

Custom ROM

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Abstract

In this paper we are discussing about custom rom and stock rom. It is focuses on things how to port custom rom, compiling custom rom, what is rooting advantages and disadvantages of it. A method installing custom rom is provided and it will help people to install custom rom easily.

Keywords: Custom ROM, Booting ROM

I. INTRODUCTION

A. Android

Android is an open source operating system which was founded by Andy Rubin and later developed by Google. Google now has the full rights of android it releases every updates and security patches. Android is linux based operating system.

B. ROM

Rom is an operating system which runs android. It is installed in the read only memory of the android Smartphone hardware. Usually all android devices come up with stock rom which was developed by the manufacturer. If you root your devices you can install new rom which will changes the look of software. This is the main reason for rooting the android devices.

C. Stock ROM

The rom or operating system which is provided by the manufacture and it is called official operating system of the device which we own.

D. Custom ROM

It is not the default rom, it is developed by the third party developers. It can be either modified stock rom of other devices or the rom which was compiled from source codes. Both stock rom and custom rom have some limitations. You can also root stock rom but rooting custom rom is always fun.

E. Installing Custom Recovery

Every android devices has default recovery but it doesn't have many options and functions. This is the reason installing custom recovery, you can install custom rom using recovery, delete some system files and also you can root android using Supersu.zip file.

F. Porting the ROM

Porting means changing some files in the system of the port rom and making compatible to run in our device. In simple words we can port other mobile OS to our mobile. Porting is not the toughest job but it requires some knowledge and little patience to do it. I am using Coolpad Note 3 so porting methods are fully for it.

G. Tools Required To Port Rom

- CARLIV image unpack repack tool.
- MTK extractor system image unpack repack tool.
- META-INF Generator
- Notepad ++

H. Boot Image

Boot image has the kernel, ram disk and some necessary files to boot up the rom in the android mobile phone.

I. System Image

System image/folder is the most important thing in the android OS which has all files which runs the OS in the mobile phone. In system folder it contains a-z files of the android and it includes default apps. Apps are saved in app and private app folder.

J. Porting Boot Image

First we need to take boot.img from the stock rom and port rom and replace some file as mentioned below.

- Replace the boot.img-kernel
- Now in the ramdisk folder replace fstab.mt6735, init.mt6735.rc and init.mt6735.usb.rc

Now porting of boot image is over.

K. Porting System Image/Folder

Now take system.img from both stock and port rom and extract it as system folder using mtk extractor.

L. Files Should Be Replaced In Lib & Lib64 Folder

- libaudiocomponentengine.so
- libaudiocustparam.so
- libnvram.so
- libnvramagentclient.so
- libnvram_platform.so
- libnvram_sec.so
- libcustom_nvram.so

M. In System/ETC

- /Firmware folder
- /Apnconfig
- /Spnconfig
- /agps_profile_conf2
- /media_codecs.xml

Now replace all files in HW folder in lib and lib64 folder.

II. META-INF GENERATION

Creating Meta inf is another important part, it works as a rom installer in the recovery. Meta inf has all the links to the system files. It installs each and every files to the system.

Now porting method is over you can zip the rom and flash the rom zip file in the recovery. You can also root the android while installing the rom by adding supesu.zip in the rom. Make sure the rom zip should contain following folder and img.

- META-INF
- SYSTEM FOLDER
- Boot.img
- SUPERSU FOLDER

III. ROM COMPILING

We all used to write code and compile programs like C, c++ and java for example. But this thing is little different compiling. We can compile our own ROM using the source codes which are available in GITHUB website. As android is an open source operating system, Google releases in public source codes of every android version they develop. There are some non-profitable organization which uses the codes and modifies it and gives their source codes in the GITHUB website. GITHUB contains all source codes of open source software's. We all can ask why they do this for free? Because coding is fun. Below i mentioned some android non-profitable organization.

- Android open source project(AOSP ROM)
- Mediatek Android Developers(MAD ROM)
- Resurrection Remix Rom
- Android Ice Cold Project(AICP ROM)
- Fire Hound ROM

- Bliss ROM
- XenonHD ROM

As I'm not going to include steps for compiling the ROM because it's a big process. To be honest I haven't compiled any custom rom but I ported few ROMS to my device. All companies get the source code from Google and design their own UI and they also get Patterns for their software. So porting roms of other mobiles is illegal and compiling is legal.

IV. ROOTING ANDROID

Rooting is the process of allowing users to gain the full privileged control (known as root access) to make some changes which was restricted by the company. Rooting allows you to modify the android operating system as per your wish. Many things that rooting is totally but illegal it is not, we all buy android phone by paying money so we have all the rights to modify our phone. All companies gives 1 year warranty for the smartphones, if you root your android in the warranty period your warranty will be void by the company but that's not big issue though.

A. Advantages of Rooting

- Installing Custom ROMs
- Remove bloatwares
- Keep latest android OS
- Enjoy different UI
- Boost your mobile speed and save battery life

B. Disadvantages of Rooting

- Root can brick your device.
- Say goodbye to your warranty.
- Problems with updates.

V. CONCLUSION

Many people have thoughts that android mobile phone and other smart phones spoils life of students but we say it doesn't. It always helps students to gain knowledge and grow better. For example custom ROM's, porting custom ROM's gives knowledge about OS and bug fixing. Next part of porting is compiling the ROM using the source codes which are available in git hub website we can compile the ROM on our own. We can also get job in mobile company by submitting this as project.

CREDITS

At this moment I'm very glad to honor all the custom rom developers all over the world who makes android pure love.

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