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	Manapic	Multiple Card Reader (Multiple )	and Reader) (/dev/sdb) Dick [[ti]]th	manager		jaynes 🔤			
File Help		multiple cura reader (multiple )	cura Reader/ (raevisabl) — bisk beinty						
Storage Devices	Drive								
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			Panda-1 8.0 GB ext4						
	Usage: Fi Partition Type: – Type: E Label: Mount Volu Mount Volu Mount the vo Check Filesy Check and re	lesystem t4 (version 1.0) inda-1 me ume stem stem aar the fikesystem	Device: Capacity Available Mount P E For Ch	/dev : 8.0 c : – oint: Not rmat Volun se or format it Filesyste ange the lab	//sdb 58 (7.960,264,704 bytes) Mounted ne the volume m Label el of the filesystem				

- Now, identify the correct raw device name (like /dev/sde not /dev/sde1). You can do this by opening disk utility in Ubuntu and clicking on the sd card. You can erase your hard drive with the wrong parameter.
- Now lets make 'run-me.sh' script executable and run it by typing the following in the terminal. The output will give you an idea on how to use the script as shown in the figure below.



• Now that we know how to use the script, lets execute it to prepare the sd card by typing the following command in the terminal:

'sdb' is the raw device which we found earlier .

During the process, you will also be asked to accept the license for graphic binaries. So, please do accept it. The output should be similar to the one shown in the figures below:



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Ĩ	<b>*</b>			Terminal - jayneil@	jayneil-pc: ~/Work/TIGforg	e		- + ×
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	I see Device M (dev/sda n /dev/sda1 m /dev/sda2 / /dev/sda3 / /dev/sda4 n /dev/sdb n /dev/sdb n Are you 100% sure,	Nount point ione ione ione ione ione ione ione [, on selecting [,	Size 715404MB 100WB 102300MB 604977WB 8025MB 8025MB 7591MB 0WB 0WB (dev/sdb] (y/n)?					

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Terminal - jayneil@jayneil-pc: ~/Work/TIGforge	- + ×
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to zero the first 512 bytes: dd if=/dev/zero of=/dev/foo7 bs=512 count=1 (See fdisk(8).)	
Warning: extended partition does not start at a cylinder boundary.	
DOS and Linux will interpret the contents differently.	
start: (c,h,s) expected (0,1,2) 10000 (0,1,32) end: (c,h,s) expected (17,195,15) found (65,127,31)	
start: (c,h,s) expected (17,195,17) found (66,0,1)	
end: (c,h,s) expected (86,202,48) found (321,127,32)	
start: (c,h,s) expected (86,202,49) found (322,0,1)	
ena: (c,n,s) expected (121,84,2) TOUND (449,127,32) start: (c,h,s) expected (121,84,2) found (450,0,1)	
end: (c,h,s) expected (12,3,0,3) found (103,127,32)	
start: (c,h,s) expected (121,84,35) found (450,1,1)	
end: (c,h,s) expected (190,91,34) found (705,127,32)	
start: (c, h, s) expected (190, 92, 5) found (706, 1, 1) and: (c, h, s) expected (103, 130, 24), found (103, 137, 23)	
ena: (c,n,s) expected (1025,129,24) Tound (1025,127,52)	
Formating boot partition	
mkfs.vfat 3.0.12 (29 Oct 2011)	
mke2fs 1.42 (29-Nov-2011)	
Filesystem label=userdata	
05 type: Linux	
Fragment Size=1024 (10g=0)	
Stride=0 blocks, Stripe width=0 blocks	
131072 inodes, 524272 blocks	
26213 blocks (5.00%) reserved for the super user	
F1FST data DLOCK=I Navimum Filexystem blocks=67633152	
de block groups	
8192 blocks per group, 8192 fragments per group	
2048 indes per group	
Superblock backups stored on blocks: 9102 24577 40651 57245 72720 204801 221185 401400	
Allocating group tables: done	
Writing inde tables: done	
creating journal (orsz blocks): done Writing superblocks and filesystem accounting information:	

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- b. The term "Android Applications" means a software application or open-source contribution developed by You, designed to operate with Android that does not contain or incorporate any of the Software.
- c. The term "Authorized Android Enabled Device" means only the device identified on the site from which You downloaded the Software. The term "Software" means the Licensor's proprietary software and libraries in object code form, designed for use on the Authorized Android Enabled Device.
- d. The term "Authorized Android Enabled Device Software" means a packaged build for Authorized Android Enabled Devices, consisting of files suitable for installation on a Authorized Android Enabled Device using a mechanism such as fastboot mode or recovery mode.
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- Amendment and Modification. This Agreement and any of its terms and provisions may only be amended, modified, supplemented or waived in a writing signed by both parties hereto. с.
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• Mount the SD card back using disk utility. There should be a lot of partitions created on it as shown below:

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<b>*</b>		Mult	iple Card Rea	der (Multiple Card I	Reader) [/dev/sdb] — Disk	k Utility	- + x								
File Help															
Storage Devices	Drive														
Jayneil@localhost	Model:	Multiple Ca	rd Reader			Serial Number:	058F63666435								
Peripheral Devices	Firmware Version:	1.00				World Wide Name: -									
USB, FireWire and other peripherals	Location:	-				Device: /dev/sdb									
ATA Hitachi HTS547575A9E384	Write Cache:	-				Rotation Rate:	on Rate: –								
Multiple Card Reader	Capacity:	8.0 GB (7,96	50,264,704 byt	es)		Connection: USB at 480.0 Mb/s									
CD Drive	Partitioning:	Master Boo	ot Record			SMART Status:   Not Supported									
HL-DT-ST HL-DT-ST DVDRAM GU60N	Erase or parti	<b>ve</b> ition the drive				Safe Remova Power down th	l e drive so it can be removed								
	Benchmark Measure driv	<b>k</b> /e performance													
	Volumes														
	boot 138 MB Fat	system cache				E	xtended 7.0 GB								
			Loo no cata	userdata 537 MB ext4			sdcard 6.5 GB FAT								
	Usage: F	ilesystem				Device: /c	dev/sdb1								
	Partition Type: V	V95 FAT32 (LB	A) (0x0c)			Partition Label: -									
	Partition Flags: B	lootable				Capacity: 1	38 MB (138,379,264 bytes)								
	Type: F	AT (32-bit ver	sion)			Available: -									
	Label: b	oot				Mount Point: N	founted at <u>/media/boot</u>								
	Unmount V Unmount the	<b>/olume</b> e volume				Erase or format	me t the volume								
	Check Files Check and re	<b>ystem</b> pair the filesyst	em			Lett Partition Change partition type, label and flags									
	Delete Part	tition artition													

• Remove the SD card from the device writer and plug it into the board. If all went well, you should see Android booting up on the pandaboard as shown below:

