

# Android Debug Bridge: ADB

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## Introducción

- O **Android Debug Bridge ADB** é unha utilidade que permite comunicarse cun dispositivo virtual ou real.
- Esta composto dun servidor que sempre está funcionando no ordenador real e lánzase cando se inicia Eclipse ou cando se executa **adb start-server**. Este servidor sempre escucha nun porto impar comezando no 5555.
- O comando atópase no cartafol do SDK en **platform-tools/adb**.
- Funciona do mesmo xeito nos tres SOs.
- Máis información en: <http://developer.android.com/tools/help/adb.html>

## Dispositivos conectados

- Dispositivos conectados

```
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb
Android Debug Bridge version 1.0.31

-a           - directs adb to listen on all interfaces for a connection
-d           - directs command to the only connected USB device
-e           - returns an error if more than one USB device is present.
-e           - directs command to the only running emulator.
-s <specific device> - returns an error if more than one emulator is running.
-s <specific device> - directs command to the device or emulator with the given
                           serial number or qualifier. Overrides ANDROID_SERIAL
                           environment variable.
-p <product name or path> - simple product name like 'sooner', or
                           a relative/absolute path to a product
                           out directory like 'out/target/product/sooner'.
                           If '-p' is not specified, the ANDROID_PRODUCT_OUT
                           environment variable is used, which must
                           be an absolute path.
-H           - Name of adb server host (default: localhost)
-P           - Port of adb server (default: 5037)
devices [-l] - list all connected devices
                  ('-l' will also list device qualifiers)
connect <host>[:<port>] - connect to a device via TCP/IP
                           Port 5555 is used by default if no port number is specified.
disconnect [<host>[:<port>]] - disconnect from a TCP/IP device.
                           Port 5555 is used by default if no port number is specified.
                           Using this command with no additional arguments
                           will disconnect from all connected TCP/IP devices.

device commands:
adb push <local> <remote> - copy file/dir to device
adb pull <remote> [<local>] - copy file/dir from device
adb sync [ <directory> ] - copy host->device only if changed
                           (-l means list but don't copy)
                           (see 'adb help all')
adb shell - run remote shell interactively
adb shell <command> - run remote shell command
adb emu <command> - run emulator console command
adb logcat [<filter-spec> ] - View device log
adb forward --list - list all forward socket connections.
```

A execución do comando <ruta sdk>/platform-tools/adb amosa a axuda do mesmo.

```
● ladmin@ubase: ~
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb devices
List of devices attached
emulator-5554    device

ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb devices -l
List of devices attached
emulator-5554    device product:sdk_x86 model:Android_SDK_Built_for_x86 device:generic_x86
```

<ruta sdk>/platform-tools/adb devices amosa os dispositivos reais e virtuais conectados ao ordenador. Co parámetro -l amosa o tipo de dispositivo.

## O shell do dispositivo

- Permite executar comandos dentro do dispositivo android.
- Android está baseado en Linux, por tanto poderanxe executar moitos dos comandos dese SO nun dispositivo android.
- **Importante:** Para acceder en modo root en AVDs con versións de android 7 ou superior débese executuar antes de entrar nel:**adb root**.

- adb shell

```
● ladmin@ubase: ~
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb shell
root@generic_x86:/ #
```

<ruta sdk>/platform-tools/adb shell permite conectararse á consola do dispositivo. Ollo que neste exemplo hai un só dispositivo conectado, logo veremos como se actúa cando hai dous ou máis.

- ladmin@ubase: ~

```
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb shell
root@generic_x86:/ #
root@generic_x86:/ # pwd
/
root@generic_x86:/ #
```

A consola do dispositivo e a execución do comando **pwd**.

- ladmin@ubase: ~

```
root@generic_x86:/ # df
Filesystem      Size   Used   Free Blksize
/dev            249.5M  84.0K  249.4M  4096
/mnt/secure     249.5M  0.0K   249.5M  4096
/mnt/asec       249.5M  0.0K   249.5M  4096
/mnt/obb       249.5M  0.0K   249.5M  4096
/system        287.1M  287.1M  0.0K  4096
/data          194.0M  11.7M  182.3M  4096
/cache         64.0M   1.1M   62.9M  4096
/storage/sdcard 126.0M  8.5K   126.0M  512
/mnt/secure/asec 126.0M  8.5K   126.0M  512
root@generic_x86:/ #
```

A execución do comando **df** para ver os puntos de montaxe, os seus tamaños e consumos de espazo.

- ladmin@ubase: ~

```
root@generic_x86:/ # mount
rootfs / rootfs rw,relatime 0 0
tmpfs /dev tmpfs rw,seclabel,nosuid,relatime,mode=755 0 0
devpts /dev/pts devpts rw,seclabel,relatime,mode=600 0 0
proc /proc proc rw,relatime 0 0
sysfs /sys sysfs rw,seclabel,relatime 0 0
selinuxfs /sys/fs/selinux selinuxfs rw,relatime 0 0
debugfs /sys/kernel/debug debugfs rw,relatime 0 0
tmpfs /mnt/secure tmpfs rw,seclabel,relatime,mode=700 0 0
tmpfs /mnt/asec tmpfs rw,seclabel,relatime,mode=755,gid=1000 0 0
tmpfs /mnt/obb tmpfs rw,seclabel,relatime,mode=755,gid=1000 0 0
/dev/block/mtdblock0 /system yaffs2 ro,seclabel,relatime 0 0
/dev/block/mtdblock1 /data yaffs2 rw,seclabel,nosuid,nodev,relatime 0 0
/dev/block/mtdblock2 /cache yaffs2 rw,seclabel,nosuid,nodev,relatime 0 0
/dev/block/vold/179:0 /storage/sdcard vfat rw,dirsync,nosuid,nodev,noexec,relatime,uid=1000,gid=1015,fmask=0702,dmask=0702,allow_utime=0020,codepage=cp437,iocharset=iso8859-1,shortname=mixed,utf8,errors=remount-ro 0 0
tmpfs /storage/ndcard1 android_secure tmpfs ro,seclabel,relatime,size=0k,mode=060 0 0
root@generic_x86:/ #
```

A execución do comando **mount** que amosa en que directorios están montado os dispositivos físicos. Observar onde está montada a tarxeta SD, o formato de ficheiros, a codificación de caracteres, etc.

```
● ladmin@ubase: ~
root@generic_x86:/ # ls -l
drwxr-xr-x root      root          2013-10-26 03:25 acct
drwxrwx--- system    cache         2013-10-25 11:49 cache
dr-x----- root      root          2013-10-26 03:25 config
lrwxrwxrwx root      root          2013-10-26 03:25 d -> /sys/kernel/debug
drwxrwxr-x system   system        2013-10-25 13:10 data
-rw-r--r-- root      root          116 1969-12-31 19:00 default.prop
drwxr-xr-x root      root          2013-10-26 03:25 dev
lrwxrwxrwx root      root          2013-10-26 03:25 etc -> /system/etc
-rw-r--r-- root      root          8753 1969-12-31 19:00 file_contexts
-rw-r----- root      root          495 1969-12-31 19:00 fstab.goldfish
-rw-r----- root      root          359680 1969-12-31 19:00 init
-rw-r----- root      root          2668 1969-12-31 19:00 init.goldfish.rc
-rw-r----- root      root          19930 1969-12-31 19:00 init.rc
-rw-r----- root      root          1795 1969-12-31 19:00 init.trace.rc
-rw-r----- root      root          3915 1969-12-31 19:00 init.usb.rc
drwxrwxr-x root      system        2013-10-26 03:25 mnt
dr-xr-xr-x root      root          2013-10-26 03:25 proc
-rw-r--r-- root      root          2109 1969-12-31 19:00 property_contexts
drwxr----- root      root          2013-08-01 05:04 root
drwxr-x--- root      root          1969-12-31 19:00 sbin
lrwxrwxrwx root      root          2013-10-26 03:25 sdcard -> /storage/sdcard
-rw-r--r-- root      root          611 1969-12-31 19:00 seapp_contexts
-rw-r--r-- root      root          63747 1969-12-31 19:00 sepolicy
dr-xr-xr-x root      sdcard_r     2013-10-26 03:25 storage
drwxr-xr-x root      root          2013-10-26 03:25 sys
drwxr-xr-x root      root          2813-08-01 04:31 system
-rw-r--r-- root      root          272 1969-12-31 19:00 ueventd.goldfish.rc
-rw-r--r-- root      root          4824 1969-12-31 19:00 ueventd.rc
lrwxrwxrwx root      root          2013-10-26 03:25 vendor -> /system/vendor
root@generic_x86:/ #
```

**ls -l** amosa o contido en formato lista do directorio actual: o raíz. Na carpeta **data** ...

```
● ladmin@ubase: ~
root@generic_x86:/ # cd data
root@generic_x86:/data # ls
app
app-asec
app-lib
app-private
backup
bugreports
dalvik-cache
data  []
dontpanic
drm
local
lost+found
media
mediadrn
misc
nativebenchmark
nativetest
property
resource-cache
security
ssh
system
user
root@generic_x86:/data #
```

... está outra carpeta chamada **data** que ...

```
● ladmin@ubase: ~
root@generic_x86:/data # cd data
root@generic_x86:/data/data # ls
com.android.backupconfirm
com.android.browser
com.android.calculator2
com.android.calendar
com.android.camera
com.android.certinstaller
com.android.contacts
com.android.customlocale2
com.android.defcontainer
com.android.deskclock
com.android.development
com.android.development_settings
com.android.dialer
com.android.dreams.basic
com.android.emall
com.android.emulator.connectivity.test
com.android.emulator.gps.test
com.android.exchange
com.android.fallback
com.android.gallery
com.android.gesture.builder
com.android.htmlviewer
com.android.inputdevices
com.android.inputmethod.latin
com.android.inputmethod.pinyin
com.android.keychain
com.android.launcher
com.android.location.fused
com.android.mms
com.android.music
com.android.packageinstaller
com.android.phone
com.android.providers
com.android.providers.applications
com.android.providers.calendar
com.android.providers.contacts
com.android.providers.downloads
```

... contén as aplicacións instaladas no dispositivo. Entre elas unha chamada **com.android.providers.contacts**.

## Xestión dunha BBDD con sqlite3

- A modo de exemplo vaise ver como facer consultas básicas, dentro do dispositivo, co xestor **sqlite3**.
- Máis información en: <http://www.sqlite.org/>
- Vaise traballar coa bases de datos dos contactos do teléfono.

- **sqlite3**

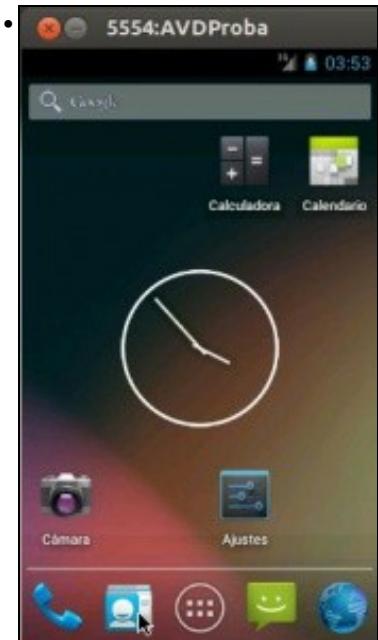
```
● ladmin@ubase: ~
root@generic_x86:/data/data # cd com.android.providers.contacts
root@generic_x86:/data/data/com.android.providers.contacts #
root@generic_x86:/data/data/com.android.providers.contacts # ls
cache
databases
files
lib
shared_prefs
```

Situarse na carpeta da aplicación. Toda aplicación ten unha estrutura de ficheiros semellante. Hai un directorio chamado **databases**.

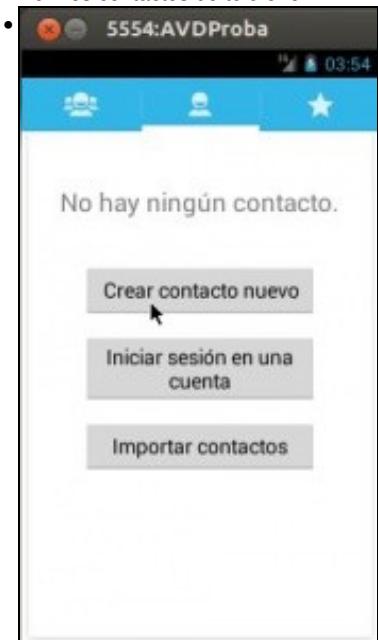
- 

```
● ladmin@ubase: ~
root@generic_x86:/data/data/com.android.providers.contacts # cd databases/
root@generic_x86:/data/data/com.android.providers.contacts/databases # ls
contacts2.db
contacts2.db-journal
profile.db
profile.db-journal
```

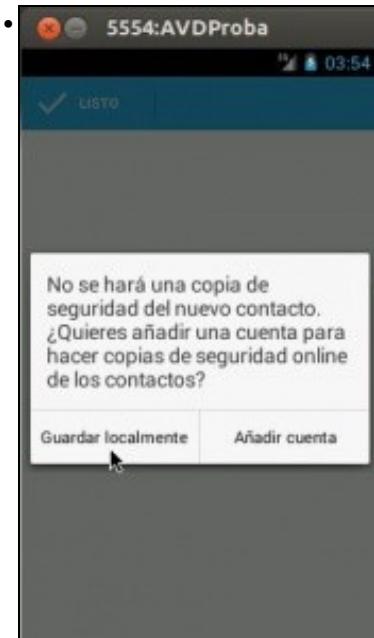
Contén un ficheiro sqlite3 que é unha base de datos chamada **contacts2.db**.



Abrir os contactos do teléfono.



Crear un novo contacto ...



Localmente ...



Indicar o nome e o número e gardar o contacto.



Volver á axenda.



Lista de contactos.

- ```
● ● ● ladmin@ubase: ~
root@genericlc_x86:/data/data/com.android.providers.contacts/databases # sqlite3>
Lanzar o xestor de Base de Datos. sqlite3 contacts2.db. Observar que consola se despraza cara ...
● ● ● ladmin@ubase: ~
te3 contacts2.db
... a dereita.
```
- ```
● ● ● ladmin@ubase: ~
te3 contacts2.db
SQLite version 3.7.11 2012-03-20 11:35:50
Enter ".help" for instructions
Enter SQL statements terminated with a ";"
```

Todo comando empeza por punto ".", salvo as sentencias sql, e estas deben rematar en ";".

```
● ladmin@base:~  
SQLite version 3.7.11 2012-03-28 11:35:50  
Enter ".help" for instructions  
Enter SQL statements terminated with a ";"  
sqlite>.help  
.backup ?DB? FILE      Backup DB (default "main") to FILE  
.ball ON|OFF           Stop after hitting an error. Default OFF  
.databases             List names and files of attached databases  
.dump ?TABLE? ...     Dump the database in an SQL text format  
                      If TABLE specified, only dump tables matching  
                      LIKE pattern TABLE.  
.echo ON|OFF            Turn command echo on or off  
.exit ?                Exit this program  
.explain ?ON|OFF?       Turn output mode suitable for EXPLAIN on or off.  
                      With no args, it turns EXPLAIN on.  
.header(s) ON|OFF       Turn display of headers on or off  
.help                  Show this message  
.import FILE TABLE     Import data from FILE into TABLE  
.indices ?TABLE?       Show names of all indices  
                      If TABLE specified, only show indices for tables  
                      matching LIKE pattern TABLE.  
.log FILE|off          Turn logging on or off. FILE can be stderr/stdout  
.mode MODE ?TABLE?    Set output mode where MODE is one of:  
                      csv   Comma-separated values  
                      column Left-aligned columns. (See .width)  
                      html  HTML <table> code  
                      insert SQL Insert statements for TABLE  
                      line  One value per line  
                      list  Values delimited by .separator string  
                      tabs  Tab-separated values  
                      tcl   TCL list elements  
.nullvalue STRING      Print STRING in place of NULL values  
.output FILENAME       Send output to FILENAME  
.output stdout         Send output to the screen  
.prompt MAIN CONTINUE Replace the standard prompts  
.quit                 Exit this program  
.read FILENAME        Execute SQL in FILENAME  
.restore ?DB? FILE     Restore content of DB (default "main") from FILE  
.schema ?TABLE?       Show the CREATE statements  
                      If TABLE specified, only show tables matching  
                      LIKE pattern TABLE.  
.
```

.help amosa a axuda do xestor.

```
● ladmin@base:~  
.explain ?ON|OFF?       Turn output mode suitable for EXPLAIN on or off.  
                      With no args, it turns EXPLAIN on.  
.header(s) ON|OFF       Turn display of headers on or off  
.help                  Show this message  
.import FILE TABLE     Import data from FILE into TABLE  
.indices ?TABLE?       Show names of all indices  
                      If TABLE specified, only show indices for tables  
                      matching LIKE pattern TABLE.  
.log FILE|off          Turn logging on or off. FILE can be stderr/stdout  
.mode MODE ?TABLE?    Set output mode where MODE is one of:  
                      csv   Comma-separated values  
                      column Left-aligned columns. (See .width)  
                      html  HTML <table> code  
                      insert SQL Insert statements for TABLE  
                      line  One value per line  
                      list  Values delimited by .separator string  
                      tabs  Tab-separated values  
                      tcl   TCL list elements  
.nullvalue STRING      Print STRING in place of NULL values  
.output FILENAME       Send output to FILENAME  
.output stdout         Send output to the screen  
.prompt MAIN CONTINUE Replace the standard prompts  
.quit                 Exit this program  
.read FILENAME        Execute SQL in FILENAME  
.restore ?DB? FILE     Restore content of DB (default "main") from FILE  
.schema ?TABLE?       Show the CREATE statements  
                      If TABLE specified, only show tables matching  
                      LIKE pattern TABLE.  
.separator STRING      Change separator used by output mode and .import  
.show                 Show the current values for various settings  
.stats ON|OFF          Turn stats on or off  
.tables ?TABLE?       List names of tables  
                      If TABLE specified, only list tables matching  
                      LIKE pattern TABLE.  
.timeout MS            Try opening locked tables for MS milliseconds  
.vfsname ?AUX?         Print the name of the VFS stack  
.width NUM1 NUM2 ...   Set column widths for "column" mode  
.timer ON|OFF          Turn the CPU timer measurement on or off  
sqlite> ■
```

O resto da axuda do xestor.

```
•sqlite> .databases
seq name      file
...
0 main       /data/data/com.android.providers.contacts/databases/contact
```

.databases amosa a base de datos á que se está conectado.

```
•sqlite> .show
    echo: off
    explain: off
    headers: off
    mode: list
nullvalue: ""
    output: stdout
separator: "|"
    stats: off
    width:
sqlite>
```

.show amosa os valores para distintos parámetros de configuración, entre eles, mode.

```
•sqlite> .tables
_sync_state      phone_lookup      view_data_usage_stat
_sync_state_metadata photo_files     view_entities
accounts          properties        view_groups
agg_exceptions   raw_contacts     view_raw_contacts
android_metadata  search_index    view_raw_entities
calls             search_index_content view_stream_items
contacts         search_index_docsizes view_v1_contact_methods
data              search_index_segdir  view_v1_extensions
data_usage_stat  search_index_segments view_v1_group_membership
default_directory search_index_stat  view_v1_groups
deleted_contacts settings        view_v1_organizations
directories       status_updates   view_v1_people
groups           stream_item_photos view_v1_phones
mimetypes        stream_items    view_v1_photos
name_lookup      v1_settings    visible_contacts
nickname_lookup  view_contacts  voicemail_status
packages         view_data
sqlite>
```

.tables amosa as táboas da BD.

```
•sqlite> select * from raw_contacts
...> ;
1|1|0|2|1|0|1|0|0||0|0|AA_Casa|AA_Casa|40||0|AA_Casa|A|1|AA_Casa|A|1|0|||||
```

select \* from raw\_contacts (observar que falta o ";", o cal é introducido na seguinte liña). Amosa os nomes dos contactos.

```
•sqlite> select * from view_v1_phones;
1|1|0|(986) 000-111|1||111000689|AA_Casa|AA_Casa|||||0|||0|0|||||||
```

select \* from view\_v1\_phones; amosa os números de teléfono.

```
•.mode MODE ?TABLE?      Set output mode where MODE is one of:
  |      csv      Comma-separated values
  column  Left-aligned columns. (See .width)
  html    HTML <table> code
  insert  SQL insert statements for TABLE
  line   One value per line
  list   Values delimited by .separator string
  tabs   Tab-separated values
  tcl    TCL list elements
```

Executando .help vease como poder cambiar o modo en que se visualiza o contido dunha táboa.

- ```
sqlite> .mode line
sqlite> select * from raw_contacts;]
      _id = 1
      account_id = 1
      sourced_id =
raw_contact_is_read_only = 0
      version = 2
      dirty = 1
      deleted = 0
      contact_id = 1
      aggregation_mode = 0
      aggregation_needed = 0
      custom_ringtone =
      send_to voicemail = 0
      times_contacted = 0
last_time_contacted =
      starred = 0
      display_name = AA_Casa
      display_name_alt = AA_Casa
      display_name_source = 40
      phonetic_name =
phonetic_name_style = 0
      sort_key = AA_Casa
      phonebook_label = A
      phonebook_bucket = 1
      sort_key_alt = AA_Casa
      phonebook_label_alt = A
      phonebook_bucket_alt = 1
      name_verified = 0
      sync1 =
      sync2 =
      sync3 =
      sync4 =
```

.mode line indica que amose cada campo dunha táboa co seu valor nunha liña por campo. **select \* from raw\_contacts;**

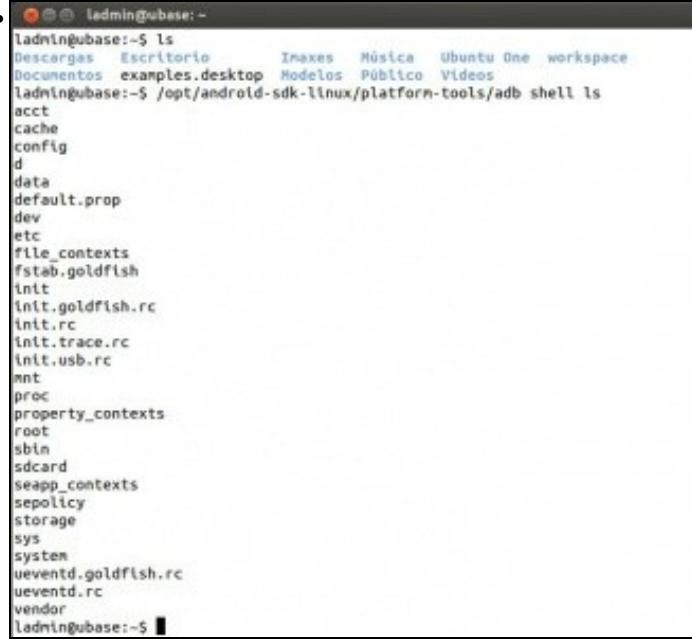
- ```
sqlite> .exit
1|root@generic_x86:/data/data/com.android.providers.contacts/databases #
```

.exit serve para saír do xestor e volver á consola do dispositivo.

- 

```
ladmin@ubase:~#
root@generic_x86:/data/data/com.android.providers.contacts/databases # exit
ladmin@ubase:~$ ls
Descargas Escritorio Imaxes Música Ubuntu One workspace
Documentos examples.desktop Modelos Público Videos
ladmin@ubase:~$
```

Con **exit** saímos da consola do dispositivo e volvemos á consola do ordenador.

- 

```
ladmin@ubase:~#
ladmin@ubase:~$ ls
Descargas Escritorio Imaxes Música Ubuntu One workspace
Documentos examples.desktop Modelos Público Videos
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb shell ls
acct
cache
config
d
data
default.prop
dev
etc
file_contexts
fstab.goldfish
init
init.goldfish.rc
init.rc
init.trace.rc
init.usb.rc
mnt
proc
property_contexts
root
sbin
sdcard
seapp_contexts
sepolicy
storage
sys
system
ueventd.goldfish.rc
ueventd.rc
vendor
ladmin@ubase:~$
```

Con **adb shell comando** execútase o comando na consola do dispositivo e a saída amósase na consola do ordenador.

**Nota:** Se queremos reiniciar o dispositivo teremos que executar, dentro do shell, as seguintes ordes:

◊ stop  
◊ start

Con isto faremos o 'efecto' de reiniciar. Isto é necesario no caso de ter un servizo que se executa cando se acende o dispositivo Android e queiramos comprobar o seu funcionamento.

## Sacar ficheiros do dispositivo

- Outra das funcionalidades que nos permite é sacar ficheiros/carpetas do dispositivo.

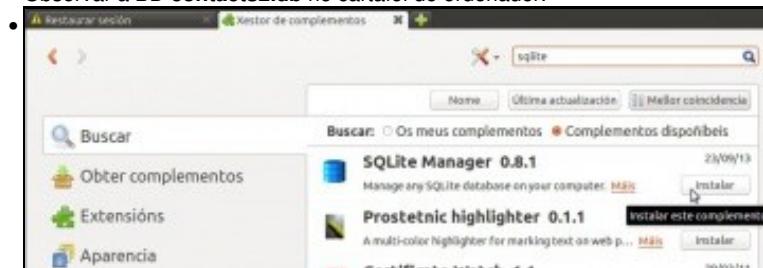
- adb pull

```
ladmin@ubase: ~
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb pull /data/data/com.android.providers.contacts/databases/contacts2.db
```

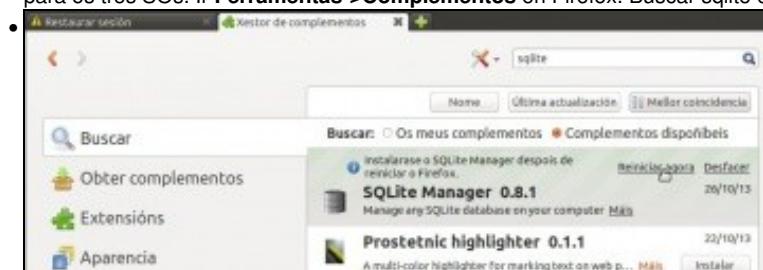
Neste caso sácase do dispositivo a BD anterior de contactos: **contacts2.db**. Co parámetro: **adb pull. (<ruta sdk>/platform-tools/adb pull /data/data/com.android.providers.contacts/databases/contacts2.db)**

```
ladmin@ubase: ~
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb pull /data/data/com.android.providers.contacts/databases/contacts2.db
1263 KB/s (307200 bytes in 0.237s)
ladmin@ubase:~$ ls
contacts2.db  Escritorio      Modelos   Ubuntu One
Descargas       examples.desktop  Música    Videos
Documentos     Imaxes          Público   workspace
ladmin@ubase:~$
```

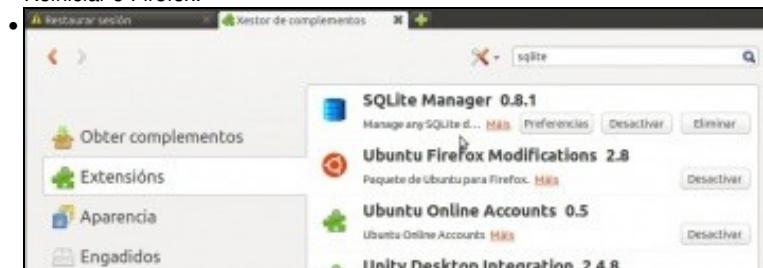
Observar a BD **contacts2.db** no cartafol do ordenador.



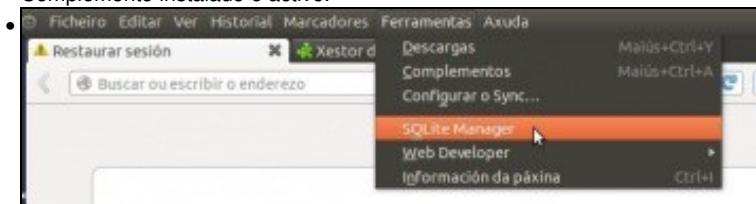
Existen moitos xestores para manipular BBDD sqlite3, neste caso vaise instalar no ordenador un complemento no Mozilla Firefox e así vale para os tres SOs. Ir **Ferramentas->Complementos** en Firefox. Buscar sqlite e instalar o complemento **Sqlite Manager**



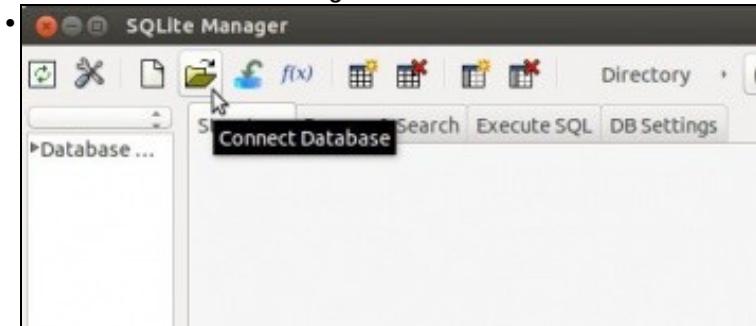
Reinic peace o Firefox.



Complemento instalado e activo.



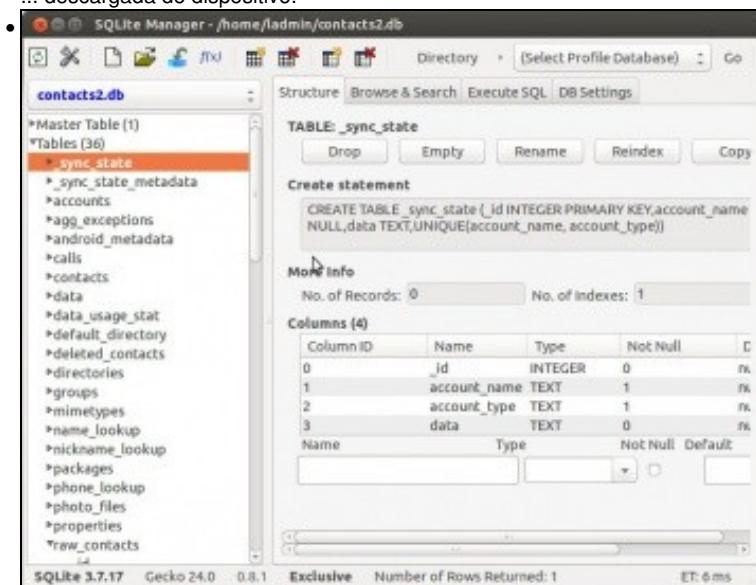
En **Ferramentas->SQLite Manager** ábrese o xestor de BBDD.



Conectar á BD ...



... descargada do dispositivo.

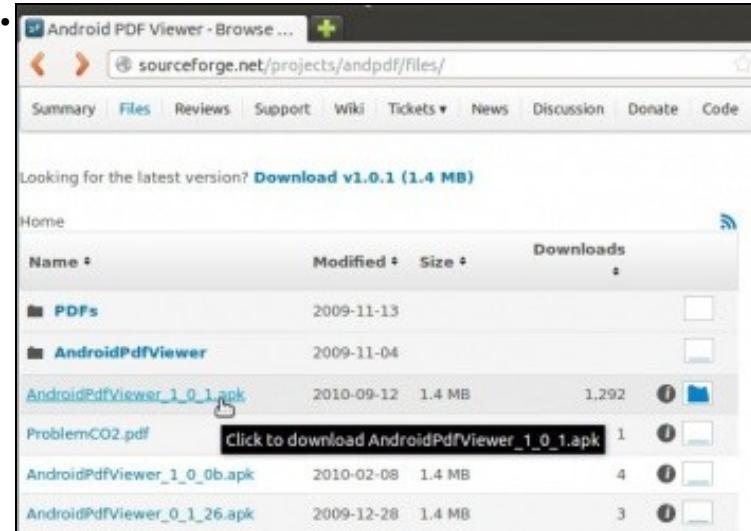


Agora pódese manipular a BD.

## Instalar unha aplicación

- As aplicacións instalables teñen extensión **apk** como se verá na UNIDADE 2 do curso: **adb install**.
- Neste caso vaise baixar de internet un visor PDF moi sinxelo para Android.

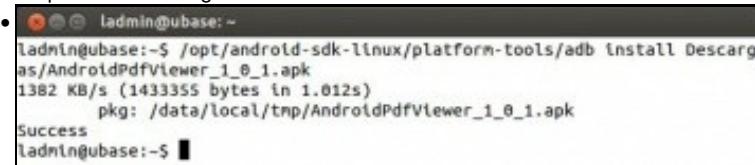
- adb install



Descargar o .apk do visor PDF de <http://sourceforge.net/projects/andpdf/files/>



A aplicación descargada.



<ruta sdk>/platform-tools/adb install Descargas/AndroidPdfViewer\_1\_0\_1.apk instalará o paquete no dispositivo.



A aplicación instalada.

```
• ladmin@ubase: ~
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb shell ls /data/
data/
```

A aplicación instalada no directorio /data/data/ ...

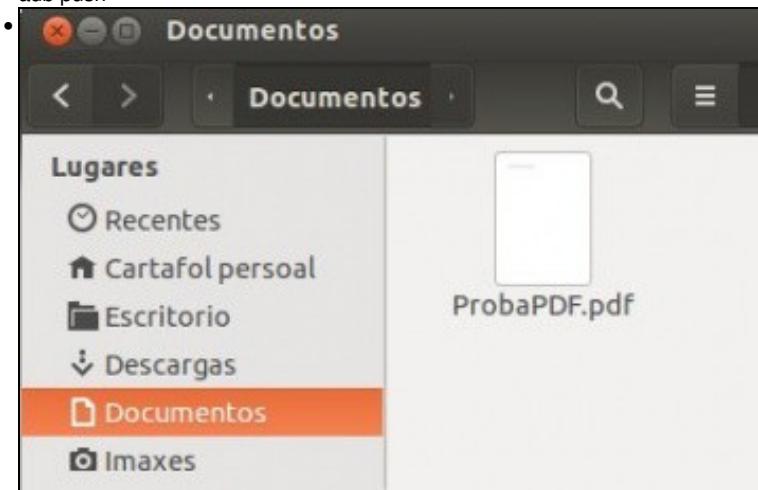
```
• ladmin@ubase: ~
com.android.widgetpreview
com.example.android.apis
com.example.android.liveweb
com.example.android.softkeyboard
com.svox.pico
jp.co.omronsoft.openwnn
net.sf.andpdf.pdfviewer
```

... do dispositivo.

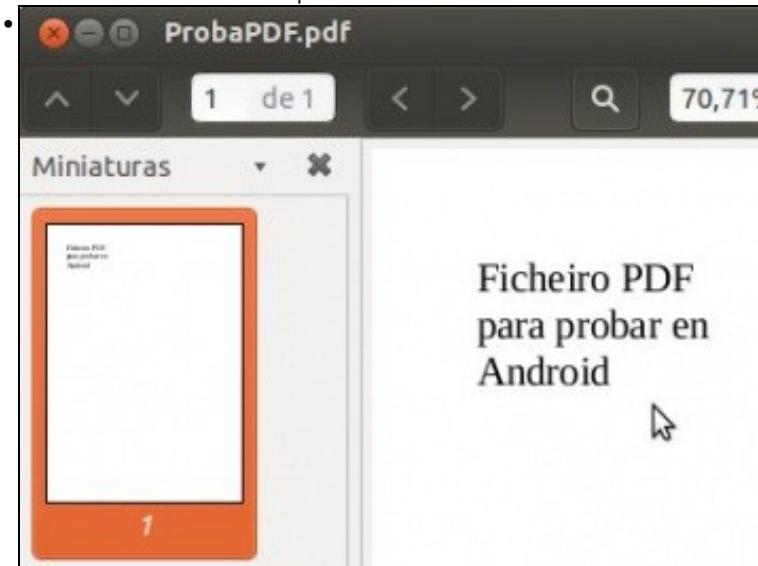
## Introducir ficheiro no dispositivo

- Ao igual que se sacan ficheiros do dispositivo tamén se poden introducir ficheiros no mesmo: **adb push**.

- adb push



Crear un documento PDF de proba ou escoller un xa feito.



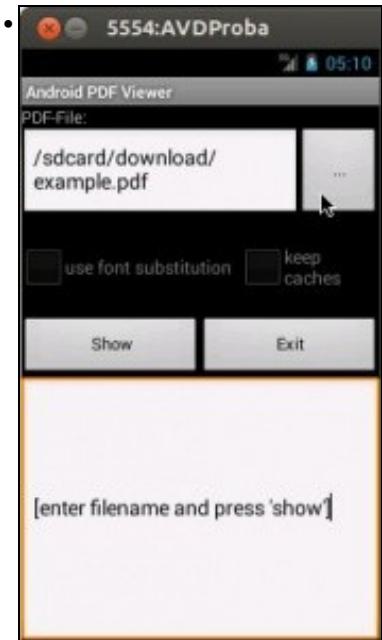
O contido do documento PDF.

```
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb shell ls
acct
cache
config
d
data
default.prop
dev
etc
file_contexts
fstab.goldfish
init
init.goldfish.rc
init.rc
init.trace.rc
init.usb.rc
mnt
proc
property_contexts
root
sbin
sdcard
seapp_contexts
sepolicy
storage
sys
system
ueventd.goldfish.rc
ueventd.rc
vendor
```

Imos introducilo no directorio asociado á SD card: **sdcard**

```
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb push Documentos/
/ProbaPDF.pdf /sdcard/
67 KB/s (8634 bytes in 0.125s)
ladmin@ubase:~$
```

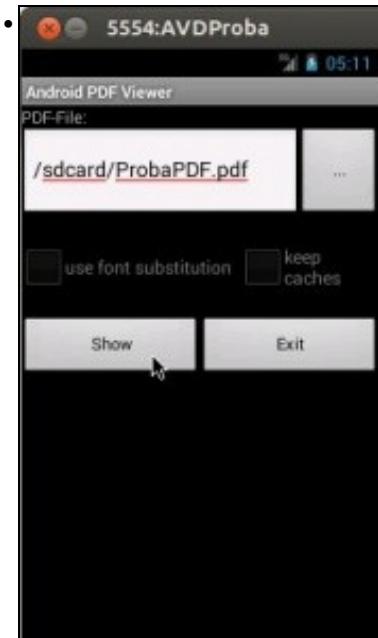
<ruta sdk>/platform-tools/adb push Documentos/ProbaPDF.pdf /sdcard/



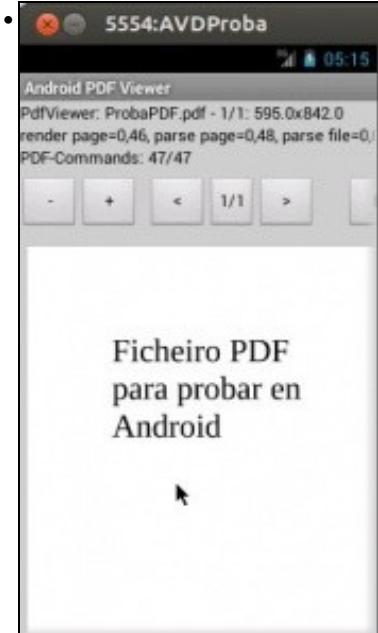
Abrir o visor de PDFs no dispositivo e navegar ...



até /sdcard e



abrir o documento premendo en **Show**.



O contido no documento visto no dispositivo.

```
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb shell ls /sdcard/
Alarms
Android
DCIM
Download
LOST.DIR
Movies
Music
Notifications
Pictures
Podcasts
ProbaPDF.pdf
Ringtones
ladmin@ubase:~$
```

**adb shell ls /sdcard** amosa que o documento está na tarxeta SD.

## Desinstallar unha aplicación do dispositivo

- Ao igual que se pode instalar unha aplicación tamén se pode desinstallar: **adb uninstall**.
- Tamén se pode realizar de modo gráfico.

- adb uninstall



En modo gráfico desinstálase unha aplicación mantendo pulsada e arrastrándoa ao lixo. Vaise realizar con adb.

```
• ladmin@ubase: ~
con.android.widgetpreview
con.example.android.apis
con.example.android.livecubes
con.example.android.softkeyboard
com.svox.pico
jp.co.onronsoft.openwnn
net.sf.andpdf.pdfviewer
```

En /data/data podemos ver o nome da aplicación.

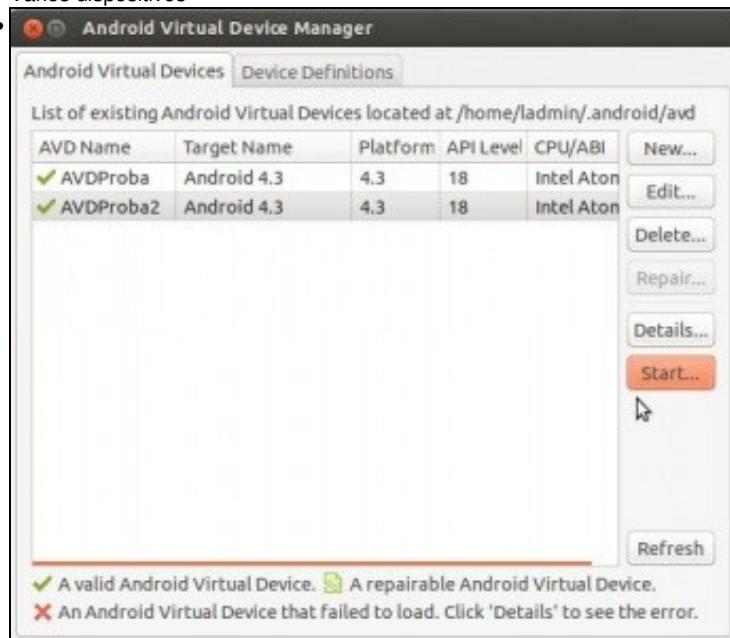
```
• ladmin@ubase: ~
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb uninstall net.sf.andpdf.pdfviewer
Success
```

<ruta sdk>/platform-tools/adb uninstall net.sf.andpdf.pdfviewer

## Varios dispositivos

- Até agora só traballamos con adb cun só dispositivo. Como actuar cando hai máis dun dispositivo real ou virtual?.

- Varios dispositivos



Crear un segundo AVD: **AVDProba2**.



Iniciar os 2 AVDs.

```
● ladmin@ubase: ~
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb kill-server
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb devices
* daemon not running. starting it now on port 5037 *
* daemon started successfully *
List of devices attached
emulator-5554    device
emulator-5556    device
```

Parar o servidor adb: <ruta sdk>/platform-tools/adb kill-server

```
● ladmin@ubase: ~
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb devices
List of devices attached
emulator-5554    device
emulator-5556    device

ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb -s emulator-5556 shell ls
acct
cache
config
```

Buscar os dispositivos conectados: **adb devices**. Observar como se inicia o servidor adb.

```
● ladmin@ubase: ~
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb devices
List of devices attached
emulator-5554    device
emulator-5556    device

ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb -s emulator-5556 shell ls
acct
cache
config
```

Agora, cando hai máis dun dispositivo, para conectarase a un concreto hai que especificalo, sexa este real ou virtual: usando o parámetro **-s nome do dispositivo**. Neste caso **adb -s emulator-5556 shell ls** amosa o contido da raíz do segundo AVD.

## Conectar un dispositivo físico

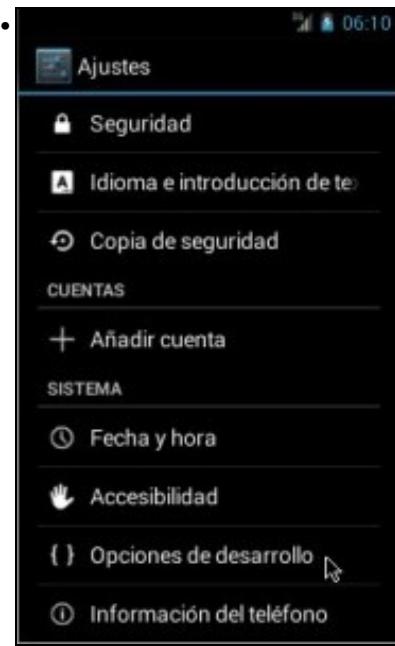
- Agora tócalle a quenda aos dispositivos físicos.
- Hai que habilitar a **Depuración USB**
- Dispositivo físico



Se non aparece en Ajustes->{ } Opciones de desarrollo. Ir a Ajustes -> Información del teléfono.



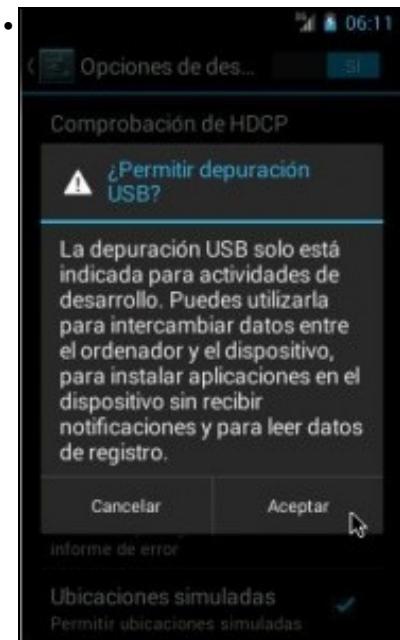
Pulsar 7 veces sobre Número de compilación e xa aparece ...



... { } **Opciones de desarrollo**. Premer nesa opción. En versións más antiguas ir a **Ajustes-> Aplicaciones->Desarrollo**



Habilitar **Depuración USB**



Aceptar as advertencias.

```
● ladmin@ubase: ~
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb devices -l
List of devices attached
emulator-5554      device product:sdk_x86 model:Android_SDK_built_for_x86
emulator-5556      device product:sdk_x86 model:Android_SDK_built_for_x86
20e62b4d          device usb:1-2
```

<ruta sdk>/platform-tools/adb devices -l amosa o nome dos dispositivos e onde está conectado.

```
● ladmin@ubase: ~
ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb devices
List of devices attached
emulator-5554      device
emulator-5556      device
20e62b4d          device

ladmin@ubase:~$ /opt/android-sdk-linux/platform-tools/adb -s 20e62b4d shell ls
efs
config
cache
```

<ruta sdk>/platform-tools/adb -s nome-dispositivo é para interactuar con ese dispositivo, neste caso físico.

## Conectar un dispositivo físico en Windows

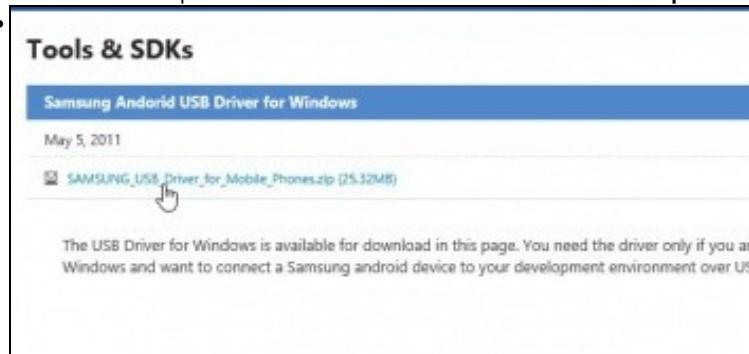
- En Linux e OS X non é preciso instalar o driver do dispositivo para conectarse a el, pero en Windows si.
- Neste caso vaise usar de exemplo un dispositivo físico Samsung.

- Dispositivo físico en Windows

```
C:\Windows\system32\cmd.exe
c:\Program Files (x86)\Android\android-sdk\platform-tools>adb start
* daemon not running. starting it now on port 5835 *
* daemon started successfully *
List of devices attached
```

```
c:\Program Files (x86)\Android\android-sdk\platform-tools>
```

Conectamos o dispositivo físico ao ordenador Windows e <ruta sdk>/platform-tools/adb devices non amosa nada.

- **Tools & SDKs**  


Samsung Andorid USB Driver for Windows  
May 5, 2011  
SAMSUNG\_USB\_Driver\_for\_Mobile\_Phones.zip (25.32MB)

The USB Driver for Windows is available for download in this page. You need the driver only if you are Windows and want to connect a Samsung android device to your development environment over US

Neste caso buscamos o driver do dispositivo.

- 

Ficheiro Inicio Compartir Ver Xestionar SAM  
Favoritos Nome  
Descargas SAMSUNG\_USB\_Driver\_for\_Mobile\_Phones  
Escritorio

Descargalo e instalalo.

- 

Asistente para la compatibilidad de programas  
El programa podría no haberse instalado correctamente  
SAMSUNG USB Driver for Mobile Phones  
SAMSUNG Electronics Co., Ltd.  
Si el programa no se instaló correctamente, intente instalarlo mediante la configuración de compatibilidad.

Instalar mediante la configuración de compatibilidad  
El programa se instaló correctamente  
Pechar

Aceptar as advertencias que amose.

- 

Control de contas de usuario  
Desexa permitir que este programa realice modificóns no computador?

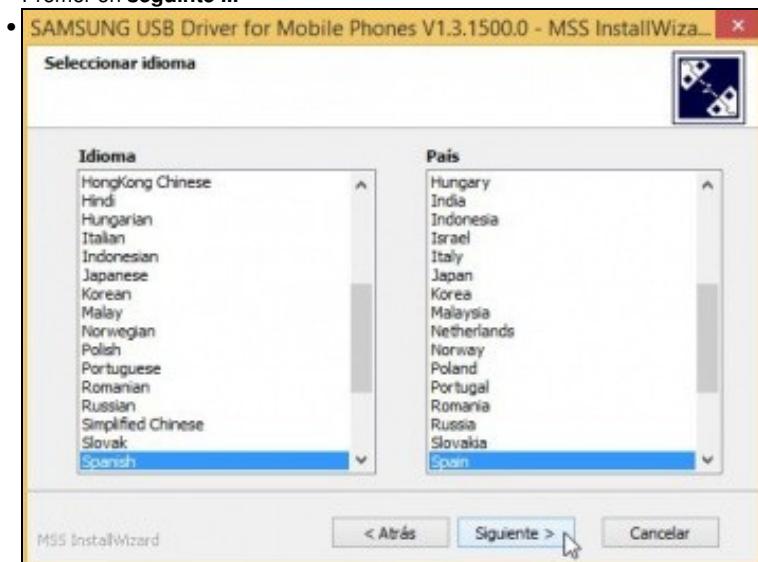
Nome do programa: SAMSUNG USB Driver for Mobile Phones  
Fabricante verificado: SAMSUNG ELECTRONICS CO.,LTD.  
Orixe do ficheiro: Disco ríxido deste computador

Mostrar detalles Si Non  
Modificar a frecuencia con que aparecen estas notificacións

Seguir aceptando ...



Premir en siguiente ...



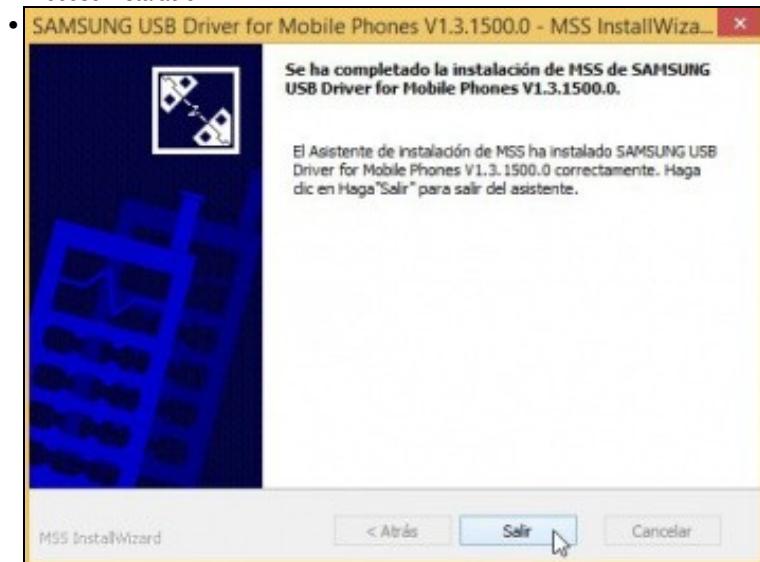
Seleccionar o que indique ...



Instalar ...



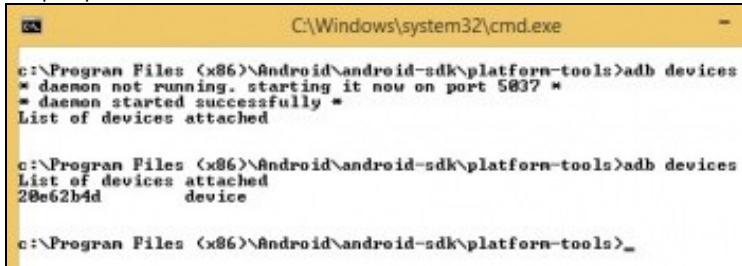
Proceso instalación ...



Rematar instalación.



Aceptar por última vez.

- C:\Windows\system32\cmd.exe

```
c:\Program Files (x86)\Android\android-sdk\platform-tools>adb devices
* daemon not running. starting it now on port 5037 *
* daemon started successfully *
List of devices attached

c:\Program Files (x86)\Android\android-sdk\platform-tools>adb devices
List of devices attached
20e62b4d    device

c:\Program Files (x86)\Android\android-sdk\platform-tools>_
```

<ruta sdk>/platform-tools/adb devices amosa o dispositivo físico conectado ao ordenador.

-- Ángel D. Fernández González e Carlos Carrión Álvarez -- (2020).