www.reallygreatsite.com

Mobile Application Security Analysis

Phase 1: Environment Setup

01

```
openjdk version "23.0.2" 2025-01-21
ajzankulkibaeva@MacBook-Air-Ajzan ~ % brew install android-platform-tools
```

02

```
Android Debug Bridge version 1.0.41
Version 36.0.0-13206524
Installed as /opt/homebrew/bin/adb
Running on Darwin 23.6.0 (arm64)
ajzankulkibaeva@MacBook-Air-Ajzan ~ %
```

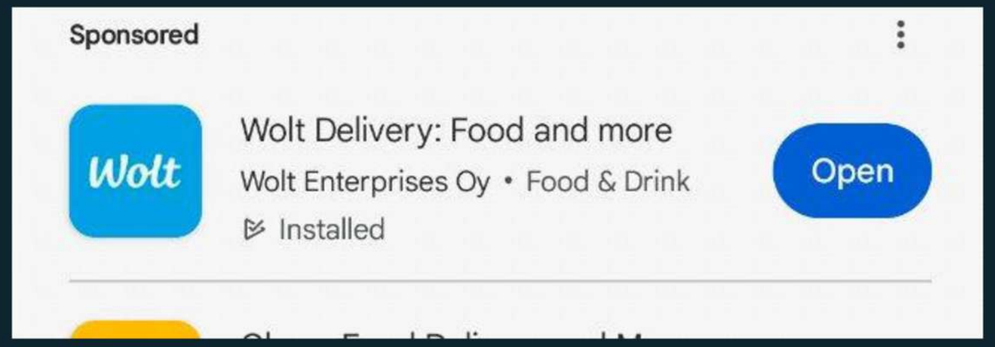
03

🍺 /opt/homebrew/Cellar/apktool/2.11.1: 5 files, 23.5MB
APKTool Installed

04

```
==> Pouring jadx--1.5.1.all.bottle.tar.gz
🍺  /opt/homebrew/Cellar/jadx/1.5.1: 12 files, 121.2MB
==> Running `brew cleanup jadx`...
Disable this behaviour by setting HOMEBREW_NO_INSTALL_CLEANUP.
Hide these hints with HOMEBREW_NO_ENV_HINTS (see `man brew`).
```

Phase 2: Application Selection



Wolt

Next, I selected the Wolt application (a food delivery service) because it clearly relies on network API communication.
I launched the AVD emulator, opened Google Play Store, signed in, installed Wolt, and confirmed the app was functioning properly

Phase 3: APK Extraction

```
adb devices
```

List of devices attached
emulator-5554 device

2. Identify the package name of your installed application:

```
adb shell pm list packages | grep <keyword>
```

adb shell pm list packages | grep wolt package:com.wolt.android

3. Locate the APK path on the device:

```
adb shell pm path <package.name>
```

.adb shell pm path com.wolt.android

package:/data/app/~~0_Oft10KOzysVmnAQbIUlw==/com.wolt.android-rXJxXkLQWZDece2CZTWxJA==/base.apk
package:/data/app/~~0_Oft10KOzysVmnAQbIUlw==/com.wolt.android-rXJxXkLQWZDece2CZTWxJA==/split_config.arm64_v8a.apk
package:/data/app/~~0_Oft10KOzysVmnAQbIUlw==/com.wolt.android-rXJxXkLQWZDece2CZTWxJA==/split_config.en.apk
package:/data/app/~~0_Oft10KOzysVmnAQbIUlw==/com.wolt.android-rXJxXkLQWZDece2CZTWxJA==/split_config.xxhdpi.apk

4. Pull the APK from the device to your computer:

```
adb pull <path/to/base.apk> ./extracted_app.apk
```

adb pull /data/app/~~0_Oft10KOzysVmnAQbIUlw==/com.wolt.android-rXJxXkLQWZDece2CZTWxJA==/base.apk ./extracted_wolt_base.apk

/data/app/~~0_Oft10KOzysVmnAQbIUlw==/com.wol...ipped. 65.0 MB/s (136851690 bytes in 2.007s)

adb devices

To check if your Android emulator or physical device is connected and recognized by ADB. This is a basic check to ensure that the device is ready for communication.

adb shell pm list packages | grep <keyword>

To find the package name of the installed application by filtering with a keyword.

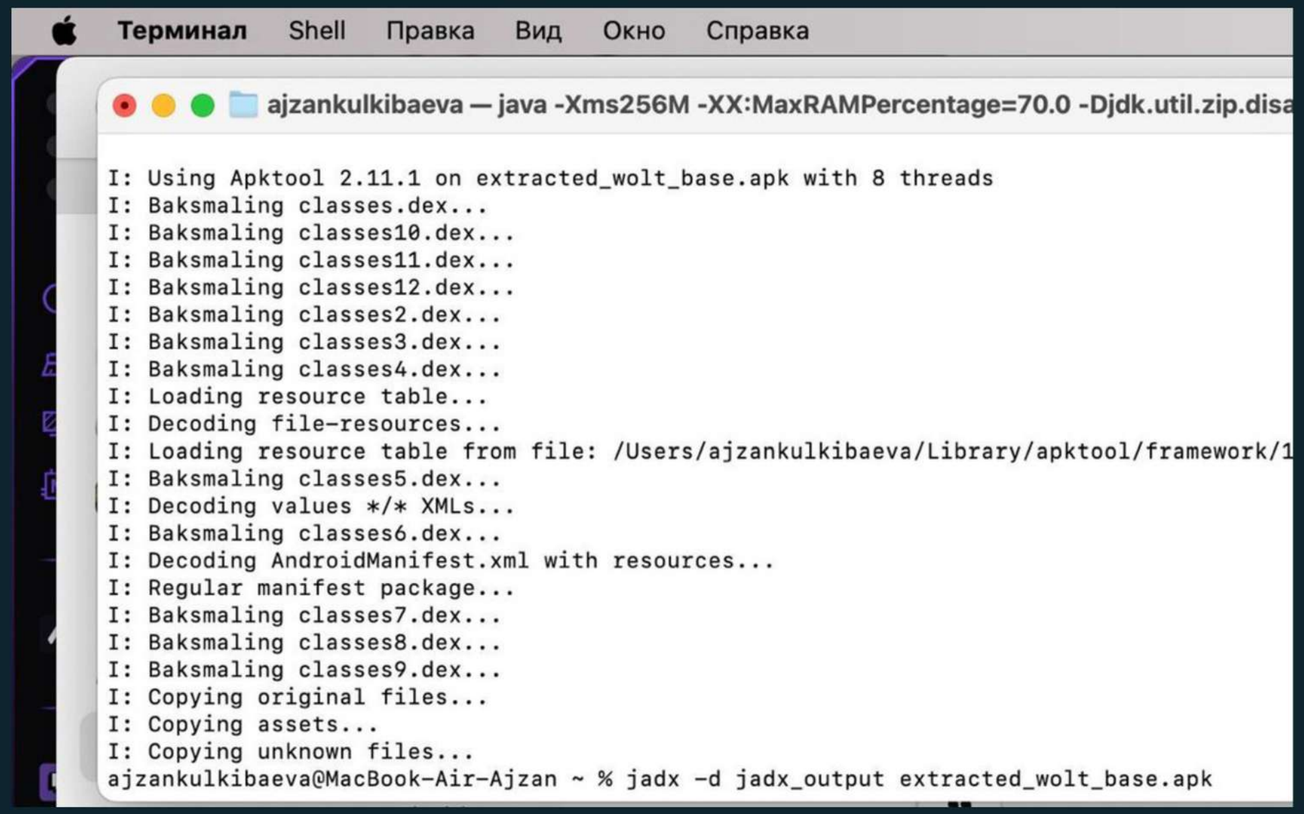
adb shell pm path <package.name>

To locate the exact path to the APK file of the application on the device.

adb pull <path/to/base.apk> ./extracted_app.apk

To pull (download) the APK file from the device to your local computer for analysis.

Phase 4: Decompiling the Application



Phase 4.5: SSL Certificate Pinning Bypass

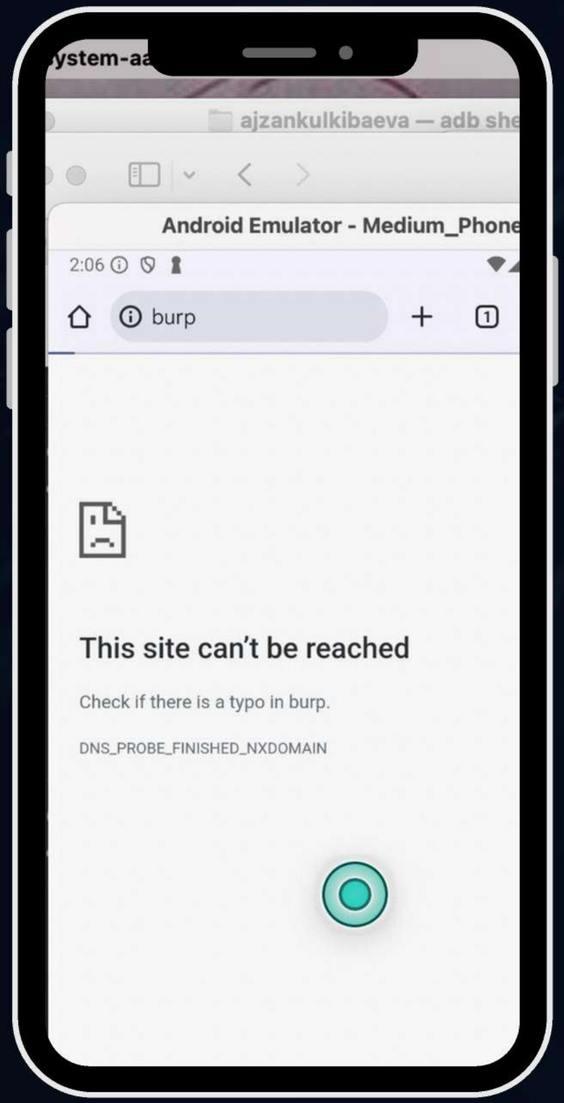
```
zsh: no such file or directory: /Users/ajzankulkibaeva/Desktop/ssl-bypass.js
ajzankulkibaeva@MacBook-Air-Ajzan ~ % adb shell chmod 777 /data/local/tmp/frida-
server-16.7.14-android-arm64
```

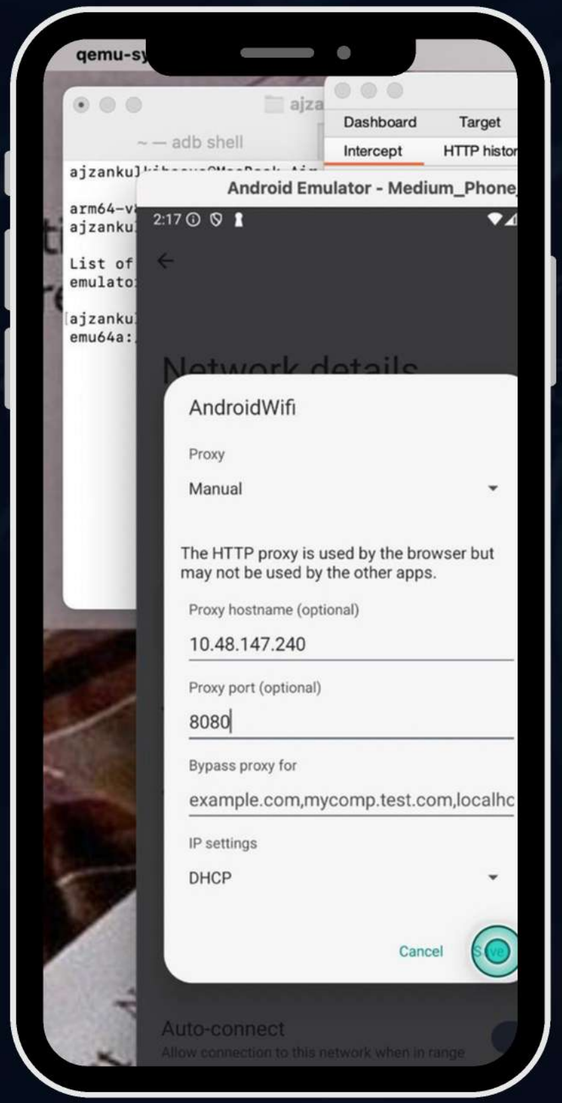
Рабочий стол — -zsh — 80×24

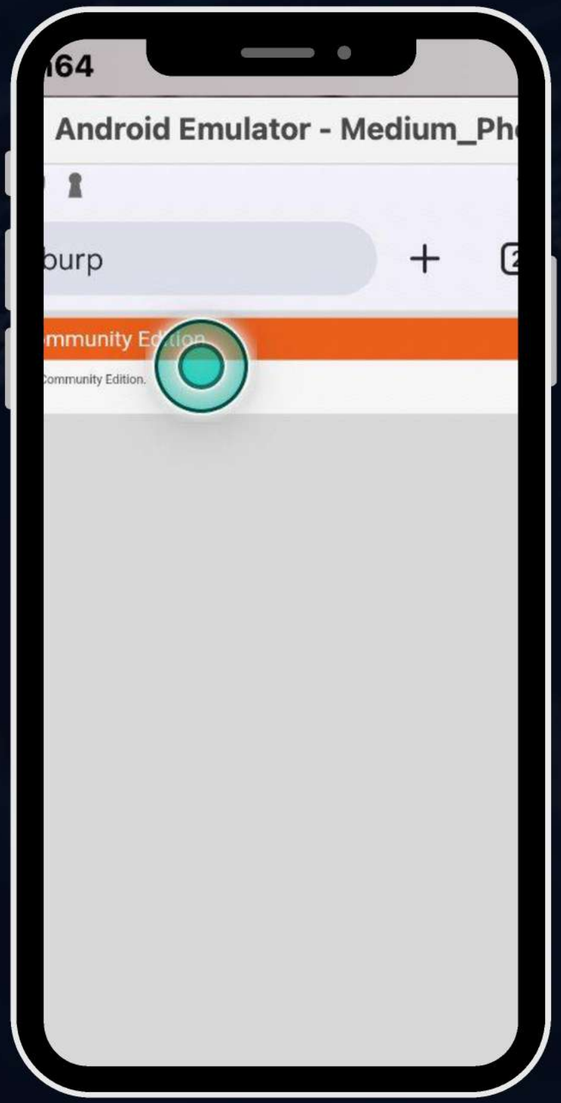
```
: Mon May 12 18:28:43 on ttys000
baeva@MacBook-Air-Ajzan ~ % adb root
/data/local/tmp/frida-server-arm64 &
```

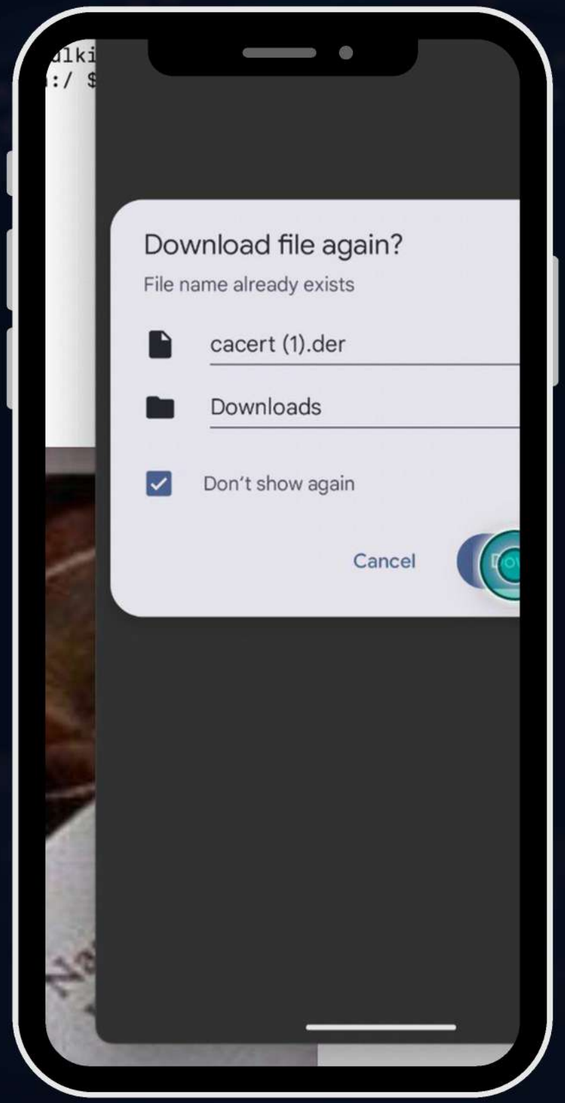
```
/Users/ajzankulkibaeva/Downloads/caace...ipped. 1.6 MB/s (1326 bytes in 0.001s)
ajzankulkibaeva@MacBook-Air-Ajzan Desktop % frida -U -f com.wolt.android -l /Us
rs/ajzankulkibaeva/Desktop/fridascript.js

     ____
    / _  |   Frida 16.7.14 - A world-class dynamic instrumentation toolkit
   | (_| |
    > _  |   Commands:
   /_/ |_|       help      -> Displays the help system
   . . . .       object?   -> Display information about 'object'
   . . . .       exit/quit -> Exit
   . . . .
   . . . .   More info at https://frida.re/docs/home/
   . . . .
   . . . .   Connected to Android Emulator 5554 (id=emulator-5554)
Spawned `com.wolt.android`. Resuming main thread!
[Android Emulator 5554::com.wolt.android ]->
[.] Cert Pinning Bypass/Re-Pinning
[+] Loading our CA...
[o] Our CA Info: CN=PortSwigger CA, OU=PortSwigger CA, O=PortSwigger, L=PortSwi
ger, ST=PortSwigger, C=PortSwigger
[+] Creating a KeyStore for our CA
```

Phase 5: Burp Suite Configuration









Phase 6: Intercepting API Requests

REQUESTMETHOD: GET
ENDPOINT: /V1/PAGES/RESTAURANTS
QUERY PARAMETERS:

LAT=43.245132
LON=76.954158

PURPOSE

- **FETCH A LIST OF RESTAURANTS NEAR THE PROVIDED COORDINATES.**

Phase 7: API Documentation

The https://authentication.wolt.com/v1/wauth2/access_token endpoint is used in the OAuth 2.0 authentication flow to obtain access and refresh tokens.

Method: POST

Purpose: Exchange an authorization code for an access token (for API requests) and a refresh token (to renew the access token).

Parameters: grant_type (authorization_code), code (authorization code), redirect_uri (same as used during authorization).

Response: Access token, refresh token, and expiration time.

Phase 8: Demo Application Development