Ex.No.7: Use AFLogical OSE to Extract Data from an Android Device

Description:

AFLogical OSE (Open Source Edition) is a forensic tool used to perform **logical extraction** of data from Android devices — retrieving information like contacts, call logs, and SMS messages **without direct access to the full file system**.
It is part of the **Open Source Android Forensics** toolkit and often used in forensic investigations or academic labs.

STEP 1 — Extract All ZIP Files

Files you should have already downloaded:

- Android Platform Tools (ADB)
- AFLogical OSE ZIP (source or APK)
- Google USB Driver (for Windows)

Instructions:

1. Create a main folder for your lab:

   C:\ForensicLab

2. Extract all the downloaded ZIP files into it:

   C:\ForensicLab\platform-tools\

   C:\ForensicLab\aflogical-ose\

   C:\ForensicLab\usb-driver\

3. If AFLogical OSE doesn't include an APK file, use **Santoku Linux** (a digital forensics OS) to extract or build it from the source ZIP.
   Santoku automatically includes AFLogical OSE tools.

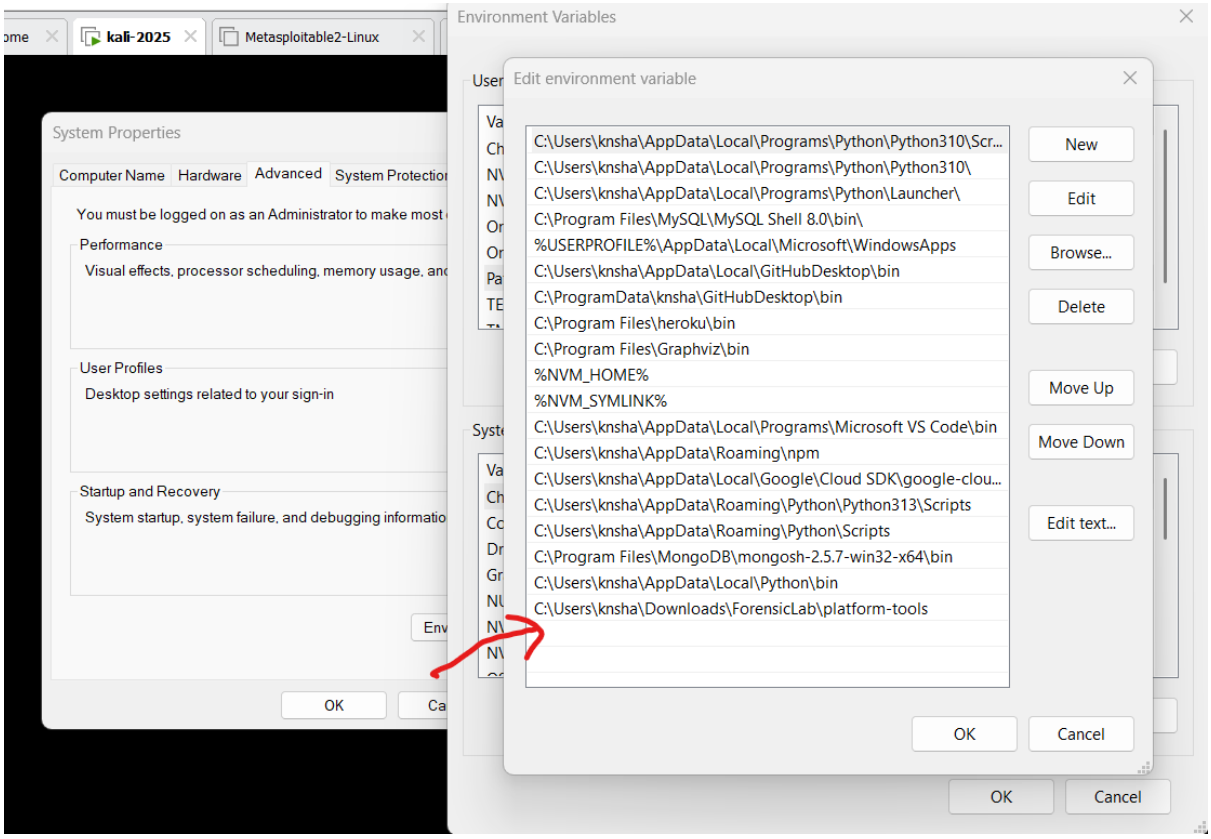
STEP 2 — Add platform-tools to PATH

Purpose: So you can run adb commands from any directory.

Steps:

1. Open:
2. Control Panel → System → Advanced system settings → Environment Variables
3. Under **User Variables**, select **Path → Edit → New**
   Add:

4. C:\ForensicLab\platform-tools
5. Click **OK** to save changes.



Verify installation:

Adb version

You should see something like:

Android Debug Bridge version 1.0.41

```
PS C:\Users\knsha> adb version
Android Debug Bridge version 1.0.41
Version 36.0.0-13206524
Installed as C:\Users\knsha\Downloads\ForensicLab\platform-tools\adb.exe
Running on Windows 10.0.26200
PS C:\Users\knsha>
```

STEP 3 — Install Google USB Driver (Windows)

Required for your PC to detect the Android device.

Steps:

1. Connect your Android phone via USB.

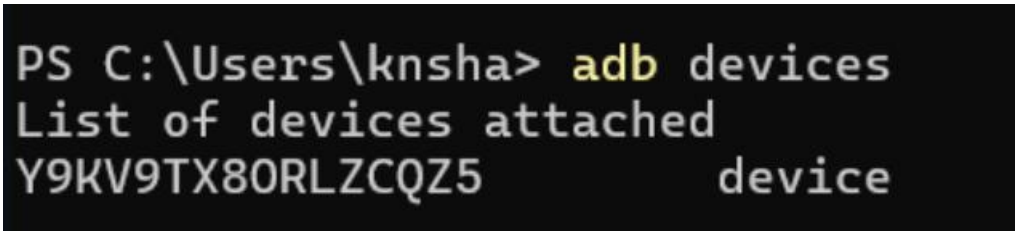
2. Open **Device Manager** → find your phone.
3. Right-click → **Update Driver** → **Browse my computer** →
   Select:

   C:\ForensicLab\usb-driver
4. Click **Next** to install the driver.

   Verify: Run

   adb devices

   If your phone appears in the list, the driver works.



STEP 4 — Enable Developer Options on the Phone

Steps:

1. On your phone:

   Settings → About phone → Tap Build number 7 times
2. Go back:

   Settings → Developer options
3. Enable:
   - **USB Debugging**
   - **Install via USB** (if available)

STEP 5 — Connect Phone and Check ADB Connection

Purpose: Ensure communication between PC and phone.

Steps:

1. Connect your phone using a **data cable**.
2. In CMD or PowerShell:

   adb devices

3. If prompted on your phone, tap **Allow USB debugging**.

   Expected output:

   List of devices attached

   ABCDEF123456 device

   If it shows *unauthorized*, replug and allow access again.

STEP 6 — Install AFLogical on the Phone

Purpose: Install the forensic extraction app (APK) onto the Android device.

Steps:

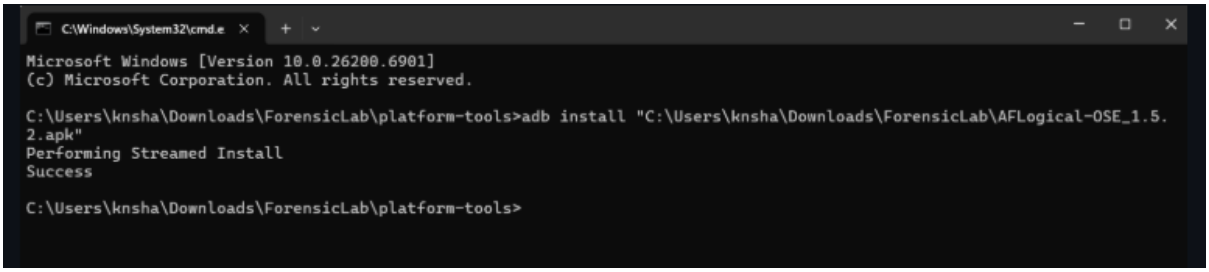
1. Ensure you have the APK file ready:

   C:\ForensicLab\aflogical-ose\AFLogical-OSE.apk

2. In CMD:

   adb install C:\ForensicLab\aflogical-ose\AFLogical-OSE.apk

3. Wait for:Success



Verification: Check your phone — the **AFLogical** app should now appear in your app list.

STEP 7 — Run AFLogical OSE on the Phone

Purpose: Start the logical data extraction process.

Steps:

1. Open the **AFLogical** app on the device.
2. Grant all requested permissions (Contacts, SMS, Storage).
3. Select which data to extract:
   - Contacts

- SMS
- Call Logs
- MMS
- Calendar

4. Tap **Start Extraction** or **Create Extract**.
5. Wait until extraction finishes.

Default save location:

/sdcard/aflogical/

or

/storage/emulated/0/aflogical/

Verify via ADB:

adb shell ls /sdcard/aflogical

You should see:

contacts.csv

sms.csv

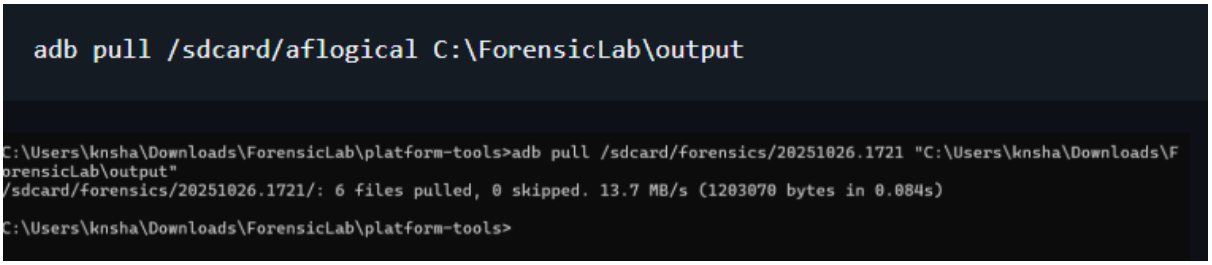
calllog.csv

STEP 8 — Copy Extracted Data to Your Computer

Purpose: Pull the extracted forensic data to your analysis workstation.

Command:

adb pull /sdcard/aflogical C:\ForensicLab\output



This copies the folder from your phone to:

C:\ForensicLab\output\

Check using:

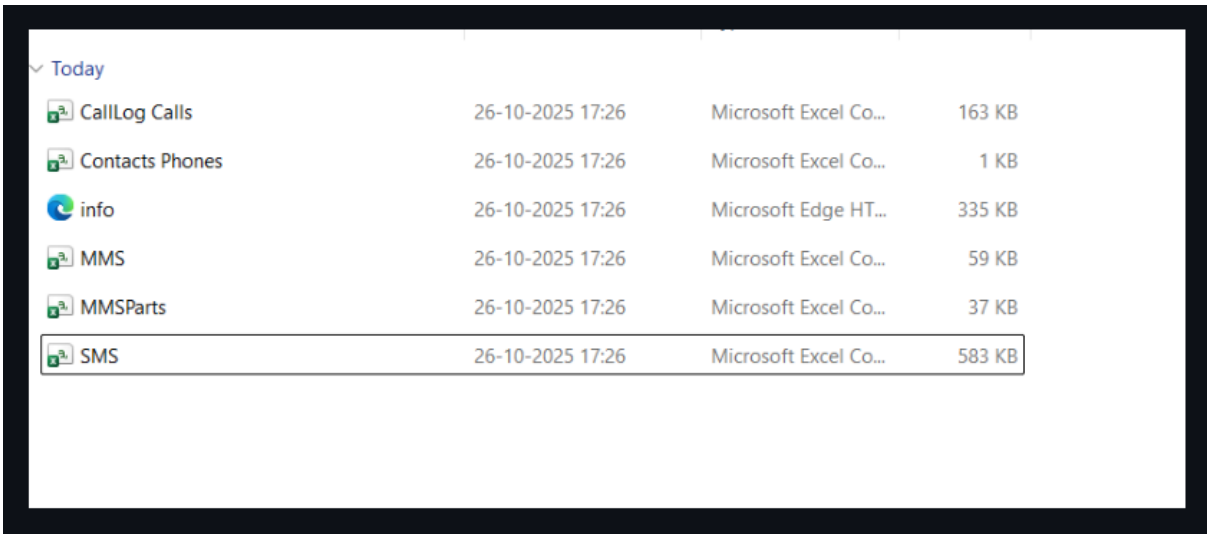
dir C:\ForensicLab\output

You'll find files like:

contacts.csv

sms.csv

calllog.csv



mms.csv

calendar.csv

(Optional) STEP 9 — Verify Integrity (Hash Values)

To maintain forensic integrity, calculate file hashes.

Windows (PowerShell):

Get-FileHash "C:\Users\knsha\Downloads\ForensicLab\output\20251026.1721\Contacts Phones.csv" -Algorithm SHA256

Linux/macOS:

sha256sum ~/ForensicLab/output/contacts.csv

STEP 10 — Clean Up

After extraction is complete:

Uninstall AFLogical :

adb uninstall com.viaforensics.android.aflogical

Safely disconnect your device.

Summary of Useful ADB Commands

Purpose	Command
Check ADB version	adb version
List connected devices	adb devices
Install APK	adb install <path_to_apk>
List phone storage	adb shell ls /sdcard/
Check AFLogical folder	adb shell ls /sdcard/aflogical
Pull data to PC	adb pull /sdcard/aflogical C:\ForensicLab\output
Uninstall AFLogical	adb uninstall com.viaforensics.android.aflogical

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Result :

You have successfully performed **logical extraction** from an Android device using **AFLogical OSE** and documented the forensic process completely.