

# CyanogenMod 13.0 源码下载 编译 ROM 制作

**手机的两种模式**：在下面有详细的图片示例；

- **Recovery 模式**：音量键增加 + 电源键，长按上述组合键，看到 "MI" 的 LOGO 后即进入 Recovery 模式；
- **Fastboot 模式**：音量键减小 + 电源键，长按上述组合键，看到 "FASTBOOT" 后，即进入 FASTBOOT 模式；

## 一. CyanogenMod 开发基础

### 1. CyanogenMod 开发相关资料推荐

#### (1) 官方资料

CyanogenMod 官方资料：

- 硬件：小米4；
- 小米4 的 CyanogenMod 源码编译教程：  
[https://wiki.cyanogenmod.org/w/Build\\_for\\_cancro#Install\\_the\\_Build\\_Packages](https://wiki.cyanogenmod.org/w/Build_for_cancro#Install_the_Build_Packages)，主要介绍了 CyanogenMod 小米4 手机源码的下载编译过程，本文部分内容是从此翻译过来的；
- CyanogenMod Mi4 设备界面链接：<http://download.cyanogenmod.org/?device=cancro>，小米4 手机对应的 CyanogenMod 镜像下载界面，包括 ROM 和 Recovery；
- CyanogenMod Mi4 Wiki 资料：[https://wiki.cyanogenmod.org/w/Cancro\\_Info](https://wiki.cyanogenmod.org/w/Cancro_Info)；
- CM Mi4 系统源码：[https://github.com/cyanogenmod/android\\_device\\_xiaomi\\_cancro](https://github.com/cyanogenmod/android_device_xiaomi_cancro)；
- CM Mi4 内核源码：[https://github.com/cyanogenmod/android\\_kernel\\_xiaomi\\_cancro](https://github.com/cyanogenmod/android_kernel_xiaomi_cancro)；
- 小米4 编译源码 安装 ROM 详细教程：[https://wiki.cyanogenmod.org/w/Install\\_CM\\_for\\_cancro](https://wiki.cyanogenmod.org/w/Install_CM_for_cancro)；
- 小米4 CyanogenMod Recovery 和 ROM 下载地址：<http://download.cyanogenmod.org/?device=cancro>；
- CyanogenMod Recovery 简介地址：[https://wiki.cyanogenmod.org/w/All\\_About\\_Recovery\\_Images](https://wiki.cyanogenmod.org/w/All_About_Recovery_Images)；
- CM 编译开发：<https://wiki.cyanogenmod.org/w/Development>；
- 小米 ROM 下载主页：<http://rom.xiaomi.cn/>；
- ROM 之家：<http://www.romzj.com/>；
- ROM 之家 小米4 官网：[http://www.romzj.com/list/xiaomi\\_m4w\\_order\\_2\\_60.htm](http://www.romzj.com/list/xiaomi_m4w_order_2_60.htm)；
- 刷机精灵：<http://www.shuame.com/>；
- Sdata2img 工具 (将 ROM 中的 img 转化成文件)：<https://github.com/xpirt/sdat2img>；

#### (2) 国内 CyanogenMod 相关 高质量 博客 网站 文章

国内相关博客：

- CyanogenMod 源码下载和编译：[http://blog.csdn.net/andie\\_guo/article/details/16879443](http://blog.csdn.net/andie_guo/article/details/16879443)；
- CyanogenMod 中文站 (估计是个冒牌山寨货)：<http://www.androm.cn/>；
- CyanogenMod 12.1 编译教程：<http://www.oneplusbbs.com/thread-572886-1-1.html>；
- CyanogenMod ROM 编译尝试：<http://aswang.iteye.com/blog/1089841>；
- CyanogenMod 源码下载和编译：<http://www.cnblogs.com/qianxudetianxia/archive/2011/09/27/2193590.html>；
- Android 源码下载：<http://www.cnblogs.com/qianxudetianxia/archive/2011/05/29/2060636.html>；
- CM 9 源码下载和编译：<http://www.cnblogs.com/qianxudetianxia/archive/2012/05/27/2512447.html>；

-- Ubuntu 虚拟机上进行 adb 调试 : <http://www.linuxidc.com/Linux/2014-01/94931.htm>;

-- Ubuntu 虚拟机 USB 设备挂载失败解决方案 (百度经验) :  
<http://jingyan.baidu.com/article/c35dbcb0eec9418916fcbc3f.html>;

-- Ubuntu 虚拟机使用 adb 调试 : [http://blog.csdn.net/tangcheng\\_ok/article/details/6278567](http://blog.csdn.net/tangcheng_ok/article/details/6278567);

-- Android 第三方ROM CyanogenMod 源码下载, 编译, 刷机:  
<http://blog.csdn.net/androiddevelop/article/details/8661120>;

-- 为小米4与小米3 Mi3 Mi4编译Cyanogenmod 12.1与13.0 (CM12与CM13) 的步骤以及错误解决 :  
<http://blog.csdn.net/sy373466062/article/details/51554341>;

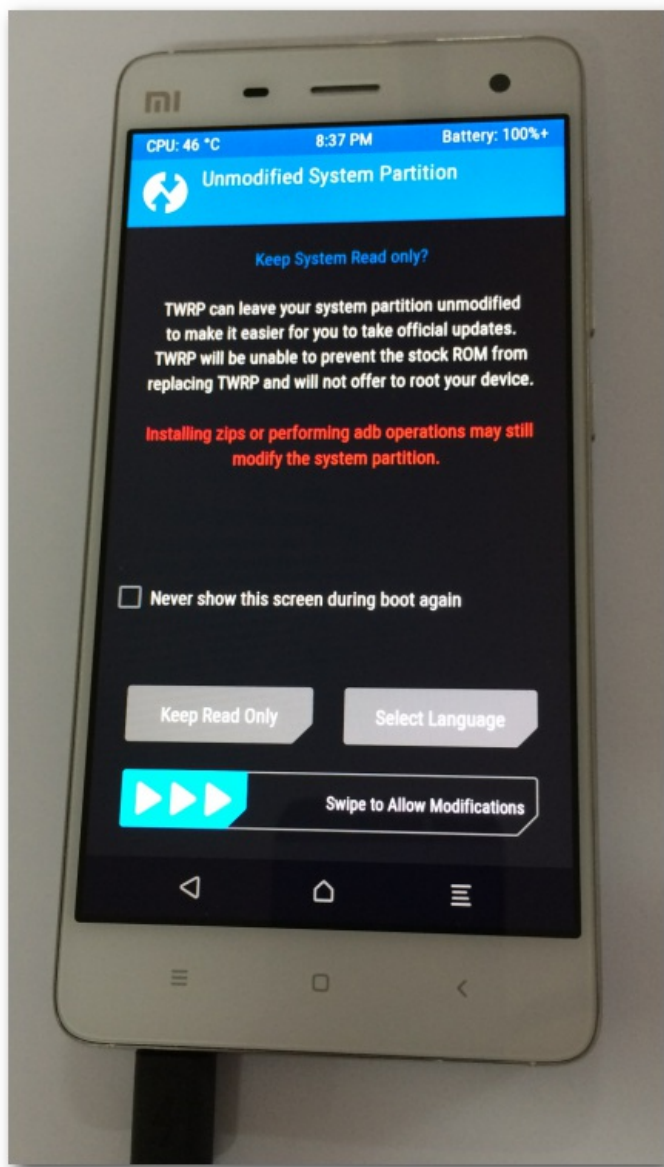
-- Android 源码部分编译 : <http://bbs.csdn.net/topics/390128647>;

## 二. 安装 CyanogenMod 官方提供的 Mi4 Recovery 和 ROM

CyanogenMod 官方提供的教程 : [https://wiki.cyanogenmod.org/w/Install\\_CM\\_for\\_cancro](https://wiki.cyanogenmod.org/w/Install_CM_for_cancro);

手机的两种模式 :

- **Recovery 模式** : 音量键增加 + 电源键, 关机状态下 长按上述组合键, 看到 "MI" 的 LOGO 后即进入 Recovery 模式;
- **Fastboot 模式** : 音量键减小 + 电源键, 关机状态下 长按上述组合键, 看到 "FASTBOOT" 后, 即 进入 FASTBOOT 模式;
- **TeamWin Recovery 图片** :



CPU: 46 °C

8:37 PM

Battery: 100%+



## Unmodified System Partition

[Keep System Read only?](#)

TWRP can leave your system partition unmodified to make it easier for you to take official updates. TWRP will be unable to prevent the stock ROM from replacing TWRP and will not offer to root your device.

Installing zips or performing adb operations may still modify the system partition.

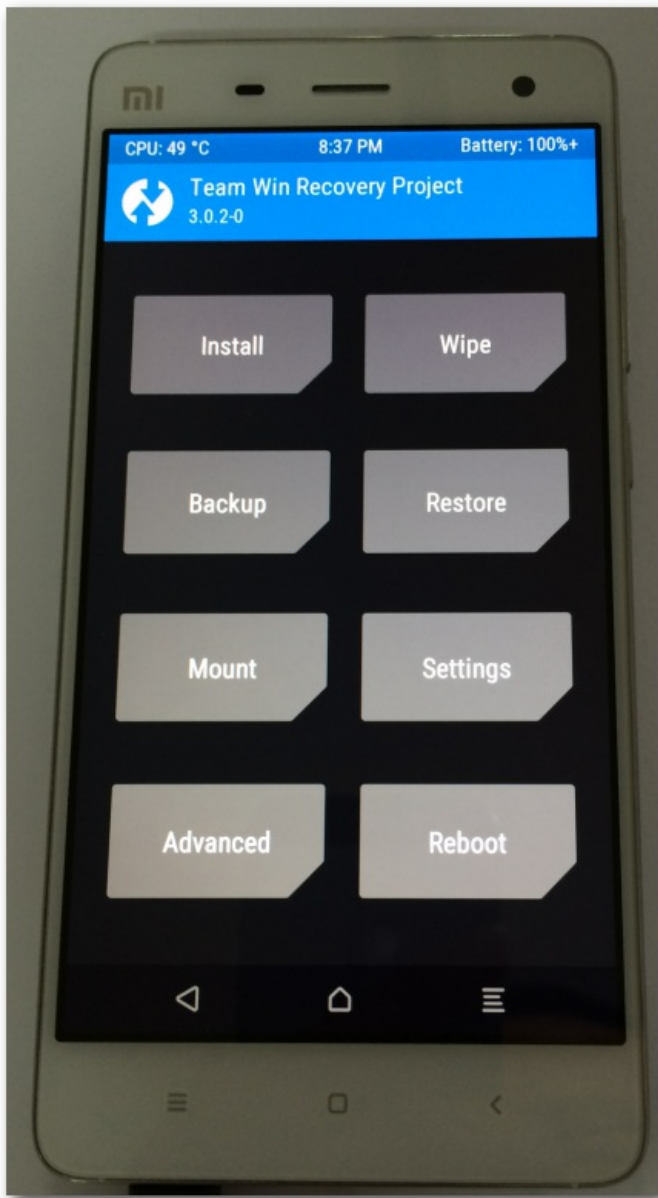
☐ Never show this screen during boot again

Keep Read Only

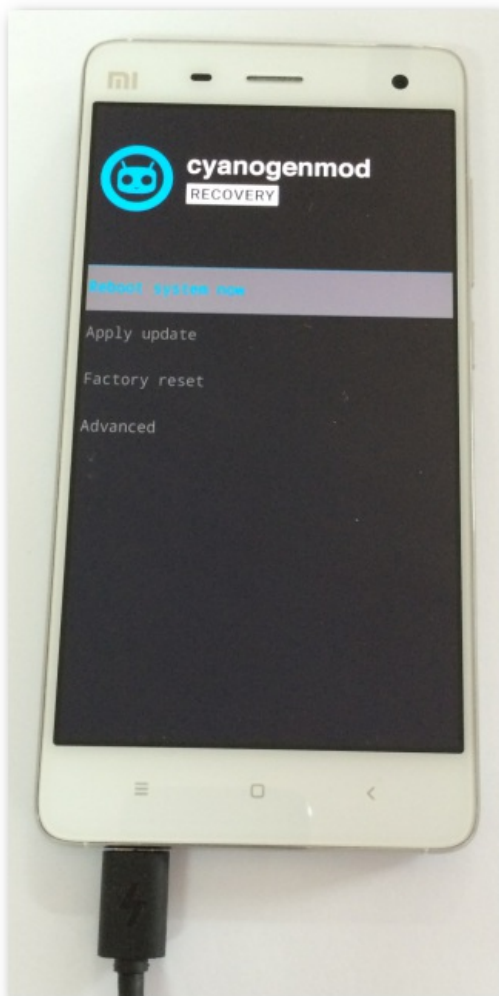
Select Language



Swipe to Allow Modifications



-- [CyanogenMod Recovery](#) 模式图片 :



-- Fastboot 模式图片 :



## 1. 基带版本号 必须满足的硬性条件

**基带版本号条件：**

- **条件需求**：安装 CM 13.0 的 ROM 系统，必须满足 基带版本号为 MPSS.DI.4.0.xxxxxx ；
- **基带版本号升级**：如果基带版本号是 MPSS.DI.3.0.xxxxxx，访问 <http://bit.ly/cancroCMBaseband> 网站学习如何升级基带版本 ；
- **查看基带版本号方法**：设置 -> 关于手机 -> 基带版本号；

## &lt; 关于手机

机身存储	11.34GB (可用) 16GB (总共)
基带版本	MPSS.DI.4.0-754bb19
内核版本	3.4.0-g0c665cd-00551-g6b2e714
版本号	MMB29M



系统更新

## 2. 使用 fastboot 安装 Recovery

推荐文章：

-- Recovery 简介地址：[https://wiki.cyanogenmod.org/w/All\\_About\\_Recovery\\_Images](https://wiki.cyanogenmod.org/w/All_About_Recovery_Images);

### (1) 安装 Recovery 流程

安装 Recovery 流程：

- 1. 工具软件：确保电脑上已经安装并能运行 adb 和 fastboot 工具；
- 2. 下载 Recovery：可以到 <https://dl.twrp.me/cancro/twrp-3.0.2-0-cancro.img> 页面下载 Recovery 镜像，或者从 下载一个最新的 Recovery 镜像到你的手机中；
- 3. 连接手机：通过 USB 将小米4 手机连接到电脑上；
- 4. 执行路径：确保 fastboot 在 PATH 环境变量中，或者让 fastboot 和 Recovery 在同一目录中；
- 5. 手机进入 fastboot 模式：在 PC 中打开 cmd (Windows) 或者 terminal (Linux & MAC) 终端，方法一：通过执行 `adb reboot bootloader` 命令，重启设备进入 fastboot 模式，该命令可能返回 `reboot bootloader is disabled` 错误；方法二：小米4 关机后，按下音量键- + 电源键，进入 fastboot 模式；

```
C:\WINDOWS\system32\cmd.exe
C:\hanshuliang\xiaomi\CyanogenMod>adb reboot bootloader
reboot bootloader is disabled

C:\hanshuliang\xiaomi\CyanogenMod>adb reboot bootloader
reboot bootloader is disabled

C:\hanshuliang\xiaomi\CyanogenMod>
C:\hanshuliang\xiaomi\CyanogenMod>
```

- 6. PC 识别手机：一旦设备进入 fastboot 模式，在 PC 端通过使用 `fastboot devices` 命令查看 PC 是否已经识别了手机；

```
C:\WINDOWS\system32\cmd.exe
C:\hanshuliang\xiaomi\CyanogenMod>
C:\hanshuliang\xiaomi\CyanogenMod>fastboot devices
9a9414b7          fastboot

C:\hanshuliang\xiaomi\CyanogenMod>
```

-- 7. 开始烧写 : 通过执行 **fastboot flash recovery your\_recovery\_image.img** 命令, 将 Recovery 烧写到你的设备中, 其中的 your\_recovery\_image.img 是 下载的 Recovery 镜像文件名称;

```
C:\WINDOWS\system32\cmd.exe
C:\hanshuliang\xiaomi\CyanogenMod>fastboot flash recovery twrp-3.0.2-0-cancro.img
target reported max download size of 1610612736 bytes
sending 'recovery' (13584 KB)...
OKAY [ 0.429s]
writing 'recovery'...
OKAY [ 0.300s]
finished. total time: 0.735s

C:\hanshuliang\xiaomi\CyanogenMod>
```

-- 8. 验证过程及一些注意事项 : 一旦烧写过程执行成功, 重启手机进入 Recovery 验证是否安装成功;

-- **Recovery 模式** : 音量键增加 + 电源键, 关机状态下 长按上述组合键, 看到 "MI" 的 LOGO 后即进入 Recovery 模式;

## (2) fastboot 错误处理

使用 **fastboot devices** 命令错误排查 :

-- 1. 没有序列号 : 如果你没有看到设备序列号, 反而看到 "<waiting for device>" 信息, fastboot 没有配置好, 查看 fastboot 文档并配置, [https://wiki.cyanogenmod.org/w/Doc:fastboot\\_intro](https://wiki.cyanogenmod.org/w/Doc:fastboot_intro);

-- 2. 权限相关错误 : 如果看到 no permissions fastboot 错误, 确保 UDEV 规则被正确设置了, 设置指导页面 <https://wiki.cyanogenmod.org/w/UDEV>;

## (3) 注意事项

注意事项 :

-- 1. 进入 Recovery 方式 : 进入 Recovery 方式 关机 后 按下 音量增加 + 电源键;

-- 2. Recovery 被覆盖 : 注意 一些 ROM 再启动时 会覆盖 Recovery, 如果你不想马上进入 Recovery 去安装 CyanogenMod 系统, 要明确的知道这个操作会刷掉 Recovery 让手机又变成砖机;

# 3. 使用 Recovery 安装 CyanogenMod ROM 镜像

推荐文章 :

-- Recovery 简介地址 : [https://wiki.cyanogenmod.org/w/All\\_About\\_Recovery\\_Images](https://wiki.cyanogenmod.org/w/All_About_Recovery_Images);

## (1) 安装 CyanogenMod ROM 流程

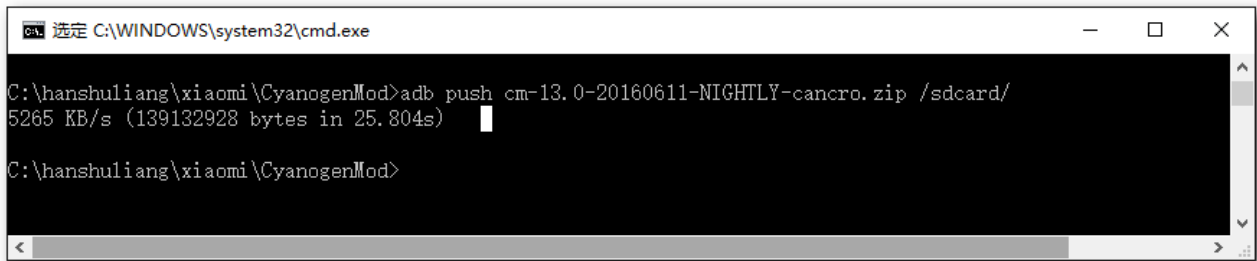
安装 ROM 流程 :

-- 1. adb 安装 : 确保电脑上的 adb 工具可以正常使用, 做安卓的就不多说了;

-- 2. 下载 ROM : 到 <http://download.cyanogenmod.org/?device=cancro> 页面下载你想要安装的 ROM 镜像;



-- 3. 将 ROM 放到 SD 卡中 : 使用 `adb push filename.zip /sdcard/` 命令, 将下载的 zip 压缩包放置到 sd 卡的根目录;



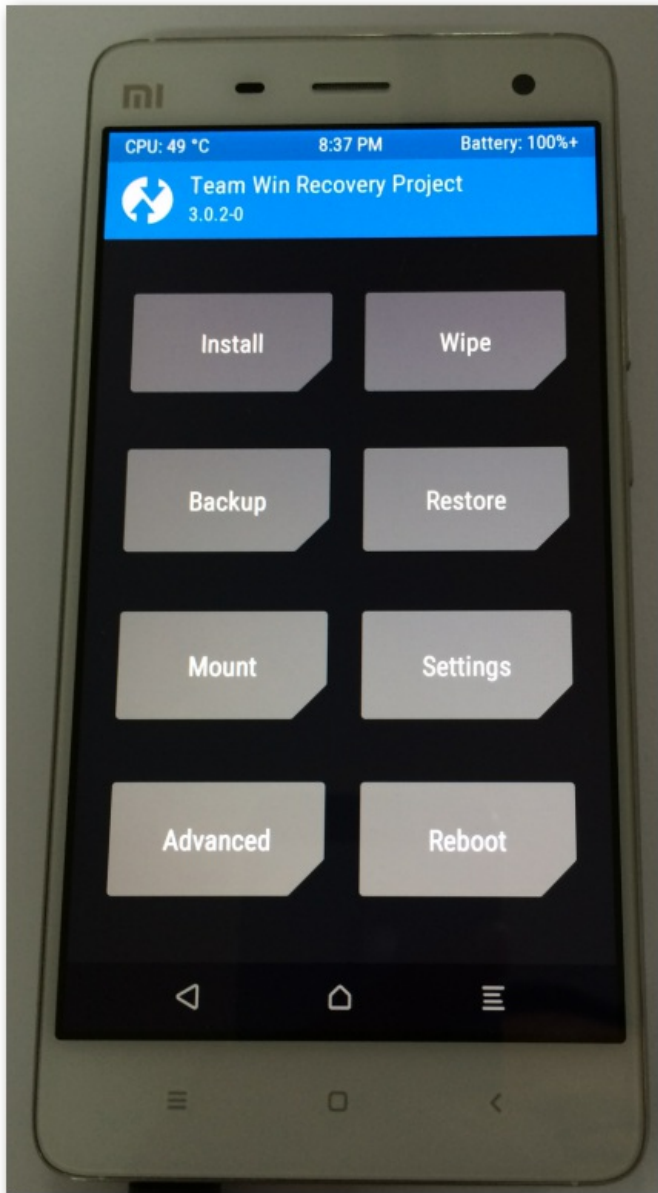
```
CA. 选定 C:\WINDOWS\system32\cmd.exe

C:\hanshuliang\xiaomi\CyanogenMod>adb push cm-13.0-20160611-NIGHTLY-cancro.zip /sdcard/
5265 KB/s (139132928 bytes in 25.804s)

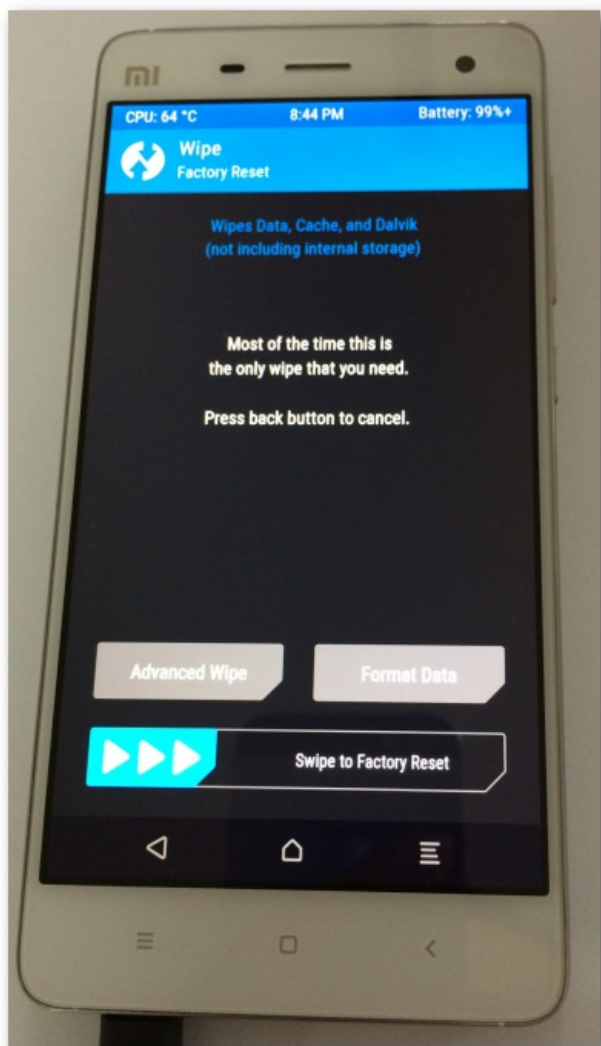
C:\hanshuliang\xiaomi\CyanogenMod>
```

-- 4. 进入 Recovery 模式 : 如果还没有进入 Recovery 模式, 重启进入 Recovery 模式 (音量键- + 电源键);

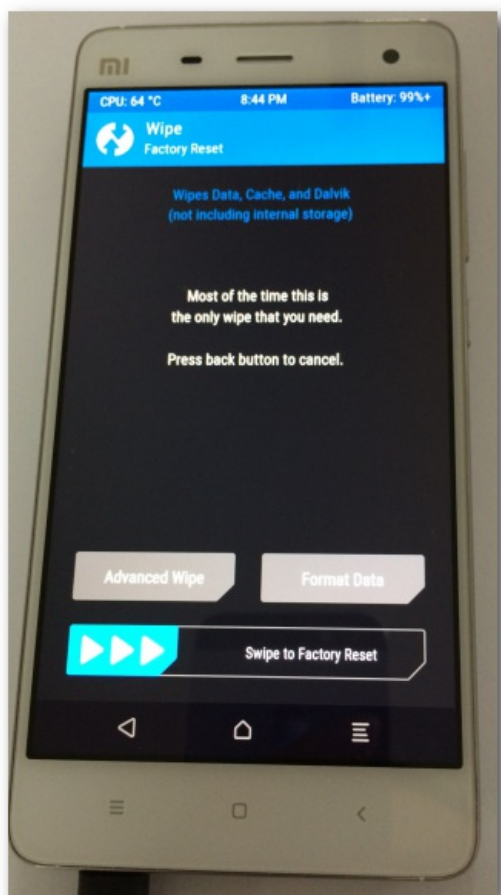
-- 5. 选择 Recovery 选项 : 在 TeamWin 的 Recovery 中, 通过指定的按钮操作菜单选项;



-- 6. 创建备份 (可选步骤) : 选择 Recovery 中的 "Backup" 选项, 将现在的 ROM 备份一下, 以免 ROM 安装失败导致砖机, 下面是备份过程;

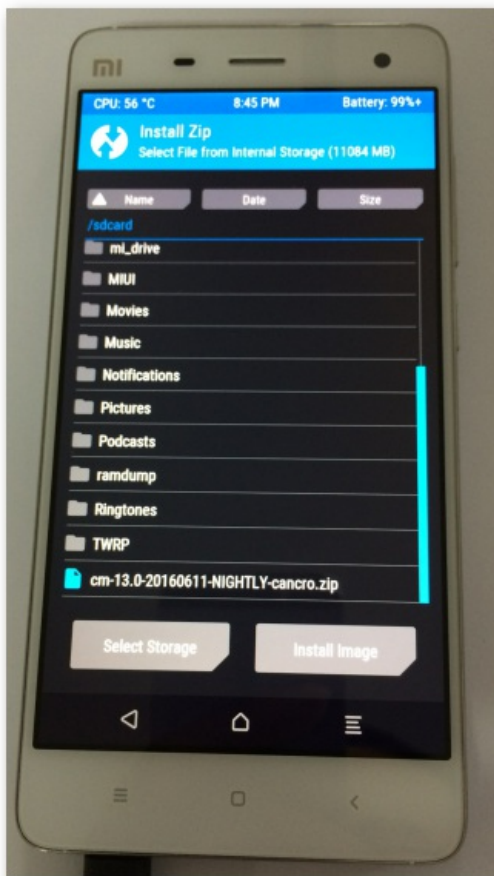
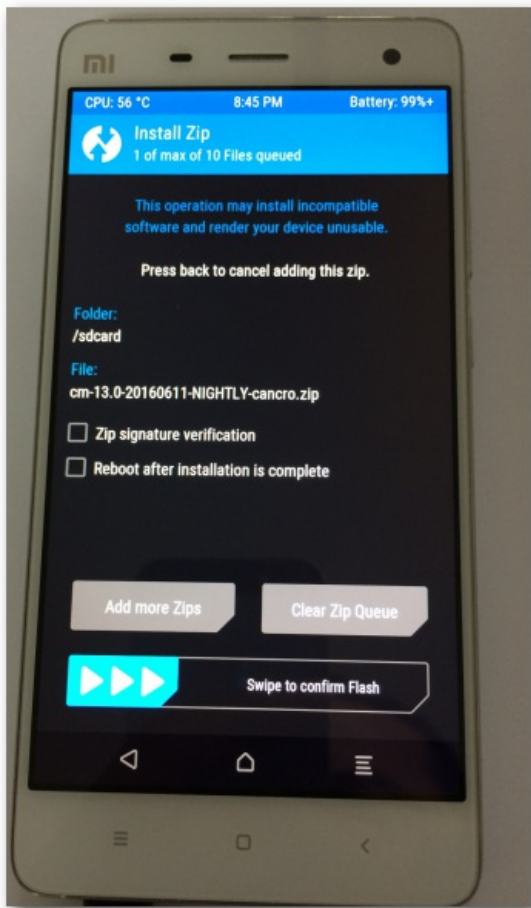


-- 7. 擦除 ROM : 选择菜单中的 "Wipe" 选项擦除 ROM, 然后选择 "Factory Reset" 恢复出厂设置;



-- 8. 开始安装 : 选择 "Install" 选项, 进入安装步骤;

-- 9. 选择 sd 卡 rom : 在 /sdcard 中选择 CyanogenMod 的 zip 包;



- 10. 根据提示安装 : 根据屏幕上的提示, 安装 ROM 包;
- 11. 安装其它包 (可选步骤) : 如果你希望安装其它安装包, 在安装完 CyanogenMod ROM 包之后, 然后在这个基础上安装随后的其它包;
- 12. 完成安装 : 一旦安装完成, 返回主菜单, 选择 "Reboot" 选项, 然后选择 "System", 设备会重启并进入 CyanogenMod

系统;



## 设备型号

Unsupported MI Cancro

## Android 版本

6.0.1

## CyanogenMod 版本

13.0-20160611-NIGHTLY-cancro

## CyanogenMod API 级别

Fig (6)

## Android 安全补丁程序级别

### (2) 拷贝 ROM 到 SD 卡中的说明

拷贝 ROM 到 SD 卡的途径说明：

-- 命令不是必须的：拷贝 zip 包到 SD 卡中，可以使用其它途径，不是必须使用 `adb push filename.zip /sdcard/` 命令将 zip 包拷贝到 SD 卡中；

-- 使用命令好处：使用命令安装的方法在所有的 Android 设备 以及 在正常模式 和 Recovery 模式都可以使用；

## 三. CyanogenMod 编译所需软硬件准备

相关链接推荐：

-- Android 官方的 源码编译依赖库安装地址 (访问需代理)：<http://source.android.com/source/initializing.html>;

-- CyanogenMod 源码编译依赖库安装地址：

[https://wiki.cyanogenmod.org/w/Build\\_for\\_cancro#Install\\_the\\_Build\\_Packages](https://wiki.cyanogenmod.org/w/Build_for_cancro#Install_the_Build_Packages);



# 1. 硬件需求 与 操作系统

## (1) 编译的硬件需求

**硬件需求：**

- **手机需求**：小米3 (Mi 3) 或 小米4 (Mi 4) 手机；
- **电脑需求**：最新的电脑 (Linux, MAC OS, Windows), 有 8G 及以上的 RAM 内存 (内存越少, 编译时间越长), 100G 以上的硬盘 (越多越好, 如果为多个设备编译 或者 打开 ccache 需要更多硬盘), 使用 SSD 固态硬盘 会加速编译过程；
- **USB 接口**：兼容 USB 接口的 Mi 3 或 Mi 4 手机, 一般是 micro USB 接口, 就是最常用的 USB 接口；
- **网络需求**：能够连接网络, 有足够带宽；
- **知识需求**：熟悉基础的 Android 操作和术语, 如果你曾经在其它手机上安装 ROM, 并熟悉 Recovery, 是非常有帮助的；知道基本的 shell 命令行概念也是非常有用的；

## (2) 操作系统需求

**操作系统需求**：如果你不熟悉 Linux, 这是一个很棒的机会去学习它；

- **使用虚拟机**：到 [https://wiki.cyanogenmod.org/w/Doc:using\\_virtual\\_machines](https://wiki.cyanogenmod.org/w/Doc:using_virtual_machines) 界面下载一个虚拟机, 如 VirtualBox, 安装一个 Ubuntu 14.04 版本；
- **Ubuntu 版本**：64 位的都可以编译通过, 但是 推荐使用 Ubuntu 14.04, 15.10, 16.04 等最新的版本；
- **关于 32 位系统**：CyanogenMod 6 以及之前的系统可以使用 32 位 Ubuntu 进行编译, 对于 CyanogenMod 10.1 可以设置 BUILD\_HOST\_32bit=1 环境使用 32 位 Ubuntu 编译, 但是 CyanogenMod 10.2 之后的版本必须使用 64位 Ubuntu 进行编译, 32 位便无法使用了；

# 2. Ubuntu 14.04 系统上 CyanogenMod 源码下载编译所需依赖库安装

**Ubuntu 14.04 系统安装 CyanogenMod 编译依赖库：**

- **1. 32 和 64 位系统必须安装的软件库**：使用命令 `sudo apt-get install bison build-essential curl flex Git gnupg gperf libesd0-dev liblz4-tool libncurses5-dev libssl1.2-dev libwxgtk2.8-dev libxml2 libxml2-utils lzop maven openjdk-7-jdk pngcrush schedtool squashfs-tools xsltproc zip zlib1g-dev` 安装上述依赖库；
- **2. 64 位系统安装的软件库**：使用命令 `sudo apt-get install g++-multilib gcc-multilib lib32ncurses5-dev lib32readline-gplv2-dev lib32z1-dev` 命令安装上述依赖库；

## (1) 安装 Android SDK

**安装 SDK：**

- **SDK 需求**：如果之前没有安装 adb 和 fastboot 工具, 先安装一个 Android SDK, 之前说的 adb 和 fastboot 就在 SDK 的 platform-tools 目录中；

## (2) 32 位 和 64 位都需要的软件包

**安装 32 64 位都需要的软件包：**

- **编译需要的软件包**：

[plain] [view plain copy](#)



```
1.bison build-essential curl flex git gnupg gperf libesd0-dev liblz4-tool libncurses5-dev libssl1.2-dev
libwxgtk2.8-dev libxml2 libxml2-utils lzop maven openjdk-7-jdk pngcrush schedtool squashfs-tools xsltproc zip
zlib1g-dev
```

- **安装上述软件包**：使用 `sudo apt-get install bison build-essential curl flex git gnupg gperf libesd0-dev liblz4-tool libncurses5-dev libssl1.2-dev libwxgtk2.8-dev libxml2 libxml2-utils lzop maven openjdk-7-jdk pngcrush schedtool squashfs-tools xsltproc zip zlib1g-dev` 命令安装这些软件包；

-- **安装成功** : 该命令行是安装完成后, 在执行一次安装命令, 返回所有软件包安装成功的信息, 安装过程几千行命令行输出, 就不贴了.

[plain] [view plain copy](#)



```
1.root@ubuntu:~# apt-get install bison build-essential curl flex git gnupg gperf libesd0-dev liblz4-tool
libncurses5-dev libsd11.2-dev libwxgtk2.8-dev libxml2 libxml2-utils lzop maven openjdk-7-jdk pngcrush schedtool
squashfs-tools xsltproc zip zlib1g-dev
2. Reading package lists... Done
3. Building dependency tree
4. Reading state information... Done
5. bison is already the newest version.
6. build-essential is already the newest version.
7. flex is already the newest version.
8. gperf is already the newest version.
9. libesd0-dev is already the newest version.
10. libncurses5-dev is already the newest version.
11. xsltproc is already the newest version.
12. zip is already the newest version.
13. zlib1g-dev is already the newest version.
14. liblz4-tool is already the newest version.
15. libwxgtk2.8-dev is already the newest version.
16. lzop is already the newest version.
17. maven is already the newest version.
18. pngcrush is already the newest version.
19. schedtool is already the newest version.
20. git is already the newest version.
21. gnupg is already the newest version.
22. libsd11.2-dev is already the newest version.
23. libxml2 is already the newest version.
24. libxml2 set to manually installed.
25. libxml2-utils is already the newest version.
26. openjdk-7-jdk is already the newest version.
27. squashfs-tools is already the newest version.
28. curl is already the newest version.
29. 0 upgraded, 0 newly installed, 0 to remove and 349 not upgraded.
```

-- **出现 404 错误** : 如果安装出现 404 Not Found 等错误, 更新 apt 下载源即可;

-- **更新源列表方法** : 编辑 /etc/apt/sources.list 文件, 然后添加源列表, 更新源列表 sudo apt-get update;

-- **参考博客** : <http://zhoushijun.iteye.com/blog/1942475/>;

-- **14.04 源列表官方 WIKI** : <http://wiki.ubuntu.org.cn/%E6%A8%A1%E6%9D%BF:14.04source>;

-- **其它源列表 官方 WIKI** : <http://wiki.ubuntu.org.cn/%E6%BA%90%E5%88%97%E8%A1%A8>;

-- **源列表示例** : 反正我用的这个源列表, 东西全部下载下来了;

[plain] [view plain copy](#)



```
1.# deb cdrom:[Ubuntu 14.04.3 LTS _Trusty Tahr_ - Beta amd64 (20150805)]/ trusty main restricted
2.
3.# See http://help.ubuntu.com/community/UpgradeNotes for how to upgrade to
4.# newer versions of the distribution.
5.deb http://us.archive.ubuntu.com/ubuntu/ trusty main restricted
6.deb-src http://us.archive.ubuntu.com/ubuntu/ trusty main restricted
7.
8.## Major bug fix updates produced after the final release of the
9.## distribution.
10.deb http://us.archive.ubuntu.com/ubuntu/ trusty-updates main restricted
11.deb-src http://us.archive.ubuntu.com/ubuntu/ trusty-updates main restricted
12.
13.## N.B. software from this repository is ENTIRELY UNSUPPORTED by the Ubuntu
14.## team. Also, please note that software in universe WILL NOT receive any
15.## review or updates from the Ubuntu security team.
16.deb http://us.archive.ubuntu.com/ubuntu/ trusty universe
```



```
17. deb-src http://us.archive.ubuntu.com/ubuntu/ trusty universe
18. deb http://us.archive.ubuntu.com/ubuntu/ trusty-updates universe
19. deb-src http://us.archive.ubuntu.com/ubuntu/ trusty-updates universe
20.
21. ## N.B. software from this repository is ENTIRELY UNSUPPORTED by the Ubuntu
22. ## team, and may not be under a free licence. Please satisfy yourself as to
23. ## your rights to use the software. Also, please note that software in
24. ## multiverse WILL NOT receive any review or updates from the Ubuntu
25. ## security team.
26. deb http://us.archive.ubuntu.com/ubuntu/ trusty multiverse
27. deb-src http://us.archive.ubuntu.com/ubuntu/ trusty multiverse
28. deb http://us.archive.ubuntu.com/ubuntu/ trusty-updates multiverse
29. deb-src http://us.archive.ubuntu.com/ubuntu/ trusty-updates multiverse
30.
31. ## N.B. software from this repository may not have been tested as
32. ## extensively as that contained in the main release, although it includes
33. ## newer versions of some applications which may provide useful features.
34. ## Also, please note that software in backports WILL NOT receive any review
35. ## or updates from the Ubuntu security team.
36. deb http://us.archive.ubuntu.com/ubuntu/ trusty-backports main restricted universe multiverse
37. deb-src http://us.archive.ubuntu.com/ubuntu/ trusty-backports main restricted universe multiverse
38.
39. deb http://security.ubuntu.com/ubuntu trusty-security main restricted
40. deb-src http://security.ubuntu.com/ubuntu trusty-security main restricted
41. deb http://security.ubuntu.com/ubuntu trusty-security universe
42. deb-src http://security.ubuntu.com/ubuntu trusty-security universe
43. deb http://security.ubuntu.com/ubuntu trusty-security multiverse
44. deb-src http://security.ubuntu.com/ubuntu trusty-security multiverse
45.
46. ## Uncomment the following two lines to add software from Canonical's
47. ## 'partner' repository.
48. ## This software is not part of Ubuntu, but is offered by Canonical and the
49. ## respective vendors as a service to Ubuntu users.
50. # deb http://archive.canonical.com/ubuntu trusty partner
51. # deb-src http://archive.canonical.com/ubuntu trusty partner
52.
53. ## This software is not part of Ubuntu, but is offered by third-party
54. ## developers who want to ship their latest software.
55. deb http://extras.ubuntu.com/ubuntu trusty main
56. deb-src http://extras.ubuntu.com/ubuntu trusty main
57. deb http://us.archive.ubuntu.com/ubuntu/ trusty-proposed restricted multiverse main universe
58.
59. ## zhongkeda
60. deb http://mirrors.ustc.edu.cn/ubuntu/ precise-updates main restricted
61. deb-src http://mirrors.ustc.edu.cn/ubuntu/ precise-updates main restricted
62. deb http://mirrors.ustc.edu.cn/ubuntu/ precise universe
63. deb-src http://mirrors.ustc.edu.cn/ubuntu/ precise universe
64. deb http://mirrors.ustc.edu.cn/ubuntu/ precise-updates universe
65. deb-src http://mirrors.ustc.edu.cn/ubuntu/ precise-updates universe
66. deb http://mirrors.ustc.edu.cn/ubuntu/ precise multiverse
67. deb-src http://mirrors.ustc.edu.cn/ubuntu/ precise multiverse
68. deb http://mirrors.ustc.edu.cn/ubuntu/ precise-updates multiverse
69. deb-src http://mirrors.ustc.edu.cn/ubuntu/ precise-updates multiverse
70. deb http://mirrors.ustc.edu.cn/ubuntu/ precise-backports main restricted universe multiverse
71. deb-src http://mirrors.ustc.edu.cn/ubuntu/ precise-backports main restricted universe multiverse
72.
73. ## souhu
74. deb http://mirrors.sohu.com/ubuntu/ precise-updates main restricted
75. deb-src http://mirrors.sohu.com/ubuntu/ precise-updates main restricted
76. deb http://mirrors.sohu.com/ubuntu/ precise universe
77. deb-src http://mirrors.sohu.com/ubuntu/ precise universe
78. deb http://mirrors.sohu.com/ubuntu/ precise-updates universe
79. deb-src http://mirrors.sohu.com/ubuntu/ precise-updates universe
80. deb http://mirrors.sohu.com/ubuntu/ precise multiverse
```

```

81.deb-src http://mirrors.sohu.com/ubuntu/ precise multiverse
82.deb http://mirrors.sohu.com/ubuntu/ precise-updates multiverse
83.deb-src http://mirrors.sohu.com/ubuntu/ precise-updates multiverse
84.deb http://mirrors.sohu.com/ubuntu/ precise-backports main restricted universe multiverse
85.deb-src http://mirrors.sohu.com/ubuntu/ precise-backports main restricted universe multiverse
86.
87.## wangyi
88.deb http://mirrors.163.com/ubuntu/ precise-updates main restricted
89.deb-src http://mirrors.163.com/ubuntu/ precise-updates main restricted
90.deb http://mirrors.163.com/ubuntu/ precise universe
91.deb-src http://mirrors.163.com/ubuntu/ precise universe
92.deb http://mirrors.163.com/ubuntu/ precise-updates universe
93.deb-src http://mirrors.163.com/ubuntu/ precise-updates universe
94.deb http://mirrors.163.com/ubuntu/ precise multiverse
95.deb-src http://mirrors.163.com/ubuntu/ precise multiverse
96.deb http://mirrors.163.com/ubuntu/ precise-updates multiverse
97.deb-src http://mirrors.163.com/ubuntu/ precise-updates multiverse
98.deb http://mirrors.163.com/ubuntu/ precise-backports main restricted universe multiverse
99.deb-src http://mirrors.163.com/ubuntu/ precise-backports main restricted universe multiverse

```

### (3) 64 位需要的软件包

64 位机器需要的软件包：

-- 软件包列表：

[plain] [view plain copy](#)



```
1.g++-multilib gcc-multilib lib32ncurses5-dev lib32readline-gplv2-dev lib32z1-dev
```

-- 安装命令：`sudo apt-get install g++-multilib gcc-multilib lib32ncurses5-dev lib32readline-gplv2-dev lib32z1-dev`；

-- 安装成功：该命令是安装完成后，在执行一次安装命令，返回所有软件包安装成功的信息，安装过程几千行命令行输出，就不贴了。

[plain] [view plain copy](#)



```

1.root@ubuntu:~# apt-get install g++-multilib gcc-multilib lib32ncurses5-dev lib32readline-gplv2-dev lib32z1-dev
2.Reading package lists... Done
3.Building dependency tree
4.Reading state information... Done
5.g++-multilib is already the newest version.
6.gcc-multilib is already the newest version.
7.lib32ncurses5-dev is already the newest version.
8.lib32readline-gplv2-dev is already the newest version.
9.lib32z1-dev is already the newest version.
10.0 upgraded, 0 newly installed, 0 to remove and 349 not upgraded.

```

## 3. Ubuntu 15.10 系统上 CyanogenMod 源码下载编译所需依赖库安装

Ubuntu 15.10 系统安装 CyanogenMod 编译依赖库：本次编译使用的是 Ubuntu 14.04 这里没有真实安装；

-- 1. 32 和 64 位系统必须安装的软件库：使用命令 `sudo apt-get install bison build-essential curl flex git gnupg gperf libesd0-dev liblz4-tool libncurses5-dev libsdl1.2-dev libwxgtk2.8-dev libxml2 libxml2-utils lzop maven openjdk-7-jdk pngcrush schedtool squashfs-tools xsltproc zip zlib1g-dev` 安装上述依赖库；

-- 2. 64 位系统安装的软件库：使用命令 `sudo apt-get install g++-multilib gcc-multilib lib32ncurses5-dev`

`lib32readline6-dev lib32z1-dev` 命令安装上述依赖库；

## 4. Ubuntu 16.04 系统上 CyanogenMod 源码下载编译所需依赖库安装

Ubuntu 16.04 系统安装 CyanogenMod 编译依赖库：本次编译使用的是 Ubuntu 14.04 这里没有真实安装；

-- 1. 32 和 64 位系统必须安装的软件库：使用命令 `sudo apt-get install bison build-essential curl flex git gnupg gperf libesd0-dev liblz4-tool libncurses5-dev libsdl1.2-dev libwxgtk3.0-dev libxml2 libxml2-utils lzop maven openjdk-8-jdk pngcrush schedtool squashfs-tools xsltproc zip zlib1g-dev` 安装上述依赖库；  
-- 2. 64 位系统安装的软件库：使用命令 `sudo apt-get install g++-multilib gcc-multilib lib32ncurses5-dev lib32readline6-dev lib32z1-dev` 安装上述依赖库；

## 5. CyanogenMod 版本 编译对应的 Java 版本

CyanogenMod 与 JDK 对应关系：

-- 1. CyanogenMod 7 - 9：Sun/Oracle Java SE 1.6；  
-- 2. CyanogenMod 10.1：Sun/Oracle Java SE 1.6 or 1.7；  
-- 3. CyanogenMod 10.2 - 11.0：Sun/Oracle Java SE 1.6 or 1.7 (OpenJDK 1.7 也可以使用，但是编译系统时会出现警告)；  
-- 4. CyanogenMod 12.0 - 13.0：OpenJDK 1.7；

## 6. Ubuntu 16.04 及 后续 Ubuntu 版本的 JDK 选择

Ubuntu 16.04 新版本 JDK 选择：

-- 出现的问题：OpenJDK 1.7 被从 Ubuntu 官方源中删除了，只能有下面两种解决方案；  
-- 1. 下载 OpenJDK 1.7 并安装：下载地址 <https://launchpad.net/~openjdk-r/+archive/ubuntu/ppa>；  
-- 2. 打开 实验的 OpenJDK 1.8 的 CyanogenMod 13 支持：支持方式，编辑 `$HOME/.bashrc` 文件，添加 `export EXPERIMENTAL_USE_JAVA8=true`；

# 四. CyanogenMod 13.0 Android 源码下载

## 1. 创建相关目录

### (1) 创建目录步骤

创建相关目录：

-- 1. 创建 bin 目录：使用 `mkdir -p ~/bin` 命令；  
-- 2. 创建 android/system 目录：使用 `mkdir -p ~/android/system` 命令；

### (2) 创建过程的终端输出

创建过程的终端输出：

-- 创建过程：

[\[plain\] view plain copy](#)



```
1.octopus@octopus:~$ mkdir -p ~/bin
2.octopus@octopus:~$ ls
3.bin  develop  examples.desktop  jdk-8u25-linux-i586.tar.gz  vmware_tools  公共的  模板  视频  图片  文档  下载  音乐
桌面
4.octopus@octopus:~$ mkdir -p ~/android/system
5.octopus@octopus:~$ ls
6.android  bin  develop  examples.desktop  jdk-8u25-linux-i586.tar.gz  vmware_tools  公共的  模板  视频  图片  文档
下载  音乐  桌面
```

## 2. 获取 repo 脚本

### (1) 获取 repo 脚本步骤

**设置 repo 脚本**：下载 repo 脚本，并使 repo 脚本可执行（赋予执行权限）。

-- 1. 获取 repo 脚本：使用 `curl https://storage.googleapis.com/git-repo-downloads/repo > ~/bin/repo` 命令；  
-- 2. 为 repo 脚本添加执行权限：使用 `chmod a+x ~/bin/repo` 命令；

### (2) 获取 repo 脚本的终端输出

**获取 repo 脚本过程输出**：

-- 执行过程：

[\[plain\] view plain copy](#)



```
1.octopus@octopus:~$ curl https://storage.googleapis.com/git-repo-downloads/repo > ~/bin/repo
2. % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
3.                                  Dload  Upload   Total   Spent    Left  Speed
4.100 26223  100 26223    0     0  6671    0  0:00:03  0:00:03 --:--:-- 6674
5.octopus@octopus:~$ chmod a+x ~/bin/repo
```

## 3. 配置 repo 环境变量

配置 bin 目录到环境变量中：在 Ubuntu 14.04 LTS 中，Ubuntu 默认已经将 bin 目录添加到了 PATH 路径中，如果没有，请自行添加；

-- 配置方法：在 ~/.profile 中配置，执行 `sudo gedit .profile` 命令，即可打开该文件，注意加上 sudo 权限。

-- 配置内容：

[\[plain\] view plain copy](#)



```
1.# set PATH so it includes user's private bin if it exists
2.if [ -d "$HOME/bin" ] ; then
3.    PATH="$HOME/bin:$PATH"
4.fi
```

## 4. 初始化 CyanogenMod 源码仓库

### (1) 初始化 CyanogenMod 源码仓库步骤

初始化 CyanogenMod 源码仓库流程：

-- 1.安装 phablet-tools 工具包：执行 repo 命令前需要先安装 phablet-tools 工具包，安装命令 `sudo apt-get install phablet-tools`；

-- 2.为 Git 设置 邮箱 和 用户：设置邮箱 `git config --global user.email "octopus_truth@163.com"`，设置用户 `git config --global user.name "Shuliang Han"`；

[\[plain\] view plain copy](#)



```
1.octopus@octopus:~/android/system$ git config --global user.email "octopus_truth@163.com"
2.octopus@octopus:~/android/system$ git config --global user.name "Shuliang Han"
```

-- 3. 连接 VPN 代理：可以再 Windows 上连接代理，虚拟机就可以访问 GoogleSource 网站的资源了；

-- 3.进入 ~/android/system 目录：执行 `repo init -u https://github.com/CyanogenMod/android.git -b cm-13.0`

命令，进入该目录，一定要在该目录执行 初始化步骤，否则在哪个目录执行初始化命令，源码就下载到哪里；

-- 4. 初始化命令：执行 命令；

-- 执行完毕标识：出现以下内容说明执行成功；

```
Your identity is: Shuliang Han <octopus_truth@163.com>
If you want to change this, please re-run 'repo init' with --config-name

Testing colored output (for 'repo diff', 'repo status'):
black    red      green   yellow  blue    magenta  cyan    white
bold     ul          http://blog.csdn.net/
Enable color display in this user account (y/N)? y

repo has been initialized in /home/octopus/android/system
octopus@octopus:~/android/system$
```

## (2) 初始化过程中的出错处理

初始化 CyanogenMod 源码仓库期间出现的错误处理：

-- 出现错误 1：没有安装 Python 脚本执行的环境；

[\[plain\] view plain copy](#)



```
1.octopus@octopus:~/android/system$ repo init -u https://github.com/CyanogenMod/android.git -b cm-13.0
2. 程序“repo”尚未安装。 您可以使用以下命令安装：
3.sudo apt-get install phablet-tools
```

-- 错误处理 1：安装，执行 `sudo apt-get install phablet-tools` 命令，安装 repo；

-- 出现错误 2：一些资源被中国防火墙屏蔽；

[\[plain\] view plain copy](#)



```
1.<span style="font-family:Courier New;">fatal: Cannot get https://gerrit.googlesource.com/git-repo/clone.bundle
2.fatal: error [Errno 101] Network is unreachable
3.</span>
```

-- 处理错误 2：长城防火墙把 Google 所有的先关网站都屏蔽了，日了泰迪了，没办法 开 VPN 解决，一年 几百块钱的 VPN 钱就不要省了；



-- 出现错误 3 : 没有设置 git 的绑定邮箱 和 用户名;

[plain] [view plain copy](#)



```
1. Traceback (most recent call last):
2.   File "/home/octopus/android/system/.repo/repo/main.py", line 531, in <module>
3.     _Main(sys.argv[1:])
4.   File "/home/octopus/android/system/.repo/repo/main.py", line 507, in _Main
5.     result = repo._Run(argv) or 0
6.   File "/home/octopus/android/system/.repo/repo/main.py", line 180, in _Run
7.     result = cmd.Execute(copts, cargs)
8.   File "/home/octopus/android/system/.repo/repo/subcmds/init.py", line 395, in Execute
9.     self._ConfigureUser()
10.  File "/home/octopus/android/system/.repo/repo/subcmds/init.py", line 289, in _ConfigureUser
11.     name = self._Prompt('Your Name', mp.UserName)
12.  File "/home/octopus/android/system/.repo/repo/project.py", line 703, in UserName
13.     self._LoadUserIdentity()
14.  File "/home/octopus/android/system/.repo/repo/project.py", line 716, in _LoadUserIdentity
15.     u = self.bare_git.var('GIT_COMMITTER_IDENT')
16.  File "/home/octopus/android/system/.repo/repo/project.py", line 2650, in runner
17.     p.stderr))
18. error.GitError: manifests var:
19. *** Please tell me who you are.
20. Run
21.   git config --global user.email "you@example.com"
22.   git config --global user.name "Your Name"
23. to set your account's default identity.
24. Omit --global to set the identity only in this repository.
25. fatal: unable to auto-detect email address (got 'octopus@octopus.(none)')
```

-- 错误处理 3 :

[plain] [view plain copy](#)



```
1. octopus@octopus:~/android/system$ git config --global user.email "octopus_truth@163.com"
2. octopus@octopus:~/android/system$ git config --global user.name "Shuliang Han"
```

### (3) 初始化 CyanogenMod 源码仓库的整个终端命令行输出

完整的执行过程 - 终端输出 :

[plain] [view plain copy](#)



```
1. gpg: 钥匙环 '/home/octopus/.repoconfig/gnupg/secring.gpg' 已建立
2. gpg: 钥匙环 '/home/octopus/.repoconfig/gnupg/pubring.gpg' 已建立
3. gpg: /home/octopus/.repoconfig/gnupg/trustdb.gpg: 建立了信任度数据库
4. gpg: 密钥 920F5C65: 公钥"Repo Maintainer <repo@android.kernel.org>"已导入
5. gpg: 密钥 692B382C: 公钥"Conley Owens <cco3@android.com>"已导入
6. gpg: 合计被处理的数量: 2
7. gpg:                已导入: 2   (RSA: 1)
8.
9.
10. Get https://gerrit.googlesource.com/git-repo/clone.bundle
11.
12. ... A new repo command ( 1.22) is available.
13. ... You should upgrade soon:
```

```
14.
15. cp /home/octopus/android/system/.repo/repo/repo /usr/bin/repo
16.
17. Get https://github.com/CyanogenMod/android.git
18. % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
19.                  Dload  Upload   Total   Spent    Left   Speed
20.  0      0    0     0    0     0      0      0  --:--:--  0:00:02 --:--:--    0
21. curl: (22) The requested URL returned error: 404 Not Found
22. Server does not provide clone.bundle; ignoring.
23. remote: Counting objects: 3845, done.
24. remote: Total 3845 (delta 0), reused 0 (delta 0), pack-reused 3845
25. 接收对象中: 100% (3845/3845), 1.26 MiB | 58.00 KiB/s, done.
26. 处理 delta 中: 100% (1311/1311), done.
27. 来自 https://github.com/CyanogenMod/android
28. * [新分支]      cm-10.1 -> origin/cm-10.1
29. * [新分支]      cm-10.2 -> origin/cm-10.2
30. * [新分支]      cm-11.0 -> origin/cm-11.0
31. * [新分支]      cm-12.0 -> origin/cm-12.0
32. * [新分支]      cm-12.1 -> origin/cm-12.1
33. * [新分支]      cm-13.0 -> origin/cm-13.0
34. * [新分支]      cm-7.0.0 -> origin/cm-7.0.0
35. * [新分支]      cm-7.0.1 -> origin/cm-7.0.1
36. * [新分支]      cm-7.0.2.1 -> origin/cm-7.0.2.1
37. * [新分支]      cm-7.0.3 -> origin/cm-7.0.3
38. * [新分支]      cm-9.1.0 -> origin/cm-9.1.0
39. * [新分支]      eclair -> origin/eclair
40. * [新分支]      froyo -> origin/froyo
41. * [新分支]      froyo-stable -> origin/froyo-stable
42. * [新分支]      gb-release-7.2 -> origin/gb-release-7.2
43. * [新分支]      gingerbread -> origin/gingerbread
44. * [新分支]      gingerbread-release -> origin/gingerbread-release
45. * [新分支]      ics -> origin/ics
46. * [新分支]      ics-release -> origin/ics-release
47. * [新分支]      jellybean -> origin/jellybean
48. * [新分支]      jellybean-stable -> origin/jellybean-stable
49. * [新分支]      mr1.1-staging -> origin/mr1.1-staging
50. * [新分支]      shipping/cm-11.0 -> origin/shipping/cm-11.0
51. * [新分支]      stable/cm-10.2 -> origin/stable/cm-10.2
52. * [新分支]      stable/cm-11.0 -> origin/stable/cm-11.0
53. * [新分支]      stable/cm-11.0-XNF8Y -> origin/stable/cm-11.0-XNF8Y
54. * [新分支]      stable/cm-11.0-XNF9X -> origin/stable/cm-11.0-XNF9X
55. * [新分支]      stable/cm-11.0-XNG2S -> origin/stable/cm-11.0-XNG2S
56. * [新分支]      stable/cm-11.0-XNG3C -> origin/stable/cm-11.0-XNG3C
57. * [新分支]      stable/cm-12.0-YNG1I -> origin/stable/cm-12.0-YNG1I
58. * [新分支]      stable/cm-12.0-YNG1T -> origin/stable/cm-12.0-YNG1T
59. * [新分支]      stable/cm-12.0-YNG1TA -> origin/stable/cm-12.0-YNG1TA
60. * [新分支]      stable/cm-12.0-YNG3C -> origin/stable/cm-12.0-YNG3C
61. * [新分支]      stable/cm-12.0-YNG4N -> origin/stable/cm-12.0-YNG4N
62. * [新分支]      stable/cm-12.1-YOG3C -> origin/stable/cm-12.1-YOG3C
63. * [新分支]      stable/cm-12.1-YOG4P -> origin/stable/cm-12.1-YOG4P
64. * [新分支]      stable/cm-12.1-YOG7D -> origin/stable/cm-12.1-YOG7D
65. * [新分支]      stable/cm-13.0-ZNH0E -> origin/stable/cm-13.0-ZNH0E
66. * [新分支]      stable/cm-13.0-ZNH2K -> origin/stable/cm-13.0-ZNH2K
67. * [新分支]      staging/cm-12.0-caf -> origin/staging/cm-12.0-caf
68. * [新分支]      staging/cm-12.1 -> origin/staging/cm-12.1
69. * [新分支]      staging/cm-13.0+r22 -> origin/staging/cm-13.0+r22
70. * [新分支]      themes-exp -> origin/themes-exp
71. * [新tag]        cm-10.1-M1 -> cm-10.1-M1
72. * [新tag]        cm-10.1-M2 -> cm-10.1-M2
73. * [新tag]        cm-10.1-M3 -> cm-10.1-M3
74. * [新tag]        cm-10.1.0 -> cm-10.1.0
75. * [新tag]        cm-10.1.0-RC1 -> cm-10.1.0-RC1
76. * [新tag]        cm-10.1.0-RC2 -> cm-10.1.0-RC2
77. * [新tag]        cm-10.1.0-RC3 -> cm-10.1.0-RC3
```

```

78. * [新tag]          cm-10.1.0-RC4 -> cm-10.1.0-RC4
79. * [新tag]          cm-10.1.0-RC5 -> cm-10.1.0-RC5
80. * [新tag]          cm-10.1.1  -> cm-10.1.1
81. * [新tag]          cm-10.1.2  -> cm-10.1.2
82. * [新tag]          cm-10.1.3  -> cm-10.1.3
83. * [新tag]          cm-10.1.3-RC1 -> cm-10.1.3-RC1
84. * [新tag]          cm-10.1.3-RC2 -> cm-10.1.3-RC2
85. * [新tag]          cm-10.2-M1  -> cm-10.2-M1
86. * [新tag]          cm-10.2.0   -> cm-10.2.0
87. * [新tag]          cm-10.2.1   -> cm-10.2.1
88. * [新tag]          cm-10.2.1.1 -> cm-10.2.1.1
89. * [新tag]          cm-11.0-XNPH05Q-bacon-5229c4ef56 -> cm-11.0-XNPH05Q-bacon-5229c4ef56
90. * [新tag]          cm-11.0-XNPH05Q-tomato-9828f8e9cc -> cm-11.0-XNPH05Q-tomato-9828f8e9cc
91. * [新tag]          cm-11.0-XNPH22R-bacon-03d77315ea -> cm-11.0-XNPH22R-bacon-03d77315ea
92. * [新tag]          cm-11.0-XNPH25R-bacon-d22b777afa -> cm-11.0-XNPH25R-bacon-d22b777afa
93. * [新tag]          cm-11.0-XNPH300-bacon-4f280f505a -> cm-11.0-XNPH300-bacon-4f280f505a
94. * [新tag]          cm-11.0-XNPH33R-bacon-3628510d76 -> cm-11.0-XNPH33R-bacon-3628510d76
95. * [新tag]          cm-11.0-XNPH44S-bacon-5fa8c79c0b -> cm-11.0-XNPH44S-bacon-5fa8c79c0b
96. * [新tag]          cm-5.0.6    -> cm-5.0.6
97. * [新tag]          cm-5.0.7    -> cm-5.0.7
98. * [新tag]          cm-5.0.7-ds -> cm-5.0.7-ds
99. * [新tag]          cm-6.0.0     -> cm-6.0.0
100. * [新tag]         cm-6.0.0-rc1 -> cm-6.0.0-rc1
101. * [新tag]         cm-7.0.0     -> cm-7.0.0
102. * [新tag]         cm-7.0.1     -> cm-7.0.1
103. * [新tag]         cm-7.0.2.1   -> cm-7.0.2.1
104. * [新tag]         cm-7.0.3     -> cm-7.0.3
105. * [新tag]         cm-7.1.0     -> cm-7.1.0
106.
107. ... A new repo command ( 1.22) is available.
108. ... You should upgrade soon:
109.
110.   cp /home/octopus/android/system/.repo/repo/repo /usr/bin/repo
111.
112.
113. Your identity is: Shuliang Han <octopus_truth@163.com>
114. If you want to change this, please re-run 'repo init' with --config-name
115.
116. Testing colorized output (for 'repo diff', 'repo status'):
117.  black    red      green  yellow  blue    magenta  cyan    white
118.  bold     dim      ul      reverse
119. Enable color display in this user account (y/N)? y
120.
121. repo has been initialized in /home/octopus/android/system

```

## 5. 使用 repo 正式下载 Android 源码

### (1) 源码下载 repo 命令简介

#### repo 命令简介：

- **下载命令**：使用 **repo sync** 命令执行下载，启动源码下载进程，源码下载到指定的 `~/android/system` 目录中；
- **推荐配置**：CM Manifest 中包含了一个默认配置，强烈推荐使用该配置，不要加任何可选的命令选项；
- **线程选项**：默认 `-j 4 -c` 选项，`-j 4` 选项意味着同时建立了 4 个线程 或 连接；如果下载总是出现问题，可以减少线程数，参数改为 `-j 3` 或者 `-j 2`；
- **分支选项**：`-c` 选项，代表 `repo` 只下载当前一个分支的完整源码，并不把整个源码树所有分支完整的下载下来；
- **下载时长**：我用的 4M 独享带宽的 VPN，下了大概 一天一夜，该过程下载 12.9 G 的 android 源码，这个时间是最长的，如果带宽不足的话，可能会花费更长时间。
- **repo sync 命令更新代码**：**repo sync** 命令还可以用于从 CyanogenMod 和 Google 上获取更新最新的源代码，你可以每隔



几天执行一次该命令，保持机器上的源代码是最新的；

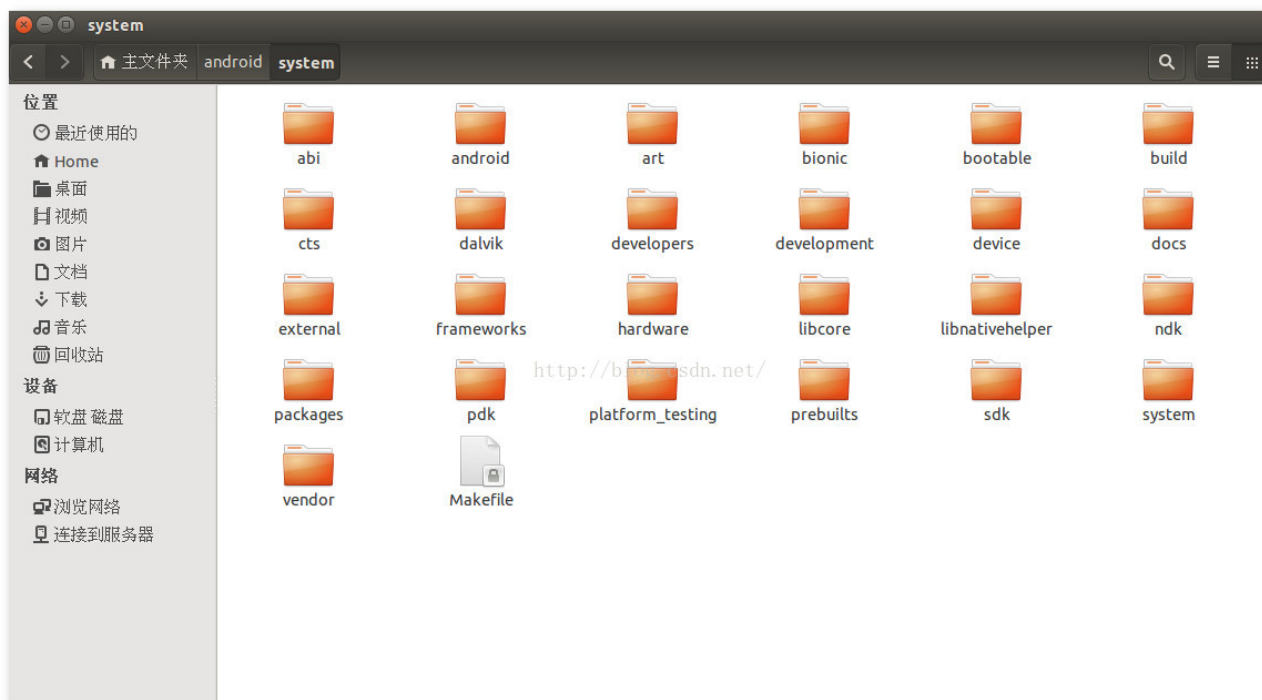
## (2) 源码下载命令 及 下载结果

下载 CyanogenMod 源码：

-- 执行命令：`repo sync -j4`，正式下载源码；

-- 注意：下载一定要开 VPN，没有 VPN 绝逼下载不下来，好多资料都被中国屏蔽了。

-- 文件目录：



-- 文件大小：该步骤下载了 12.9G 的源码；



## (3) repo sync 下载过程的终端输出

## repo sync 下载过程 - 终端输出 :

[plain] [view plain copy](#)



```
1. octopus@octopus:~/android/system$ repo sync -j4
2.
3. ... A new repo command ( 1.22) is available.
4. ... You should upgrade soon:
5.
6.   cp /home/octopus/android/system/.repo/repo/repo /usr/bin/repo
7.
8. Fetching project CyanogenMod/android_frameworks_support
9. Fetching project CyanogenMod/android_packages_apps_CMUpdater
10. Fetching project platform/external/mockwebserver
11. Fetching project platform/external/jsoncpp
12. Fetching projects:   0% (1/519)  Fetching project CyanogenMod/android_hardware_ti_omap4xxx
13. Fetching project platform/external/libvncserver
14. Fetching project CyanogenMod/android_external_libvpx
15. Fetching project CyanogenMod/android_packages_apps_PackageInstaller
16. Fetching project CyanogenMod/android_packages_apps_Eleven
17. Fetching projects:   1% (6/519)  Fetching project CyanogenMod/android_packages_screensavers_WebView
18. Fetching project CyanogenMod/android_external_ffmpeg
19. Fetching project platform/external/squashfs-tools
20. Fetching project CyanogenMod/android_packages_services_Telecomm
21. Fetching project CyanogenMod/android_external_libtruezip
22. Fetching projects:   2% (11/519)  Fetching project platform/hardware/intel/audio_media
23. Fetching project platform/external/fonttools
24. Fetching project platform/external/aac
25. Fetching project CyanogenMod/android_external_toybox
26. Fetching project platform/external/jmonkeyengine
27. Fetching projects:   3% (16/519)  Fetching project CyanogenMod/android_hardware_ti_wlan
28. Fetching project platform/external/ipsec-tools
29. Fetching project CyanogenMod/android_frameworks_webview
30. Fetching project platform/external/google-fonts/cutive-mono
31. Fetching project CyanogenMod/android_external_gmock
32. Fetching projects:   4% (21/519)  Fetching project CyanogenMod/android_frameworks_opt_calendar
33. Fetching project CyanogenMod/android_packages_providers_TelephonyProvider
34. Fetching project platform/external/zxing
35. Fetching project platform/prebuilts/gcc/linux-x86/host/x86_64-linux-glibc2.11-4.8
36. Fetching project platform/external/drm_gralloc
37. Fetching projects:   5% (26/519)  Fetching project platform/external/jemalloc
38. Fetching project platform/external/google-fonts/dancing-script
39. Fetching project platform/external/libmtp
40. Fetching project platform/external/lldb
41. Fetching project platform/external/libcxxabi
42. Fetching project CyanogenMod/android_frameworks_compile_slang
43. Fetching projects:   6% (32/519)  Fetching project platform/prebuilts/gcc/linux-x86/host/x86_64-w64-mingw32-4.8
44. Fetching project platform/prebuilts/gcc/linux-x86/arm/arm-linux-androideabi-4.9
45. Fetching project platform/external/naver-fonts
46. Fetching project CyanogenMod/android_external_nist-sip
47. Fetching project CyanogenMod/android_external_libusb
48. Fetching projects:   7% (37/519)  Fetching project CyanogenMod/android_hardware_intel_common_libwsbm
49. Fetching project platform/packages/apps/OneTimeInitializer
50. Fetching project device/generic/mini-emulator-mips
51. Fetching project platform/external/apache-xml
52. Fetching project CyanogenMod/android_packages_apps_CellBroadcastReceiver
53. Fetching projects:   8% (42/519)  Fetching project platform/external/nist-pkits
54. Fetching project CyanogenMod/android_packages_providers_PartnerBookmarksProvider
55. Fetching project platform/external/jmdns
56. Fetching project platform/external/kernel-headers
57. Fetching project CyanogenMod/android_external_f2fs-tools
58. Fetching projects:   9% (47/519)  Fetching project platform/external/ksoap2
```

59. Fetching project CyanogenMod/android\_hardware\_libhardware  
60. Fetching project platform/external/chromium-webview  
61. Fetching project CyanogenMod/android\_external\_sonivox  
62. Fetching project CyanogenMod/android\_external\_libusb  
63. Fetching projects: 10% (52/519) Fetching project platform/external/jsmn  
64. Fetching project CyanogenMod/android\_packages\_apps\_AudioFX  
65. Fetching project device/generic/mini-emulator-arm64  
66. Fetching project CyanogenMod/android\_hardware\_qcom\_keymaster  
67. Fetching project CyanogenMod/android\_packages\_providers\_ThemesProvider  
68. Fetching project CyanogenMod/android\_frameworks\_base  
69. Fetching projects: 11% (58/519) Fetching project CyanogenMod/android\_frameworks\_opt\_net\_voip  
70. Fetching project platform/prebuilts/libs/libedit  
71. Fetching project CyanogenMod/android\_external\_android-mock  
72. Fetching project CyanogenMod/android\_external\_tinyxml2  
73. Fetching project platform/frameworks/opt/inputconnectioncommon  
74. Fetching projects: 12% (63/519) Fetching project platform/external/selinux  
75. Fetching project CyanogenMod/android\_hardware\_qcom\_media  
76. Fetching project platform/external/mdnsresponder  
77. Fetching project CyanogenMod/android\_external\_wpa\_supplicant\_8  
78. Fetching project platform/external/safe-iop  
79. Fetching projects: 13% (68/519) Fetching project CyanogenMod/android\_packages\_apps\_Bluetooth  
80. Fetching project CyanogenMod/android\_hardware\_qcom\_media  
81. Fetching project CyanogenMod/android\_packages\_providers\_UserDictionaryProvider  
82. Fetching project platform/hardware/ti/omap4-aah  
83. Fetching project platform/external/giflib  
84. Fetching project platform/external/openfst  
85. Fetching projects: 14% (73/519) Fetching project CyanogenMod/android\_hardware\_qcom\_media  
86. Fetching project CyanogenMod/android\_external\_lzma  
87. Fetching project platform/external/libyuv  
88. Fetching project CyanogenMod/android\_packages\_wallpapers\_Basic  
89. Fetching project CyanogenMod/android\_device\_google\_atv  
90. Fetching project CyanogenMod/android\_packages\_wallpapers\_HoloSpiral  
91. Fetching projects: 15% (78/519) Fetching project platform/external/drm\_hwcomposer  
92. Fetching project CyanogenMod/android\_external\_gson  
93. Fetching project CyanogenMod/android\_packages\_apps\_TvSettings  
94. Fetching project CyanogenMod/android\_hardware\_qcom\_media  
95. Fetching project CyanogenMod/android\_hardware\_invensense  
96. Fetching project CyanogenMod/android\_packages\_apps\_LockClock  
97. remote: Counting objects: 7, done.  
98. remote: Compressing objects: 100% (6/6), done.  
99. remote: Total 7 (delta 0), reused 0 (delta 0), pack-reused 0  
100. Fetching project CyanogenMod/android\_frameworks\_opt\_photoviewer  
101. Fetching projects: 16% (84/519) Fetching project CyanogenMod/android\_frameworks\_opt\_colorpicker  
102. 来自 [https://github.com/CyanogenMod/android\\_frameworks\\_base](https://github.com/CyanogenMod/android_frameworks_base)  
103. 2d7713a..58ae12f cm-13.0 -> github/cm-13.0  
104. Fetching project CyanogenMod/android\_external\_jarjar  
105. Fetching project platform/frameworks/data-binding  
106. Fetching project CyanogenMod/android\_packages\_services\_LiveLockScreenService  
107. Fetching project CyanogenMod/android\_frameworks\_opt\_datetimetypepicker  
108. Fetching projects: 17% (89/519) Fetching project CyanogenMod/android\_system\_qcom  
109. Fetching project CyanogenMod/AndroidAsync  
110. Fetching project CyanogenMod/android\_bionic  
111. Fetching project CyanogenMod/android\_system\_core  
112. Fetching project CyanogenMod/android\_packages\_wallpapers\_NoiseField  
113. Fetching projects: 18% (94/519) Fetching project CyanogenMod/android\_hardware\_qcom\_media  
114. Fetching project platform/external/libexif  
115. Fetching project platform/external/webRTC  
116. Fetching project CyanogenMod/android\_external\_ant-wireless\_ant\_service  
117. Fetching project CyanogenMod/android\_frameworks\_rs  
118. Fetching project CyanogenMod/android\_external\_tinyalsa  
119. Fetching projects: 19% (99/519) Fetching project CyanogenMod/android\_packages\_apps\_ManagedProvisioning  
120. Fetching project CyanogenMod/android\_external\_pdfium  
121. Fetching project CyanogenMod/android\_hardware\_qcom\_media  
122. Fetching project CyanogenMod/android\_external\_pcre

123. Fetching project CyanogenMod/android\_packages\_apps\_FMRadio  
124. Fetching project CyanogenMod/android\_external\_dhccpd  
125. Fetching projects: 20% (104/519) Fetching project CyanogenMod/android\_system\_bt  
126. Fetching project platform/prebuilts/gcc/darwin-x86/arm/arm-eabi-4.8  
127. Fetching project platform/external/zopfli  
128. Fetching project device/generic/mini-emulator-x86\_64  
129. Fetching project platform/external/sfntly  
130. Fetching projects: 21% (109/519) Fetching project CyanogenMod/android\_frameworks\_volley  
131. Fetching project platform/hardware/intel/common/utils  
132. Fetching project CyanogenMod/android\_hardware\_cyanogen  
133. Fetching project CyanogenMod/android\_external\_doclava  
134. Fetching project CyanogenMod/android\_external\_ant-wireless\_antradio-library  
135. Fetching project platform/external/fio  
136. Fetching projects: 22% (115/519) Fetching project CyanogenMod/android\_system\_extras  
137. Fetching project platform/external/xmlwriter  
138. Fetching project CyanogenMod/android\_external\_vogar  
139. Fetching project platform/external/jsilver  
140. Fetching project platform/external/marisa-trie  
141. Fetching projects: 23% (120/519) Fetching project CyanogenMod/android\_frameworks\_opt\_bluetooth  
142. Fetching project CyanogenMod/android\_external\_elfutils  
143. Fetching project platform/external/jetty  
144. Fetching project platform/external/jdiff  
145. Fetching project platform/external/blktrace  
146. Fetching projects: 24% (125/519) Fetching project CyanogenMod/android\_external\_libxml2  
147. Fetching project platform/prebuilts/gradle-plugin  
148. Fetching project CyanogenMod/android\_external\_ntfs-3g  
149. Fetching project platform/external/compiler-rt  
150. Fetching project CyanogenMod/android\_hardware\_qcom\_media  
151. Fetching project CyanogenMod/android\_frameworks\_opt\_net\_wifi  
152. Fetching projects: 25% (130/519) Fetching project CyanogenMod/android\_packages\_apps\_Stk  
153. Fetching project CyanogenMod/android\_packages\_wallpapers\_PhaseBeam  
154. Fetching project CyanogenMod/android\_hardware\_qcom\_audio  
155. Fetching project CyanogenMod/android\_external\_android-visualizer  
156. Fetching project CyanogenMod/android\_external\_lzo  
157. Fetching projects: 26% (135/519) Fetching project platform/external/cblas  
158. Fetching project CyanogenMod/android\_hardware\_intel\_img\_psb\_headers  
159. Fetching project CyanogenMod/android\_external\_nano  
160. Fetching project CyanogenMod/android\_packages\_wallpapers\_LivePicker  
161. Fetching project platform/external/deqp  
162. Fetching project CyanogenMod/android\_system\_netd  
163. Fetching projects: 27% (141/519) Fetching project platform/external/libgsm  
164. Fetching project platform/external/neven  
165. Fetching project device/sample  
166. Fetching project CyanogenMod/android\_external\_libavc  
167. Fetching project platform/external/google-tv-pairing-protocol  
168. Fetching projects: 28% (146/519) Fetching project CyanogenMod/android\_external\_mksh  
169. Fetching project platform/external/javaxsqlite  
170. Fetching project CyanogenMod/android\_external\_jpeg  
171. Fetching project CyanogenMod/android\_frameworks\_opt\_net\_ethernet  
172. Fetching project CyanogenMod/android\_hardware\_qcom\_media  
173. Fetching project CyanogenMod/android\_external\_unrar  
174. Fetching projects: 29% (151/519) Fetching project CyanogenMod/android\_external\_ant-wireless\_ant\_native  
175. Fetching project CyanogenMod/android\_packages\_apps\_Provision  
176. Fetching project platform/external/expat  
177. Fetching project platform/external/androidplot  
178. Fetching project platform/external/apache-commons-math  
179. Fetching projects: 30% (156/519) Fetching project CyanogenMod/android\_frameworks\_minikin  
180. Fetching project CyanogenMod/android\_system\_vold  
181. Fetching project CyanogenMod/android\_external\_pigz  
182. Fetching project CyanogenMod/android\_frameworks\_wilhelm  
183. Fetching project platform/prebuilts/clang/darwin-x86/host/3.6  
184. Fetching projects: 31% (161/519) Fetching project CyanogenMod/android\_external\_powertop  
185. Fetching project CyanogenMod/android\_external\_rsync  
186. Fetching project platform/external/donuts

187. Fetching project CyanogenMod/android\_packages\_screensavers\_PhotoTable  
188. Fetching project CyanogenMod/android\_hardware\_qcom\_audio  
189. Fetching project device/generic/x86  
190. Fetching project platform/external/chromium-libpac  
191. Fetching projects: 32% (167/519) Fetching project platform/external/libmpeg2  
192. Fetching project CyanogenMod/android\_external\_libnfc-nxp  
193. Fetching project platform/hardware/intel/common/wrs\_omxil\_core  
194. Fetching project device/generic/x86\_64  
195. Fetching project CyanogenMod/android\_packages\_apps\_Gello  
196. Fetching projects: 33% (172/519) Fetching project CyanogenMod/android\_external\_vim  
197. Fetching project CyanogenMod/android\_packages\_apps\_Nfc  
198. Fetching project CyanogenMod/android\_abi\_cpp  
199. Fetching project CyanogenMod/android\_external\_yaffs2  
200. Fetching project CyanogenMod/android\_device\_generic\_mips  
201. Fetching projects: 34% (177/519) Fetching project platform/external/vixl  
202. Fetching project platform/external/messageformat  
203. Fetching project platform/external/bsdiff  
204. Fetching project platform/prebuilts/sdk  
205. Fetching project CyanogenMod/android\_external\_google  
206. Fetching projects: 35% (182/519) Fetching project CyanogenMod/android\_hardware\_qcom\_fm  
207. Fetching project platform/prebuilts/gcc/linux-x86/aarch64/aarch64-linux-android-4.9  
208. Fetching project CyanogenMod/android\_external\_libncurses  
209. Fetching project CyanogenMod/android\_hardware\_ti\_wpan  
210. Fetching project CyanogenMod/android\_hardware\_qcom\_audio  
211. Fetching project device/generic/mini-emulator-x86  
212. Fetching projects: 36% (187/519) Fetching project CyanogenMod/android\_dalvik  
213. Fetching project CyanogenMod/android\_external\_iproute2  
214. Fetching project platform/external/google-breakpad  
215. Fetching project CyanogenMod/android\_packages\_apps\_CarrierConfig  
216. Fetching project CyanogenMod/android\_frameworks\_multidex  
217. Fetching project CyanogenMod/android\_hardware\_broadcom\_wlan  
218. Fetching projects: 37% (193/519) Fetching project CyanogenMod/android\_device\_generic\_common  
219. Fetching project CyanogenMod/android\_frameworks\_opt\_emoji  
220. Fetching project CyanogenMod/android\_art  
221. Fetching project platform/external/javassist  
222. Fetching project CyanogenMod/android\_external\_fuse  
223. Fetching projects: 38% (198/519) Fetching project CyanogenMod/android\_external\_libnfnetworklink  
224. Fetching project CyanogenMod/android\_frameworks\_av  
225. Fetching project platform/external/liblzf  
226. Fetching project CyanogenMod/android\_frameworks\_opt\_hardware  
227. Fetching project platform/external/opencv  
228. Fetching projects: 39% (203/519) Fetching project platform/hardware/qcom/msm8994  
229. Fetching project platform/external/glide  
230. Fetching project CyanogenMod/android\_external\_ebtables  
231. Fetching project platform/ndk  
232. Fetching project platform/external/replicaisland  
233. Fetching projects: 40% (208/519) Fetching project CyanogenMod/android\_hardware\_qcom\_display  
234. Fetching project platform/hardware/intel/bootstub  
235. Fetching project CyanogenMod/android\_hardware\_qcom\_audio  
236. Fetching project CyanogenMod/android\_frameworks\_native  
237. Fetching project CyanogenMod/android\_hardware\_intel\_img\_psb\_video  
238. Fetching project platform/external/google-fonts/carrois-gothic-sc  
239. Fetching projects: 41% (213/519) Fetching project platform/external/owasp/sanitizer  
240. Fetching project platform/external/regex-re2  
241. Fetching project platform/external/tagsoup  
242. Fetching project CyanogenMod/android\_packages\_providers\_DataUsageProvider  
243. Fetching project platform/external/timezonepicker-support  
244. Fetching projects: 42% (218/519) Fetching project CyanogenMod/android\_device\_generic\_arm64  
245. Fetching project CyanogenMod/android\_external\_gptfdisk  
246. Fetching project platform/external/libunwind  
247. Fetching project CyanogenMod/android\_hardware\_intel\_common\_libmix  
248. Fetching project CyanogenMod/android\_packages\_apps\_SoundRecorder  
249. Fetching project platform/hardware/marvell/bt  
250. Fetching projects: 43% (224/519) Fetching project CyanogenMod/android\_packages\_services\_Telephony

251. Fetching project CyanogenMod/android\_frameworks\_opt\_inputmethodcommon  
252. Fetching project platform/external/sonic  
253. Fetching project CyanogenMod/android\_external\_bouncycastle  
254. Fetching project platform/hardware/qcom/msm8960  
255. Fetching projects: 44% (229/519) Fetching project CyanogenMod/android\_packages\_apps\_Email  
256. Fetching project CyanogenMod/android\_packages\_services\_Mms  
257. Fetching project CyanogenMod/android\_packages\_apps\_Contacts  
258. Fetching project platform/external/robolectric  
259. Fetching project CyanogenMod/android\_hardware\_qcom\_audio  
260. Fetching project CyanogenMod/android\_libnativehelper  
261. Fetching projects: 45% (234/519) Fetching project CyanogenMod/android\_hardware\_qcom\_camera  
262. Fetching project CyanogenMod/android\_system\_keymaster  
263. Fetching project CyanogenMod/android\_packages\_providers\_TvProvider  
264. Fetching project CyanogenMod/android\_device\_generic\_armv7-a-neon  
265. Fetching project CyanogenMod/android\_hardware\_broadcom\_libbt  
266. Fetching projects: 46% (239/519) Fetching project CyanogenMod/android\_packages\_apps\_BasicSmsReceiver  
267. Fetching project platform/external/llvm  
268. Fetching project platform/external/tinyxml  
269. Fetching project CyanogenMod/android\_packages\_apps\_SpeechRecorder  
270. Fetching project platform/external/antlr  
271. Fetching projects: 47% (244/519) Fetching project CyanogenMod/android\_packages\_apps\_Browser  
272. Fetching project CyanogenMod/android\_external\_android-clat  
273. Fetching project CyanogenMod/android\_hardware\_qcom\_display  
274. Fetching project CyanogenMod/android\_prebuilts\_cmsdk  
275. Fetching project CyanogenMod/android\_packages\_apps\_Exchange  
276. Fetching project CyanogenMod/android\_frameworks\_opt\_net\_ims  
277. Fetching project CyanogenMod/android\_frameworks\_ml  
278. Fetching projects: 48% (250/519) Fetching project platform/external/hamcrest  
279. Fetching project platform/external/markdown  
280. Fetching project platform/hardware/qcom/msm8x74  
281. Fetching project CyanogenMod/android\_hardware\_qcom\_audio  
282. Fetching project CyanogenMod/external\_android\_support-prebuilt  
283. Fetching project platform/external/tremolo  
284. Fetching projects: 49% (255/519) Fetching project CyanogenMod/android\_hardware\_qcom\_bt  
285. Fetching project platform/external/freetype  
286. Fetching project platform/external/fdlibm  
287. Fetching project platform/external/mesa3d  
288. Fetching project CyanogenMod/android\_external\_guava  
289. Fetching projects: 50% (260/519) Fetching project CyanogenMod/android\_packages\_experimental  
290. Fetching project CyanogenMod/android\_external\_connectivity  
291. Fetching project platform/prebuilts/gcc/linux-x86/x86/x86\_64-linux-android-4.9  
292. Fetching project platform/system/gatekeeper  
293. Fetching project CyanogenMod/android\_external\_libvterm  
294. Fetching projects: 51% (265/519) Fetching project CyanogenMod/android\_vendor\_qcom\_opensource\_dataservices  
295. Fetching project CyanogenMod/android\_device\_generic\_goldfish  
296. Fetching project CyanogenMod/android\_external\_zlib  
297. Fetching project CyanogenMod/android\_hardware\_qcom\_display  
298. Fetching project platform/external/gtest  
299. Fetching project CyanogenMod/android\_external\_e2fsprogs  
300. Fetching projects: 52% (270/519) Fetching project CyanogenMod/android\_packages\_apps\_Terminal  
301. Fetching project platform/sdk  
302. Fetching project CyanogenMod/android\_external\_flac  
303. Fetching project CyanogenMod/android\_packages\_apps\_DeskClock  
304. Fetching project platform/external/esd  
305. Fetching project CyanogenMod/android\_external\_skia  
306. Fetching projects: 53% (276/519) Fetching project CyanogenMod/android\_packages\_apps\_ThemeChooser  
307. Fetching project CyanogenMod/android\_hardware\_qcom\_bt  
308. Fetching project CyanogenMod/android\_external\_libselinux  
309. Fetching project CyanogenMod/android\_packages\_apps\_Profiles  
310. Fetching project CyanogenMod/android\_packages\_apps\_Snap  
311. Fetching project CyanogenMod/android\_hardware\_qcom\_audio  
312. Fetching project CyanogenMod/android\_packages\_providers\_CallLogProvider  
313. Fetching projects: 54% (281/519) Fetching project platform/hardware/qcom/msm8x84

314. Fetching project platform/external/objenesis  
315. Fetching project platform/external/svox  
316. Fetching project platform/external/ceres-solver  
317. remote: Total 0 (delta 0), reused 0 (delta 0), pack-reused 0  
318. Fetching project platform/prebuilts/gcc/darwin-x86/arm/arm-linux-androideabi-4.9  
319. Fetching projects: 55% (286/519) Fetching project platform/hardware/ti/omap3  
320. Fetching project CyanogenMod/android\_packages\_apps\_Screencast  
321. Fetching project CyanogenMod/android\_development  
322. Fetching project CyanogenMod/android\_external\_p7zip  
323. Fetching project CyanogenMod/android\_hardware\_libhardware\_legacy  
324. Fetching projects: 56% (291/519) Fetching project platform/external/protobuf  
325. Fetching project CyanogenMod/android\_hardware\_intel\_common\_libva  
326. Fetching project CyanogenMod/android\_hardware\_qcom\_display  
327. Fetching project platform/external/smali  
328. Fetching project platform/hardware/mediatek  
329. Fetching project CyanogenMod/android\_packages\_apps\_SmartCardService  
330. Fetching projects: 57% (296/519) Fetching project platform/prebuilts/qemu-kernel  
331. Fetching project platform/external/eyes-free  
332. Fetching project CyanogenMod/android\_packages\_inputmethods\_LatinIME  
333. Fetching project CyanogenMod/android\_external\_unzip  
334. Fetching project CyanogenMod/android\_external\_bash  
335. Fetching project platform/external/v8  
336. Fetching projects: 58% (302/519) Fetching project platform/external/emma  
337. Fetching project CyanogenMod/android\_packages\_apps\_HTMLViewer  
338. Fetching project CyanogenMod/android\_external\_bzip2  
339. Fetching project platform/external/xmp\_toolkit  
340. Fetching project CyanogenMod/android\_hardware\_qcom\_audio  
341. Fetching project platform/external/libhevc  
342. Fetching projects: 59% (307/519) Fetching project CyanogenMod/android\_hardware\_qcom\_wlan  
343. Fetching project CyanogenMod/android\_build  
344. Fetching project CyanogenMod/android\_packages\_apps\_YahooWeatherProvider  
345. Fetching project platform/external/slf4j  
346. Fetching project CyanogenMod/android\_external\_sepolicy  
347. Fetching projects: 60% (312/519) Fetching project platform/external/nfacct  
348. Fetching project platform/prebuilts/misc  
349. Fetching project platform/prebuilts/python/darwin-x86/2.7.5  
350. Fetching project platform/prebuilts/eclipse  
351. Fetching project CyanogenMod/android\_packages\_providers\_CalendarProvider  
352. Fetching projects: 61% (317/519) Fetching project platform/external/google-fonts/coming-soon  
353. Fetching project CyanogenMod/android\_packages\_apps\_CertInstaller  
354. Fetching project platform/external/lld  
355. Fetching project CyanogenMod/android\_vendor\_cm  
356. Fetching project CyanogenMod/android\_packages\_providers\_DownloadProvider  
357. Fetching projects: 62% (322/519) Fetching project CyanogenMod/android\_external\_strace  
358. Fetching project platform/prebuilts/android-emulator  
359. Fetching project platform/external/libutf  
360. Fetching project platform/external/dexmaker  
361. Fetching project platform/prebuilts/devtools  
362. Fetching projects: 63% (327/519) Fetching project CyanogenMod/android\_hardware\_qcom\_display  
363. Fetching project CyanogenMod/android\_packages\_apps\_Trebuchet  
364. Fetching project platform/external/crcalc  
365. Fetching project CyanogenMod/android\_packages\_apps\_OpenWeatherMapProvider  
366. Fetching project platform/external/mockito  
367. Fetching project platform/developers/build  
368. Fetching project CyanogenMod/android\_packages\_wallpapers\_MagicSmoke  
369. Fetching projects: 64% (333/519) Fetching project CyanogenMod/android\_packages\_apps\_PhoneCommon  
370. Fetching project CyanogenMod/android\_frameworks\_opt\_setupwizard  
371. Fetching project platform/external/roboto-fonts  
372. Fetching project CyanogenMod/ion  
373. Fetching project CyanogenMod/android\_hardware\_samsung\_slsi\_exynos5  
374. Fetching projects: 65% (338/519) Fetching project platform/external/libphonenumber  
375. Fetching project CyanogenMod/android\_external\_protobuf-c  
376. Fetching project CyanogenMod/android\_packages\_apps\_CMFileManager  
377. Fetching project CyanogenMod/android\_external\_okhttp

378. Fetching project CyanogenMod/android\_frameworks\_opt\_chips  
379. Fetching projects: 66% (343/519) Fetching project  
CyanogenMod/android\_packages\_apps\_WundergroundWeatherProvider  
380. Fetching project CyanogenMod/android\_packages\_apps\_Gallery2  
381. Fetching project platform/external/netcat  
382. Fetching project platform/docs/source.android.com  
383. Fetching project platform/external/parameter-framework  
384. Fetching projects: 67% (348/519) Fetching project CyanogenMod/android\_bootable\_recovery  
385. Fetching project platform/prebuilts/clang/linux-x86/host/3.6  
386. Fetching project CyanogenMod/android\_packages\_apps\_Settings  
387. Fetching project CyanogenMod/android\_external\_dnsmasq  
388. Fetching project CyanogenMod/android\_hardware\_qcom\_display  
389. Fetching project CyanogenMod/android\_packages\_apps\_ExactCalculator  
390. Fetching projects: 68% (353/519) Fetching project platform/prebuilts/gcc/linux-x86/arm/arm-eabi-4.8  
391. Fetching project CyanogenMod/android\_external\_linux-tools-perf  
392. Fetching project platform/external/noto-fonts  
393. Fetching project platform/external/libopus  
394. Fetching project platform/developers/samples/android  
395. Fetching project CyanogenMod/android\_hardware\_qcom\_wlan  
396. Fetching project platform/external/srtp  
397. Fetching projects: 69% (359/519) Fetching project platform/prebuilts/python/linux-x86/2.7.5  
398. Fetching project CyanogenMod/android\_hardware\_qcom\_gps  
399. Fetching project CyanogenMod/android\_external\_mm-dash  
400. Fetching project CyanogenMod/android\_frameworks\_opt\_telephony  
401. Fetching project platform/external/eclipse-basebuilder  
402. Fetching projects: 70% (364/519) Fetching project CyanogenMod/android\_packages\_providers\_ContactsProvider  
403. Fetching project platform/external/junit  
404. Fetching project CyanogenMod/android\_hardware\_intel\_img\_hwcomposer  
405. Fetching project CyanogenMod/android\_packages\_wallpapers\_Galaxy4  
406. Fetching project platform/prebuilts/gcc/darwin-x86/x86/x86\_64-linux-android-4.9  
407. Fetching projects: 71% (369/519) Fetching project CyanogenMod/android\_hardware\_ti\_omap4  
408. Fetching project platform/external/ppp  
409. Fetching project CyanogenMod/android\_frameworks\_ex  
410. Fetching project CyanogenMod/android\_packages\_wallpapers\_PhotoPhase  
411. Fetching project device/google/accessory/demokit  
412. Fetching projects: 72% (374/519) Fetching project CyanogenMod/android\_external\_lz4  
413. Fetching project platform/external/valgrind  
414. Fetching project CyanogenMod/android\_external\_jsr305  
415. Fetching project CyanogenMod/android\_external\_boringssl  
416. Fetching project CyanogenMod/android\_external\_apache-http  
417. Fetching projects: 73% (379/519) Fetching project platform/external/nanopb-c  
418. Fetching project CyanogenMod/android\_external\_fsck\_msdos  
419. Fetching project CyanogenMod/android\_external\_libnfc-nci  
420. Fetching project CyanogenMod/android\_frameworks\_compile\_libbcc  
421. Fetching project platform/external/libedit  
422. Fetching project platform/external/mockftpserver  
423. Fetching projects: 74% (385/519) Fetching project CyanogenMod/android\_packages\_apps\_CMBugreport  
424. Fetching project CyanogenMod/android\_hardware\_intel\_common\_omx-components  
425. Fetching project platform/external/libcap-ng  
426. Fetching project CyanogenMod/android\_packages\_apps\_SetupWizard  
427. Fetching project CyanogenMod/android\_packages\_apps\_Camera2  
428. Fetching projects: 75% (390/519) Fetching project CyanogenMod/android\_hardware\_qcom\_display  
429. Fetching project platform/external/oauth  
430. Fetching project CyanogenMod/android\_system\_extras\_su  
431. Fetching project CyanogenMod/android\_external\_htop  
432. Fetching project CyanogenMod/android\_device\_common  
433. Fetching project platform/prebuilts/ndk  
434. Fetching projects: 76% (395/519) Fetching project CyanogenMod/android\_packages\_providers\_WeatherProvider  
435. Fetching project platform/external/libogg  
436. Fetching project CyanogenMod/android\_packages\_apps\_ContactsCommon  
437. Fetching project platform/external/libusb-compat  
438. Fetching project platform/hardware/intel/sensors  
439. Fetching projects: 77% (400/519) Fetching project CyanogenMod/android\_packages\_apps\_UnifiedEmail



440. Fetching project device/google/accessory/arduino  
441. Fetching project CyanogenMod/android\_frameworks\_opt\_timezonepicker  
442. Fetching project platform/external/bison  
443. Fetching project CyanogenMod/android\_external\_iptables  
444. Fetching projects: 78% (405/519) Fetching project CyanogenMod/android\_vendor\_qcom\_opensource\_time-services  
445. Fetching project CyanogenMod/android\_external\_brctl  
446. Fetching project CyanogenMod/android\_packages\_providers\_BookmarkProvider  
447. Fetching project platform/external/eclipse-windowbuilder  
448. Fetching project CyanogenMod/android\_external\_libnetfilter\_conntrack  
449. Fetching project CyanogenMod/android\_system\_media  
450. Fetching projects: 79% (411/519) Fetching project CyanogenMod/android\_external\_tinycompress  
451. Fetching project CyanogenMod/android\_external\_openssh  
452. Fetching project CyanogenMod/android\_packages\_apps\_KeyChain  
453. Fetching project CyanogenMod/android\_external\_cyanogen\_UICommon  
454. Fetching project CyanogenMod/android\_external\_libtar  
455. Fetching projects: 80% (416/519) Fetching project CyanogenMod/android\_packages\_providers\_MediaProvider  
456. Fetching project platform/external/chromium-trace  
457. Fetching project platform/pdk  
458. Fetching project CyanogenMod/android\_device\_qcom\_sepolicy  
459. Fetching project platform/external/scrypt  
460. Fetching projects: 81% (421/519) Fetching project platform/external/cmockery  
461. Fetching project CyanogenMod/android\_frameworks\_opt\_bitmap  
462. Fetching project platform/external/harfbuzz-ng  
463. Fetching project CyanogenMod/android\_hardware\_qcom\_display  
464. Fetching project platform/external/jhead  
465. Fetching project platform/external/ltrace  
466. Fetching projects: 82% (426/519) Fetching project CyanogenMod/android\_frameworks\_compile\_mclinker  
467. Fetching project platform/external/libcxx  
468. Fetching project CyanogenMod/cm\_platform\_sdk  
469. Fetching project platform/platform\_testing  
470. Fetching project platform/external/embunit  
471. Fetching projects: 83% (431/519) Fetching project CyanogenMod/android\_external\_sqlite  
472. Fetching project platform/prebuilts/gcc/darwin-x86/aarch64/aarch64-linux-android-4.9  
473. Fetching project platform/external/netperf  
474. Fetching project CyanogenMod/android\_external\_spongycastle  
475. Fetching project platform/external/droiddriver  
476. Fetching projects: 84% (436/519) Fetching project CyanogenMod/android\_external\_ant-glob  
477. Fetching project CyanogenMod/android\_packages\_apps\_Calendar  
478. Fetching project device/generic/mini-emulator-armv7-a-neon  
479. Fetching project CyanogenMod/android\_packages\_apps\_CMWallpapers  
480. Fetching project platform/hardware/intel/common/bd\_prov  
481. Fetching project platform/external/nanohttpd  
482. Fetching projects: 85% (442/519) Fetching project platform/prebuilts/gcc/linux-x86/host/x86\_64-linux-glibc2.15-4.8  
483. Fetching project platform/hardware/qcom/msm8x26  
484. Fetching project CyanogenMod/android\_external\_libphonenumbergoogle  
485. Fetching project CyanogenMod/android\_vendor\_qcom\_opensource\_dpm  
486. Fetching project device/generic/qemu  
487. Fetching projects: 86% (447/519) Fetching project CyanogenMod/android\_frameworks\_opt\_vcard  
488. Fetching project platform/external/conscrypt  
489. Fetching project platform/external/mp4parser  
490. Fetching project platform/hardware/intel/common/libstagefrighthw  
491. Fetching project CyanogenMod/android\_libcore  
492. Fetching projects: 87% (452/519) Fetching project CyanogenMod/android\_packages\_apps\_Tag  
493. Fetching project CyanogenMod/android\_packages\_apps\_Messaging  
494. Fetching project CyanogenMod/android\_external\_stagefright-plugins  
495. Fetching project CyanogenMod/android\_hardware\_akm  
496. Fetching project CyanogenMod/android\_packages\_screensavers\_Basic  
497. Fetching projects: 88% (457/519) Fetching project platform/prebuilts/maven\_repo/android  
498. Fetching project CyanogenMod/android\_packages\_apps\_BluetoothExt  
499. Fetching project platform/hardware/qcom/msm8x27  
500. Fetching project platform/external/littlemock  
501. Fetching project platform/prebuilts/tools  
502. Fetching projects: 89% (462/519) Fetching project CyanogenMod/android\_packages\_apps\_Dialer

503. Fetching project platform/external/eigen  
504. Fetching project platform/external/libdrm  
505. Fetching project platform/external/apache-harmony  
506. Fetching project CyanogenMod/android\_external\_zip  
507. Fetching project platform/prebuilts/gcc/darwin-x86/host/i686-apple-darwin-4.2.1  
508. Fetching projects: 90% (468/519) Fetching project CyanogenMod/android  
509. Fetching project platform/external/easymock  
510. Fetching project CyanogenMod/android\_external\_curl  
511. Fetching project CyanogenMod/android\_system\_security  
512. Fetching project CyanogenMod/android\_external\_json-c  
513. Fetching projects: 91% (473/519) Fetching project platform/external/libvorbis  
514. Fetching project CyanogenMod/android\_hardware\_ril  
515. Fetching project CyanogenMod/android\_external\_tcpdump  
516. Fetching project platform/cts  
517. Fetching project platform/external/proguard  
518. Fetching projects: 92% (478/519) Fetching project CyanogenMod/android\_packages\_apps\_InCallUI  
519. Fetching project platform/external/libpcap  
520. Fetching project CyanogenMod/android\_external\_speex  
521. Fetching project platform/external/hyphenation-patterns  
522. Fetching project CyanogenMod/android\_external\_icu  
523. Fetching projects: 93% (483/519) Fetching project platform/external/vboot\_reference  
524. Fetching project platform/external/iputils  
525. Fetching project platform/external/clang  
526. Fetching project CyanogenMod/android\_external\_libxslt  
527. Fetching project platform/external/webp  
528. Fetching projects: 94% (488/519) Fetching project platform/external/mtpd  
529. Fetching project CyanogenMod/android\_external\_exfat  
530. Fetching project platform/external/libnl  
531. Fetching project CyanogenMod/android\_external\_libpng  
532. Fetching projects: 97% (504/519) Fetching project CyanogenMod/android\_hardware\_ril  
533. Fetching projects: 100% (519/519), done.  
534. Checking out files: 100% (1396/1396), done.ut files: 0% (8/1396)  
535. Checking out files: 59% (5779/9711)  
536. Checking out files: 100% (9711/9711), done.  
537. Checking out files: 100% (5699/5699), done.  
538. Checking out files: 100% (4313/4313), done.  
539. Checking out files: 44% (5164/11736) ng out files: 4% (548/11736)  
540. Checking out files: 100% (11736/11736), done.  
541. Checking out files: 100% (2438/2438), done.out files: 46% (1144/2438)  
542.  
543. Syncing work tree: 9% (47/519)  
544. Checking out files: 100% (2101/2101), done.out files: 27% (574/2101)  
545. Checking out files: 100% (10613/10613), done.  
546. Checking out files: 100% (2067/2067), done.out files: 1% (29/2067)  
547. Checking out files: 100% (5640/5640), done.out files: 36% (2072/5640)  
548. Checking out files: 100% (2328/2328), done.out files: 19% (460/2328)  
549. Checking out files: 100% (7397/7397), done. out files: 31% (2351/7397)  
550. Checking out files: 100% (17133/17133), done.ut files: 9% (1635/17133)  
551. Checking out files: 100% (179/179), done.ng out files: 12% (23/179)  
552. Checking out files: 100% (383/383), done.ng out files: 38% (148/383)  
553. Checking out files: 100% (1195/1195), done.  
554. Checking out files: 100% (766/766), done.ng out files: 30% (231/766)  
555. Checking out files: 100% (723/723), done.ng out files: 3% (27/723)  
556. Checking out files: 100% (3505/3505), done. out files: 31% (1118/3505)  
557. Checking out files: 100% (4367/4367), done. out files: 13% (610/4367)  
558. Checking out files: 100% (1054/1054), done.  
559. Checking out files: 100% (28042/28042), done.ut files: 2% (588/28042)  
560. Checking out files: 100% (1066/1066), done. out files: 34% (368/1066)  
561. Checking out files: 100% (8945/8945), done. out files: 5% (529/8945)  
562. Checking out files: 100% (173/173), done.ng out files: 32% (56/173)  
563. Checking out files: 100% (2186/2186), done.  
564. Checking out files: 100% (2658/2658), done. out files: 6% (160/2658)  
565. Checking out files: 100% (1451/1451), done.  
566. Checking out files: 100% (3416/3416), done. out files: 0% (22/3416)

```
567. Checking out files: 100% (64/64), done. king out files: 10% (7/64)
568. Checking out files: 100% (68/68), done. king out files: 2% (2/68)
569. Checking out files: 100% (96/96), done.
570. Checking out files: 100% (742/742), done.
571. Checking out files: 100% (127/127), done. ng out files: 34% (44/127)
572. Checking out files: 100% (205/205), done.
573. Checking out files: 100% (269/269), done.
574. Checking out files: 100% (128/128), done. ng out files: 23% (30/128)
575. Checking out files: 100% (209/209), done.
576. Checking out files: 100% (3202/3202), done.
577. Checking out files: 100% (3539/3539), done.
578. Checking out files: 100% (4198/4198), done. out files: 6% (268/4198)
579. Checking out files: 100% (270/270), done.
580. Checking out files: 100% (10253/10253), done.
581. Checking out files: 100% (2050/2050), done.
582. Checking out files: 100% (956/956), done.
583. Checking out files: 100% (72214/72214), done. ut files: 6% (4606/72214)
584. Checking out files: 100% (4865/4865), done.
585. Checking out files: 100% (3552/3552), done.
586. Checking out files: 100% (52/52), done.
587. Checking out files: 100% (1180/1180), done.
588. Checking out files: 100% (3826/3826), done. out files: 2% (95/3826)
589. Checking out files: 100% (850/850), done.
590. Checking out files: 100% (221/221), done. ng out files: 42% (93/221)
591. Syncing work tree: 100% (519/519), done.
```

作者：韩曙亮

转载请注明出处：<http://blog.csdn.net/shulianghan/article/details/51592930>

## 6. 获取预置的应用 (编译 CM11 及 11 以下的版本时执行 本次编译的是 CM13 不用执行该步骤)

### (1) 获取预置应用

获取预置应用：

-- 进入指定目录：执行 `cd ~/android/system/vendor/cm` 命令，进入 `~/android/system/vendor/cm` 目录；  
-- 在该目录获取相关应用：执行 `./get-prebuilts` 命令即可，注意是在 `~/android/system/vendor/cm` 目录中执行该命令；

### (2) 获取预置应用产生的结果

执行结果：

-- 命令行回应：执行 `get-prebuilts` 命令不会得到任何确认，只是有另外一个提示；  
-- 下载安装预置应用：执行该命令会下载一些预置应用，并将它们安装到源代码中；  
-- 只执行一次：该命令只需要执行一次，执行完后，以后编译就不用下载这些应用了；

## 7. 下载 小米4 手机设备相关 源码

### (1) 设置环境变量

设置环境变量：

- 进入源码根目录：进入 ~/android/system 目录，使用 `cd ~/android/system` 命令，进入 CyanogenMod 源码根目录；
- 环境变量命令：执行 `source build/envsetup.sh` 命令，设置环境变量；
- 设置过程（终端输出内容）：

[plain] [view plain copy](#)



```
1.octopus@octopus:~/android/system$ source build/envsetup.sh
2.including device/generic/mini-emulator-arm64/vendorsetup.sh
3.including device/generic/mini-emulator-armv7-a-neon/vendorsetup.sh
4.including device/generic/mini-emulator-mips/vendorsetup.sh
5.including device/generic/mini-emulator-x86_64/vendorsetup.sh
6.including device/generic/mini-emulator-x86/vendorsetup.sh
7.including vendor/cm/vendorsetup.sh
8.including sdk/bash_completion/adb.bash
9.including vendor/cm/bash_completion/git.bash
10.including vendor/cm/bash_completion/repo.bash
```

## (2) 下载设备相关源码

下载设备相关源码：

- 步骤作用：该步骤下载 小米4 手机的 设备的特定配置 和 内核源码；
- 创建 LocalManifest 文件：使用一个可选择的 命令 `breakfast` 去创建你的 LocalManifest 配置文件；
- 源码定位：为了执行该操作，你需要在 CyanogenMod 的 GitHub 地址 (<https://github.com/CyanogenMod>) 中找到你的设备源码位置，并且在你本地的 LocalManifest 中列举出所有的 定义在 cm.dependencies 中的 代码仓库；
- 了解更多命令细节：如果你想要知道更多关于 `source build/envsetup.sh` 命令的细节，或者简单的了解下 `breakfast`, `brunch`, `launch` 命令，你可以到 Evsetup Help ([https://wiki.cyanogenmod.org/w/Envsetup\\_help](https://wiki.cyanogenmod.org/w/Envsetup_help)) 页面；
- 便捷命令 `croot`：每次进入源代码的根目录，都要执行 `cd ~/android/system` 命令，比较麻烦；可以使用 `croot` 命令替代，执行 `croot` 命令相当于先执行 `source build/envsetup.sh` 命令，再执行 `~/android/system` 命令；
- 终端输出过程：

[plain] [view plain copy](#)



```
1.octopus@octopus:~/android/system$ breakfast cancro
2.including vendor/cm/vendorsetup.sh
3.build/core/envsetup.mk:90: *** Unable to determine HOST_ARCH from uname -sm: Linux i686!. 停止。
4.Device cancro not found. Attempting to retrieve device repository from CyanogenMod Github
(http://github.com/CyanogenMod).
5.Found repository: android_device_xiaomi_cancro
6.Default revision: cm-13.0
7.Checking branch info
8.Checking if device/xiaomi/cancro is fetched from android_device_xiaomi_cancro
9.Adding dependency: CyanogenMod/android_device_xiaomi_cancro -> device/xiaomi/cancro
10.Using default branch for android_device_xiaomi_cancro
11.Syncing repository to retrieve project.
12.
13... A new repo command ( 1.22) is available.
14... You should upgrade soon:
15.
16.  cp /home/octopus/android/system/.repo/repo/repo /usr/bin/repo
17.
18.Fetching project repo
19.Fetching project CyanogenMod/android_device_xiaomi_cancro
20. % Total    % Received % Xferd  Average Speed   Time    Time     Current
21.                  Dload  Upload  Total   Spent    Left     Speed
22.  0      0    0     0    0     0      0      0  --:--:--  0:00:01  --:--:--    0
23.curl: (22) The requested URL returned error: 404 Not Found
```

```
24. Server does not provide clone.bundle; ignoring.
25. Fetching projects: 50% (1/2) remote: Counting objects: 1387, done.
26. remote: Compressing objects: 100% (52/52), done.
27. remote: Total 1387 (delta 12), reused 0 (delta 0), pack-reused 1332
28. 接收对象中: 100% (1387/1387), 5.76 MiB | 94.00 KiB/s, done.
29. 处理 delta 中: 100% (573/573), done.
30. 来自 https://github.com/CyanogenMod/android_device_xiaomi_cancro
31. * [新分支] cm-13.0 -> github/cm-13.0
32. Fetching projects: 100% (2/2), done.
33.
34. Repository synced!
35. Looking for dependencies
36. Adding dependencies to manifest
37. Checking if device/qcom/common is fetched from android_device_qcom_common
38. Adding dependency: CyanogenMod/android_device_qcom_common -> device/qcom/common
39. Using default branch for android_device_qcom_common
40. Checking if kernel/xiaomi/cancro is fetched from android_kernel_xiaomi_cancro
41. Adding dependency: CyanogenMod/android_kernel_xiaomi_cancro -> kernel/xiaomi/cancro
42. Using default branch for android_kernel_xiaomi_cancro
43. Syncing dependencies
44.
45. ... A new repo command ( 1.22) is available.
46. ... You should upgrade soon:
47.
48. cp /home/octopus/android/system/.repo/repo/repo /usr/bin/repo
49.
50. Fetching project CyanogenMod/android_device_qcom_common
51. Fetching project CyanogenMod/android_kernel_xiaomi_cancro
52. % Total % Received % Xferd Average Speed Time Time Time Current
53. Dload Upload Total Spent Left Speed
54. 0 0 0 0 0 0 0 0 --:--:-- --:--:-- --:--:-- 0 % Total % Received % Xferd
Average Speed Time Time Time Current
55. Dload Upload Total Spent Left Speed
56. 0 0 0 0 0 0 0 0 --:--:-- 0:00:01 --:--:-- 0
57. curl: (22) The requested URL returned error: 404 Not Found
58. Server does not provide clone.bundle; ignoring.
59. 0 0 0 0 0 0 0 0 --:--:-- 0:00:05 --:--:-- 0
60. curl: (22) The requested URL returned error: 404 Not Found
61. Server does not provide clone.bundle; ignoring.
62. remote: Counting objects: 661, done.
63. remote: Total 661 (delta 0), reused 0 (delta 0), pack-reused 661
64. 接收对象中: 100% (661/661), 197.33 KiB | 79.00 KiB/s, done.
65. 处理 delta 中: 100% (440/440), done.
66. 来自 https://github.com/CyanogenMod/android_device_qcom_common
67. * [新分支] cm-13.0 -> github/cm-13.0
68. * [新tag] cm-11.0-XNPH05Q-bacon-5229c4ef56 -> cm-11.0-XNPH05Q-bacon-5229c4ef56
69. * [新tag] cm-11.0-XNPH05Q-tomato-9828f8e9cc -> cm-11.0-XNPH05Q-tomato-9828f8e9cc
70. * [新tag] cm-11.0-XNPH22R-bacon-03d77315ea -> cm-11.0-XNPH22R-bacon-03d77315ea
71. * [新tag] cm-11.0-XNPH25R-bacon-d22b777afa -> cm-11.0-XNPH25R-bacon-d22b777afa
72. * [新tag] cm-11.0-XNPH300-bacon-4f280f505a -> cm-11.0-XNPH300-bacon-4f280f505a
73. * [新tag] cm-11.0-XNPH33R-bacon-3628510d76 -> cm-11.0-XNPH33R-bacon-3628510d76
74. * [新tag] cm-11.0-XNPH44S-bacon-5fa8c79c0b -> cm-11.0-XNPH44S-bacon-5fa8c79c0b
75. Fetching projects: 50% (1/2) remote: Counting objects: 2740102, done.
76. remote: Compressing objects: 100% (10/10), done.
77. remote: Total 2740102 (delta 22), reused 18 (delta 18), pack-reused 2740074
78. 接收对象中: 100% (2740102/2740102), 593.12 MiB | 585.00 KiB/s, done.
79. 处理 delta 中: 100% (2292044/2292044), done.
80. 来自 https://github.com/CyanogenMod/android_kernel_xiaomi_cancro
81. * [新分支] cm-13.0 -> github/cm-13.0
82. Fetching projects: 100% (2/2), done.
83. Checking out files: 100% (42522/42522), done.
84.
85. Looking for dependencies
86. Dependencies file not found, bailing out.
```

```
87.Looking for dependencies
88.Dependencies file not found, bailing out.
89.Done
90.build/core/envsetup.mk:90: *** Unable to determine HOST_ARCH from uname -sm: Linux i686!。 停止。
91.
92.** Don't have a product spec for: 'cm_cancro'
93.** Do you have the right repo manifest?
```

### (3) 出错处理

出现了 **Makefile** 或者其它相关错误：

- **人员复杂原因**：不同的维护人员设置它们设备的继承规则不同；
- **供应商名称目录**：一些需要一个以 手机供应商名称 当做目录，并在 `breakfast` 命令快执行成功时，将源码下载到该目录中；
- **相关错误解决方案**：如果你收到一些错误，关于 供应商目录中的 `Makefile` 文件错误，那么跳过执行下一个步骤 `Extract proprietary blobs` (提取专有文件)，错误提示如下：

[plain] [view plain copy](#)



```
1. build/core/product_config.mk:239: *** _nic.PRODUCTS.[[device/xiaomi/cancro/cm.mk]]:
"vendor/xiaomi/cancro/cancro-vendor.mk" does not exist. Stop.
2.
3.** Don't have a product spec for: 'cm_cancro'
4.** Do you have the right repo manifest?
```

- **成功部分预测**：`breakfast` 开始的部，获取源码树过程部分应该执行成功，并且提取设备专有文件的脚本应该可用；
- **先提取设备文件**：完成提取 设备专有文件 步骤之后，再执行 `breakfast cancro` 命令，就能执行成功；

## 五. 提取 Mi 4 设备专有文件 (Extract Propertietary Blobs)

设备专有文件简介：

- **文件列表**：在 `~/android/system/device/xiaomi/cancro/device-proprietary-files.txt` 文件列表中列出了 505 个文件及其路径；
- **文件不全**：找不全所有的 505 个文件；
- **CyanogenMod 13.0 系统中的文件**：CM 13 系统中有 496 个文件能找到；
- **MIUI 7 系统中的文件**：MIUI 7 中能找到 4 个与上面不同的文件；
- **找不到的文件**：有 5 个文件找不到，没有这 5 个文件编译也能通过；
- **路径问题**：不是所有的路径都是正确的，有 17 个文件 (CM 中有 13 个，MIUI 中有 4 个) 的路径写错了，需要手动更正过来；

### 1. 提取专有文件 (Extract Propertietary Blobs) 标准操作 (100%出错)

#### (1) 标准流程

- 提取属性文件过程：这个过程要是能完整的执行下来，没有任何错误，那就出了老鬼了，肯定会出错；
- **手机 USB 连接电脑**：首先确保你的 小米 4 手机通过 USB 接口 连接上了电脑；

-- 进入指定目录 : 进入 `~/android/system/device/xiaomi/cancro` 目录, 使用 `cd`  
`~/android/system/device/xiaomi/cancro` 命令;  
-- 提取专有文件 : 运行 `./extract-files.sh` 命令;  
-- 提取过程操作 : 专有文件从 小米 4 设备中复制出来, 然后被移动到了 `~/android/system/vendor/xiaomi` 目录;  
[\[plain\] view plain copy](#)



```
1.root@ubuntu:~/android/system/device/xiaomi/cancro# ./extract-files.sh
2.161 KB/s (26297 bytes in 0.158s)
3.3721 KB/s (1462439 bytes in 0.383s)
4.20 KB/s (899 bytes in 0.043s)
5.3 KB/s (159 bytes in 0.042s)
6.3 KB/s (159 bytes in 0.043s)
7.2382 KB/s (270358 bytes in 0.110s)
8.3772 KB/s (786432 bytes in 0.203s)
9.4153 KB/s (3125684 bytes in 0.734s)
10.16 KB/s (732 bytes in 0.044s)
11.800 KB/s (41508 bytes in 0.050s)
12.185 KB/s (9220 bytes in 0.048s)
13.1 KB/s (56 bytes in 0.047s)
14.7 KB/s (372 bytes in 0.051s)
15.0 KB/s (32 bytes in 0.044s)
16.48 KB/s (2212 bytes in 0.044s)
17.3762 KB/s (957200 bytes in 0.248s)
18.261 KB/s (12760 bytes in 0.047s)
19.8 KB/s (412 bytes in 0.048s)
20.1092 KB/s (61440 bytes in 0.054s)
21.348 KB/s (16384 bytes in 0.045s)
22.316 KB/s (16384 bytes in 0.050s)
23.332 KB/s (16128 bytes in 0.047s)
24.4 KB/s (212 bytes in 0.046s)
25.4 KB/s (200 bytes in 0.047s)
26.2631 KB/s (970896 bytes in 0.360s)
27.4 KB/s (360 bytes in 0.070s)
28.106 KB/s (5472 bytes in 0.050s)
29.362 KB/s (17830 bytes in 0.048s)
30.remote object '/system/etc/lut.dat' does not exist
31.root@ubuntu:~/android/system/device/xiaomi/cancro#
```

## (2) adb 错误出错处理

如果出现了 以下错误 :

-- 1. 无法获取文件 : adb being unable to pull the files;  
-- 2. 没有配置环境变量 : adb may not be in the path of execution;  
-- 解决方案 : 出现了上述问题, 到 adb 页面 ([https://wiki.cyanogenmod.org/w/Doc:\\_adb\\_intro](https://wiki.cyanogenmod.org/w/Doc:_adb_intro)), 寻找相关问题答案;

## (3) remote object '' does not exist 错误出错处理

提取文件时没有对应文件错误 :

-- 小米 4 的 6.0 版本操作系统 (MIUI) 没有 相应文件, 出现以下错误 :

[\[plain\] view plain copy](#)



```
1.root@ubuntu:~/android/system/device/xiaomi/cancro# ./extract-files.sh
2.remote object '/system/etc/sdm_200_HOG3x3_Grid3x3_bin5_noproj_zero_reduced.bin.pca' does not exist
```

-- CM 13.0 版本操作系统出现以下错误：

[plain] [view plain copy](#)



```
1. root@ubuntu:~/android/system/device/xiaomi/cancro# ./extract-files.sh
2. remote object '/system/etc/lut.dat' does not exist
3. root@ubuntu:~/android/system/device/xiaomi/cancro#
```

-- **错误原因**：不管是 MIUI7 还是 CyanogenMod 13.0 都不包含所有的文件，这里需要分别从不同的系统中提取文件；

-- **错误处理方法**：MIUI 中没有上述文件，因此需要先把 CyanogenMod 系统刷到小米4上，再进行文件提取；

## (4) 相关注意事项

**相关注意事项**：

-- **设备准备**：设备已经准备好运行一个 Android 编译版本，该版本时 CyanogenMod 源码的一个分支，并且该编译时针对 extract-files.sh 脚本提取出的文件。

-- **重要性**：使用 extract-files.sh 脚本从设备中提取到 ~/android/system/vendor/xiaomi 中的专有文件很重要；

-- **生成 Makefile 作用**：在提取 专有文件 的同时，会生成 Makefile 文件，确保文件最终都拷贝到了设备中；

-- **缺少专有文件的后果**：如果没有这些文件，CyanogenMod 源码可能会编译通过，但是你可能会丢失一些重要的功能，如 图形库等；

## 2. 文件需求详细说明

### (1) 需要提取的文件清单（只是清单 不能使用该清单直接提取）

**文件清单**：提取的文件清单在 **~/android/system/device/xiaomi/cancro** 目录中的 device-proprietary-files.txt 文件中列出；

-- **文件路径说明**：这里的 etc/sdm\_200\_HOG3x3\_Grid3x3\_bin5\_noproj\_zero\_reduced.bin.pca 文件指的是 手机系统里面的 /system/etc/sdm\_200\_HOG3x3\_Grid3x3\_bin5\_noproj\_zero\_reduced.bin.pca 文件，要在所有的前面加上一个 /system/，找文件的时候也是去 /system/ 中去找；

-- **总共需要 505 个文件，清单如下**：

[plain] [view plain copy](#)



```
1. etc/sdm_200_HOG3x3_Grid3x3_bin5_noproj_zero_reduced.bin.pca
2. etc/android_model_faceg.dat
3. etc/permissions/android.hardware.consumerir.xml
4. etc/permissions/qcrilhook.xml
5. etc/permissions/qcnvitems.xml
6. etc/android_model_facea.dat
7. etc/firmware/wcnss.b08
8. etc/firmware/wcnss.b06
9. etc/firmware/wcnss.mdt
10. etc/firmware/wcnss.b09
11. etc/firmware/a330_pm4.fw
12. etc/firmware/wcnss.b07
13. etc/firmware/wcnss.b00
14. etc/firmware/venus.b04
15. etc/firmware/a330_pfp.fw
16. etc/firmware/venus.b02
17. etc/firmware/wcnss.b02
18. etc/firmware/venus.mdt
19. etc/firmware/wcnss.b04
20. etc/firmware/cpp_firmware_v1_2_0.fw
21. etc/firmware/cpp_firmware_v1_1_6.fw
22. etc/firmware/cpp_firmware_v1_1_1.fw
23. etc/firmware/venus.b00
24. etc/firmware/venus.b01
25. etc/firmware/venus.mbn
```



26. etc/firmware/wcnss.b01
27. etc/firmware/venus.b03
28. etc/sensor\_def\_qcomdev.conf
29. etc/lut.dat
30. etc/data/dsi\_config.xml
31. etc/data/netmgr\_config.xml
32. etc/data/qmi\_config.xml
33. etc/sdm\_200\_HOG3x3\_Grid3x3\_bin5\_noproj\_zero\_reduced.bin
34. priv-app/qcrilmsgtunnel.apk
35. lib/libdrmf.so
36. lib/libdrmdia.so
37. lib/libqomx\_core.so
38. lib/libchromatix\_imx226\_liveshot.so
39. lib/hw/activity\_recognition.msm8974.so
40. lib/hw/gps.msm8974.so
41. lib/hw/camera.msm8974.so
42. lib/hw/consumerir.msm8974.so
43. lib/libchromatix\_imx214\_liveshot.so
44. lib/libqminvapi.so
45. lib/libchromatix\_imx219\_liveshot.so
46. lib/libchromatix\_imx224\_liveshot.so
47. lib/libc2dcolorconvert.so
48. lib/libchromatix\_imx135\_liveshot.so
49. lib/libdrmdcrypt.so
50. lib/libmmjpeg\_interface.so
51. lib/libloc\_core.so
52. lib/libloc\_eng.so
53. lib/libloc\_ds\_api.so
54. lib/libchromatix\_s5k3m2\_liveshot.so
55. lib/libgps.utils.so
56. lib/libdrmtime.so
57. lib/libmmcamera\_interface.so
58. lib/libDiracAPI\_SHARED.so
59. lib/libstm-log.so
60. lib/libloc\_api\_v02.so
61. lib/soundfx/libdirac.so
62. lib/libchromatix\_imx225\_liveshot.so
63. lib/librpm.so
64. lib/libmdmtdetect.so
65. lib/drm/libdrmwvmplugin.so
66. lib/libQSEECOMAPI.so
67. lib/libOmxVdecHvc.so
68. lib/libmm-omxcore.so
69. lib/libchromatix\_imx215\_liveshot.so
70. lib/libOmxVenc.so
71. lib/libRecoFace.so
72. lib/libssd.so
73. framework/qti-telephony-common.jar
74. framework/qcnnvitems.jar
75. framework/qcrilhook.jar
76. bin/rmt\_storage
77. bin/time\_daemon
78. bin/irsc\_util
79. bin/qmuxd
80. bin/sensors.qcom
81. bin/hvdcpl
82. bin/radish
83. bin/mm-qcamera-daemon
84. bin/lowi-server
85. bin/qseecomd
86. bin/xtwifi-client
87. bin/charger\_monitor
88. bin/xtwifi-inet-agent
89. bin/btntool

90. bin/wcnss\_filter
91. bin/quipc\_main
92. bin/quipc\_igsn
93. bin/mpdecision
94. bin/fm\_qsoc\_patches
95. bin/netmgrd
96. bin/rfs\_access
97. bin/wcnss\_service
98. bin/qosmgr
99. bin/adsprpcd
100. vendor/lib/libadreno\_utils.so
101. vendor/lib/libmmcamera2\_vpe\_module.so
102. vendor/lib/libTimeService.so
103. vendor/lib/libchromatix\_imx132\_default\_video.so
104. vendor/lib/libchromatix\_imx215\_preview.so
105. vendor/lib/libchromatix\_s5k3l1yx\_hfr\_120fps.so
106. vendor/lib/libchromatix\_imx226\_common.so
107. vendor/lib/libmmcamera2\_cpp\_module.so
108. vendor/lib/libchromatix\_s5k3m2\_video\_uhd.so
109. vendor/lib/libmmcamera\_hi256.so
110. vendor/lib/libchromatix\_s5k3m2\_snapshot\_hdr.so
111. vendor/lib/libmm-hdcpmgr.so
112. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_zsl.so
113. vendor/lib/libchromatix\_imx225\_snapshot.so
114. vendor/lib/libfastcvopt.so
115. vendor/lib/libmmcamera\_SKUAA\_ST\_gc0339.so
116. vendor/lib/libchromatix\_ov5648\_oty5f03\_common.so
117. vendor/lib/libmmcamera2\_frame\_algorithm.so
118. vendor/lib/libquipc\_os\_api.so
119. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_default\_video.so
120. vendor/lib/libchromatix\_ov8825\_liveshot\_hd.so
121. vendor/lib/libcneapiclient.so
122. vendor/lib/libchromatix\_s5k3l1yx\_hfr\_90fps.so
123. vendor/lib/libchromatix\_ov5648\_oty5f03\_snapshot.so
124. vendor/lib/libchromatix\_imx224\_snapshot\_w.so
125. vendor/lib/libjpegdhw.so
126. vendor/lib/libacdbloader.so
127. vendor/lib/libchromatix\_ov9724\_preview.so
128. vendor/lib/libFaceProc.so
129. vendor/lib/libchromatix\_imx224\_hfr\_120.so
130. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_video\_hd.so
131. vendor/lib/libmm-abl.so
132. vendor/lib/libchromatix\_imx214\_snapshot\_w.so
133. vendor/lib/libactuator\_rohm\_bu64243gwz\_camcorder.so
134. vendor/lib/libmmcamera\_sunny\_p12v01m\_eeeprom.so
135. vendor/lib/libchromatix\_s5k3l1yx\_liveshot.so
136. vendor/lib/libc2d30-a4xx.so
137. vendor/lib/librsrprocessing.so
138. vendor/lib/libqct\_resampler.so
139. vendor/lib/libactuator\_ov8825\_camcorder.so
140. vendor/lib/libchromatix\_ov8825\_preview.so
141. vendor/lib/liboptizoom.so
142. vendor/lib/libchromatix\_ov2720\_default\_video.so
143. vendor/lib/libchromatix\_imx215\_video\_hdr\_uhd.so
144. vendor/lib/libactuator\_bu6313\_camcorder.so
145. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_video\_hd.so
146. vendor/lib/libactuator\_dw9716\_camera.so
147. vendor/lib/libchromatix\_ov8825\_snapshot\_hd.so
148. vendor/lib/hw/sensors.msm8974.so
149. vendor/lib/hw/flp.default.so
150. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_hfr\_60fps.so
151. vendor/lib/libmmcamera\_imx135.so
152. vendor/lib/libchromatix\_imx226\_snapshot\_hdr.so
153. vendor/lib/libchromatix\_imx215\_snapshot\_w.so

154. vendor/lib/libWVStreamControlAPI\_L1.so  
155. vendor/lib/libacdbrtac.so  
156. vendor/lib/mediarm/libdrmc\_clearkeyplugin.so  
157. vendor/lib/mediarm/libwvdrmengine.so  
158. vendor/lib/libmmcamera\_imx219.so  
159. vendor/lib/libRSDriver\_adreno.so  
160. vendor/lib/libactuator\_ad5823\_camera.so  
161. vendor/lib/libchromatix\_ov8825\_snapshot.so  
162. vendor/lib/libdiag.so  
163. vendor/lib/libactuator\_iu074\_camera.so  
164. vendor/lib/libchromatix\_ov4688\_preview.so  
165. vendor/lib/libC2D2.so  
166. vendor/lib/libchromatix\_imx215\_snapshot\_hdr.so  
167. vendor/lib/libchromatix\_ov8865\_q8v18a\_zsl.so  
168. vendor/lib/libchromatix\_imx214\_snapshot.so  
169. vendor/lib/libacdbmapper.so  
170. vendor/lib/libchromatix\_ov8865\_q8v18a\_video\_hd.so  
171. vendor/lib/libchromatix\_imx134\_preview.so  
172. vendor/lib/libchromatix\_ov5648\_oty5f03\_default\_video.so  
173. vendor/lib/libsmemlog.so  
174. vendor/lib/liboemcamera.so  
175. vendor/lib/libchromatix\_imx134\_snapshot.so  
176. vendor/lib/libchromatix\_imx224\_video\_uhd.so  
177. vendor/lib/libchromatix\_skuf\_ov5648\_p5v23c\_common.so  
178. vendor/lib/libchromatix\_imx215\_video\_hdr.so  
179. vendor/lib/libchromatix\_imx132\_preview.so  
180. vendor/lib/libqcci\_legacy.so  
181. vendor/lib/libactuator\_dw9716.so  
182. vendor/lib/libchromatix\_imx225\_common.so  
183. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_hfr\_90fps.so  
184. vendor/lib/libchromatix\_imx214\_snapshot\_hdr.so  
185. vendor/lib/libchromatix\_imx135\_hfr\_60.so  
186. vendor/lib/libxtwifi\_ulp\_adaptor.so  
187. vendor/lib/libchromatix\_ov5648\_oty5f03\_zsl.so  
188. vendor/lib/libchromatix\_SKUAA\_ST\_gc0339\_default\_video.so  
189. vendor/lib/libchromatix\_ov8865\_q8v18a\_liveshot.so  
190. vendor/lib/lib-dplmedia.so  
191. vendor/lib/libchromatix\_ov5648\_oty5f03\_preview.so  
192. vendor/lib/libtime\_genoff.so  
193. vendor/lib/libmmcamera\_imx226.so  
194. vendor/lib/liblocationervice.so  
195. vendor/lib/libactuator\_ov12830\_camera.so  
196. vendor/lib/libchromatix\_ov8825\_hfr\_60fps.so  
197. vendor/lib/libchromatix\_imx224\_snapshot\_hdr.so  
198. vendor/lib/libmmcamera\_skuf\_ov12830\_p12v01c.so  
199. vendor/lib/libgeofence.so  
200. vendor/lib/libasn1crtx.so  
201. vendor/lib/librs\_adreno\_sha1.so  
202. vendor/lib/libchromatix\_skuab\_shinotech\_gc0339\_common.so  
203. vendor/lib/libmmcamera\_ubifocus\_lib.so  
204. vendor/lib/libdrmdecrypt.so  
205. vendor/lib/libchromatix\_ov8865\_q8v18a\_default\_video.so  
206. vendor/lib/libmmcamera2\_iface\_modules.so  
207. vendor/lib/libmmcamera\_ov9724.so  
208. vendor/lib/libchromatix\_imx214\_video\_hdr.so  
209. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_snapshot.so  
210. vendor/lib/libchromatix\_imx215\_default\_video.so  
211. vendor/lib/libactuator\_ak7345.so  
212. vendor/lib/libchromatix\_skuab\_shinotech\_gc0339\_snapshot.so  
213. vendor/lib/libchromatix\_ov8825\_preview\_hd.so  
214. vendor/lib/libchromatix\_imx224\_snapshot.so  
215. vendor/lib/libubifocus.so  
216. vendor/lib/libmmcamera\_x5\_imx214\_eeprom.so  
217. vendor/lib/libmmcamera\_chromaflash\_lib.so

218. vendor/lib/libchromatix\_imx224\_common.so  
219. vendor/lib/libchromatix\_skuf\_ov5648\_p5v23c\_default\_video.so  
220. vendor/lib/liblbs\_core.so  
221. vendor/lib/libchromatix\_s5k3m2\_video\_hdr.so  
222. vendor/lib/libchromatix\_imx219\_common.so  
223. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_snapshot.so  
224. vendor/lib/libchromatix\_imx226\_video\_hdr.so  
225. vendor/lib/libmmcamera\_ov2720.so  
226. vendor/lib/libchromatix\_imx226\_snapshot\_w.so  
227. vendor/lib/libqmi.so  
228. vendor/lib/libchromatix\_imx214\_video\_uhd.so  
229. vendor/lib/libqmi\_csvt\_srvc.so  
230. vendor/lib/libchromatix\_imx225\_video\_uhd.so  
231. vendor/lib/libchromatix\_s5k311yx\_default\_video.so  
232. vendor/lib/libchromatix\_ov8865\_q8v18a\_hfr\_120fps.so  
233. vendor/lib/libCB.so  
234. vendor/lib/libchromatix\_imx214\_preview.so  
235. vendor/lib/libchromatix\_skuab\_shinotech\_gc0339\_default\_video.so  
236. vendor/lib/libSHIMDivxDrm.so  
237. vendor/lib/libactuator\_ov8825\_camera.so  
238. vendor/lib/libchromatix\_ov4688\_zsl.so  
239. vendor/lib/libchromatix\_SKUAA\_ST\_gc0339\_common.so  
240. vendor/lib/libmmcamera2\_sensor\_modules.so  
241. vendor/lib/libaudioalsa.so  
242. vendor/lib/libchromatix\_imx214\_video\_hdr\_uhd.so  
243. vendor/lib/libchromatix\_imx214\_common.so  
244. vendor/lib/librs\_adreno.so  
245. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_default\_video.so  
246. vendor/lib/libchromatix\_imx134\_hfr\_60.so  
247. vendor/lib/libulp2.so  
248. vendor/lib/libchromatix\_imx224\_video\_hdr.so  
249. vendor/lib/libril-qc-qmi-1.so  
250. vendor/lib/libmmcamera\_truly\_cm7700\_eeprom.so  
251. vendor/lib/libchromatix\_s5k3m2\_hfr\_120fps.so  
252. vendor/lib/libNimsWrap.so  
253. vendor/lib/libchromatix\_ov4689\_preview.so  
254. vendor/lib/libbccQTI.so  
255. vendor/lib/libmmcamera\_tintless\_bg\_pca\_algo.so  
256. vendor/lib/libqomx\_jpegenc.so  
257. vendor/lib/libbttv.so  
258. vendor/lib/libchromatix\_imx219\_default\_video.so  
259. vendor/lib/libmmcamera2\_is.so  
260. vendor/lib/libFaceDeform.so  
261. vendor/lib/libactuator\_ad5823.so  
262. vendor/lib/libgsl.so  
263. vendor/lib/libchromatix\_skuf\_ov5648\_p5v23c\_snapshot.so  
264. vendor/lib/libmmcamera\_SKUAB\_ST\_s5k4e1.so  
265. vendor/lib/libdrmdecrypt.2.so  
266. vendor/lib/libmmjpeg\_codec.so  
267. vendor/lib/libchromatix\_s5k311yx\_video\_hd.so  
268. vendor/lib/libactuator\_rohm\_bu64243gwz\_camera.so  
269. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_hfr\_120fps.so  
270. vendor/lib/libchromatix\_s5k3m2\_snapshot\_w.so  
271. vendor/lib/libchromatix\_ov8825\_video\_hd.so  
272. vendor/lib/libchromatix\_imx135\_preview.so  
273. vendor/lib/libarcsoft\_beauty\_shot.so  
274. vendor/lib/libmmcamera\_ov4688.so  
275. vendor/lib/libactuator\_bu6313\_camera.so  
276. vendor/lib/libchromatix\_s5k311yx\_zsl.so  
277. vendor/lib/libsensor\_test.so  
278. vendor/lib/libmmcamera2\_q3a\_special.so  
279. vendor/lib/libmmcamera\_ov4689.so  
280. vendor/lib/libchromatix\_ov4689\_common.so  
281. vendor/lib/libqti-perfd-client.so

282. vendor/lib/lib-rtpsl.so  
283. vendor/lib/libmmcamera\_imx225.so  
284. vendor/lib/libchromatix\_ov8825\_common.so  
285. vendor/lib/libmmcamera2\_stats\_algorithm.so  
286. vendor/lib/libchromatix\_imx134\_hfr\_120.so  
287. vendor/lib/lib-rtpdaemoninterface.so  
288. vendor/lib/libactuator\_bu6313.so  
289. vendor/lib/libchromatix\_ov4689\_zsl.so  
290. vendor/lib/libOpenCL.so  
291. vendor/lib/libmmcamera\_imx224.so  
292. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_common.so  
293. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_liveshot.so  
294. vendor/lib/libsensor\_reg.so  
295. vendor/lib/libasn1crt.so  
296. vendor/lib/libmmcamera2\_pproc\_modules.so  
297. vendor/lib/libt2tmanager.so  
298. vendor/lib/libchromatix\_imx225\_preview.so  
299. vendor/lib/libchromatix\_s5k3m2\_preview.so  
300. vendor/lib/libactuator\_iu074.so  
301. vendor/lib/libchromatix\_SKUAA\_ST\_gc0339\_preview.so  
302. vendor/lib/libchromatix\_imx132\_snapshot.so  
303. vendor/lib/libchromatix\_ov8865\_q8v18a\_preview.so  
304. vendor/lib/libchromaflash.so  
305. vendor/lib/libjpegehw.so  
306. vendor/lib/libqmi\_client\_qmux.so  
307. vendor/lib/libfastcvadsp\_stub.so  
308. vendor/lib/libc2d30-a3xx.so  
309. vendor/lib/soundfx/libqcbassboost.so  
310. vendor/lib/soundfx/libqcreverb.so  
311. vendor/lib/soundfx/libqcvirt.so  
312. vendor/lib/libchromatix\_imx224\_video\_hdr\_uhd.so  
313. vendor/lib/libmmipl.so  
314. vendor/lib/libqmi\_common\_so.so  
315. vendor/lib/libmm-abl-oem.so  
316. vendor/lib/libchromatix\_s5k3m2\_default\_video.so  
317. vendor/lib/libchromatix\_ov9724\_default\_video.so  
318. vendor/lib/libmmQSM.so  
319. vendor/lib/libchromatix\_imx225\_video\_hdr\_uhd.so  
320. vendor/lib/libactuator\_ad5823\_camcorder.so  
321. vendor/lib/libWVphoneAPI.so  
322. vendor/lib/libaudcal.so  
323. vendor/lib/libchromatix\_imx219\_snapshot.so  
324. vendor/lib/libmmcamera\_skuab\_shinotech\_gc0339.so  
325. vendor/lib/libizat\_core.so  
326. vendor/lib/libactuator\_rohm\_bu64243gwz.so  
327. vendor/lib/libdsutils.so  
328. vendor/lib/libchromatix\_imx215\_hfr\_120.so  
329. vendor/lib/rfsa/adsp/libdspCV\_skel.so  
330. vendor/lib/rfsa/adsp/libapps\_mem\_heap.so  
331. vendor/lib/rfsa/adsp/libfastcvadsp.so  
332. vendor/lib/rfsa/adsp/libfastcvadsp\_skel.so  
333. vendor/lib/rfsa/adsp/libscveT2T\_skel.so  
334. vendor/lib/libchromatix\_imx226\_hfr\_120.so  
335. vendor/lib/libactuator\_ak7345\_camcorder.so  
336. vendor/lib/libchromatix\_ov2720\_liveshot.so  
337. vendor/lib/libwvdrml1.so  
338. vendor/lib/libactuator\_lc8214\_camera.so  
339. vendor/lib/libmmcamera2\_wnr\_module.so  
340. vendor/lib/libmmcamera\_imglib.so  
341. vendor/lib/libquipc\_ulp\_adapter.so  
342. vendor/lib/libmmcamera\_faceproc.so  
343. vendor/lib/libchromatix\_ov4688\_hfr.so  
344. vendor/lib/libasn1cper.so  
345. vendor/lib/libchromatix\_imx214\_hfr\_120.so

346. vendor/lib/libmmcamera\_s5k3m2.so  
347. vendor/lib/libchromatix\_ov9724\_liveshot.so  
348. vendor/lib/libmmjpeg.so  
349. vendor/lib/libchromatix\_imx214\_default\_video.so  
350. vendor/lib/libmmcamera2\_stats\_modules.so  
351. vendor/lib/libnetmgr.so  
352. vendor/lib/libchromatix\_imx219\_preview.so  
353. vendor/lib/libmmcamera\_sunny\_q8v18a\_eeeprom.so  
354. vendor/lib/libscve.so  
355. vendor/lib/libchromatix\_ov8825\_default\_video.so  
356. vendor/lib/libchromatix\_ov2720\_hfr.so  
357. vendor/lib/libchromatix\_ov4688\_liveshot.so  
358. vendor/lib/libmmcamera2\_c2d\_module.so  
359. vendor/lib/libactuator\_lc8214\_camcorder.so  
360. vendor/lib/libchromatix\_skuab\_shinotech\_gc0339\_liveshot.so  
361. vendor/lib/libchromatix\_s5k3l1yx\_preview.so  
362. vendor/lib/libmmcamera\_sunny\_p5v23c\_eeeprom.so  
363. vendor/lib/libI420colorconvert.so  
364. vendor/lib/libchromatix\_skuab\_shinotech\_gc0339\_preview.so  
365. vendor/lib/libsensor\_user\_cal.so  
366. vendor/lib/libDivxDrm.so  
367. vendor/lib/libchromatix\_ov4688\_common.so  
368. vendor/lib/libc2d30.so  
369. vendor/lib/libchromatix\_imx225\_default\_video.so  
370. vendor/lib/libqdp.so  
371. vendor/lib/libchromatix\_ov8825\_hfr\_120fps.so  
372. vendor/lib/libchromatix\_imx226\_video\_hdr\_uhd.so  
373. vendor/lib/libHevcSwDecoder.so  
374. vendor/lib/libchromatix\_ov2720\_common.so  
375. vendor/lib/libchromatix\_ov4689\_hfr.so  
376. vendor/lib/libchromatix\_ov9724\_common.so  
377. vendor/lib/libmmcamera\_wavelet\_lib.so  
378. vendor/lib/libchromatix\_imx226\_default\_video.so  
379. vendor/lib/libmmcamera\_mt9m114.so  
380. vendor/lib/libchromatix\_ov8825\_hfr\_90fps.so  
381. vendor/lib/libqmi\_cci.so  
382. vendor/lib/libQSEECOMAPI.so  
383. vendor/lib/libchromatix\_imx224\_preview.so  
384. vendor/lib/libchromatix\_imx225\_snapshot\_hdr.so  
385. vendor/lib/libchromatix\_skuab\_shinotech\_gc0339\_zsl.so  
386. vendor/lib/libscve\_stub.so  
387. vendor/lib/libactuator\_dw9714\_camera.so  
388. vendor/lib/libchromatix\_imx215\_snapshot.so  
389. vendor/lib/egl/eglsubAndroid.so  
390. vendor/lib/egl/libq3dtools\_adreno.so  
391. vendor/lib/egl/libEGL\_adreno.so  
392. vendor/lib/egl/libGLESv1\_CM\_adreno.so  
393. vendor/lib/egl/libGLESv2\_adreno.so  
394. vendor/lib/libmmosal.so  
395. vendor/lib/libsc-a2xx.so  
396. vendor/lib/libchromatix\_s5k3l1yx\_hfr\_60fps.so  
397. vendor/lib/libconfigdb.so  
398. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_zsl.so  
399. vendor/lib/libmmcamera\_imx214.so  
400. vendor/lib/libmmcamera2\_imglib\_modules.so  
401. vendor/lib/libchromatix\_ov8825\_zsl.so  
402. vendor/lib/libchromatix\_imx215\_video\_uhd.so  
403. vendor/lib/libactuator\_ov12830\_camcorder.so  
404. vendor/lib/libchromatix\_ov4689\_default\_video.so  
405. vendor/lib/libmmcamera\_ov5648\_oty5f03.so  
406. vendor/lib/libsystem\_health\_mon.so  
407. vendor/lib/libqmi\_csi.so  
408. vendor/lib/libxtadapter.so  
409. vendor/lib/libchromatix\_imx226\_snapshot.so

410. vendor/lib/libmmcamera\_imx134.so  
411. vendor/lib/libmmcamera2\_isp\_modules.so  
412. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_preview.so  
413. vendor/lib/libmmcamera\_tintless\_algo.so  
414. vendor/lib/libmmcamera\_imx132.so  
415. vendor/lib/libchromatix\_skuf\_ov5648\_p5v23c\_preview.so  
416. vendor/lib/libchromatix\_s5k3m2\_common.so  
417. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_common.so  
418. vendor/lib/libchromatix\_imx135\_hfr\_90.so  
419. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_hfr\_90fps.so  
420. vendor/lib/libxtwifi\_zpp\_adaptor.so  
421. vendor/lib/libchromatix\_s5k3l1yx\_snapshot.so  
422. vendor/lib/libmm-color-converto.so  
423. vendor/lib/libactuator\_lc8214.so  
424. vendor/lib/libmmcamera\_hdr\_gb\_lib.so  
425. vendor/lib/lib-rtpcommon.so  
426. vendor/lib/libchromatix\_ov8865\_q8v18a\_snapshot.so  
427. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_hfr\_60fps.so  
428. vendor/lib/libperipheral\_client.so  
429. vendor/lib/libsc-a3xx.so  
430. vendor/lib/libchromatix\_ov4688\_default\_video.so  
431. vendor/lib/libchromatix\_imx135\_common.so  
432. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_hfr\_120fps.so  
433. vendor/lib/libchromatix\_ov8825\_liveshot.so  
434. vendor/lib/libmmcamera\_skuf\_ov5648\_p5v23c.so  
435. vendor/lib/libactuator\_dw9716\_camcorder.so  
436. vendor/lib/libmmcamera\_ov8865\_q8v18a.so  
437. vendor/lib/libchromatix\_s5k3m2\_snapshot.so  
438. vendor/lib/libmmcamera\_s5k3l1yx.so  
439. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_preview.so  
440. vendor/lib/libmmcamera\_hdr\_lib.so  
441. vendor/lib/libqomx\_jpegdec.so  
442. vendor/lib/libchromatix\_imx134\_common.so  
443. vendor/lib/libchromatix\_imx215\_common.so  
444. vendor/lib/liboemcrypto.so  
445. vendor/lib/libmmcamera\_imx215.so  
446. vendor/lib/libsensor1.so  
447. vendor/lib/libllvm-qcom.so  
448. vendor/lib/libactuator\_iu074\_camcorder.so  
449. vendor/lib/libchromatix\_ov4689\_liveshot.so  
450. vendor/lib/libchromatix\_imx134\_default\_video.so  
451. vendor/lib/libadsprpc.so  
452. vendor/lib/libchromatix\_imx225\_snapshot\_w.so  
453. vendor/lib/libril-qcril-hook-oem.so  
454. vendor/lib/libdsi\_netctrl.so  
455. vendor/lib/libscale.so  
456. vendor/lib/libchromatix\_s5k3m2\_video\_hdr\_uhd.so  
457. vendor/lib/libchromatix\_imx135\_hfr\_120.so  
458. vendor/lib/libadiertac.so  
459. vendor/lib/libactuator\_ov8825.so  
460. vendor/lib/libchromatix\_imx226\_video\_uhd.so  
461. vendor/lib/libactuator\_dw9714.so  
462. vendor/lib/libdisp-aba.so  
463. vendor/lib/libAKM8963.so  
464. vendor/lib/libchromatix\_ov8865\_q8v18a\_hfr\_90fps.so  
465. vendor/lib/libwifiscanner.so  
466. vendor/lib/libactuator\_ov12830.so  
467. vendor/lib/libchromatix\_imx132\_common.so  
468. vendor/lib/libwvm.so  
469. vendor/lib/libchromatix\_imx226\_preview.so  
470. vendor/lib/libchromatix\_ov2720\_preview.so  
471. vendor/lib/libchromatix\_imx225\_video\_hdr.so  
472. vendor/lib/libqmiservices.so  
473. vendor/lib/libmmcamera\_ofilm\_oty5f03\_eeeprom.so

```

474. vendor/lib/libqmi_encdec.so
475. vendor/lib/libchromatix_imx225_hfr_120.so
476. vendor/lib/libmmcamera_x4_s5k3m2_eeeprom.so
477. vendor/lib/libchromatix_ov8865_q8v18a_common.so
478. vendor/lib/libxml.so
479. vendor/lib/libchromatix_ov2720_zsl.so
480. vendor/lib/libmmcamera_ov8825.so
481. vendor/lib/libchromatix_imx135_default_video.so
482. vendor/lib/libactuator_ak7345_camera.so
483. vendor/lib/libchromatix_imx132_liveshot.so
484. vendor/lib/lib-rtpcore.so
485. vendor/lib/libchromatix_imx135_snapshot.so
486. vendor/lib/libchromatix_s5k3l1yx_common.so
487. vendor/lib/libqdi.so
488. vendor/lib/libidl.so
489. vendor/lib/libactuator_dw9714_camcorder.so
490. vendor/lib/libchromatix_imx224_default_video.so
491. vendor/lib/libmmcamera_sp1628.so
492. vendor/lib/libchromatix_imx135_video_hd.so
493. vendor/lib/libchromatix_ov8865_q8v18a_hfr_60fps.so
494. vendor/firmware/keymaster/keymaster.b01
495. vendor/firmware/keymaster/keymaster.b02
496. vendor/firmware/keymaster/keymaster.b00
497. vendor/firmware/keymaster/keymaster.b03
498. vendor/firmware/keymaster/keymaster.mdt
499. vendor/firmware/bcm2079x-b5_pre_firmware.ncd
500. vendor/firmware/bcm2079x-b5_firmware.ncd
501. app/shutdownlistener.apk
502. app/fastdormancy.apk
503. app/TimeService.apk
504. ../sbin/e2fsck_static
505. ../sbin/chargeonlymode

```

## (2) CyanogenMod 13.0 系统中能找到的文件（及正确文件位置 该脚本用于 CM 13.0 操作系统直接提取文件）

**CyanogenMod 13.0 系统中能找到的文件**：CM 13.0 系统中有 496 个文件，其中 9 个设备文件找不到，13 个文件的路径已经修改为正确的路径

-- 开启 root 模式：使用 `adb root` 命令，获取 adb shell 中的 root 权限，可以获取到绝大多数文件；  
 -- 注意路径错误问题：脚本中的前 13 个路径不正确，该脚本下载完之后，需要手动修改文件的路径；  
 -- 修改路径原理（举个栗子）很重要：脚本中原来的路径是 `app/shutdownlistener.apk` 即指向手机中的 `/system/app/shutdownlistener.apk`，使用该路径是 `pull` 不下来的，但是手机中实际的该文件的路径是 `/system/app/shutdownlistener/shutdownlistener.apk`，使用该实际路径可以 `pull` 下来，但是放到了 `~/android/system/vendor/xiaomi/cancro/proprietary/app/shutdownlistener/shutdownlistener.apk` 中，这样编译通不过，编译脚本会到 `~/android/system/vendor/xiaomi/cancro/proprietary/app/` 目录中去找 `shutdownlistener.apk` 文件，因此我们要将 `shutdownlistener.apk` 文件拷贝到 `~/android/system/vendor/xiaomi/cancro/proprietary/app/` 目录中；  
 -- 路径修改记录：脚本路径 -> 手机文件所在的真实路径；

[plain] [view plain copy](#)



1. CyanogenMod :
2. `app/shutdownlistener.apk` -> `app/shutdownlistener/shutdownlistener.apk`
3. `app/TimeService.apk` -> `app/TimeService/TimeService.apk`
4. `priv-app/qcrilmsgtunnel.apk` -> `priv-app/qcrilmsgtunnel/qcrilmsgtunnel.apk`
- 5.
6. `lib/hw/camera.msm8974.so` -> `./vendor/lib/hw/camera.msm8974.so`
7. `lib/libdrmdecrypt.so` -> `./vendor/lib/libdrmdecrypt.so`



```

8. lib/libDiracAPI_SHARED.so -> ./vendor/lib/libDiracAPI_SHARED.so
9. lib/soundfx/libdirac.so -> ./vendor/lib/soundfx/libdirac.so
10.
11. vendor/lib/rfsa/adsp/libdspCV_skel.so -> ./lib/rfsa/adsp/libdspCV_skel.so
12. vendor/lib/rfsa/adsp/libapps_mem_heap.so -> ./lib/rfsa/adsp/libapps_mem_heap.so
13. vendor/lib/rfsa/adsp/libfastcvadsp.so -> ./lib/rfsa/adsp/libfastcvadsp.so
14. vendor/lib/rfsa/adsp/libfastcvadsp_skel.so -> ./lib/rfsa/adsp/libfastcvadsp_skel.so
15. vendor/lib/rfsa/adsp/libscveT2T_skel.so -> ./lib/rfsa/adsp/libscveT2T_skel.so
16. vendor/lib/libQSEECOMAPI.so -> ./lib/libQSEECOMAPI.so

```

-- 提取文件清单 :

[plain] [view plain](#) [copy](#)



```

1. app/shutdownlistener/shutdownlistener.apk
2. app/TimeService/TimeService.apk
3. priv-app/qcrilmsgtunnel/qcrilmsgtunnel.apk
4.
5. vendor/lib/hw/camera.msm8974.so
6. vendor/lib/libdrmdecrypt.so
7. vendor/lib/libDiracAPI_SHARED.so
8. vendor/lib/soundfx/libdirac.so
9.
10. lib/rfsa/adsp/libdspCV_skel.so
11. lib/rfsa/adsp/libapps_mem_heap.so
12. lib/rfsa/adsp/libfastcvadsp.so
13. lib/rfsa/adsp/libfastcvadsp_skel.so
14. lib/rfsa/adsp/libscveT2T_skel.so
15. lib/libQSEECOMAPI.so
16.
17. ../sbin/e2fsck_static
18. ../sbin/chargeonlymode
19. bin/rmt_storage
20. bin/time_daemon
21. bin/sensors.qcom
22. bin/hvdcpl
23. bin/mm-qcamera-daemon
24. bin/lowi-server
25. bin/qseecomd
26. bin/xtwifi-client
27. bin/charger_monitor
28. bin/xtwifi-inet-agent
29. bin/btnvtool
30. bin/wcnss_filter
31. bin/quipc_main
32. bin/quipc_igsn
33. bin/mpdecision
34. bin/fm_qsoc_patches
35. bin/netmgrd
36. bin/rfs_access
37. bin/wcnss_service
38. bin/qosmgr
39. bin/adsprpcd
40. etc/sdm_200_HOG3x3_Grid3x3_bin5_noproj_zero_reduced.bin.pca
41. etc/android_model_faceg.dat
42. etc/permissions/android.hardware.consumerir.xml
43. etc/permissions/qcrilhook.xml
44. etc/permissions/qcnvitems.xml
45. etc/android_model_facea.dat
46. etc/firmware/wcnss.b08
47. etc/firmware/wcnss.b06
48. etc/firmware/wcnss.mdt
49. etc/firmware/wcnss.b09

```

50. etc/firmware/a330\_pm4.fw
51. etc/firmware/wcnss.b07
52. etc/firmware/wcnss.b00
53. etc/firmware/venus.b04
54. etc/firmware/a330\_pfp.fw
55. etc/firmware/venus.b02
56. etc/firmware/wcnss.b02
57. etc/firmware/venus.mdt
58. etc/firmware/wcnss.b04
59. etc/firmware/cpp\_firmware\_v1\_2\_0.fw
60. etc/firmware/cpp\_firmware\_v1\_1\_6.fw
61. etc/firmware/cpp\_firmware\_v1\_1\_1.fw
62. etc/firmware/venus.b00
63. etc/firmware/venus.b01
64. etc/firmware/venus.mbn
65. etc/firmware/wcnss.b01
66. etc/firmware/venus.b03
67. etc/sensor\_def\_qcomdev.conf
68. etc/data/dsi\_config.xml
69. etc/data/netmgr\_config.xml
70. etc/data/qmi\_config.xml
71. etc/sdm\_200\_HOG3x3\_Grid3x3\_bin5\_noproj\_zero\_reduced.bin
72. lib/libdrmfs.so
73. lib/libdrmdm.so
74. lib/libqomx\_core.so
75. lib/libchromatix\_imx226\_liveshot.so
76. lib/hw/activity\_recognition.msm8974.so
77. lib/hw/gps.msm8974.so
78. lib/hw/consumerir.msm8974.so
79. lib/libchromatix\_imx214\_liveshot.so
80. lib/libqminvapi.so
81. lib/libchromatix\_imx219\_liveshot.so
82. lib/libchromatix\_imx224\_liveshot.so
83. lib/libc2dcolorconvert.so
84. lib/libchromatix\_imx135\_liveshot.so
85. lib/libmmjpeg\_interface.so
86. lib/libloc\_core.so
87. lib/libloc\_eng.so
88. lib/libloc\_ds\_api.so
89. lib/libchromatix\_s5k3m2\_liveshot.so
90. lib/libgps.utils.so
91. lib/libdrmtime.so
92. lib/libmmcamera\_interface.so
93. lib/libstm-log.so
94. lib/libloc\_api\_v02.so
95. lib/libchromatix\_imx225\_liveshot.so
96. lib/librpm.so
97. lib/libmdm\_detect.so
98. lib/drm/libdrmvmplugin.so
99. lib/libQSEECOMAPI.so
100. lib/libchromatix\_imx215\_liveshot.so
101. lib/libOmxVenc.so
102. lib/libRecoFace.so
103. lib/libssd.so
104. framework/qti-telephony-common.jar
105. framework/qcnnvitems.jar
106. framework/qcrilhook.jar
107. bin/irsc\_util
108. bin/qmuxd
109. bin/radish
110. vendor/lib/libadreno\_utils.so
111. vendor/lib/libmmcamera2\_vpe\_module.so
112. vendor/lib/libTimeService.so
113. vendor/lib/libchromatix\_imx132\_default\_video.so

114. vendor/lib/libchromatix\_imx215\_preview.so  
115. vendor/lib/libchromatix\_s5k311yx\_hfr\_120fps.so  
116. vendor/lib/libchromatix\_imx226\_common.so  
117. vendor/lib/libmmcamera2\_cpp\_module.so  
118. vendor/lib/libchromatix\_s5k3m2\_video\_uhd.so  
119. vendor/lib/libmmcamera\_hi256.so  
120. vendor/lib/libchromatix\_s5k3m2\_snapshot\_hdr.so  
121. vendor/lib/libmm-hdcpmgr.so  
122. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_zsl.so  
123. vendor/lib/libchromatix\_imx225\_snapshot.so  
124. vendor/lib/libfastcvopt.so  
125. vendor/lib/libmmcamera\_SKUAA\_ST\_gc0339.so  
126. vendor/lib/libchromatix\_ov5648\_oty5f03\_common.so  
127. vendor/lib/libmmcamera2\_frame\_algorithm.so  
128. vendor/lib/libquipc\_os\_api.so  
129. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_default\_video.so  
130. vendor/lib/libchromatix\_ov8825\_liveshot\_hd.so  
131. vendor/lib/libcneapiclient.so  
132. vendor/lib/libchromatix\_s5k311yx\_hfr\_90fps.so  
133. vendor/lib/libchromatix\_ov5648\_oty5f03\_snapshot.so  
134. vendor/lib/libchromatix\_imx224\_snapshot\_w.so  
135. vendor/lib/libjpegdhw.so  
136. vendor/lib/libacdbloader.so  
137. vendor/lib/libchromatix\_ov9724\_preview.so  
138. vendor/lib/libFaceProc.so  
139. vendor/lib/libchromatix\_imx224\_hfr\_120.so  
140. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_video\_hd.so  
141. vendor/lib/libmm-abl.so  
142. vendor/lib/libchromatix\_imx214\_snapshot\_w.so  
143. vendor/lib/libactuator\_rohm\_bu64243gwz\_camcorder.so  
144. vendor/lib/libmmcamera\_sunny\_p12v01m\_eeeprom.so  
145. vendor/lib/libchromatix\_s5k311yx\_liveshot.so  
146. vendor/lib/libc2d30-a4xx.so  
147. vendor/lib/libsrsprocessing.so  
148. vendor/lib/libqct\_resampler.so  
149. vendor/lib/libactuator\_ov8825\_camcorder.so  
150. vendor/lib/libchromatix\_ov8825\_preview.so  
151. vendor/lib/libchromatix\_ov2720\_default\_video.so  
152. vendor/lib/libchromatix\_imx215\_video\_hdr\_uhd.so  
153. vendor/lib/libactuator\_bu6313\_camcorder.so  
154. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_video\_hd.so  
155. vendor/lib/libactuator\_dw9716\_camera.so  
156. vendor/lib/libchromatix\_ov8825\_snapshot\_hd.so  
157. vendor/lib/hw/sensors.msm8974.so  
158. vendor/lib/hw/flp.default.so  
159. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_hfr\_60fps.so  
160. vendor/lib/libmmcamera\_imx135.so  
161. vendor/lib/libchromatix\_imx226\_snapshot\_hdr.so  
162. vendor/lib/libchromatix\_imx215\_snapshot\_w.so  
163. vendor/lib/libWVStreamControlAPI\_L1.so  
164. vendor/lib/libacdbrtac.so  
165. vendor/lib/mediarm/libdrmc\_clearkeyplugin.so  
166. vendor/lib/mediarm/libwvdrmengine.so  
167. vendor/lib/libmmcamera\_imx219.so  
168. vendor/lib/libRSDriver\_adreno.so  
169. vendor/lib/libactuator\_ad5823\_camera.so  
170. vendor/lib/libchromatix\_ov8825\_snapshot.so  
171. vendor/lib/libdiag.so  
172. vendor/lib/libactuator\_iu074\_camera.so  
173. vendor/lib/libchromatix\_ov4688\_preview.so  
174. vendor/lib/libC2D2.so  
175. vendor/lib/libchromatix\_imx215\_snapshot\_hdr.so  
176. vendor/lib/libchromatix\_ov8865\_q8v18a\_zsl.so  
177. vendor/lib/libchromatix\_imx214\_snapshot.so

178. vendor/lib/libacdbmapper.so  
179. vendor/lib/libchromatix\_ov8865\_q8v18a\_video\_hd.so  
180. vendor/lib/libchromatix\_imx134\_preview.so  
181. vendor/lib/libchromatix\_ov5648\_oty5f03\_default\_video.so  
182. vendor/lib/libsmemlog.so  
183. vendor/lib/liboemcamera.so  
184. vendor/lib/libchromatix\_imx134\_snapshot.so  
185. vendor/lib/libchromatix\_imx224\_video\_uhd.so  
186. vendor/lib/libchromatix\_skuf\_ov5648\_p5v23c\_common.so  
187. vendor/lib/libchromatix\_imx215\_video\_hdr.so  
188. vendor/lib/libchromatix\_imx132\_preview.so  
189. vendor/lib/libqcci\_legacy.so  
190. vendor/lib/libactuator\_dw9716.so  
191. vendor/lib/libchromatix\_imx225\_common.so  
192. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_hfr\_90fps.so  
193. vendor/lib/libchromatix\_imx214\_snapshot\_hdr.so  
194. vendor/lib/libchromatix\_imx135\_hfr\_60.so  
195. vendor/lib/libxtwifi\_ulp\_adaptor.so  
196. vendor/lib/libchromatix\_ov5648\_oty5f03\_zsl.so  
197. vendor/lib/libchromatix\_SKUAA\_ST\_gc0339\_default\_video.so  
198. vendor/lib/libchromatix\_ov8865\_q8v18a\_liveshot.so  
199. vendor/lib/lib-dplmedia.so  
200. vendor/lib/libchromatix\_ov5648\_oty5f03\_preview.so  
201. vendor/lib/libtime\_genoff.so  
202. vendor/lib/libmmcamera\_imx226.so  
203. vendor/lib/liblocationervice.so  
204. vendor/lib/libactuator\_ov12830\_camera.so  
205. vendor/lib/libchromatix\_ov8825\_hfr\_60fps.so  
206. vendor/lib/libchromatix\_imx224\_snapshot\_hdr.so  
207. vendor/lib/libmmcamera\_skuf\_ov12830\_p12v01c.so  
208. vendor/lib/libgeofence.so  
209. vendor/lib/libasn1crtx.so  
210. vendor/lib/librs\_adreno\_sha1.so  
211. vendor/lib/libchromatix\_skuab\_shinotech\_gc0339\_common.so  
212. vendor/lib/libmmcamera\_ubifocus\_lib.so  
213. vendor/lib/libdrmdecrypt.so  
214. vendor/lib/libchromatix\_ov8865\_q8v18a\_default\_video.so  
215. vendor/lib/libmmcamera2\_iface\_modules.so  
216. vendor/lib/libmmcamera\_ov9724.so  
217. vendor/lib/libchromatix\_imx214\_video\_hdr.so  
218. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_snapshot.so  
219. vendor/lib/libchromatix\_imx215\_default\_video.so  
220. vendor/lib/libactuator\_ak7345.so  
221. vendor/lib/libchromatix\_skuab\_shinotech\_gc0339\_snapshot.so  
222. vendor/lib/libchromatix\_ov8825\_preview\_hd.so  
223. vendor/lib/libchromatix\_imx224\_snapshot.so  
224. vendor/lib/libmmcamera\_x5\_imx214\_eeprom.so  
225. vendor/lib/libmmcamera\_chromaflash\_lib.so  
226. vendor/lib/libchromatix\_imx224\_common.so  
227. vendor/lib/libchromatix\_skuf\_ov5648\_p5v23c\_default\_video.so  
228. vendor/lib/liblbs\_core.so  
229. vendor/lib/libchromatix\_s5k3m2\_video\_hdr.so  
230. vendor/lib/libchromatix\_imx219\_common.so  
231. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_snapshot.so  
232. vendor/lib/libchromatix\_imx226\_video\_hdr.so  
233. vendor/lib/libmmcamera\_ov2720.so  
234. vendor/lib/libchromatix\_imx226\_snapshot\_w.so  
235. vendor/lib/libqmi.so  
236. vendor/lib/libchromatix\_imx214\_video\_uhd.so  
237. vendor/lib/libqmi\_csvt\_srv.so  
238. vendor/lib/libchromatix\_imx225\_video\_uhd.so  
239. vendor/lib/libchromatix\_s5k3l1yx\_default\_video.so  
240. vendor/lib/libchromatix\_ov8865\_q8v18a\_hfr\_120fps.so  
241. vendor/lib/libCB.so

242. vendor/lib/libchromatix\_imx214\_preview.so  
243. vendor/lib/libchromatix\_skuab\_shinotech\_gc0339\_default\_video.so  
244. vendor/lib/libSHIMDivxDrm.so  
245. vendor/lib/libactuator\_ov8825\_camera.so  
246. vendor/lib/libchromatix\_ov4688\_zsl.so  
247. vendor/lib/libchromatix\_SKUAA\_ST\_gc0339\_common.so  
248. vendor/lib/libmmcamera2\_sensor\_modules.so  
249. vendor/lib/libaudioalsa.so  
250. vendor/lib/libchromatix\_imx214\_video\_hdr\_uhd.so  
251. vendor/lib/libchromatix\_imx214\_common.so  
252. vendor/lib/librs\_adreno.so  
253. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_default\_video.so  
254. vendor/lib/libchromatix\_imx134\_hfr\_60.so  
255. vendor/lib/libulp2.so  
256. vendor/lib/libchromatix\_imx224\_video\_hdr.so  
257. vendor/lib/libril-qc-qmi-1.so  
258. vendor/lib/libmmcamera\_truly\_cm7700\_eeprom.so  
259. vendor/lib/libchromatix\_s5k3m2\_hfr\_120fps.so  
260. vendor/lib/libNimSWrap.so  
261. vendor/lib/libchromatix\_ov4689\_preview.so  
262. vendor/lib/libbccQTI.so  
263. vendor/lib/libmmcamera\_tintless\_bg\_pca\_algo.so  
264. vendor/lib/libqomx\_jpegenc.so  
265. vendor/lib/libbttv.so  
266. vendor/lib/libchromatix\_imx219\_default\_video.so  
267. vendor/lib/libmmcamera2\_is.so  
268. vendor/lib/libactuator\_ad5823.so  
269. vendor/lib/libgsl.so  
270. vendor/lib/libchromatix\_skuf\_ov5648\_p5v23c\_snapshot.so  
271. vendor/lib/libmmcamera\_SKUAB\_ST\_s5k4e1.so  
272. vendor/lib/libmmjpeg\_codec.so  
273. vendor/lib/libchromatix\_s5k3l1yx\_video\_hd.so  
274. vendor/lib/libactuator\_rohm\_bu64243gwz\_camera.so  
275. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_hfr\_120fps.so  
276. vendor/lib/libchromatix\_s5k3m2\_snapshot\_w.so  
277. vendor/lib/libchromatix\_ov8825\_video\_hd.so  
278. vendor/lib/libchromatix\_imx135\_preview.so  
279. vendor/lib/libarcsoft\_beauty\_shot.so  
280. vendor/lib/libmmcamera\_ov4688.so  
281. vendor/lib/libactuator\_bu6313\_camera.so  
282. vendor/lib/libchromatix\_s5k3l1yx\_zsl.so  
283. vendor/lib/libsensor\_test.so  
284. vendor/lib/libmmcamera2\_q3a\_special.so  
285. vendor/lib/libmmcamera\_ov4689.so  
286. vendor/lib/libchromatix\_ov4689\_common.so  
287. vendor/lib/libqti-perfd-client.so  
288. vendor/lib/lib-rtpsl.so  
289. vendor/lib/libmmcamera\_imx225.so  
290. vendor/lib/libchromatix\_ov8825\_common.so  
291. vendor/lib/libmmcamera2\_stats\_algorithm.so  
292. vendor/lib/libchromatix\_imx134\_hfr\_120.so  
293. vendor/lib/lib-rtpdaemoninterface.so  
294. vendor/lib/libactuator\_bu6313.so  
295. vendor/lib/libchromatix\_ov4689\_zsl.so  
296. vendor/lib/libOpenCL.so  
297. vendor/lib/libmmcamera\_imx224.so  
298. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_common.so  
299. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_liveshot.so  
300. vendor/lib/libsensor\_reg.so  
301. vendor/lib/libasn1crt.so  
302. vendor/lib/libmmcamera2\_pproc\_modules.so  
303. vendor/lib/libt2tmanager.so  
304. vendor/lib/libchromatix\_imx225\_preview.so  
305. vendor/lib/libchromatix\_s5k3m2\_preview.so

306. vendor/lib/libactuator\_iu074.so  
307. vendor/lib/libchromatix\_SKUAA\_ST\_gc0339\_preview.so  
308. vendor/lib/libchromatix\_imx132\_snapshot.so  
309. vendor/lib/libchromatix\_ov8865\_q8v18a\_preview.so  
310. vendor/lib/libchromaflash.so  
311. vendor/lib/libjpegehw.so  
312. vendor/lib/libqmi\_client\_qmux.so  
313. vendor/lib/libfastcvadsp\_stub.so  
314. vendor/lib/libc2d30-a3xx.so  
315. vendor/lib/soundfx/libqcbassboost.so  
316. vendor/lib/soundfx/libqcereverb.so  
317. vendor/lib/soundfx/libqcvirt.so  
318. vendor/lib/libchromatix\_imx224\_video\_hdr\_uhd.so  
319. vendor/lib/libmmipl.so  
320. vendor/lib/libqmi\_common\_so.so  
321. vendor/lib/libmm-abl-oem.so  
322. vendor/lib/libchromatix\_s5k3m2\_default\_video.so  
323. vendor/lib/libchromatix\_ov9724\_default\_video.so  
324. vendor/lib/libmmQSM.so  
325. vendor/lib/libchromatix\_imx225\_video\_hdr\_uhd.so  
326. vendor/lib/libactuator\_ad5823\_camcorder.so  
327. vendor/lib/libWVphoneAPI.so  
328. vendor/lib/libaudcal.so  
329. vendor/lib/libchromatix\_imx219\_snapshot.so  
330. vendor/lib/libmmcamera\_skuab\_shinotech\_gc0339.so  
331. vendor/lib/libizat\_core.so  
332. vendor/lib/libactuator\_rohm\_bu64243gwz.so  
333. vendor/lib/libdsutils.so  
334. vendor/lib/libchromatix\_imx215\_hfr\_120.so  
335. vendor/lib/libchromatix\_imx226\_hfr\_120.so  
336. vendor/lib/libactuator\_ak7345\_camcorder.so  
337. vendor/lib/libchromatix\_ov2720\_liveshot.so  
338. vendor/lib/libwvdrm\_L1.so  
339. vendor/lib/libactuator\_lc8214\_camera.so  
340. vendor/lib/libmmcamera2\_wnr\_module.so  
341. vendor/lib/libmmcamera\_imglib.so  
342. vendor/lib/libquipc\_ulp\_adapter.so  
343. vendor/lib/libmmcamera\_faceproc.so  
344. vendor/lib/libchromatix\_ov4688\_hfr.so  
345. vendor/lib/libasn1cper.so  
346. vendor/lib/libchromatix\_imx214\_hfr\_120.so  
347. vendor/lib/libmmcamera\_s5k3m2.so  
348. vendor/lib/libchromatix\_ov9724\_liveshot.so  
349. vendor/lib/libmmjpeg.so  
350. vendor/lib/libchromatix\_imx214\_default\_video.so  
351. vendor/lib/libmmcamera2\_stats\_modules.so  
352. vendor/lib/libnetmgr.so  
353. vendor/lib/libchromatix\_imx219\_preview.so  
354. vendor/lib/libmmcamera\_sunny\_q8v18a\_eeprom.so  
355. vendor/lib/libscve.so  
356. vendor/lib/libchromatix\_ov8825\_default\_video.so  
357. vendor/lib/libchromatix\_ov2720\_hfr.so  
358. vendor/lib/libchromatix\_ov4688\_liveshot.so  
359. vendor/lib/libmmcamera2\_c2d\_module.so  
360. vendor/lib/libactuator\_lc8214\_camcorder.so  
361. vendor/lib/libchromatix\_skuab\_shinotech\_gc0339\_liveshot.so  
362. vendor/lib/libchromatix\_s5k3l1yx\_preview.so  
363. vendor/lib/libmmcamera\_sunny\_p5v23c\_eeprom.so  
364. vendor/lib/libI420colorconvert.so  
365. vendor/lib/libchromatix\_skuab\_shinotech\_gc0339\_preview.so  
366. vendor/lib/libsensor\_user\_cal.so  
367. vendor/lib/libDivxDrm.so  
368. vendor/lib/libchromatix\_ov4688\_common.so  
369. vendor/lib/libchromatix\_imx225\_default\_video.so

370. vendor/lib/libqdp.so  
371. vendor/lib/libchromatix\_ov8825\_hfr\_120fps.so  
372. vendor/lib/libchromatix\_imx226\_video\_hdr\_uhd.so  
373. vendor/lib/libHevcSwDecoder.so  
374. vendor/lib/libchromatix\_ov2720\_common.so  
375. vendor/lib/libchromatix\_ov4689\_hfr.so  
376. vendor/lib/libchromatix\_ov9724\_common.so  
377. vendor/lib/libmmcamera\_wavelet\_lib.so  
378. vendor/lib/libchromatix\_imx226\_default\_video.so  
379. vendor/lib/libmmcamera\_mt9m114.so  
380. vendor/lib/libchromatix\_ov8825\_hfr\_90fps.so  
381. vendor/lib/libqmi\_cci.so  
382. vendor/lib/libchromatix\_imx224\_preview.so  
383. vendor/lib/libchromatix\_imx225\_snapshot\_hdr.so  
384. vendor/lib/libchromatix\_skuab\_shinotech\_gc0339\_zsl.so  
385. vendor/lib/libscve\_stub.so  
386. vendor/lib/libactuator\_dw9714\_camera.so  
387. vendor/lib/libchromatix\_imx215\_snapshot.so  
388. vendor/lib/egl/eglsubAndroid.so  
389. vendor/lib/egl/libq3dtools\_adreno.so  
390. vendor/lib/egl/libEGL\_adreno.so  
391. vendor/lib/egl/libGLESv1\_CM\_adreno.so  
392. vendor/lib/egl/libGLESv2\_adreno.so  
393. vendor/lib/libmmosal.so  
394. vendor/lib/libsc-a2xx.so  
395. vendor/lib/libchromatix\_s5k3l1yx\_hfr\_60fps.so  
396. vendor/lib/libconfigdb.so  
397. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_zsl.so  
398. vendor/lib/libmmcamera\_imx214.so  
399. vendor/lib/libmmcamera2\_imglib\_modules.so  
400. vendor/lib/libchromatix\_ov8825\_zsl.so  
401. vendor/lib/libchromatix\_imx215\_video\_uhd.so  
402. vendor/lib/libactuator\_ov12830\_camcorder.so  
403. vendor/lib/libchromatix\_ov4689\_default\_video.so  
404. vendor/lib/libmmcamera\_ov5648\_oty5f03.so  
405. vendor/lib/libsystem\_health\_mon.so  
406. vendor/lib/libqmi\_csi.so  
407. vendor/lib/libxtadapter.so  
408. vendor/lib/libchromatix\_imx226\_snapshot.so  
409. vendor/lib/libmmcamera\_imx134.so  
410. vendor/lib/libmmcamera2\_isp\_modules.so  
411. vendor/lib/libchromatix\_skuf\_ov12830\_p12v01c\_preview.so  
412. vendor/lib/libmmcamera\_tintless\_algo.so  
413. vendor/lib/libmmcamera\_imx132.so  
414. vendor/lib/libchromatix\_skuf\_ov5648\_p5v23c\_preview.so  
415. vendor/lib/libchromatix\_s5k3m2\_common.so  
416. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_common.so  
417. vendor/lib/libchromatix\_imx135\_hfr\_90.so  
418. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_hfr\_90fps.so  
419. vendor/lib/libxtwifi\_zpp\_adaptor.so  
420. vendor/lib/libchromatix\_s5k3l1yx\_snapshot.so  
421. vendor/lib/libmm-color-converter.so  
422. vendor/lib/libactuator\_lc8214.so  
423. vendor/lib/libmmcamera\_hdr\_gb\_lib.so  
424. vendor/lib/lib-rtpcommon.so  
425. vendor/lib/libchromatix\_ov8865\_q8v18a\_snapshot.so  
426. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_hfr\_60fps.so  
427. vendor/lib/libperipheral\_client.so  
428. vendor/lib/libsc-a3xx.so  
429. vendor/lib/libchromatix\_ov4688\_default\_video.so  
430. vendor/lib/libchromatix\_imx135\_common.so  
431. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_hfr\_120fps.so  
432. vendor/lib/libchromatix\_ov8825\_liveshot.so  
433. vendor/lib/libmmcamera\_skuf\_ov5648\_p5v23c.so

434. vendor/lib/libactuator\_dw9716\_camcorder.so  
435. vendor/lib/libmmcamera\_ov8865\_q8v18a.so  
436. vendor/lib/libchromatix\_s5k3m2\_snapshot.so  
437. vendor/lib/libmmcamera\_s5k3l1yx.so  
438. vendor/lib/libchromatix\_SKUAB\_ST\_s5k4e1\_preview.so  
439. vendor/lib/libmmcamera\_hdr\_lib.so  
440. vendor/lib/libqomx\_jpegdec.so  
441. vendor/lib/libchromatix\_imx134\_common.so  
442. vendor/lib/libchromatix\_imx215\_common.so  
443. vendor/lib/liboemcrypto.so  
444. vendor/lib/libmmcamera\_imx215.so  
445. vendor/lib/libsensor1.so  
446. vendor/lib/libllvm-qcom.so  
447. vendor/lib/libactuator\_iu074\_camcorder.so  
448. vendor/lib/libchromatix\_ov4689\_liveshot.so  
449. vendor/lib/libchromatix\_imx134\_default\_video.so  
450. vendor/lib/libadsprpc.so  
451. vendor/lib/libchromatix\_imx225\_snapshot\_w.so  
452. vendor/lib/libril-qcril-hook-oem.so  
453. vendor/lib/libdsi\_netctrl.so  
454. vendor/lib/libscale.so  
455. vendor/lib/libchromatix\_s5k3m2\_video\_hdr\_uhd.so  
456. vendor/lib/libchromatix\_imx135\_hfr\_120.so  
457. vendor/lib/libadiertac.so  
458. vendor/lib/libactuator\_ov8825.so  
459. vendor/lib/libchromatix\_imx226\_video\_uhd.so  
460. vendor/lib/libactuator\_dw9714.so  
461. vendor/lib/libdisp-aba.so  
462. vendor/lib/libAKM8963.so  
463. vendor/lib/libchromatix\_ov8865\_q8v18a\_hfr\_90fps.so  
464. vendor/lib/libwifiscanner.so  
465. vendor/lib/libactuator\_ov12830.so  
466. vendor/lib/libchromatix\_imx132\_common.so  
467. vendor/lib/libwvm.so  
468. vendor/lib/libchromatix\_imx226\_preview.so  
469. vendor/lib/libchromatix\_ov2720\_preview.so  
470. vendor/lib/libchromatix\_imx225\_video\_hdr.so  
471. vendor/lib/libqmiservices.so  
472. vendor/lib/libmmcamera\_ofilm\_oty5f03\_eeprom.so  
473. vendor/lib/libqmi\_encdec.so  
474. vendor/lib/libchromatix\_imx225\_hfr\_120.so  
475. vendor/lib/libmmcamera\_x4\_s5k3m2\_eeprom.so  
476. vendor/lib/libchromatix\_ov8865\_q8v18a\_common.so  
477. vendor/lib/libxml.so  
478. vendor/lib/libchromatix\_ov2720\_zsl.so  
479. vendor/lib/libmmcamera\_ov8825.so  
480. vendor/lib/libchromatix\_imx135\_default\_video.so  
481. vendor/lib/libactuator\_ak7345\_camera.so  
482. vendor/lib/libchromatix\_imx132\_liveshot.so  
483. vendor/lib/lib-rtpcore.so  
484. vendor/lib/libchromatix\_imx135\_snapshot.so  
485. vendor/lib/libchromatix\_s5k3l1yx\_common.so  
486. vendor/lib/libqdi.so  
487. vendor/lib/libidl.so  
488. vendor/lib/libactuator\_dw9714\_camcorder.so  
489. vendor/lib/libchromatix\_imx224\_default\_video.so  
490. vendor/lib/libmmcamera\_sp1628.so  
491. vendor/lib/libchromatix\_imx135\_video\_hd.so  
492. vendor/lib/libchromatix\_ov8865\_q8v18a\_hfr\_60fps.so  
493. vendor/firmware/keymaster/keymaster.b01  
494. vendor/firmware/keymaster/keymaster.b02  
495. vendor/firmware/keymaster/keymaster.b00  
496. vendor/firmware/keymaster/keymaster.b03  
497. vendor/firmware/keymaster/keymaster.mdt



```
498. vendor/firmware/bcm2079x-b5_pre_firmware.ncd
499. vendor/firmware/bcm2079x-b5_firmware.ncd
```

### (3) MIUI 中单独提取的 4 个文件

**MIUI 7 系统提取的文件**：首先刷上 MIUI7 系统；

-- **需要提取的文件路径**：格式 编译路径 -> 真实路径地址；

[plain] [view plain copy](#)



1. MIUI :
2. app/fastdormancy.apk -> /system/app/fastdormancy/fastdormancy.apk
3. lib/libOmxVdecHvc.so -> /system/lib/libOmxVdecHvc.so
4. lib/libmm-omxcore.so -> /system/lib/libmm-omxcore.so
5. vendor/lib/libubifocus.so -> /system/vendor/lib/libubifocus.so

-- **提取文件方法**：这里就不使用脚本提取了，直接使用 adb pull 命令提取指定文件，提取文件后，拷贝到指定的目录，下面是详细的路径和过程；

-- **1. 提取 fastdormancy.apk 文件**：使用 adb pull /system/app/fastdormancy/fastdormancy.apk 命令，获取该文件，然后拷贝到 ~/android/system/vendor/xiaomi/cancro/proprietary/app 目录中；

-- **2. 提取 libOmxVdecHvc.so 文件**：使用 adb pull /system/lib/libOmxVdecHvc.so 命令，获取该文件，然后拷贝到 ~/android/system/vendor/xiaomi/cancro/proprietary/lib 目录中；

-- **3. 提取 libmm-omxcore.so 文件**：使用 adb pull /system/lib/libmm-omxcore.so 命令，获取该文件，然后拷贝到 ~/android/system/vendor/xiaomi/cancro/proprietary/lib 目录中；

-- **4. 提取 libubifocus.so 文件**：使用 adb pull /system/vendor/lib/libubifocus.so 命令，获取该文件，然后拷贝到 ~/android/system/vendor/xiaomi/cancro/proprietary/vendor/lib 目录中；

### (4) 对于需要修改路径的 17 个文件特殊说明

**路径修改特殊说明**：

-- **注意路径错误问题**：脚本中的前 13 个路径不正确，该脚本下载完之后，需要手动修改文件的路径；

-- **修改路径原理（举个栗子）很重要**：脚本中原来的路径是 app/shutdownlistener.apk 即指向手机中的 /system/app/shutdownlistener.apk，使用该路径是 pull 不下来的，但是手机中实际的该文件的路径是 /system/app/shutdownlistener/shutdownlistener.apk，使用该实际路径可以 pull 下来，但是放到了 ~/android/system/vendor/xiaomi/cancro/proprietary/app/shutdownlistener/shutdownlistener.apk 中，这样编译通不过，编译脚本会到 ~/android/system/vendor/xiaomi/cancro/proprietary/app/ 目录中去找 shutdownlistener.apk 文件，因此我们要将 shutdownlistener.apk 文件拷贝到 ~/android/system/vendor/xiaomi/cancro/proprietary/app/ 目录中；

-- **修改过路径的文件列表**：

[plain] [view plain copy](#)



1. CyanogenMod :
2. app/shutdownlistener.apk -> app/shutdownlistener/shutdownlistener.apk
3. app/TimeService.apk -> app/TimeService/TimeService.apk
4. priv-app/qcrilmsgtunnel.apk -> priv-app/qcrilmsgtunnel/qcrilmsgtunnel.apk
- 5.
6. lib/hw/camera.msm8974.so -> ./vendor/lib/hw/camera.msm8974.so
7. lib/libdrmdecrypt.so -> ./vendor/lib/libdrmdecrypt.so
8. lib/libDiracAPI\_SHARED.so -> ./vendor/lib/libDiracAPI\_SHARED.so
9. lib/soundfx/libdirac.so -> ./vendor/lib/soundfx/libdirac.so
- 10.
11. vendor/lib/rfsa/adsp/libdspCV\_skel.so -> ./lib/rfsa/adsp/libdspCV\_skel.so
12. vendor/lib/rfsa/adsp/libapps\_mem\_heap.so -> ./lib/rfsa/adsp/libapps\_mem\_heap.so
13. vendor/lib/rfsa/adsp/libfastcvadsp.so -> ./lib/rfsa/adsp/libfastcvadsp.so

```

14. vendor/lib/rfsa/adsp/libfastcvadsp_skel.so -> ./lib/rfsa/adsp/libfastcvadsp_skel.so
15. vendor/lib/rfsa/adsp/libscveT2T_skel.so -> ./lib/rfsa/adsp/libscveT2T_skel.so
16. vendor/lib/libQSEECOMAPI.so -> ./lib/libQSEECOMAPI.so
17.
18.
19. MIUI :
20. app/fastdormancy.apk -> /system/app/fastdormancy/fastdormancy.apk
21. lib/libOmxVdecHvc.so -> /system/lib/libOmxVdecHvc.so
22. lib/libmm-omxcore.so -> /system/lib/libmm-omxcore.so
23. vendor/lib/libubifocus.so -> /system/vendor/lib/libubifocus.so

```

-- 说明：设备列表中 有 17 个文件的路径是错误的，我们从设备复制到 ~/android/system/vender/ 是按照原路径复制的，但是编译系统不认，必须将文件手动复制到错误的路径；

## (5) 无法找到的文件

以下 5 个文件不管在 CM 上 还是在 MIUI 上都无法找到：

[plain] [view plain copy](#)



```

1. vendor/lib/libFaceDeform.so
2. vendor/lib/libdrmdecrypt.2.so
3. vendor/lib/libc2d30.so
4. etc/lut.dat
5. vendor/lib/liboptizoom.so

```

## 3. 直接从 ROM 中提取（可不看，我没有使用这种方法，提供参考）

直接从 ROM 提取流程参考：

-- 1. 将数据转为 img：

[plain] [view plain copy](#)



```

1. root@ubuntu:~/android_back/rom# ./sdat2img.py system.transfer.list system.new.dat system.img
2. Copying 32770 blocks into position 0...
3. Copying 2 blocks into position 32809...
4. Copying 32212 blocks into position 33323...
5. Copying 2 blocks into position 65536...
6. Copying 32253 blocks into position 66050...
7. Copying 2 blocks into position 98304...
8. Copying 2 blocks into position 98345...
9. Copying 32212 blocks into position 98859...
10. Copying 2 blocks into position 131072...
11. Copying 28176 blocks into position 131586...
12. Skipping command zero
13. Skipping command erase
14.
15. Done! Output image: /root/android_back/rom/system.img

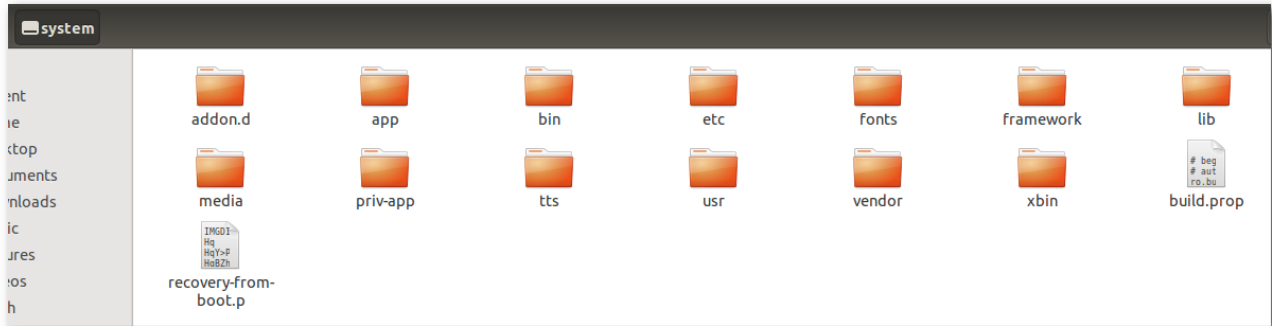
```

- 2. 创建 **system** 目录 : 执行 `mkdir system` 命令;
- 3. 将 **img** 挂载到 **system** 目录中 : 执行 `sudo mount -t ext4 system.img system` 命令;
- 4. 可以查看 **system** 中的文件 :

[plain] [view plain copy](#)



```
1.root@ubuntu:~/android_back/rom/system# ls
2.addon.d app bin build.prop etc fonts framework lib lost+found media priv-app recovery-from-boot.p
tts usr vendor xbin
3.root@ubuntu:~/android_back/rom/system#
```



## 六. CyanogenMod 13.0 Android 源码编译

### 1. 开启缓存 开始编译

#### (1) 设置环境变量

开始编译加速 :

- 添加缓存环境变量 : 你可以在 `~/.bashrc` 环境变量文件中 添加 `export USE_CCACHE=1` 环境变量, 加速随后的编译过程;
- 分配缓存磁盘大小 : 为 `ccache` 指定磁盘中的一部分大小, 用于缓存, 使用 `prebuilts/misc/linux-x86/ccache/ccache -M 50G` 命令;
- 命令执行位置 : 注意在 Android 源码根目录执行 `prebuilts/misc/linux-x86/ccache/ccache -M 50G` 命令;

[plain] [view plain copy](#)



```
1.root@ubuntu:~/android/system# prebuilts/misc/linux-x86/ccache/ccache -M 50G
2.Set cache size limit to 50.0 Gbytes
```

#### (2) 开始编译

执行下面两条命令开始编译 :

- 1. 初始化环境 : 执行 `crooot` 命令, 该命令作用是先初始化环境变量, 后进入 `~/android/system` 目录;
- 2. 开始编译 : 执行 `brunch cancre` 命令, 开始编译源码;
- 3. 编译完成 : 中间太费劲了, 许多波折, 花了好几天用来研究, 最后还是编译通过了, 截个图纪念下;

```
using prebuilt boot.img from BOOTABLE_IMAGES...
boot size (10211328) is 62.33% of limit (16384000)
running: openssl pkcs8 -in build/target/product/security/testkey.pk8 -inform DER -nocrypt
running: java -Xmx2048m -jar /root/android/system/out/host/linux-x86/framework/signapk.jar -w build/target/product/security/testkey.x
509.pem build/target/product/security/testkey.pk8 /tmp/tmp2PeuRT /root/android/system/out/target/product/cancro/cm_cancro-ota-89a867549b
.zip
done.
Package Complete: /root/android/system/out/target/product/cancro/cm-13.0-20160613-UNOFFICIAL-cancro.zip
make: Leaving directory `/root/android/system'

### make completed successfully (02:44:37 (hh:mm:ss)) ###
```

-- 编译成功后的输出：

[plain] [view plain copy](#)



1. using prebuilt boot.img from BOOTABLE\_IMAGES...
2. boot size (10211328) is 62.33% of limit (16384000)
3. running: openssl pkcs8 -in build/target/product/security/testkey.pk8 -inform DER -nocrypt
4. running: java -Xmx2048m -jar /root/android/system/out/host/linux-x86/framework/signapk.jar -w build/target/product/security/testkey.x509.pem build/target/product/security/testkey.pk8 /tmp/tmp2PeuRT /root/android/system/out/target/product/cancro/cm\_cancro-ota-89a867549b.zip
5. done.
6. Package Complete: /root/android/system/out/target/product/cancro/cm-13.0-20160613-UNOFFICIAL-cancro.zip
7. make: Leaving directory `/root/android/system'
- 8.
9. ##### make completed successfully (02:44:37 (hh:mm:ss)) #####

### (3) 编译缓存简介

编译缓存简介：

- 单位对应：50G 对应着 50GB 的缓存；
- 一次执行有效：该命令只要运行一次即可，该设置会被保存到本地磁盘，不用重复设置；
- 效果明显：25G ~ 100G 范围内的任何缓存值都会很明显的加速编译过程，如传统的 1hr 编译时间可以被减少到 20 分钟；
- 单台设备编译推荐：如果只为一台设备编译，20 ~ 50G 即可；
- 多台设备编译推荐：如果为多种设备编译，并且这些设备不共享内核源码，需要设置 75 ~ 100GB 的缓存；
- 注意缓存控件时效：该配置的缓存控件会被永久的占用，这个需要被考虑进去；
- 更多关于 ccache 的知识点：<http://source.android.com/source/initializing.html#setting-up-ccache>;

### (4) 保持 ccache 独立性简介

保存 ccache 独立性：

- 保持 ccache 独立性需求：如果你是一个非常活跃的开发者的，不只是在 Android 工程方面工作，你可能想要保持 Android ccache 的独立性；
- 原因：因为该 ccache 很大，可能会影响其它工程的 ccache；
- 通过环境变量设置缓存信息：从 CM12.1 开始，可以通过环境变量指定 CyanogenMod 的 ccache 的位置和大小，语法如下：

[plain] [view plain copy](#)



1. export ANDROID\_CCACHE\_DIR="\$HOME/android/.ccache"
2. export ANDROID\_CCACHE\_SIZE="50G"

## 2. 常见编译错误

## (1) 编译不执行错误

编译无法执行错误：

- 1. 编译不执行：如果编译没有开始 执行 lunch 命令，从菜单列表中选择一个设备；
- 2. 编译不执行：如果上面的操作无效，执行 breakfast 命令，从列表中选择；
- 3. 执行完上面的操作后，执行 make cancro 命令，应该有效果；

## (2) 命令无法找到错误

命令无法找到 错误：

- 命令未找到错误：如果执行 croot, brunch, 或者 lunch 命令行报出 command not found 错误；
- 解决方案：确保你在 ~/android/system 目录中执行了 source build/envsetup.sh 命令；

## (3) 编译内存不足

内存不足错误排除：

- 出现没有足够内存相关错误，如下：

[java] [view plain copy](#)



```
1. ERROR: signapk.jar failed: return code 1make: *** [out/target/product/cancro/cm_cancro-ota-eng.root.zip] Error 1
```

- 1. 需要修改的文件：找到 ~/android/system/build/tools/releasetools/common.py 文件；
- 2. 需要修改的内容：找到 -Xmx2048m 内容，将其修改为 -Xmx1024m 或者 -Xmx512m；
- 3. 再次尝试编译：执行 brunch cancro 命令，再次尝试编译过程；
- 虚拟机内存不足：如果没有任何报错就中断了，可能是你编译用的虚拟机内存不足，重新为虚拟机分配内存即可；

## (4) 没有 Manifest 文件错误

没有 Manifest 文件错误：

- 错误信息：

[plain] [view plain copy](#)



```
1. oot@ubuntu:~/android/system# brunch cancro
2. including vendor/cm/vendorsetup.sh
3. build/core/product_config.mk:239: *** _nic.PRODUCTS.[[device/xiaomi/cancro/cm.mk]]:
"vendor/xiaomi/cancro/cancro-vendor.mk" does not exist. Stop.
4. Device cancro not found. Attempting to retrieve device repository from CyanogenMod Github
(http://github.com/CyanogenMod).
5. Found repository: android_device_xiaomi_cancro
6. Default revision: cm-13.0
7. Checking branch info
8. Checking if device/xiaomi/cancro is fetched from android_device_xiaomi_cancro
9. CyanogenMod/android_device_xiaomi_cancro already fetched to device/xiaomi/cancro
10. Syncing repository to retrieve project.
11. Fetching project CyanogenMod/android_device_xiaomi_cancro
12. Fetching projects: 100% (1/1), done.
13.
14. Repository synced!
15. Looking for dependencies
16. Done
17. build/core/product_config.mk:239: *** _nic.PRODUCTS.[[device/xiaomi/cancro/cm.mk]]:
"vendor/xiaomi/cancro/cancro-vendor.mk" does not exist. Stop.
```

```
18.
19.** Don't have a product spec for: 'cm_cancro'
20.** Do you have the right repo manifest?
21.
22.No such item in brunch menu. Try 'breakfast'
```

-- **错误原因** : 这是因为没有提取手机中的配置文件, 就是那 505 个文件, 实际提取 500 个文件就能编译通过;

-- **处理方案** : 执行提取手机专有文件步骤, 在 ~/android/system/device/xiaomi/cancro 目录中执行 ./extract-files.sh 命令, 如果该命令通过没有错误, 那么编译就会通过, 注意修改文件路径问题, 需要用我修改完的 脚本从 CyanogenMod 13.0 系统中提取 (需要提前刷 CM13系统), 然后手动从 MIUI7 中提取那 4 个文件, 将文件路径修改完毕即可完成文件提取过程, 此时编译就没问题了;

## (5) JDK 版本错误

**JDK 版本错误** :

-- **编译错误** : jdk 版本错误;

[plain] [view plain copy](#)



```
1.You are attempting to build with the incorrect version
2.of java.
3.
4.Your version is: java version "1.8.0_91" Java(TM) SE Runtime Environment (build 1.8.0_91-b14) Java HotSpot(TM)
64-Bit Server VM (build 25.91-b14, mixed mode).
5.The required version is: "1.7.x"
6.
7.Please follow the machine setup instructions at
8. https://source.android.com/source/initializing.html
9.*****
10.make: Entering directory `/root/android/system'
11.build/core/main.mk:181: *** stop. Stop.
12.make: Leaving directory `/root/android/system'
```

-- **重新配置 java 环境变量** : 因为之前已经安装了 open-jdk-7, 只是环境变量没有配置, 配置 /etc/profile 环境变量;

[plain] [view plain copy](#)



```
1.#export JAVA_HOME=/opt/jdk1.8.0_91
2.export JAVA_HOME=/usr/lib/jvm/java-7-openjdk-amd64
3.export GROOVY_HOME=/opt/groovy-2.4.6
4.export CLASSPATH=.:$JAVA_HOME/lib:$JAVA_HOME/jre/lib:$CLASSPATH
5.export ANDROID_SDK_HOME=/root/Work/android-sdk-linux
6.export
PATH=$JAVA_HOME/bin:$JAVA_HOME/jre/bin:$GROOVY_HOME/bin:$ANDROID_SDK_HOME/tools:$ANDROID_SDK_HOME/platform-
tools:$PATH
```

## (6) 文件路径错误 No rule to make target

`vendor/xiaomi/cancro/proprietary/app/qcrilmsgtunnel.apk'

**文件路径错误** :

-- **错误信息** :

[plain] [view plain copy](#)



```

1. make: *** No rule to make target `vendor/xiaomi/cancro/proprietary/app/qcrilmsgtunnel.apk', needed by
  `/root/android/system/out/target/product/cancro/obj/APPS/qcrilmsgtunnel_intermediates/package.apk'. Stop.
2. make: *** Waiting for unfinished jobs....
3. Note: Some input files use or override a deprecated API.
4. Note: Recompile with -Xlint:deprecation for details.
5. Note: Some input files use unchecked or unsafe operations.
6. Note: Recompile with -Xlint:unchecked for details.
7. Download: /root/android/system/out/target/common/obj/APPS/Gello_intermediates/org.cyanogenmod.gello-17.apk
8. Download:
  /root/android/system/out/target/common/obj/JAVA_LIBRARIES/ambientsdk_intermediates/com.cyngn.ambient.ambientsdk-
  1.5.11.aar
9. make: Leaving directory `/root/android/system'
10.
11. ##### make failed to build some targets (15:44 (mm:ss)) #####

```

-- **错误原因**：由于文件路径不正确，将文件拷贝到对应位置即可，将从设备中获取的

~/android/system/vendor/xiaomi/cancro/proprietary/app/qcrilmsgtunnel/qcrilmsgtunnel.apk 拷贝到

~/android/system/vendor/xiaomi/cancro/proprietary/app/ 目录中，修改错误路径；

-- -- **修改路径原理（举个栗子）很重要**：脚本中原来的路径是 app/shutdownlistener.apk 即指向手机中的

/system/app/shutdownlistener.apk，使用该路径是 pull 不下来的，但是手机中实际的该文件的路径是

/system/app/shutdownlistener/shutdownlistener.apk，使用该实际路径可以 pull 下来，但是放到了

~/android/system/vendor/xiaomi/cancro/proprietary/app/shutdownlistener/shutdownlistener.apk 中，这样编译通

不过，编译脚本会到 ~/android/system/vendor/xiaomi/cancro/proprietary/app/ 目录中去找 shutdownlistener.apk 文件，因此我们要将 shutdownlistener.apk 文件拷贝到 ~/android/system/vendor/xiaomi/cancro/proprietary/app/ 目录中；

## (7) 文件路径错误 No rule to make target

`vendor/xiaomi/cancro/proprietary/app/shutdownlistener.apk'

**文件路径错误**：

-- **错误信息**：

[plain] [view plain copy](#)



```

1. make: *** No rule to make target `vendor/xiaomi/cancro/proprietary/app/shutdownlistener.apk', needed by
  `/root/android/system/out/target/product/cancro/obj/APPS/shutdownlistener_intermediates/package.apk'. Stop.
2. make: *** Waiting for unfinished jobs....
3. target Unpacked: libgiftranscode
  (/root/android/system/out/target/product/cancro/obj/SHARED_LIBRARIES/libgiftranscode_intermediates/PACKED/libgiftra
  nscode.so)
4. make: Leaving directory `/root/android/system'
5.
6. ##### make failed to build some targets (01:02 (mm:ss)) #####

```

-- **错误原因**：由于文件路径不正确，将文件拷贝到对应位置即可，将从设备中获取的

~/android/system/vendor/xiaomi/cancro/proprietary/app/shutdownlistener/shutdownlistener.apk 拷贝到

~/android/system/vendor/xiaomi/cancro/proprietary/app/ 目录中，修改错误路径；

-- -- **修改路径原理（举个栗子）很重要**：脚本中原来的路径是 app/shutdownlistener.apk 即指向手机中的

/system/app/shutdownlistener.apk，使用该路径是 pull 不下来的，但是手机中实际的该文件的路径是

/system/app/shutdownlistener/shutdownlistener.apk，使用该实际路径可以 pull 下来，但是放到了

~/android/system/vendor/xiaomi/cancro/proprietary/app/shutdownlistener/shutdownlistener.apk 中，这样编译通

不过，编译脚本会到 ~/android/system/vendor/xiaomi/cancro/proprietary/app/ 目录中去找 shutdownlistener.apk 文件，因此我们要将 shutdownlistener.apk 文件拷贝到 ~/android/system/vendor/xiaomi/cancro/proprietary/app/ 目录中；

#### (8) 没有文件错误 No rule to make target

`vendor/xiaomi/cancro/proprietary/app/com.qualcomm.location.apk'

没有文件错误：

-- 错误信息：

[plain] [view plain copy](#)



```
1. make: *** No rule to make target `vendor/xiaomi/cancro/proprietary/app/com.qualcomm.location.apk', needed by
  `/root/android/system/out/target/product/cancro/obj/APPS/com.qualcomm.location_intermediates/package.apk'. Stop.
2. make: *** Waiting for unfinished jobs....
3. Notice file: packages/apps/Trebuchet/NOTICE --
  /root/android/system/out/target/product/cancro/obj/NOTICE_FILES/src//system/priv-app/Trebuchet/Trebuchet.apk.txt
4. make: Leaving directory `/root/android/system'
5.
6. ##### make failed to build some targets (01:39 (mm:ss)) #####
```

-- 错误原因：根本就没有获取该 apk，CM 中没有该文件，MIUI 系统中有该文件 从 MIUI 中 pull 出来放入  
~/android/system/vendor/xiaomi/cancro/proprietary/app/ 目录中；

## 四．安装 ROM

安装 ROM 流程：

-- 1. 查看 ROM：编译完成后 ROM 生成在 /android/system/out/target/product/cancro/cm-13.0-20160613-UNOFFICIAL-cancro.zip 位置；

-- 2. 进入 fastboot 模式：手机关机，按下 音量键- + 电源键 进入 fastboot 模式；

-- 3. 命令行查看 fastboot 模式：执行 fastboot devices 查看该模式；

```
C:\hanshuliang\xiaomi\CyanogenMod>fastboot devices
9a9414b7 fastboot
```

-- 4. 烧写 Recovery：命令行执行 fastboot flash recovery twrp-3.0.2-0-cancro.img 命令；

```
C:\hanshuliang\xiaomi\CyanogenMod>fastboot flash recovery twrp-3.0.2-0-cancro.img
target reported max download size of 1610612736 bytes
sending 'recovery' (13584 KB)...
OKAY [ 0.432s]
writing 'recovery'...
OKAY [ 0.286s]
finished. total time: 0.725s
```

-- 5. 将 ROM 放在 sd 卡根目录：重启手机，命令行执行 adb push cm-13.0-20160613-UNOFFICIAL-cancro.zip /sdcard/ 命令，将 ROM 拷贝到 SD 卡根目录；

```
C:\hanshuliang\xiaomi\CyanogenMod>adb push cm-13.0-20160613-UNOFFICIAL-cancro.zip /sdcard/
4829 KB/s (365792260 bytes in 73.967s)
```

-- 6. 进入 Recovery 模式：关机，按下 音量键+ + 电源键，进入 Recovery 模式；

-- 7. 擦除数据：选择菜单中的 "Wipe" 选项擦除 ROM，然后选择 "Factory Reset" 恢复出厂设置；



-- 8. 安装 ROM : 选择 Install, 从 SD 卡中选择 ROM 包安装;

相关下载链接 :

-- CyanogenMod 13 (小米 4 配套 Android 6.0 源码) 百度网盘下载地址 (需要有一定的 Android系统 [嵌入式](#) linux 基础 才能编译通过) :

-- Ubuntu 14.04 LTS 虚拟机 + CM13 源码 百度网盘下载地址 (适合没有任何基础的小白下载) : , 直接安装 VMWare Workstation 12 版本, 然后导入该虚拟机, 虚拟机里面所有的配置都已经配置好, 包括 jdk, 环境变量, 源码编译所需全部包, 傻瓜式的编译环境, 导入 VM 虚拟机即可获得完整的 Android 系统开发环境;

-- 编译好的 官方 ROM 和 Recovery 下载 :

-- 自己编译的 小米4 ROM 下载 :

-- CyanogenMod 13.0 (Android 6.0) 可编译源码下载地址 : ;