

Introdução ao AOSP

Prática 1

comando

```
administrador@lab-dacc-08:~$ sudo apt update
[sudo] senha para administrador:
Obter:1 file:/var/cuda-repo-ubuntu2004-11-6-local InRelease
Ign:1 file:/var/cuda-repo-ubuntu2004-11-6-local InRelease
Obter:2 file:/var/cuda-repo-ubuntu2004-11-6-local Release [564 B]
Obter:2 file:/var/cuda-repo-ubuntu2004-11-6-local Release [564 B]
```

comando

```
administrador@lab-dacc-08:~$ git --version
git version 2.25.1
```

comando

```
administrador@lab-dacc-08:~/bin$ python --version
Python 3.8.10
```

comando

```
administrador@lab-dacc-08:~/aosp$ git config --global user.name Andre
administrador@lab-dacc-08:~/aosp$ git config --global user.email andrefelipe989.af.as@gmail.com
```

comando

```
administrador@lab-dacc-08:~$ mkdir bin
administrador@lab-dacc-08:~$ cd bin
```

comando

```
administrador@lab-dacc-08:~/bin$ wget https://storage.googleapis.com/git-repo-downloads/repo
--2022-10-05 16:13:43-- https://storage.googleapis.com/git-repo-downloads/repo
Resolvendo storage.googleapis.com (storage.googleapis.com)... 2800:3f0:4001:82e::2010, 2800:3f0:4001:823:
:2010, 2800:3f0:4001:830::2010, ...
Conectando-se a storage.googleapis.com (storage.googleapis.com)|2800:3f0:4001:82e::2010|:443... conectado
```

comando

```
administrador@lab-dacc-08:~/bin$ chmod 755 repo
administrador@lab-dacc-08:~/bin$ export PATH=$PATH:~/bin
administrador@lab-dacc-08:~/bin$ echo "export PATH=$PATH:~/bin/" >> ~/.bashrc
administrador@lab-dacc-08:~/bin$ ls -al
total 56
drwxrwxr-x  2 administrador administrador 4096 out  5 16:13 .
drwxr-xr-x 32 administrador administrador 4096 out  5 16:11 ..
-rwxr-xr-x  1 administrador administrador 45277 fev  3 2022 repo
```

comando

```
administrador@lab-dacc-08:~/bin$ repo version
<repo not installed>
repo launcher version 2.21
  (from /usr/bin/repo)
git 2.25.1
Python 3.8.10 (default, Jun 22 2022, 20:18:18)
[GCC 9.4.0]
OS Linux 5.15.0-48-generic (#54~20.04.1-Ubuntu SMP Thu Sep 1 16:17:26 UTC 2022)
CPU x86_64 (x86_64)
Bug reports: https://bugs.chromium.org/p/gerrit/issues/entry?template=Repo+tool+issue
```

comando

```
administrador@lab-dacc-08:~$ pwd
/home/administrador
administrador@lab-dacc-08:~$ mkdir aosp
administrador@lab-dacc-08:~$ cd aosp
```

comando

```
administrador@lab-dacc-08:~/aosp$ repo init --depth=1 -u https://android.googlesource.com/platform/manifest -b android-12.0.0_r3

Your identity is: Andre <andrefelipe989.af.as@gmail.com>
If you want to change this, please re-run 'repo init' with --config-name

repo has been initialized in /home/administrador/aosp/
If this is not the directory in which you want to initialize repo, please run:
  rm -r /home/administrador/aosp/.repo
and try again.
```

comando

```
administrador@lab-dacc-08:~/aosp$ ls -al
total 12
drwxrwxr-x  3 administrador administrador 4096 out  5 16:22 .
drwxr-xr-x 34 administrador administrador 4096 out  5 16:24 ..
drwxrwxr-x  5 administrador administrador 4096 out  5 16:24 .repo
administrador@lab-dacc-08:~/aosp$ ls -al .repo
total 24
drwxrwxr-x  5 administrador administrador 4096 out  5 16:24 .
drwxrwxr-x  3 administrador administrador 4096 out  5 16:22 ..
drwxrwxr-x  2 administrador administrador 4096 out  5 16:22 manifests
drwxrwxr-x  8 administrador administrador 4096 out  5 16:24 manifests.git
-rw-rw-r--  1 administrador administrador  500 out  5 16:24 manifest.xml
drwxrwxr-x 11 administrador administrador 4096 out  5 16:22 repo
```

comando

```
administrador@lab-dacc-08:~/aosp$ nano .repo/manifest.xml
```

```
?xml version="1.0" encoding="UTF-8"?>
<!--
DO NOT EDIT THIS FILE!  It is generated by repo and changes will be discarded.
If you want to use a different manifest, use `repo init -m <file>` instead.

If you want to customize your checkout by overriding manifest settings, use
the local_manifests/ directory instead.

For more information on repo manifests, check out:
https://gerrit.googlesource.com/git-repo/+HEAD/docs/manifest-format.md
-->
<manifest>
  <include name="default.xml" />
</manifest>
```

comando

```
administrador@lab-dacc-08:~/aosp$ nano .repo/manifests/default.xml
```

```
?xml version="1.0" encoding="UTF-8"?>
<manifest>

  <remote name="aosp"
    fetch=".."
    review="https://android-review.googlesource.com/" />
  <default revision="refs/tags/android-12.0.0_r3"
    remote="aosp"
    sync-j="4" />
```

comando

```
administrador@lab-dacc-08:~/aosp$ cat .repo/manifests/default.xml | grep '<project' | wc -l
1048
```

comando

```
administrador@lab-dacc-08:~/aosp$ repo sync -c -j8
remote: Total 0 (delta 0), reused 0 (delta 0)
Fetching: 1% (16/1040) platform/build/pesto^CProcess ForkPoolWorker-7:
Process ForkPoolWorker-6:
Process ForkPoolWorker-9:
Process ForkPoolWorker-2:
```

comando

```
administrador@lab-dacc-08:~/aosp$ nano /proc/cpuinfo
```

```
processor       : 0
vendor_id      : GenuineIntel
cpu family     : 6
model          : 158
model name     : Intel(R) Core(TM) i7-8700 CPU @ 3.20GHz
stepping       : 10
microcode      : 0xf0
cpu MHz        : 2658.609
```

comando

```
administrador@lab-dacc-08:~/aosp$ cat /proc/cpuinfo | grep processor | wc -l
12
```

comando

```
administrador@lab-dacc-08:~/aosp$ nproc --all
12
```

comando

```
administrador@lab-dacc-08:~$ cd ~/aosp
```

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ ls
Android.bp      build           device          libnativehelper  sdk
art             compatibility  external        Makefile          system
bin            cts            frameworks     packages          test
bionic         dalvik         hardware       pdk              toolchain
bootable       developers    kernel         platform_testing tools
bootstrap.bash development  libcore        prebuilts
```

comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ find . | grep Integer.java
./cts/tests/location/location_gnss/src/android/location/cts/gnss/asn1/base/Asn1Integer.java
./dalvik/dexgen/src/com/android/dexgen/rop/cst/CstInteger.java
./dalvik/dx/src/com/android/dx/rop/cst/CstInteger.java
```

Diretorio da mensagem: “Você agora é um desenvolvedor!”

packages/apps/Settings/res/values-pt/strings.xml

Diretorio da mensagem: “Ora sei uno sviluppatore”

packages/apps/Settings/res/values-it/strings.xml

3 palavras depois da tag:

```
<item quantity="other">Ora ti mancano <xliff:g id="STEP_COUNT_1">%1$d</xliff:g>
```

Metodo captureDisplay

```
public static int captureDisplay(@NonNull DisplayCaptureArgs captureArgs,
    @NonNull ScreenCaptureListener captureListener) {
    return nativeCaptureDisplay(captureArgs, captureListener);
}
```

Prática 2

comando

```
administrador@lab-dacc-08:/$ cd media/arquivos/aosp11
administrador@lab-dacc-08:/media/arquivos/aosp11$ source build/envsetup.sh
```

comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ lunch
```

You're building on Linux

Lunch menu... pick a combo:

1. aosp_arm-eng
2. aosp_arm64-eng
3. aosp_barbet-userdebug
4. aosp_blueline-userdebug
5. aosp_blueline_car-userdebug
6. aosp_bonito-userdebug
7. aosp_bonito_car-userdebug
8. aosp_bramble-userdebug
9. aosp_car_arm-userdebug
10. aosp_car_arm64-userdebug
11. aosp_car_x86-userdebug
12. aosp_car_x86_64-userdebug
13. aosp_cf_arm64_auto-userdebug
14. aosp_cf_arm64_phone-userdebug
15. aosp_cf_x86_64_phone-userdebug
16. aosp_cf_x86_auto-userdebug
17. aosp_cf_x86_phone-userdebug
18. aosp_cf_x86_tv-userdebug
19. aosp_coral-userdebug
20. aosp_coral_car-userdebug
21. aosp_crosshatch-userdebug
22. aosp_crosshatch_car-userdebug
23. aosp_flame-userdebug
24. aosp_flame_car-userdebug
25. aosp_redfin-userdebug
26. aosp_sargo-userdebug
27. aosp_sunfish-userdebug
28. aosp_trout_arm64-userdebug
29. aosp_trout_x86-userdebug
30. aosp_x86-eng
31. aosp_x86_64-eng
32. arm_krait-eng
33. arm_v7_v8-eng
34. armv8-eng
35. armv8_kryo385-eng
36. beagle_x15-userdebug
37. beagle_x15_auto-userdebug
38. car_x86_64-userdebug
39. db845c-userdebug
40. fuchsia_arm64-eng
41. fuchsia_x86_64-eng
42. hikey-userdebug
43. hikey64_only-userdebug
44. hikey960-userdebug

comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ lunch sdk_phone_x86_64-userdebug
=====
PLATFORM_VERSION_CODENAME=REL
PLATFORM_VERSION=11
TARGET_PRODUCT=sdk_phone_x86_64
TARGET_BUILD_VARIANT=userdebug
TARGET_BUILD_TYPE=release
TARGET_ARCH=x86_64
TARGET_ARCH_VARIANT=x86_64
TARGET_2ND_ARCH=x86
TARGET_2ND_ARCH_VARIANT=x86_64
HOST_ARCH=x86_64
HOST_2ND_ARCH=x86
HOST_OS=linux
HOST_OS_EXTRA=Linux-5.15.0-48-generic-x86_64-Ubuntu-20.04.4-LTS
HOST_CROSS_OS=windows
HOST_CROSS_ARCH=x86
HOST_CROSS_2ND_ARCH=x86_64
HOST_BUILD_TYPE=release
BUILD_ID=RD2A.211001.002
OUT_DIR=out
PRODUCT_SOONG_NAMESPACES=device/generic/goldfish device/generic/goldfish-opengl hardware/google/camera hardware/google/camera/devices/EmulatedCamera device/generic/goldfish device/generic/goldfish-opengl
=====
```

comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ export
declare -x ANDROID_BUILD_PATHS="/media/arquivos/aosp11/out/soong/host/linux-x86/bin:/media/arquivos/aosp11/out/host/linux-x86/bin:/media/arquivos/aosp11/prebuilts/gcc/linux-x86/x86/x86_64-linux-android-4.9/bin:/media/arquivos/aosp11/development/scripts:/media/arquivos/aosp11/prebuilts/devtools/tools:/media/arquivos/aosp11/external/selinux/prebuilts/bin:/media/arquivos/aosp11/prebuilts/misc/linux-x86/dtc:/media/arquivos/aosp11/prebuilts/misc/linux-x86/libufdt:/media/arquivos/aosp11/prebuilts/clang/host/linux-x86/llvm-binutils-stable:/media/arquivos/aosp11/prebuilts/android-emulator/linux-x86_64:/media/arquivos/aosp11/prebuilts/asuite/acloud/linux-x86:/media/arquivos/aosp11/prebuilts/asuite/aidegen/linux-x86:/media/arquivos/aosp11/prebuilts/asuite/atest/linux-x86:"
```

comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ export | grep "ANDROID_\[|TARGET_\PATH"
declare -x ANDROID_BUILD_PATHS="/media/arquivos/aosp11/out/soong/host/linux-x86/bin:/media/arquivos/aosp11/out/host/linux-x86/bin:/media/arquivos/aosp11/prebuilts/gcc/linux-x86/x86/x86_64-linux-android-4.9/bin:/media/arquivos/aosp11/development/scripts:/media/arquivos/aosp11/prebuilts/devtools/tools:/media/arquivos/aosp11/external/selinux/prebuilts/bin:/media/arquivos/aosp11/prebuilts/misc/linux-x86/dtc:/media/arquivos/aosp11/prebuilts/misc/linux-x86/libufdt:/media/arquivos/aosp11/prebuilts/clang/host/linux-x86/llvm-binutils-stable:/media/arquivos/aosp11/prebuilts/android-emulator/linux-x86_64:/media/arquivos/aosp11/prebuilts/asuite/acloud/linux-x86:/media/arquivos/aosp11/prebuilts/asuite/aidegen/linux-x86:/media/arquivos/aosp11/prebuilts/asuite/atest/linux-x86:"
declare -x ANDROID_BUILD_TOP="/media/arquivos/aosp11"
declare -x ANDROID_DEV_SCRIPTS="/media/arquivos/aosp11/development/scripts:/media/arquivos/aosp11/prebuilts"
```

comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ export | grep ANDROID_HOST_OUT
declare -x ANDROID_HOST_OUT="/media/arquivos/aosp11/out/host/linux-x86"
declare -x ANDROID_HOST_OUT_TESTCASES="/media/arquivos/aosp11/out/host/linux-x86/testcases"
```

comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ export | grep ANDROID_HOST_OUT
declare -x ANDROID_HOST_OUT="/media/arquivos/aosp11/out/host/linux-x86"
declare -x ANDROID_HOST_OUT_TESTCASES="/media/arquivos/aosp11/out/host/linux-x86/testcases"
```

*

comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ m
13:58:05 *****
13:58:05 You are building on a machine with 15.4GB of RAM
13:58:05
13:58:05 The minimum required amount of free memory is around 16GB,
13:58:05 and even with that, some configurations may not work.
13:58:05
13:58:05 If you run into segfaults or other errors, try reducing your
13:58:05 -j value.
13:58:05 *****
=====
PLATFORM_VERSION_CODENAME=REL
PLATFORM_VERSION=11
TARGET_PRODUCT=sdk_phone_x86_64
TARGET_BUILD_VARIANT=userdebug
TARGET_BUILD_TYPE=release
TARGET_ARCH=x86_64
TARGET_ARCH_VARIANT=x86_64
TARGET_2ND_ARCH=x86
TARGET_2ND_ARCH_VARIANT=x86_64
HOST_ARCH=x86_64
HOST_2ND_ARCH=x86
HOST_OS=linux
HOST_OS_EXTRA=Linux-5.15.0-48-generic-x86_64-Ubuntu-20.04.4-LTS
HOST_CROSS_OS=windows
HOST_CROSS_ARCH=x86
HOST_CROSS_2ND_ARCH=x86_64
HOST_BUILD_TYPE=release
BUILD_ID=RD2A.211001.002
OUT_DIR=out
PRODUCT_SOONG_NAMESPACES=device/generic/goldfish device/generic/goldfish-opengl hardware/google/camera ha
rdware/google/camera/devices/EmulatedCamera device/generic/goldfish device/generic/goldfish-opengl
=====
wildcard(out/target/product/generic_x86_64/clean_steps.mk) was changed, regenerating...
[100% 24990/24990] cp out/soong/host/linux-x86/bin/multiproduct_kati
#### build completed successfully (16:29 (mm:ss)) ####
```

comando

```
-rwxrwxrwx 1 root root 3,1G out 6 22:58 system-gemu.img
```

comando

```
<!-- About phone screen, setting option name [CHAR LIMIT=40] -->
<string name="build_number">Build number (Palomakoba)</string>
<!-- About phone screen, tapping this button will take user to a separate UI to check Google Play system update [CHAR LIMIT=60] -->
<string name="module_version">Google Play system update</string>

<!-- About phone screen, show when a value of some status item is unavailable. -->
```


Up time
00:47

Build number (Palomakoba)
sdk_phone_x86_64-userdebug
11 RD2A.211001.002
eng.admini.20221006.155805 test-keys

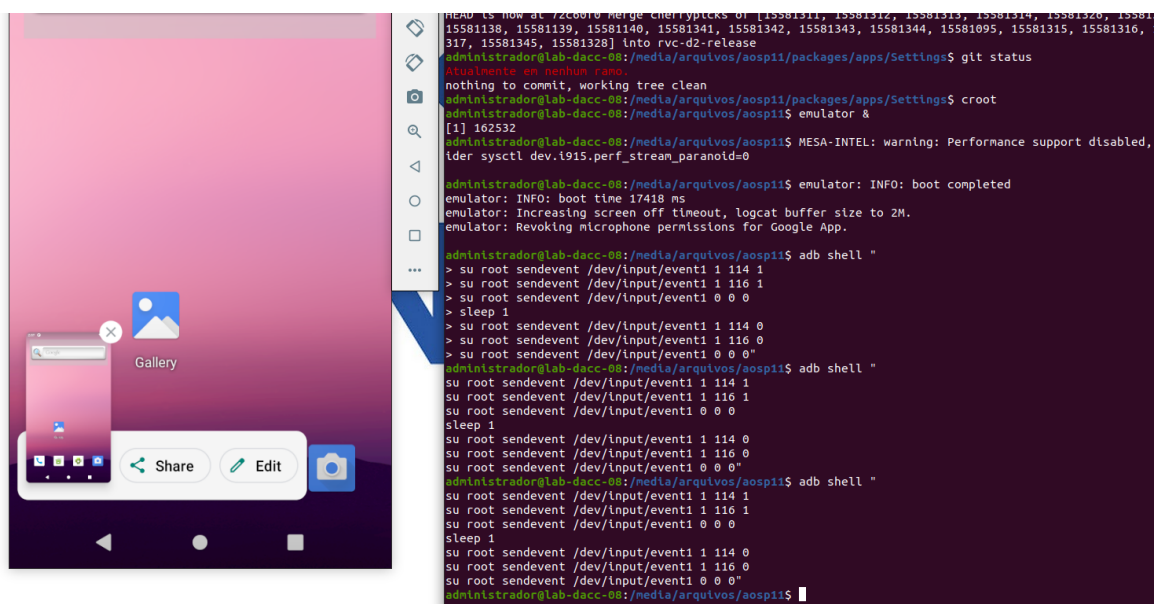
comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11/packages/apps/Settings$ git status
Atualmente em nenhum ramo.
Changes not staged for commit:
  (utilize "git add <arquivo>..." para atualizar o que será submetido)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   res/values/strings.xml
```

comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11/packages/apps/Settings$ git reset --hard HEAD
HEAD is now at 72c60f0 Merge cherry-picks of [15581311, 15581312, 15581313, 15581314, 15581326, 15581327, 15581328] into rvc-d2-release
administrador@lab-dacc-08:/media/arquivos/aosp11/packages/apps/Settings$ git status
Atualmente em nenhum ramo.
nothing to commit, working tree clean
administrador@lab-dacc-08:/media/arquivos/aosp11/packages/apps/Settings$ croot
```

comando



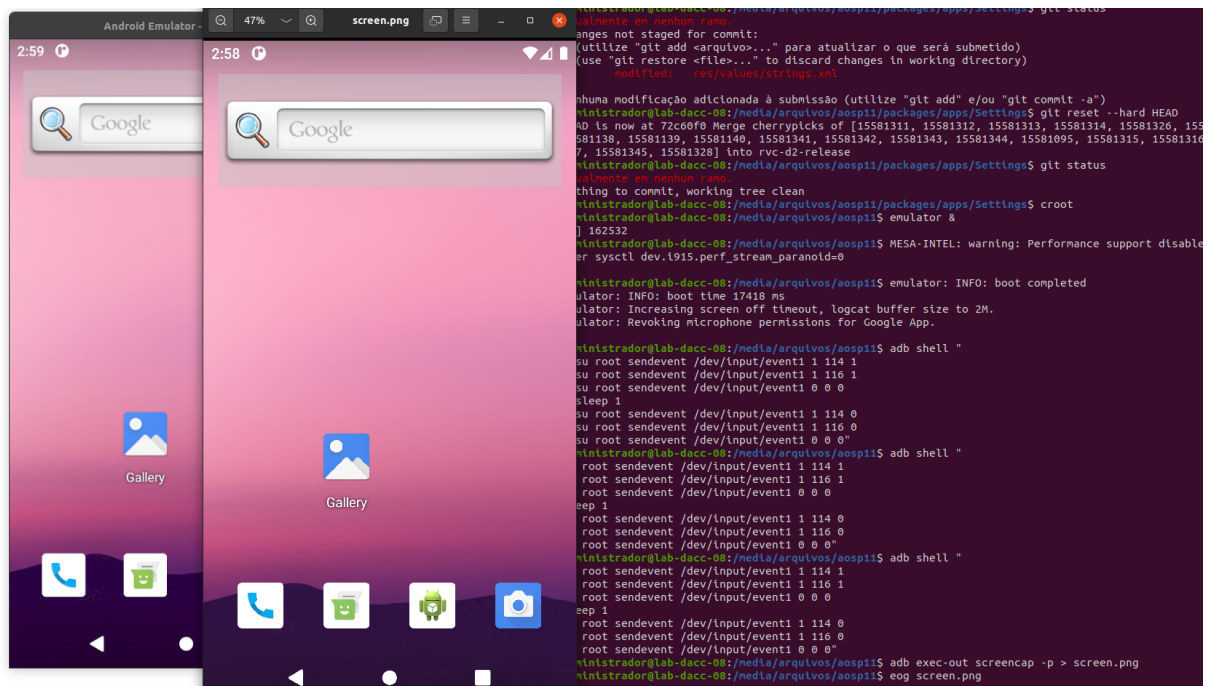
The image shows a split-screen view of an Android emulator. On the left, the emulator's home screen is visible, featuring a pinkish-purple gradient background, a 'Gallery' app icon, and a 'Share' button. On the right, a terminal window displays the following command-line output:

```
HEAD is now at 72c60f0 Merge cherry-picks of [15581311, 15581312, 15581313, 15581314, 15581326, 15581327, 15581328] into rvc-d2-release
administrador@lab-dacc-08:/media/arquivos/aosp11/packages/apps/Settings$ git status
Atualmente em nenhum ramo.
nothing to commit, working tree clean
administrador@lab-dacc-08:/media/arquivos/aosp11/packages/apps/Settings$ croot
[1] 162532
administrador@lab-dacc-08:/media/arquivos/aosp11$ MESA-INTEL: warning: Performance support disabled,
ider sysctl dev.l915.perf_stream_paranoid=0

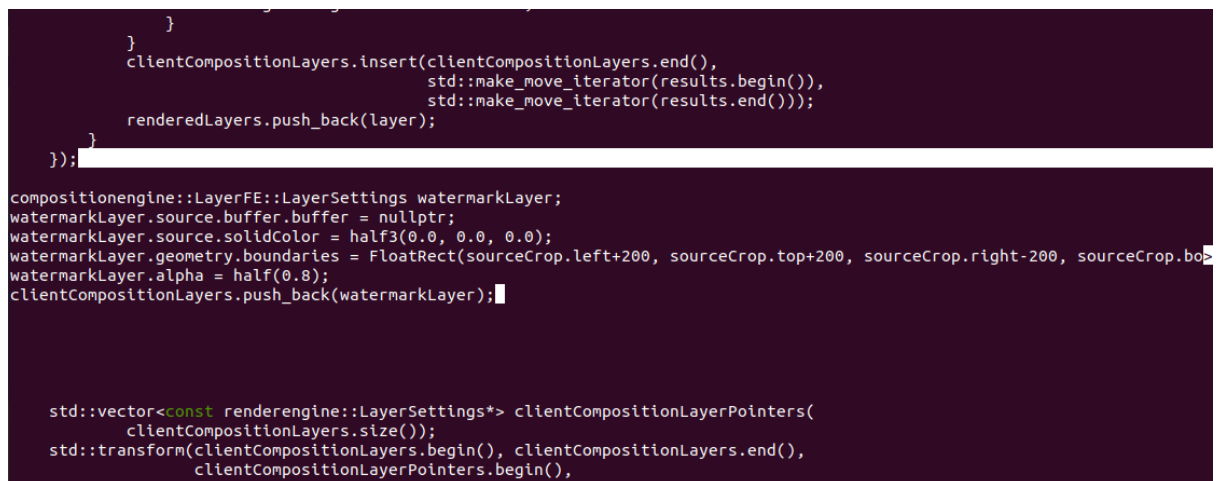
administrador@lab-dacc-08:/media/arquivos/aosp11$ emulator: INFO: boot completed
emulator: INFO: boot time 17418 ms
emulator: Increasing screen off timeout, logcat buffer size to 2M.
emulator: Revoking microphone permissions for Google App.

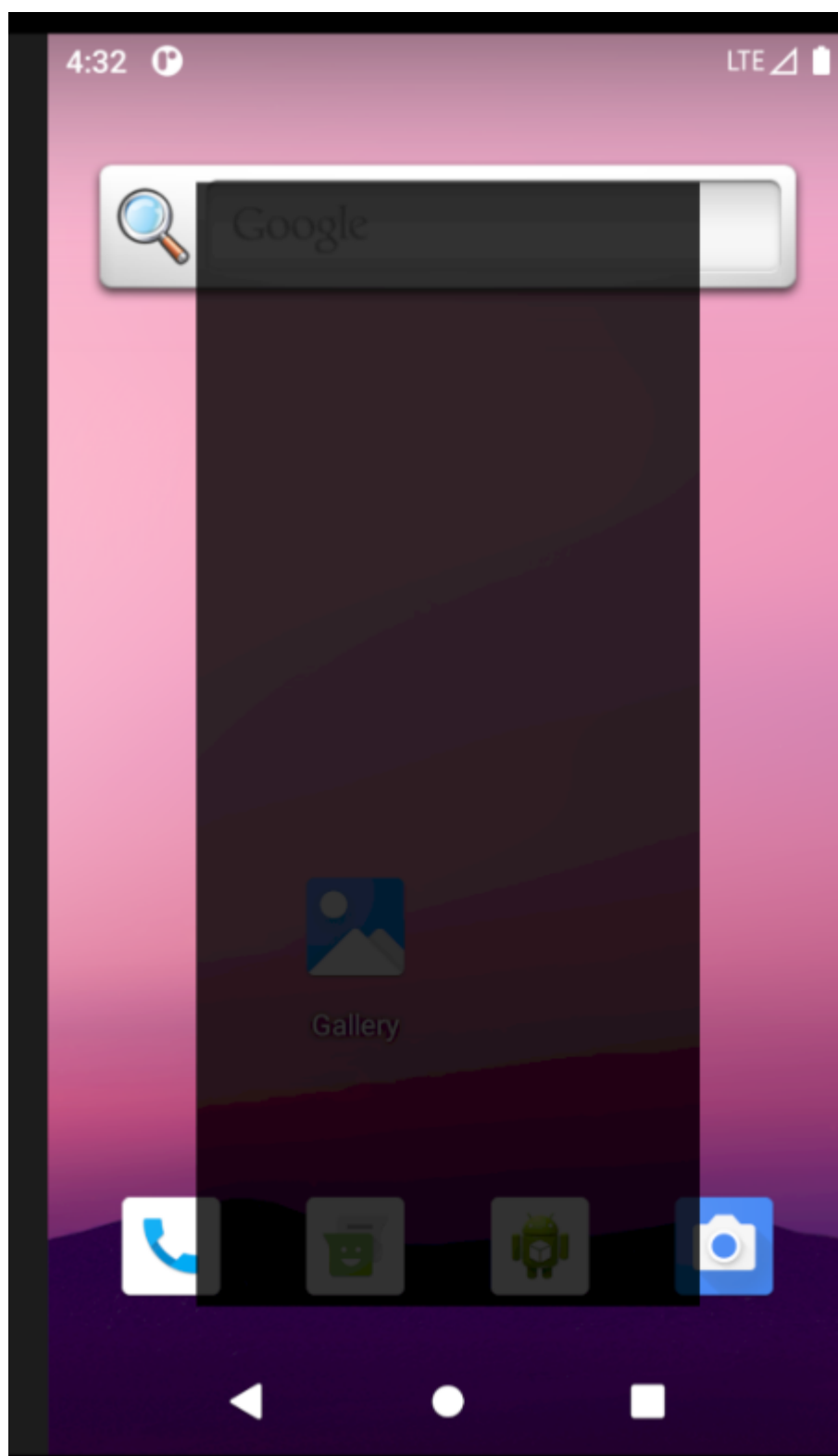
administrador@lab-dacc-08:/media/arquivos/aosp11$ adb shell "
> su root sendevent /dev/input/event1 1 114 1
> su root sendevent /dev/input/event1 1 116 1
> sleep 1
> su root sendevent /dev/input/event1 1 114 0
> su root sendevent /dev/input/event1 1 116 0
> su root sendevent /dev/input/event1 0 0 0"
administrador@lab-dacc-08:/media/arquivos/aosp11$ adb shell "
su root sendevent /dev/input/event1 1 114 1
su root sendevent /dev/input/event1 1 116 1
su root sendevent /dev/input/event1 0 0 0
sleep 1
su root sendevent /dev/input/event1 1 114 0
su root sendevent /dev/input/event1 1 116 0
su root sendevent /dev/input/event1 0 0 0"
administrador@lab-dacc-08:/media/arquivos/aosp11$ adb shell "
su root sendevent /dev/input/event1 1 114 1
su root sendevent /dev/input/event1 1 116 1
su root sendevent /dev/input/event1 0 0 0
sleep 1
su root sendevent /dev/input/event1 1 114 0
su root sendevent /dev/input/event1 1 116 0
su root sendevent /dev/input/event1 0 0 0"
administrador@lab-dacc-08:/media/arquivos/aosp11$
```


comando



comando





Prática 3

Comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ adb
Android Debug Bridge version 1.0.41
Version 29.0.6-eng.admini.20221006.155805
Installed as /media/arquivos/aosp11/out/soong/host/linux-x86/bin/adb

global options:
-a          listen on all network interfaces, not just localhost
-d          use USB device (error if multiple devices connected)
-e          use TCP/IP device (error if multiple TCP/IP devices available)
-s SERIAL   use device with given serial (overrides $ANDROID_SERIAL)
-t ID       use device with given transport id
-H          name of adb server host [default=localhost]
-P          port of adb server [default=5037]
-L SOCKET   listen on given socket for adb server [default=tcp:localhost:5037]
```

Comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ adb devices -l
List of devices attached
emulator-5554          offline transport_id:9
```

Comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ adb shell
generic_x86_64:/ $
```

Comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ adb shell
generic_x86_64:/ $ ls
acct      cache      data_mirror  etc          lost+found  oem         sdcard      system_ext
apex      config     debug_ramdisk  init         metadata    proc        storage     vendor
bin       d          default.prop   init.environ.rc  mnt         product     sys
bugreports  data      dev           linkerconfig  odm         res         system
```

Comando

```
generic_x86_64:/ $ mount | grep -E '/\ |vendor|system_ext|product|\ /data\ '
/dev/block/dm-4 on / type ext4 (ro,seclabel,relatime)
/dev/block/dm-3 on /vendor type ext4 (ro,seclabel,relatime)
/dev/block/dm-2 on /product type ext4 (ro,seclabel,relatime)
/dev/block/dm-1 on /system_ext type ext4 (ro,seclabel,relatime)
/dev/block/vdc on /data type ext4 (rw,seclabel,nosuid,nodev,noatime,resgid=1065,errors=panic)
nsfs on /data/vendor/var/run/netns/router type nsfs (rw)
generic_x86_64:/ $
```

Comando

```
generic_x86_64:/ $ cd system
generic_x86_64:/system $ ls
apex  bin      etc      framework  lib64      product    usr      xbin
app  build.prop  fonts  lib        priv-app   system_ext  vendor
```

Comando

```
generic_x86_64:/system $ cd etc/
generic_x86_64:/system/etc $ ls
NOTICE.xml.gz          fonts.xml              passwd                 sysconfig
audio_effects.conf     fs_config_dirs        permissions           task_profiles.json
bluetooth              fs_config_files       ppp                   textclassifier
boot-image.bprof       fstab.postinstall     preloaded-classes    ueventd.rc
boot-image.prof        gps_debug.conf        prop.default          updatable-bcp-packages.txt
bpf                    group                 protolog.conf.json.gz vintf
cgroups.json           hosts                 public.libraries.txt  vndkcorevariant.libraries.txt
clatd.conf             init                  sanitizer.libraries.txt xtables.lock
compatconfig           media_profiles_V1_0.dtd seccomp_policy
dirty-image-objects    mke2fs.conf           security
event-log-tags         mkshrc                selinux
```

Comando

```
generic_x86_64:/system $ cd app
generic_x86_64:/system/app $ ls
BasicDreams            CompanionDeviceManager PacProcessor           SecureElement
Bluetooth               EasterEgg               PartnerBookmarksProvider SimAppDialog
BluetoothMidiService   ExtShared               PresencePolling        Stk
BookmarkProvider        HTMLViewer              PrintRecommendationService Traceur
CaptivePortalLogin     KeyChain                PrintSpooler           WallpaperBackup
CarrierDefaultApp       LiveWallpapersPicker    RcsService
CertInstaller           NfcNci                  SafetyRegulatoryInfo
```

Comando

```
generic_x86_64:/system/app $ cd /product/app
generic_x86_64:/product/app $ ls
Browser2  Camera2  Gallery2  ModuleMetadata  PhotoTable  WallpaperPicker  webview
Calendar  DeskClock  LatinIME  Music           QuickSearchBox  messaging
```

Comando

```
generic_x86_64:/ $ whoami
shell
```

Comando

```
generic_x86_64:/ $ cat /etc/passwd
generic_x86_64:/ $
```

Comando

```
#define AID_SHELL 2000 /* adb and debug shell user */
#define AID_CACHE 2001 /* cache access */
#define AID_DIAG 2002 /* access to diagnostic resources */

/* The range 2900-2999 is reserved for the vendor partition */
/* Note that the two 'OEM' ranges pre-dated the vendor partition, so they take the legacy 'OEM'
 * name. Additionally, they pre-dated passwd/group files, so there are users and groups named oem_#
 * created automatically for all values in these ranges. If there is a user/group in a passwd/group
 * file corresponding to this range, both the oem_# and user/group names will resolve to the same
 * value. */
```

```
#define AID_DAEMON 1 /* traditional unix daemon owner */
#define AID_BIN 2 /* traditional unix binaries owner */

#define AID_SYSTEM 1000 /* system server */
```

Comando

```
generic_x86_64:/ $ id
uid=2000(shell) gid=2000(shell) groups=2000(shell),1004(input),1007(log),1011(adb),1015(sdcard_rw),1028(sdcard_r),1078(ext_data_rw),1079(ext_obb_rw),3001(net_bt_admin),3002(net_bt),3003(inet),3006(net_bw_stats),3009(readproc),3011(uhid) context=u:r:shell:s0
```

Comando

```
generic_x86_64:/ $ su
generic_x86_64:/ #
```

Comando

```
generic_x86_64:/ # whoami
root
generic_x86_64:/ # id
uid=0(root) gid=0(root) groups=0(root),1004(input),1007(log),1011(adb),1015(sdcard_rw),1028(sdcard_r),1078(ext_data_rw),1079(ext_obb_rw),3001(net_bt_admin),3002(net_bt),3003(inet),3006(net_bw_stats),3009(readproc),3011(uhid) context=u:r:root:s0
```

Comando

```
1|generic_x86_64:/ # ps -ef | grep -v grep | grep gallery
u0_a112      1886      266 10 17:16:56 ?        00:00:00 com.android.gallery3d
generic_x86_64:/ #
```

Comando

```
generic_x86_64:/ # ps -ef | grep -v grep | grep contacts
u0_a103      1980      266  2 17:18:48 ?        00:00:00 com.android.contacts
generic_x86_64:/ #
```

Comando

```
com.android.contacts 10103 0 /data/user/0/com.android.contacts default:privapp:targetSdkVersion=29 3003 0
10731
```

Comando

```
generic_x86_64:/ # id u0_a103
uid=10103(u0_a103) gid=10103(u0_a103) groups=10103(u0_a103) context=u:r:su:s0
```

Comando

```
z|generic_x86_64:/ # cd /data/data/com.android.contacts
generic_x86_64:/data/data/com.android.contacts # ls -al
total 32
drwx-----  5 u0_a103 u0_a103      4096 2022-10-07 14:16 .
drwxrwx--x 170 system  system      8192 2022-10-07 14:16 ..
drwxrws--x  2 u0_a103 u0_a103_cache 4096 2022-10-07 14:16 cache
drwxrws--x  2 u0_a103 u0_a103_cache 4096 2022-10-07 14:16 code_cache
drwxrwx--x  2 u0_a103 u0_a103      4096 2022-10-07 17:18 shared_prefs
```

Comando

```
#define AID_INET 3003 /* can create AF_INET and AF_INET6 sockets */
```

Comando

```
uid=10103(u0_a103) gid=10103(u0_a103) groups=10103(u0_a103),1004(input),1007(log),1011(adb),1015(sdcard_rw),1028(sdcard_r),1078(ext_data_rw),1079(ext_obb_rw),3001(net_bt_admin),3002(net_bt),3003(inet),3006(net_bw_stats),3009(readproc),3011(uhid) context=u:r:su:s0
```

Comando

```
<uses-permission android:name="android.permission.INTERNET" />
```

Prática 4

Comando

```
administrador@lab-dacc-08:/media/arquivos/aosp11$ emulator &
[1] 4888
administrador@lab-dacc-08:/media/arquivos/aosp11$ emulator window was out of view and was recentered
administrador@lab-dacc-08:/media/arquivos/aosp11$ adb shell
generic_x86_64:/ $ cd /system/bin
generic_x86_64:/system/bin $ ls -al
total 17140
```

Comando

```
130|generic_x86_64:/system/bin $ ls -al | grep toybox | wc -l
173
```


Comando

```
generic_x86_64:/system/bin $ toybox
acpi base64 basename blkid blockdev cal cat chattr chcon chgrp chmod
chown chroot chrt cksum clear cmp comm cp cpio cut date dd devmem
df diff dirname dmesg dos2unix du echo egrep env expand expr fallocation
false fgrep file find flock fmt free freeramdisk fsfreeze fsync getconf
getenforce getfattr getopt grep groups gunzip gzip head help hostname
hwclock i2cdetect i2cdump i2cget i2cset iconv id ifconfig inotifyd
insmod install ionice iorenice iotop kill killall ln load_policy log
logname losetup ls lsattr lsmod lsof lspci lsusb makedevs md5sum microcom
mkdir mkfifo mknod mkswap mktemp modinfo modprobe more mount mountpoint
mv nbd-client nc netcat netstat nice nl nohup nproc nsenter od partprobe
paste patch pgrep pidof ping ping6 pivot_root pkill pmap printenv
printf prlimit ps pwd pwdx readelf readlink realpath renice restorecon
rev rkill rm rmdir rmod runcon sed sendevent seq setenforce setfattr
setuid sha1sum sha224sum sha256sum sha384sum sha512sum sleep sort
split stat strings stty swapoff swapon sync sysctl tac tail tar taskset
tee test time timeout top touch tr traceroute traceroute6 true truncate
tty tuncctl ulimit umount uname uniq unix2dos unlink unshare uptime
usleep uuencode uuencode uuidgen vconfig vi vmstat watch wc which
whoami xargs xxd yes zcat
```

Comando

```
generic_x86_64:/system/bin $ su
generic_x86_64:/system/bin # dmesg
[ 0.000000] Linux version 5.4.50-01145-g056684c0d252-ab6656030 (android-build@abfarm-01106) (Android (
6443078 based on r383902) clang version 11.0.1 (https://android.googlesource.com/toolchain/llvm-project b
397f81060ce6d701042b782172ed13bee898b79), LLD 11.0.1 (/buildbot/tmp/tmp6_m7QH b397f81060ce6d701042b782172
ed13bee898b79)) #1 SMP PREEMPT Mon Jul 6 18:09:10 UTC 2020
[ 0.000000] Command line: qemu=1 no_timer_check androidboot.hardware=ranchu androidboot.serialno=EMULA
TOR30X3X0X0 clocksource=pit android.qemu=1 console=0 android.checkjni=1 qemu.gles=1 qemu.set
tings.system.screen_off_timeout=2147483647 qemu.encrypt=1 qemu.vsync=60 qemu.gltransport=pipe qemu.gltran
sport.drawFlushInterval=800 qemu.opengles.version=196609 qemu.virenderer=skiagl cma=288M@0-4G qemu.wifi=1
mac80211_hwsim.channels=2 loop.max_part=7 androidboot.vbmeta.size=6208 androidboot.vbmeta.hash_alg=sha25
6 androidboot.vbmeta.digest=57b501436fdb4990d95ff13c44edda235af2f0cb02f55f4a02079486e22df277 androidboot.
boot_devices=pci0000:00/0000:00:03.0 qemu.hwcodec.avcdec=2 qemu.hwcodec.vpxdec=2 ramoops.mem_address=0xff
018000 ramoops.mem_size=0x10000 memmap=0x10000$0xff018000 qemu.dalvik.vm.heapsize=512m qemu.camera_protoc
ol_ver=1 mac80211_hwsim.radios=0
```

Comando

```
generic_x86_64:/system/bin # dmesg -T
[Thu Oct 13 15:45:25 2022] Linux version 5.4.50-01145-g056684c0d252-ab6656030 (android-build@abfarm-01106) (Android (6443078 based on r383902) clang version 11.0.1 (https://android.googlesource.com/toolchain/llvm-project b397f81060ce6d701042b782172ed13bee898b79), LLD 11.0.1 (/buildbot/tmp/tmp6_m7QH b397f81060ce6d701042b782172ed13bee898b79)) #1 SMP PREEMPT Mon Jul 6 18:09:10 UTC 2020
[Thu Oct 13 15:45:25 2022] Command line: qemu=1 no_timer_check androidboot.hardware=ranchu androidboot.serialno=EMULATOR30X3X0X0 clocksource=pit android.qemu=1 console=0 android.checkjni=1 qemu.gles=1 qemu.settings.system.screen_off_timeout=2147483647 qemu.encrypt=1 qemu.vsync=60 qemu.gltransport=pipe qemu.gltransport.drawFlushInterval=800 qemu.opengles.version=196609 qemu.virenderer=skiagl cma=288M@0-4G qemu.wifi=1 mac80211_hwsim.channels=2 loop.max_part=7 androidboot.vbmeta.size=6208 androidboot.vbmeta.hash_alg=sha256 androidboot.vbmeta.digest=57b501436fdb4990d95ff13c44edda235af2f0cb02f55f4a02079486e22df277 androidboot.boot_devices=pci0000:00/0000:00:03.0 qemu.hwcodec.avcdec=2 qemu.hwcodec.vpxdec=2 ramoops.mem_address=0xff018000 ramoops.mem_size=0x10000 memmap=0x10000$0xff018000 qemu.dalvik.vm.heapsize=512m qemu.camera_protocol_ver=1 mac80211_hwsim.radios=0
[Thu Oct 13 15:45:25 2022] x86/fpu: x87 FPU will use FXSAVE
[Thu Oct 13 15:45:25 2022] BIOS-provided physical RAM map:
[Thu Oct 13 15:45:25 2022] BIOS-e820: [mem 0x0000000000000000-0x0000000000009fbfff] usable
[Thu Oct 13 15:45:25 2022] BIOS-e820: [mem 0x0000000000009fc00-0x0000000000009ffff] reserved
[Thu Oct 13 15:45:25 2022] BIOS-e820: [mem 0x00000000000f0000-0x00000000000ffff] reserved
```

Comando

```
generic_x86_64:/system/bin # dmesg -T -w
[Thu Oct 13 15:45:24 2022] Linux version 5.4.50-01145-g056684c0d252-ab6656030 (android-build@abfarm-01106) (Android (6443078 based on r383902) clang version 11.0.1 (https://android.googlesource.com/toolchain/llvm-project b397f81060ce6d701042b782172ed13bee898b79), LLD 11.0.1 (/buildbot/tmp/tmp6_m7QH b397f81060ce6d701042b782172ed13bee898b79)) #1 SMP PREEMPT Mon Jul 6 18:09:10 UTC 2020
[Thu Oct 13 15:45:24 2022] Command line: qemu=1 no_timer_check androidboot.hardware=ranchu androidboot.serialno=EMULATOR30X3X0X0 clocksource=pit android.qemud=1 console=0 android.checkjni=1 qemu.gles=1 qemu.settings.system.screen_off_timeout=2147483647 qemu.encrypt=1 qemu.vsync=60 qemu.gltransport=pipe qemu.gltransport.drawFlushInterval=800 qemu.opengles.version=196609 qemu.uirenderer=skiagl cma=288M@0-4G qemu.wifi=1 mac80211_hwsim.channels=2 loop.max_part=7 androidboot.vbmeta.size=6208 androidboot.vbmeta.hash_alg=sha256 androidboot.vbmeta.digest=57b501436fdb4990d95ff13c44edda235af2f0cb02f55f4a02079486e22df277 androidboot.boot_devices=pci0000:00/0000:00:03.0 qemu.hwcodec.avcdec=2 qemu.hwcodec.vpxdec=2 ramoops.mem_address=0xfff018000 ramoops.mem_size=0x10000 memmap=0x10000$0xfff018000 qemu.dalvik.vm.heapsize=512m qemu.camera_protocol_ver=1 mac80211_hwsim.radios=0
[Thu Oct 13 15:45:24 2022] x86/fpu: x87 FPU will use FXSAVE
[Thu Oct 13 15:45:24 2022] BIOS-provided physical RAM map:
```

Comando

```
generic_x86_64:/system/bin # echo " planet: Omicron Persei 8" > /dev/kmsg
generic_x86_64:/system/bin # dmesg -T
[Thu Oct 13 15:45:25 2022] Linux version 5.4.50-01145-g056684c0d252-ab6656030 (android-build@abfarm-01106) (Android (6443078 based on r383902) clang version 11.0.1 (https://android.googlesource.com/toolchain/llvm-project b397f81060ce6d701042b782172ed13bee898b79), LLD 11.0.1 (/buildbot/tmp/tmp6_m7QH b397f81060ce6d701042b782172ed13bee898b79)) #1 SMP PREEMPT Mon Jul 6 18:09:10 UTC 2020
[Thu Oct 13 15:45:25 2022] Command line: qemu=1 no_timer_check androidboot.hardware=ranchu androidboot.serialno=EMULATOR30X3X0X0 clocksource=pit android.qemud=1 console=0 android.checkjni=1 qemu.gles=1 qemu.settings.system.screen_off_timeout=2147483647 qemu.encrypt=1 qemu.vsync=60 qemu.gltransport=pipe qemu.gltransport.drawFlushInterval=800 qemu.opengles.version=196609 qemu.uirenderer=skiagl cma=288M@0-4G qemu.wifi=1 mac80211_hwsim.channels=2 loop.max_part=7 androidboot.vbmeta.size=6208 androidboot.vbmeta.hash_alg=sha256 androidboot.vbmeta.digest=57b501436fdb4990d95ff13c44edda235af2f0cb02f55f4a02079486e22df277 androidboot.boot_devices=pci0000:00/0000:00:03.0 qemu.hwcodec.avcdec=2 qemu.hwcodec.vpxdec=2 ramoops.mem_address=0xfff018000 ramoops.mem_size=0x10000 memmap=0x10000$0xfff018000 qemu.dalvik.vm.heapsize=512m qemu.camera_protocol_ver=1 mac80211_hwsim.radios=0
[Thu Oct 13 15:45:25 2022] x86/fpu: x87 FPU will use FXSAVE
[Thu Oct 13 15:45:25 2022] BIOS-provided physical RAM map:
[Thu Oct 13 15:45:25 2022] BIOS-e820: [mem 0x0000000000000000-0x0000000000009fbfff] usable
```

Comando

```
generic_x86_64:/system/bin # cat /dev/kmsg
5,0,0,-;Linux version 5.4.50-01145-g056684c0d252-ab6656030 (android-build@abfarm-01106) (Android (6443078 based on r383902) clang version 11.0.1 (https://android.googlesource.com/toolchain/llvm-project b397f81060ce6d701042b782172ed13bee898b79), LLD 11.0.1 (/buildbot/tmp/tmp6_m7QH b397f81060ce6d701042b782172ed13bee898b79)) #1 SMP PREEMPT Mon Jul 6 18:09:10 UTC 2020
6,1,0,-;Command line: qemu=1 no_timer_check androidboot.hardware=ranchu androidboot.serialno=EMULATOR30X3X0X0 clocksource=pit android.qemud=1 console=0 android.checkjni=1 qemu.gles=1 qemu.settings.system.screen_off_timeout=2147483647 qemu.encrypt=1 qemu.vsync=60 qemu.gltransport=pipe qemu.gltransport.drawFlushInterval=800 qemu.opengles.version=196609 qemu.uirenderer=skiagl cma=288M@0-4G qemu.wifi=1 mac80211_hwsim.channels=2 loop.max_part=7 androidboot.vbmeta.size=6208 androidboot.vbmeta.hash_alg=sha256 androidboot.vbmeta.digest=57b501436fdb4990d95ff13c44edda235af2f0cb02f55f4a02079486e22df277 androidboot.boot_devices=pci0000:00/0000:00:03.0 qemu.hwcodec.avcdec=2 qemu.hwcodec.vpxdec=2 ramoops.mem_address=0xfff018000 ramoops.mem_size=0x10000 memmap=0x10000$0xfff018000 qemu.dalvik.vm.heapsize=512m qemu.camera_protocol_ver=1 mac80211_hwsim.radios=0
6,2,0,-;x86/fpu: x87 FPU will use FXSAVE
6,3,0,-;BIOS-provided physical RAM map:
6,4,0,-;BIOS-e820: [mem 0x0000000000000000-0x0000000000009fbfff] usable
```

Comando

```
10-13 16:01:46.738 322 322 E netmgr : qemu_pipe_open_ns:62: Could not connect to the 'pipe:qemud:network' service: Invalid argument
10-13 16:01:46.738 322 322 E netmgr : Failed to open QEMU pipe 'qemud:network': Invalid argument
10-13 16:01:49.395 324 324 E wifi_forwarder: qemu_pipe_open_ns:62: Could not connect to the 'pipe:qemud:wififorward' service: Invalid argument
10-13 16:01:49.395 324 324 E wifi_forwarder: RemoteConnection failed to initialize: RemoteConnection failed to open pipe
10-13 16:02:00.003 662 662 D KeyguardClockSwitch: Updating clock: 4[REDACTED]2
AC
```

Comando

```
work' service: Invalid argument
10-13 16:03:46.796 322 322 E netmgr : Failed to open QEMU pipe 'qemud:network': Invalid argument
10-13 16:03:47.941 0 0 I init : Untracked pid 1889 exited with status 127
10-13 16:03:49.468 324 324 E wifi_forwarder: qemu_pipe_open_ns:62: Could not connect to the 'pipe:qemu:
wififorward' service: Invalid argument
10-13 16:03:49.468 324 324 E wifi_forwarder: RemoteConnection failed to initialize: RemoteConnection
failed to open pipe
10-13 16:03:55.863 0 0 D logd : logdr: UID=2000 GID=2000 PID=1890 b tail=0 logMask=99 pid=0 st
```

Comando

```
1|generic_x86_64:/ $ logcat -s Zygote
----- beginning of kernel
----- beginning of main
----- beginning of system
10-13 15:46:15.834 272 272 D Zygote : begin preload
10-13 15:46:15.834 272 272 I Zygote : Calling ZygoteHooks.beginPreload()
10-13 15:46:15.888 273 273 I Zygote : Accepting command socket connections
10-13 15:46:16.201 272 272 I Zygote : Preloading classes...
10-13 15:46:16.220 272 272 W Zygote : Class not found for preloading: android.app.-$$Lambda$Resource
sManager$QJ7UiV_k_XS90KuXAsIjIEym1DnM
10-13 15:46:19.514 272 272 W Zygote : Class not found for preloading: android.inputmethodservice.-$$
Lambda$InputMethodService$TvVfWdKZ3ljQdrU87qYykg6uD-I
10-13 15:46:19.709 272 272 W Zygote : Class not found for preloading: android.media.MediaRouter$Stat
ic$Client$1
```

Comando

```
130|generic_x86_64:/ $ logcat -s *:I
----- beginning of kernel
10-13 15:45:25.870 0 0 I : Linux version 5.4.50-01145-g056684c0d252-ab6656030 (android-bu
ild@qabfarm-01106) (Android (6443078 based on r383902) clang version 11.0.1 (https://android.googlesource.
com/toolchain/llvm-project b397f81060ce6d701042b782172ed13bee898b79), LLD 11.0.1 (/buildbot/tmp/tmp6_m7QH
b397f81060ce6d701042b782172ed13bee898b79)) #1 SMP PREEMPT Mon Jul 6 18:09:10 UTC 2020
10-13 15:45:25.870 0 0 I Command line: qemu=1 no_timer_check androidboot.hardware=ranchu androidbo
oot.serialno=EMULATOR30X30X0 clocksourcen=pit android.qemud=1 console=0 android.checkjni=1 qemu.gles=1 qe
mu.settings.system.screen_off_timeout=2147483647 qemu.encrypt=1 qemu.vsync=60 qemu.gltransport=pipe qemu.
gltransport.drawFlushInterval=800 qemu.opengles.version=196609 qemu.uirenderer=skiagl cma=288M@0-4G qemu.
wifi=1 mac80211_hwsim.channels=2 loop.max_part=7 androidboot.vbmeta.size=6208 androidboot.vbmeta.hash_alg
=sha256 androidboot.vbmeta.digest=57b501436fdb4990d95ff13c44edda235af2f0cb02f55f4a02079486e22df277 androi
dboot.boot_devices=pci0000:00/0000:00:03.0 qemu.hwcodec.avcdec=2 qemu.hwcodec.vpxdec=2 ramoops.mem_addres
s=0xfff018000 ramoops.mem_size=0x10000 memmap=0x10000$0xfff018000 qemu.dalvik.vm.heapsize=512m qemu.camera_
protocol_ver=1 mac80211_hwsim.radios=0
```

Comando

```
130|generic_x86_64:/ $ logcat -s Zygote:I
----- beginning of kernel
----- beginning of main
----- beginning of system
10-13 15:46:15.834 272 272 I Zygote : Calling ZygoteHooks.beginPreload()
10-13 15:46:15.888 273 273 I Zygote : Accepting command socket connections
10-13 15:46:16.201 272 272 I Zygote : Preloading classes...
10-13 15:46:16.220 272 272 W Zygote : Class not found for preloading: android.app.-$$Lambda$ResourcesManager$QJ7UiV_k_XS90KuXAsIjIEym1DnM
10-13 15:46:19.514 272 272 W Zygote : Class not found for preloading: android.inputmethodservice.-$$Lambda$InputMethodService$TvVfWdKZ3ljQdrU87qYykg6uD-I
10-13 15:46:19.709 272 272 W Zygote : Class not found for preloading: android.media.MediaRouter$Static$Client$1
10-13 15:46:19.709 272 272 W Zygote : Class not found for preloading: android.media.MediaRouter$Static$Client$2
10-13 15:46:19.757 272 272 W Zygote : Class not found for preloading: android.net.shared.Inet4AddressUtils
```

Comando

```
130|generic_x86_64:/ $ logcat -b events
----- beginning of events
10-13 15:45:37.683 154 154 I snet_event_log: [121035042,-1,]
10-13 15:45:37.828 154 154 I auditd : SELinux: Loaded service_contexts from:
10-13 15:45:37.828 154 154 I auditd : /system/etc/selinux/plat_service_contexts
10-13 15:45:37.828 154 154 I auditd : /vendor/etc/selinux/vendor_service_contexts
10-13 15:45:37.927 156 156 I snet_event_log: [121035042,-1,]
10-13 15:45:26.293 152 152 I auditd : type=2000 audit(0.0:1): state=initialized audit_enabled=0 res=
1
10-13 15:45:33.432 152 152 I auditd : type=1403 audit(0.0:2): auid=4294967295 ses=4294967295 lsm=sel
inux res=1
```


Comando

```
130|generic_x86_64:/ $ logcat -h
Usage: logcat [options] [filterspecs]

General options:
  -b, --buffer=<buffer>      Request alternate ring buffer(s):
                              main system radio events crash default all
                              Additionally, 'kernel' for userdebug and eng builds, and
                              'security' for Device Owner installations.
                              Multiple -b parameters or comma separated list of buffers are
                              allowed. Buffers are interleaved.
                              Default -b main,system,crash,kernel.
  -L, --last                  Dump logs from prior to last reboot from pstore.
  -C, --clear                  Clear (flush) the entire log and exit.
                              if -f is specified, clear the specified file and its related rotated
                              log files instead.
                              if -L is specified, clear pstore log instead.
  -d                           Dump the log and then exit (don't block).
  --pid=<pid>                 Only print logs from the given pid.
  --wrap                       Sleep for 2 hours or when buffer about to wrap whichever
                              comes first. Improves efficiency of polling by providing
                              an about-to-wrap wakeup.
```

Comando : og -p l -t "book" "To the 8th Dimesion and Back again" | logcat

```
10-13 16:24:50.395 324 324 E wifi_forwarder: RemoteConnection failed to initialize: RemoteConnection failed to open pipe
10-13 16:25:00.003 662 662 D KeyguardClockSwitch: Updating clock: 4[REDACTED]5
10-13 16:25:47.359 322 322 E netmgr : qemu_pipe_open_ns:62: Could not connect to the 'pipe:qemu:network' service: Invalid argument
10-13 16:25:47.359 322 322 E netmgr : Failed to open QEMU pipe 'qemu:network': Invalid argument
10-13 16:25:47.669 0 0 W healthd : battery l=100 v=5000 t=25.0 h=2 st=4 c=9000000 fc=3000000 cc=10 chg=
10-13 16:25:50.409 324 324 E wifi_forwarder: qemu_pipe_open_ns:62: Could not connect to the 'pipe:qemu:wififorward' service: Invalid argument
10-13 16:25:50.409 324 324 E wifi_forwarder: RemoteConnection failed to initialize: RemoteConnection failed to open pipe
10-13 16:26:00.001 662 662 D KeyguardClockSwitch: Updating clock: 4[REDACTED]6
10-13 16:26:29.608 513 538 I UsageStatsService: User[0] Flushing usage stats to disk
^C
130|generic_x86_64:/ $
```

Comando

```
1|generic_x86_64:/ $ su
generic_x86_64:/ # ls -al /dev/socket/logd*
srw-rw-rw- 1 logd logd 0 2022-10-13 15:45 /dev/socket/logd
srw-rw-rw- 1 logd logd 0 2022-10-13 15:45 /dev/socket/logdr
s-w--w--w- 1 logd logd 0 2022-10-13 15:45 /dev/socket/logdw
generic_x86_64:/ #
```

Comando

```
generic_x86_64:/ # echo -n 'getLogSize 0\0EXIT\0' | nc -U /dev/socket/logd
2097152successgeneric_x86_64:/ # logcat -g
main: ring buffer is 2 MiB (452 KiB consumed), max entry is 5120 B, max payload is 4068 B
system: ring buffer is 2 MiB (379 KiB consumed), max entry is 5120 B, max payload is 4068 B
crash: ring buffer is 2 MiB (0 B consumed), max entry is 5120 B, max payload is 4068 B
kernel: ring buffer is 2 MiB (46 KiB consumed), max entry is 5120 B, max payload is 4068 B
generic_x86_64:/ #
```

Prática 5

Comando

```
130|generic_x86_64:/ # getevent
add device 1: /dev/input/event0
    name:      "Power Button"
add device 2: /dev/input/event2
    name:      "virtio_input_multi_touch_1"
add device 3: /dev/input/event9
    name:      "virtio_input_multi_touch_8"
add device 4: /dev/input/event13
    name:      "qwerty2"
add device 5: /dev/input/event7
    name:      "virtio_input_multi_touch_6"
add device 6: /dev/input/event4
    name:      "virtio_input_multi_touch_3"
add device 7: /dev/input/event11
    name:      "virtio_input_multi_touch_10"
add device 8: /dev/input/event8
    name:      "virtio_input_multi_touch_7"
add device 9: /dev/input/event5
    name:      "virtio_input_multi_touch_4"
add device 10: /dev/input/event12
    name:      "virtio_input_multi_touch_11"
add device 11: /dev/input/event6
    name:      "virtio_input_multi_touch_5"
add device 12: /dev/input/event3
    name:      "virtio_input_multi_touch_2"
add device 13: /dev/input/event10
    name:      "virtio_input_multi_touch_9"
add device 14: /dev/input/event1
    name:      "AT Translated Set 2 keyboard"
/dev/input/event13: 0014 0000 00000000
/dev/input/event13: 0014 0001 00000000
/dev/input/event13: 0001 0073 00000001
/dev/input/event13: 0000 0000 00000000
/dev/input/event13: 0001 0073 00000000
```

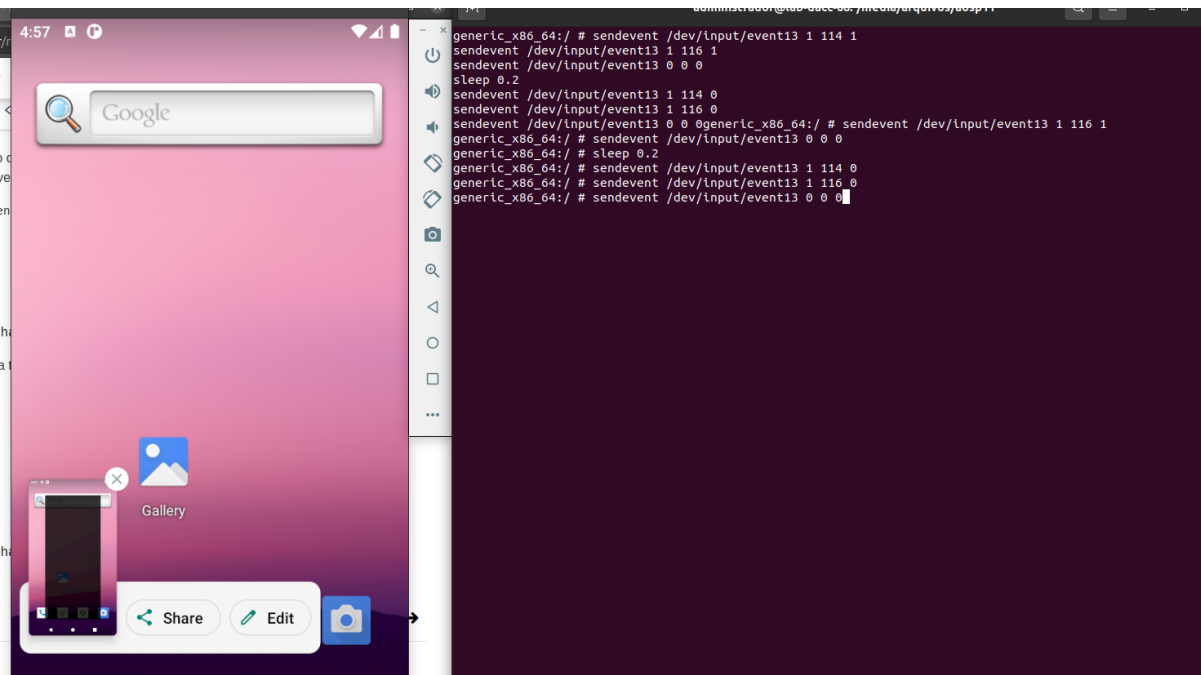
Comando

```
130|generic_x86_64:/ # getevent -l
add device 1: /dev/input/event0
  name:      "Power Button"
add device 2: /dev/input/event2
  name:      "virtio_input_multi_touch_1"
add device 3: /dev/input/event9
  name:      "virtio_input_multi_touch_8"
add device 4: /dev/input/event13
  name:      "qwerty2"
add device 5: /dev/input/event7
  name:      "virtio_input_multi_touch_6"
add device 6: /dev/input/event4
  name:      "virtio_input_multi_touch_3"
add device 7: /dev/input/event11
  name:      "virtio_input_multi_touch_10"
add device 8: /dev/input/event8
  name:      "virtio_input_multi_touch_7"
add device 9: /dev/input/event5
  name:      "virtio_input_multi_touch_4"
add device 10: /dev/input/event12
  name:      "virtio_input_multi_touch_11"
add device 11: /dev/input/event6
  name:      "virtio_input_multi_touch_5"
add device 12: /dev/input/event3
  name:      "virtio_input_multi_touch_2"
add device 13: /dev/input/event10
  name:      "virtio_input_multi_touch_9"
add device 14: /dev/input/event1
  name:      "AT Translated Set 2 keyboard"
/dev/input/event13: EV_KEY      KEY_VOLUMEUP      DOWN
/dev/input/event13: EV_SYN      SYN_REPORT        00000000
```

Comando

```
130|generic_x86_64:/ # sendevent /dev/input/event13 1 114 1
0|generic_x86_64:/ # sendevent /dev/input/event13 0 0 0
generic_x86_64:/ # sleep 0.2 # Espera por 200ms
generic_x86_64:/ # sendevent /dev/input/event13 1 114 0
generic_x86_64:/ # sendevent /dev/input/event13 0 0 0
generic_x86_64:/ #
```


Comando



Comando

```
generic_x86_64:/ # getprop
[apexd.status]: [ready]
[bpf.progs_loaded]: [1]
[bt.rootcanal_test_console]: [off]
[build.version.extensions.r]: [0]
[cache_key.bluetooth.get_bond_state]: [-721650020255824250]
[cache_key.bluetooth.get_profile_connection_state]: [-721650020255824247]
[cache_key.bluetooth.get_state]: [-721650020255824246]
[cache_key.bluetooth.is_offloaded_filtering_supported]: [-721650020255824251]
[cache_key.display_info]: [-4243193003529199080]
[cache_key.has_system_feature]: [-4243193003529199114]
[cache_key.is_compat_change_enabled]: [-4243193003529199112]
```

Comando

```
generic_x86_64:/ # getprop ro.product.board
goldfish_x86_64
generic_x86_64:/ #
```

Comando

```
generic_x86_64:/ # setprop palomakoba.pi "3.2546373698888"
generic_x86_64:/ # getprop palomakoba.pi
```

Comando

```
generic_x86_64:/ # set ro.product.board "CM-88B"
generic_x86_64:/ #
```

comando

```
generic_x86_64:/ # setprop persist.palomakoba.location "Timber Hearth"
generic_x86_64:/ # reboot
administrador@lab-dacc-08:/media/arquivos/aosp11$ emulator: INFO: boot completed
```

Comando

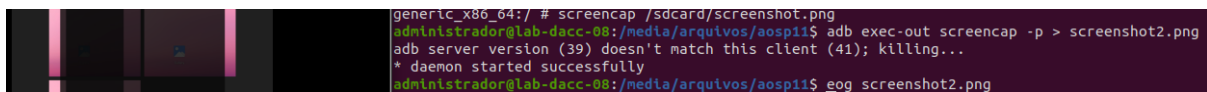
```
130|generic_x86_64:/ # getprop persist.palomakoba.location
Timber Hearth
generic_x86_64:/ #
```

Comando

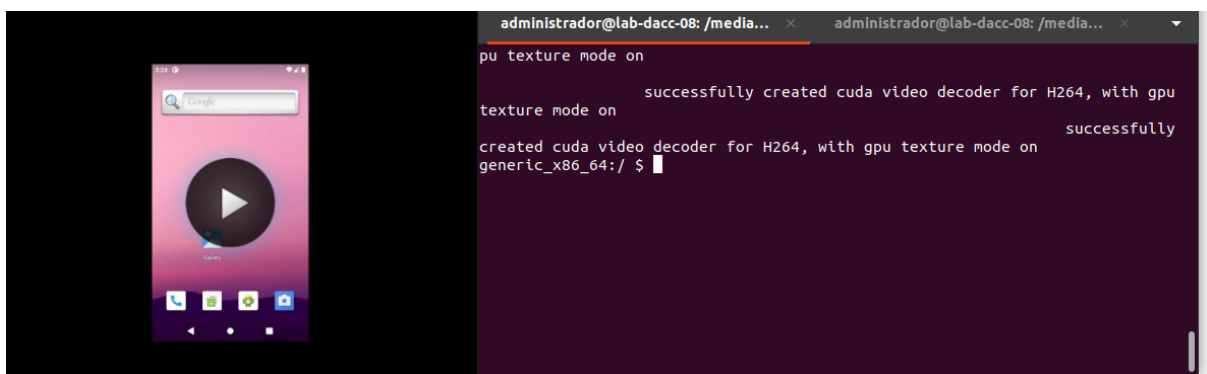
```
generic_x86_64:/ # screencap /sdcard/screenshot.png
```



Comando



Comando



Comando : top

```
emulator: INFO: boot time 16810 ms
emulator: Increasing screen off timeout, logcat buffer size to 2M.
emulator: Revoking microphone permissions for Google App.
Tasks: 234 total, 1 running, 233 sleeping, 0 stopped, 0 zombie
Mem: 2030964K total, 1589608K used, 441356K free, 16072704 buffers
Swap: 1523216K total, 0 used, 1523216K free, 733480K cached
200%cpu 1%user 0%nice 1%sys 196%idle 0%iow 1%irq 0%sirq 0%host
Tasks: 234 total, 1 running, 233 sleeping, 0 stopped, 0 zombie
Mem: 2030964K total, 1589608K used, 441104K free, 16072704 buffers
Swap: 1523216K total, 0 used, 1523216K free, 733480K cached
200%cpu 1%user 0%nice 1%sys 196%idle 0%iow 1%irq 0%sirq 0%host
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	ARGS
493	system	18	-2	13G	290M	209M	S	1.6	14.6	0:23.47	system_server
276	bluetooth	20	0	10G	6.8M	5.8M	S	0.6	0.3	0:07.63	android.hardware.bluetooth@1.1-service.sim
2605	shell	20	0	10G	4.6M	3.6M	R	0.3	0.2	0:00.14	top
850	radio	20	0	12G	152M	99M	S	0.3	7.6	0:03.90	com.android.phone
388	media	20	0	128M	32M	24M	S	0.3	1.5	0:00.19	mediaserver
298	system	20	0	10G	5.8M	4.9M	S	0.3	0.2	0:04.00	android.hardware.sensors@2.1-service.multihal
289	system	-3	-4	10G	25M	11M	S	0.3	1.2	0:14.51	android.hardware.graphics.composer@2.3-service
3404	root	20	0	0	0	0	T	0.0	0.0	0:00.01	lkwd

Comando

```
generic_x86_64:/ $ free -h
```

	total	used	free	shared	buffers
Mem:	1.9G	1.5G	430M	3.4M	15M
-/+ buffers/cache:		1.5G	445M		
Swap:	1.4G	0	1.4G		

```
generic_x86_64:/ $
```

Comando

```
generic_x86_64:/ $ cal
```

October 2022						
Su	Mo	Tu	We	Th	Fr	Sa
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

```
generic_x86_64:/ $
```

Comando

```
c" -e installd -e lmkd -e "logd" -e netd -e tombstoned -e ueventd -e vold
```

pid	ppid	uid	gid	time	command
root	1	0	0	17:07:31 ?	00:00:01 init second_stage
root	129	1	0	17:07:36 ?	00:00:00 ueventd
logd	152	1	0	17:07:37 ?	00:00:00 logd
lmkd	153	1	0	17:07:37 ?	00:00:00 lmkd
root	160	1	0	17:07:37 ?	00:00:00 vold --blkid_context=u:r:blkid:s0 --blkid_untrusted_context=u:r:blkid_untrusted:s0 --fsck_context=u:r:fsck:s0 --fsck_untrusted_context=u:r:fsck_untrusted:s0
tombstoned	255	1	0	17:07:38 ?	00:00:00 tombstoned
root	270	1	0	17:07:38 ?	00:00:00 netd
logd	319	1	0	17:07:38 ?	00:00:00 logcat -Q
root	383	1	0	17:07:39 ?	00:00:00 installd

```
generic_x86_64:/ $
```

Comando

```
generic_x86_64:/ $ ls -al /system/bin/ueventd
```

permissions	owner	group	size	date	time	path
lrwxr-xr-x	1	root	shell	4	2022-10-07 15:19	/system/bin/ueventd -> init