Navaneetan M mr.navaneetan@gmail.com

ADB and Frida Set-up for Android pentest

3. Android Debug Bridge (ADB) Setup:

What is ADB?

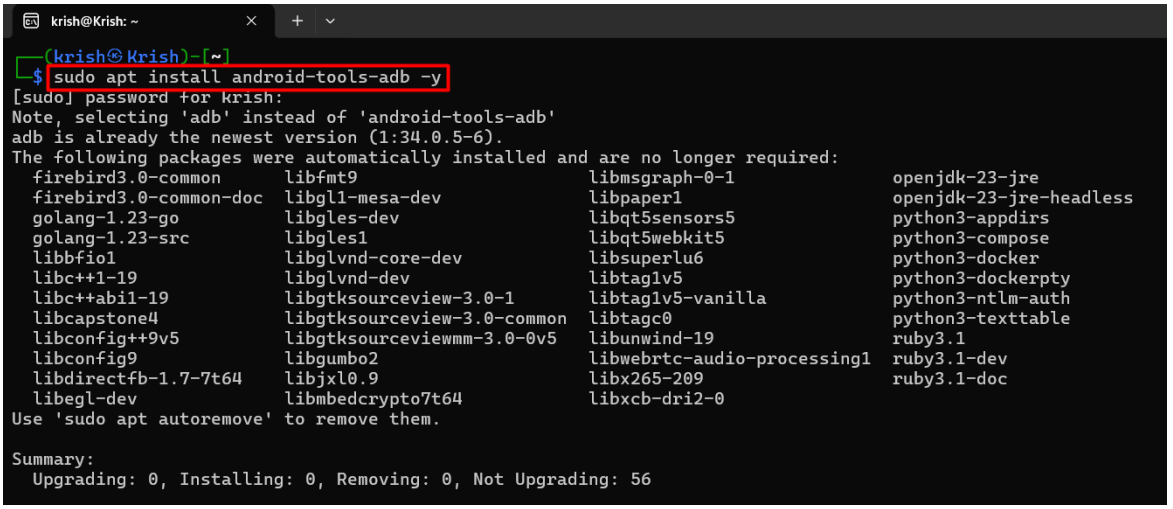
ADB (Android Debug Bridge) is a command-line tool provided by the Android SDK that allows you to communicate with Android devices (real or emulated) from your computer. It's commonly used by developers and security testers for debugging, installing apps, accessing logs, and exploring system internals.

Steps for setting up ADB in Linux:

Step 1:

In the Linux command line, install the ADB using the following command:

Command - sudo apt install android-tools-adb -y



Step 2:

Verify the installation by giving the following command.

Command - adb version

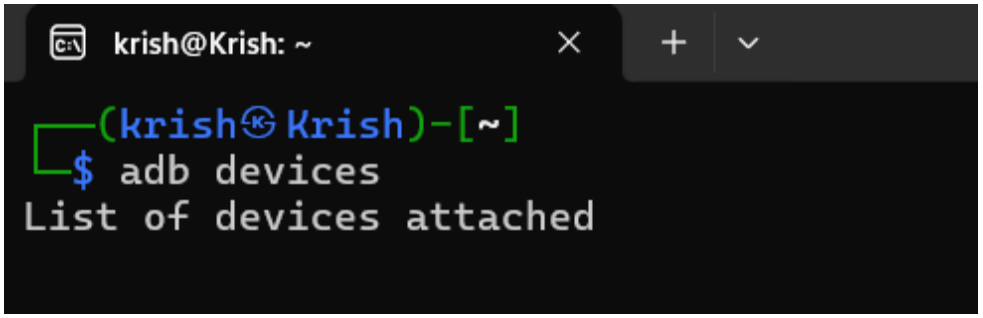
```
┌──(krish㉿Krish)-[~]
└─$ adb version
Android Debug Bridge version 1.0.41
Version 34.0.5-debian
Installed as /usr/lib/android-sdk/platform-tools/adb
Running on Linux 5.15.167.4-microsoft-standard-WSL2 (x86_64)
```

Step 3:

Now verify whether adb can detect the devices for interaction.

Command – adb devices

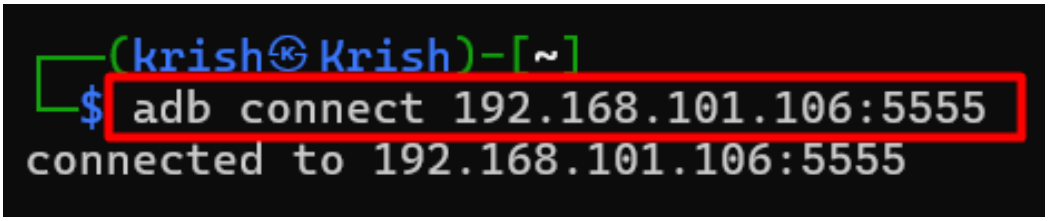
Since we are using adb in wsl , it cannot access the emulator directly. But this command will connect to devices if it is a native linux environment.



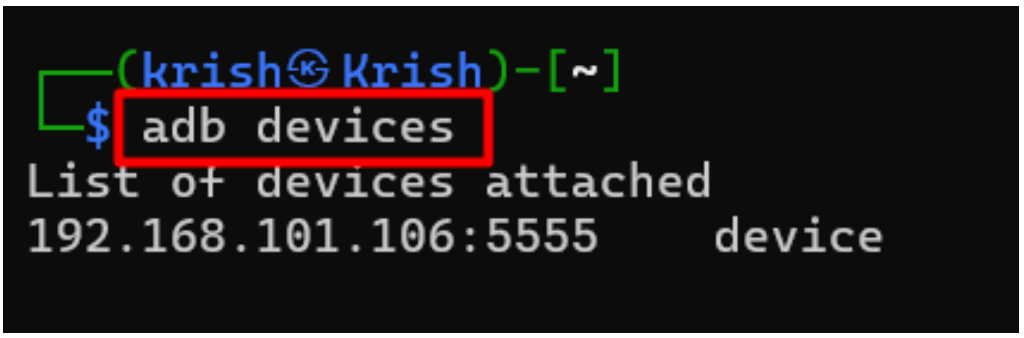
Step 4:

To connect the emulator to wsl, enter the following command.

Command – adb connect <IP> <Port>



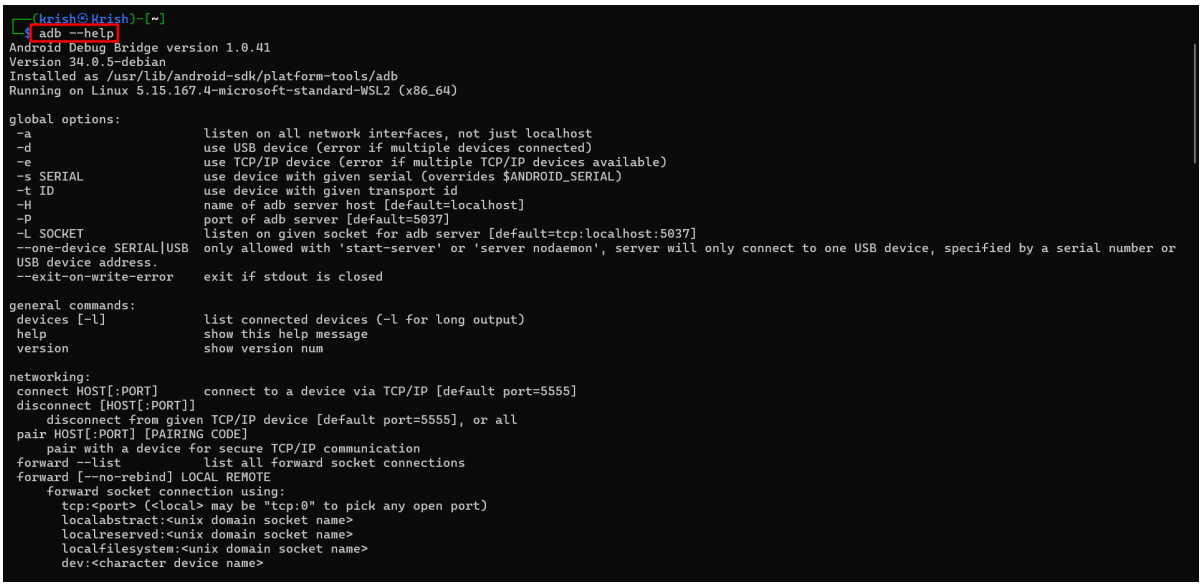
Now, that adb is able to find the devices.



Step 5:

Go through the usage options of adb to get familiar with it.

Command – adb --help



4. Frida setup

What is Frida?

Frida is a dynamic instrumentation toolkit used to hook into apps at runtime — ideal for bypassing root detection, modifying logic, and inspecting in-memory behavior.

To use frida we need to set up two tools, one is Frida – CLI tool and Frida Server into the emulator.

Frida installation steps:

Step 1:

Install frida using the following command in Linux CLI.

Command - pip3 install frida-tools

```
┌──(krish㉿Krish)-[~]
└─$ pip3 install frida-tools --break-system-packages
Defaulting to user installation because normal site-packages is not writeable
Collecting frida-tools
  Downloading frida-tools-13.7.1.tar.gz (4.6 MB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 4.6/4.6 MB 12.0 MB/s eta 0:00:00
  Installing build dependencies ... done
  Getting requirements to build wheel ... done
  Preparing metadata (pyproject.toml) ... done
Requirement already satisfied: colorama<1.0.0,>=0.2.7 in /usr/lib/python3/dist-packages (from frida-tools) (0.4.6)
Collecting frida<17.0.0,>=16.2.2 (from frida-tools)
  Downloading frida-16.7.14-cp37-abi3-manylinux_2_5_x86_64.whl.metadata (2.3 kB)
Requirement already satisfied: prompt-toolkit<4.0.0,>=2.0.0 in /usr/lib/python3/dist-packages (from frida-tools) (3.0.50)
Requirement already satisfied: pygments<3.0.0,>=2.0.2 in /usr/lib/python3/dist-packages (from frida-tools) (2.18.0)
Collecting websockets<14.0.0,>=13.0.0 (from frida-tools)
  Downloading websockets-13.1-cp312-cp312-manylinux_2_5_x86_64.manylinux1_x86_64.manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (6.8 kB
)
Requirement already satisfied: wcwidth in /usr/lib/python3/dist-packages (from prompt-toolkit<4.0.0,>=2.0.0->frida-tools) (0.2.13)
Downloading frida-16.7.14-cp37-abi3-manylinux_2_5_x86_64.whl (30.3 MB)
     ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━ 30.3/30.3 MB 15.7 MB/s eta 0:00:00
Downloading websockets-13.1-cp312-cp312-manylinux_2_5_x86_64.manylinux1_x86_64.manylinux_2_17_x86_64.manylinux2014_x86_64.whl (165 kB)
Building wheels for collected packages: frida-tools
  Building wheel for frida-tools (pyproject.toml) ... done
  Created wheel for frida-tools: filename=frida_tools-13.7.1-py3-none-any.whl size=4639124 sha256=417f88c6b9990aacd3613e47633fe7d3cffa1cd49454c4
94cc9210474d0ea264
  Stored in directory: /home/krish/.cache/pip/wheels/da/e1/be/e53e57fea97f1b17a6e8933c1a7350183632174467089549 24
Successfully built frida-tools
```

Step 2:

Verify the installation.

Command – frida --version

```
┌──(krish㉿Krish)-[~]
└─$ frida --version
16.7.14
```

Frida server installation steps:

Step 1:

Find the architecture of your android emulator.

Command - adb shell getprop ro.product.cpu.abi

```
┌──(krish㉿Krish)-[~]
└─$ adb shell getprop ro.product.cpu.abi
x86_64
```

Step 2:

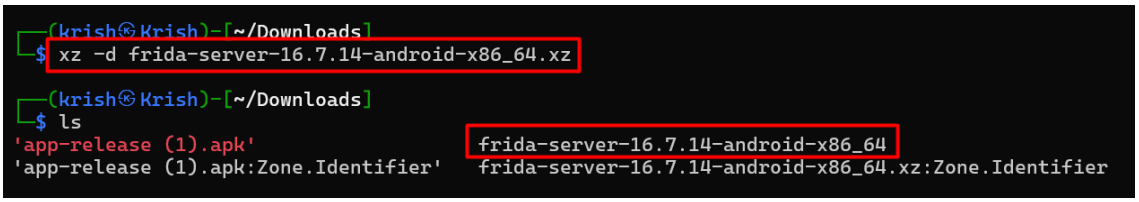
Now, navigate to the frida GitHub repo and download the frida server for your specific architecture.

Ours is x86_64.

Step 3:

Unzip the downloaded file.

Command – xz –d filename



Step 4:

Remain the Frida server for simpler accessibility.

```
┌──(krish㉿Krish)-[~/Downloads]
└─$ mv frida-server-16.7.14-android-x86_64 frida-server

┌──(krish㉿Krish)-[~/Downloads]
└─$ ls
'app-release (1).apk'                   frida-server
'app-release (1).apk:Zone.Identifier'   frida-server-16.7.14-android-x86_64.xz:Zone.Identifier
```

Step 5:

Move the frida server to the emulator in the below given path.

Command - adb push frida-server /data/local/tmp

```
┌──(krish㉿Krish)-[~/Downloads]
└─$ adb push frida-server /data/local/tmp
frida-server: 1 file pushed, 0 skipped. 45.5 MB/s (114296792 bytes in 2.398s)
```

Step 6:

1. Now the frida server is moved to the emulator, we can move to start up.
2. Get shell access to the emulator. Command – adb shell
3. Navigate to /data/local/tmp, here will find the frida-server.
4. Give the frida-server executable permission for execution.

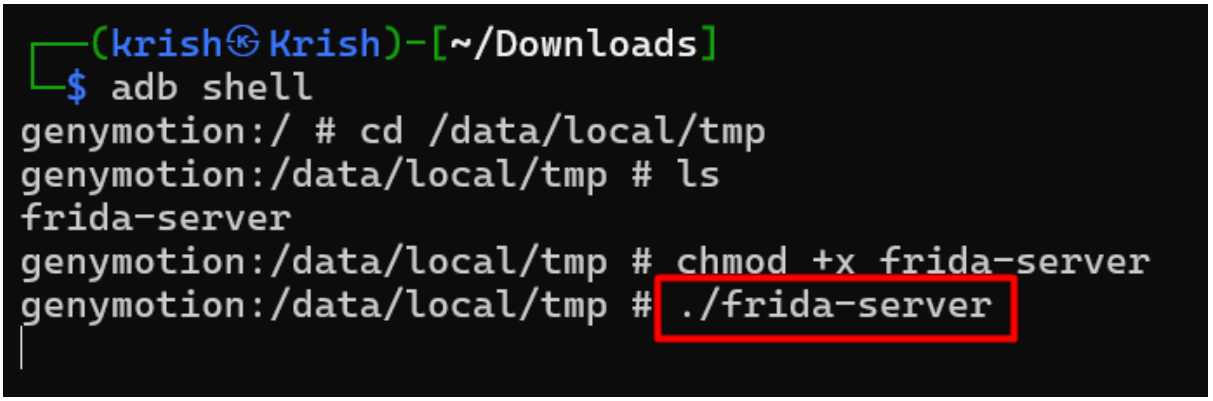
```
┌──(krish㉿Krish)-[~/Downloads]
└─$ adb shell
genymotion:/ # cd /data/local/tmp
genymotion:/data/local/tmp # ls
frida-server
genymotion:/data/local/tmp # chmod +x frida-server
genymotion:/data/local/tmp #
```

Step 7:

After giving executable permission, run the frida-server.

Command - ./frida-server

Once the server is started the current terminal will not be accessible, we can also background this process by using “&” if we need to access the terminal of the emulator.



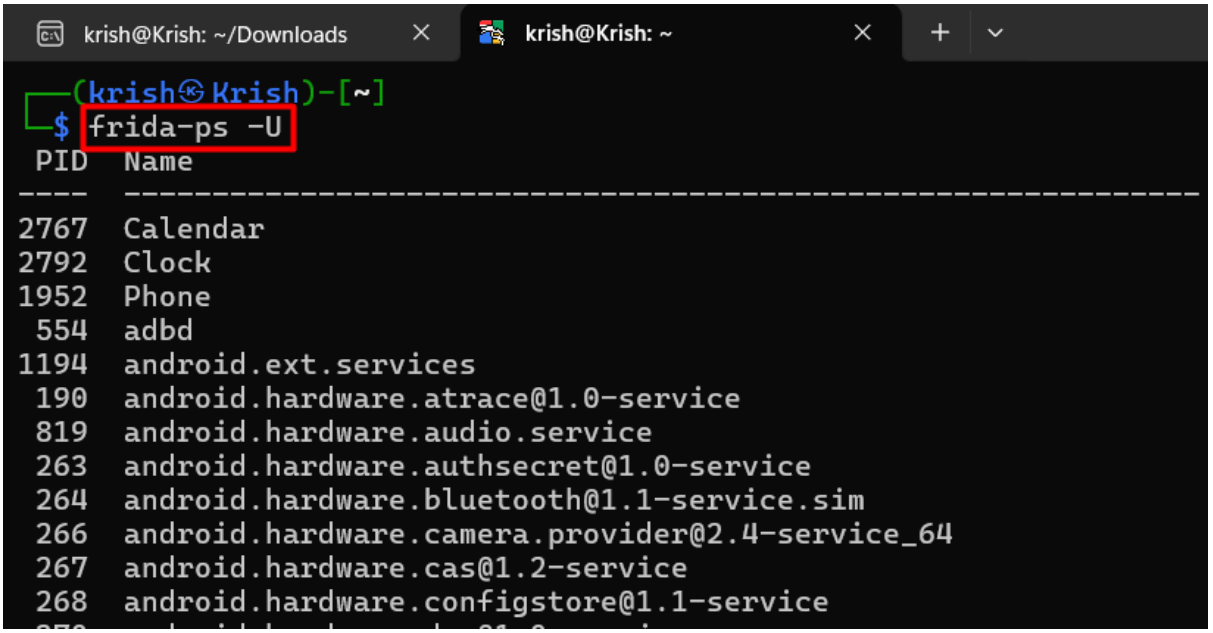
Step 8:

Verify the working of frida-server by running the following command on the host machine.

Command - frida-ps -U

If a list of running processes is displayed. Then frida-server is working.

Note: Every time the emulator is restarted or turned off and turned on again. The frida-server must be started by executing the file.


krish@Krish: ~/Downloads
krish@Krish: ~
(krish㉿Krish)-[~]
$ frida-ps -U
PID Name
2767 Calendar
2792 Clock
1952 Phone
554 adbd
1194 android.ext.services
190 android.hardware.atrace@1.0-service
819 android.hardware.audio.service
263 android.hardware.authsecret@1.0-service
264 android.hardware.bluetooth@1.1-service.sim
266 android.hardware.camera.provider@2.4-service_64
267 android.hardware.cas@1.2-service
268 android.hardware.configstore@1.1-service