

# Development Tools

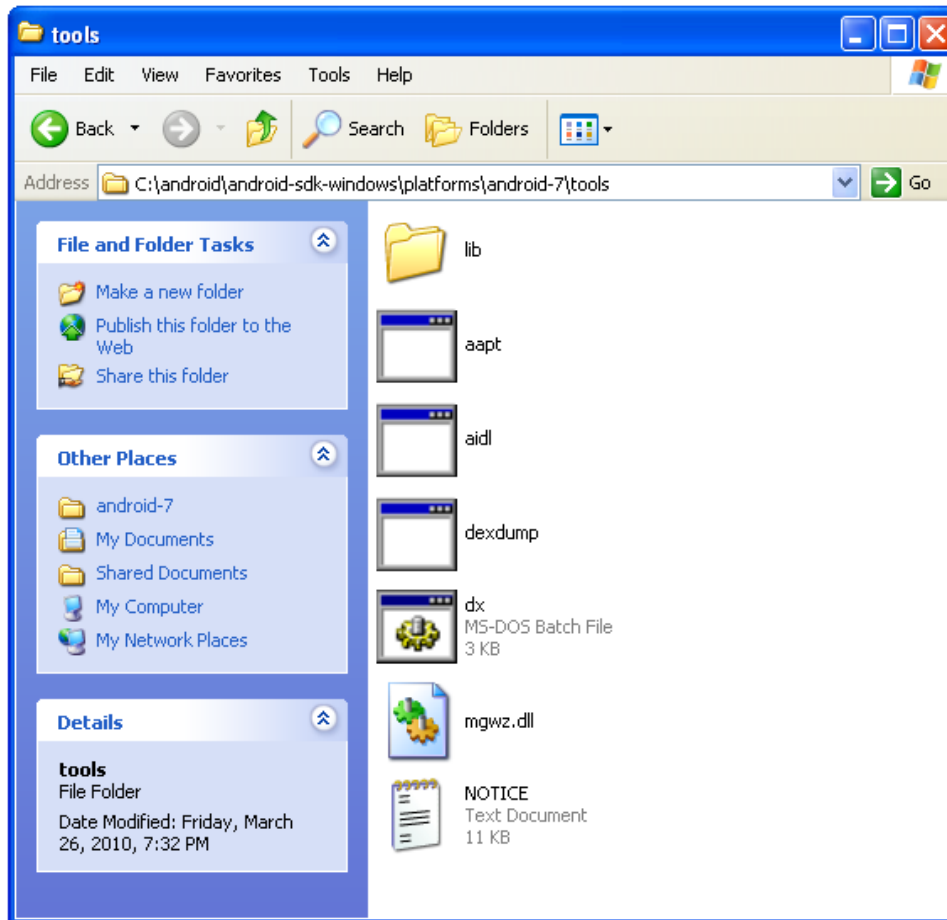
# Introduction

- ❖ The android SDK includes various tools that assist us in our development work.
- ❖ Most of these tools can be found within the `$ANDROID_HOME\tools` folder. Some tools are located within the `$ANDROID_HOME\platforms\$SDK\tools\`.

# The `aapt` Tool

- ❖ This tool assists with packaging the APK file. This tool is also useful for updating APK file that was already created.

# The aapt Tool



# The adb Tool

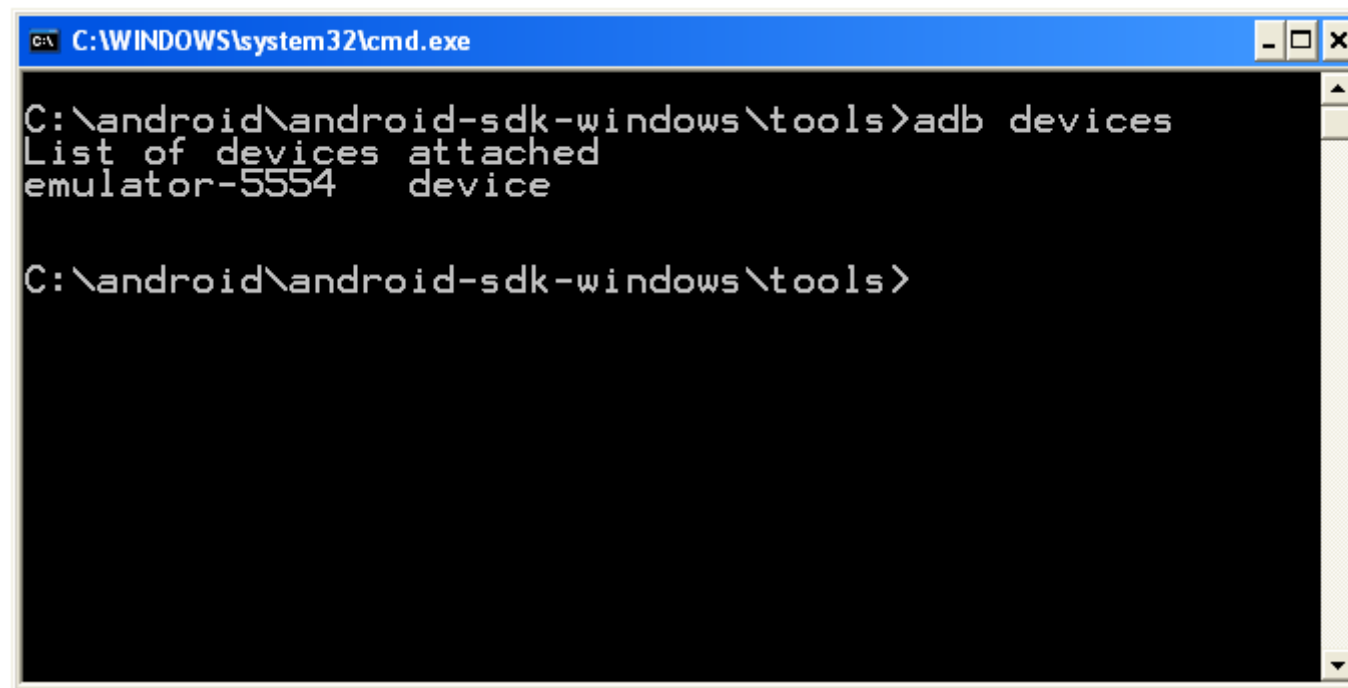
- ❖ This tool assists with managing the state of the emulator or of the android device connected with our desktop.
- ❖ This tool is a client server application that includes three components: client, server and a daemon process that runs as a background process for each one of the emulators and/or the devices connected with our desktop.

# The adb Tool

- ❖ The server runs as a background process on our development machine and manages the communication between the client and the adb daemon running on the emulator or the android device.
- ❖ The client connects the server. The server connects the daemon processes running on the emulators and/or devices.

# The adb Tool

- ❖ The 'adb devices' command will list the available emulators and devices.



```
C:\WINDOWS\system32\cmd.exe

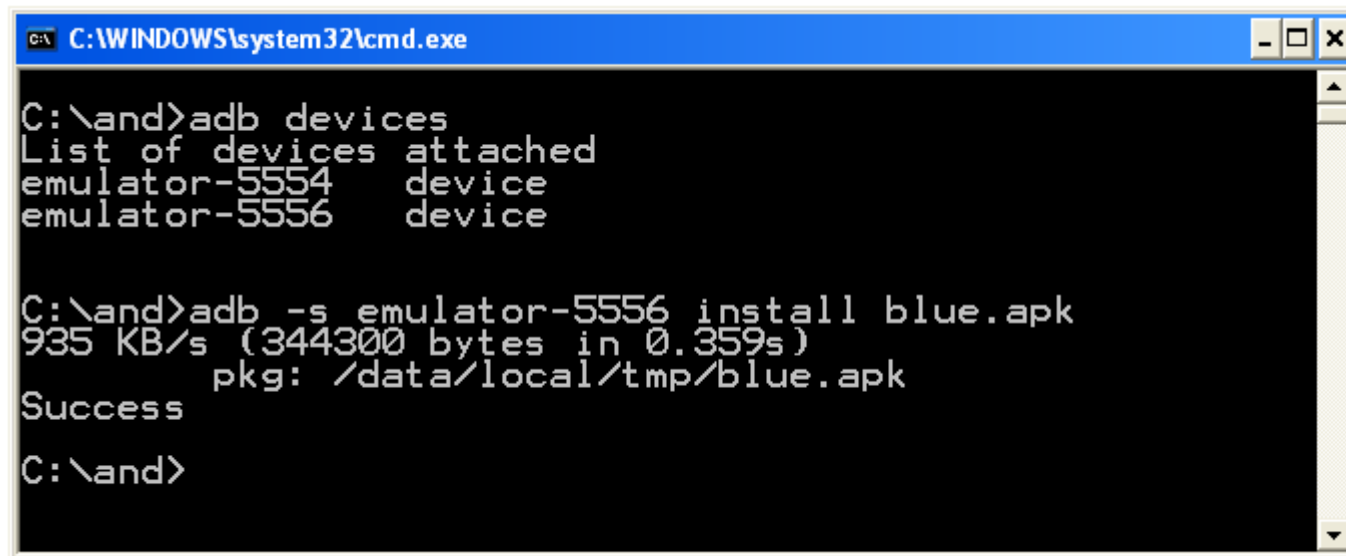
C:\android\android-sdk-windows\tools>adb devices
List of devices attached
emulator-5554    device

C:\android\android-sdk-windows\tools>
```

# The adb Tool

- ❖ In order to direct a specific command to specific emulator and/or device we should use the following command:

`adb -s emulator-<serial-number> <command>`

A screenshot of a Windows command prompt window. The title bar is blue and reads "C:\WINDOWS\system32\cmd.exe". The command prompt has a black background with white text. The user has entered the command "adb devices", and the output shows "List of devices attached", "emulator-5554 device", and "emulator-5556 device". The user then enters "adb -s emulator-5556 install blue.apk", and the output shows "935 KB/s (344300 bytes in 0.359s)", "pkg: /data/local/tmp/blue.apk", and "Success". The prompt ends with "C:\and>".

```
C:\WINDOWS\system32\cmd.exe
C:\and>adb devices
List of devices attached
emulator-5554    device
emulator-5556    device

C:\and>adb -s emulator-5556 install blue.apk
935 KB/s (344300 bytes in 0.359s)
    pkg: /data/local/tmp/blue.apk
Success
C:\and>
```



# The adb Tool

- ❖ We can easily copy files from / to the emulator / device using the following commands:

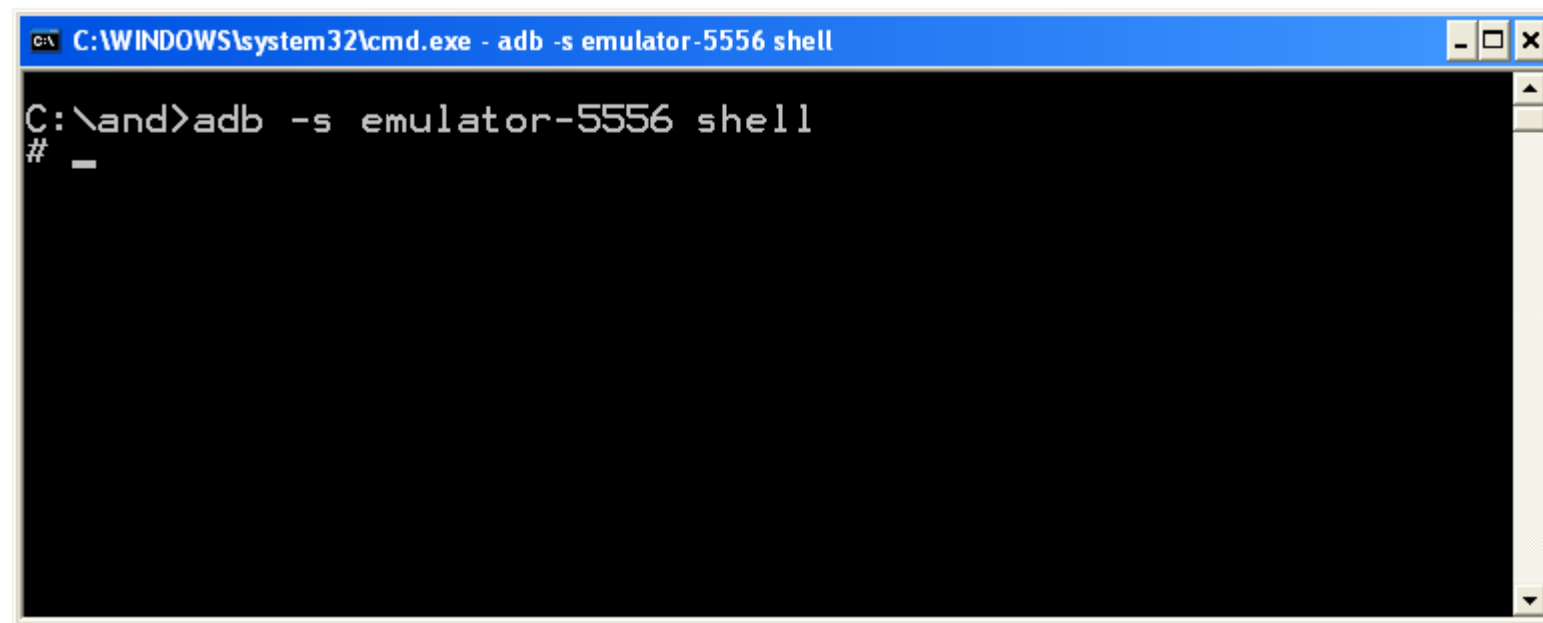
```
adb pull <remote> <local>
```

```
adb push <local> <remote>
```

# The adb Tool

- ❖ We can get the shell command line of our android emulator and/or device using the following command:

```
adb shell
```



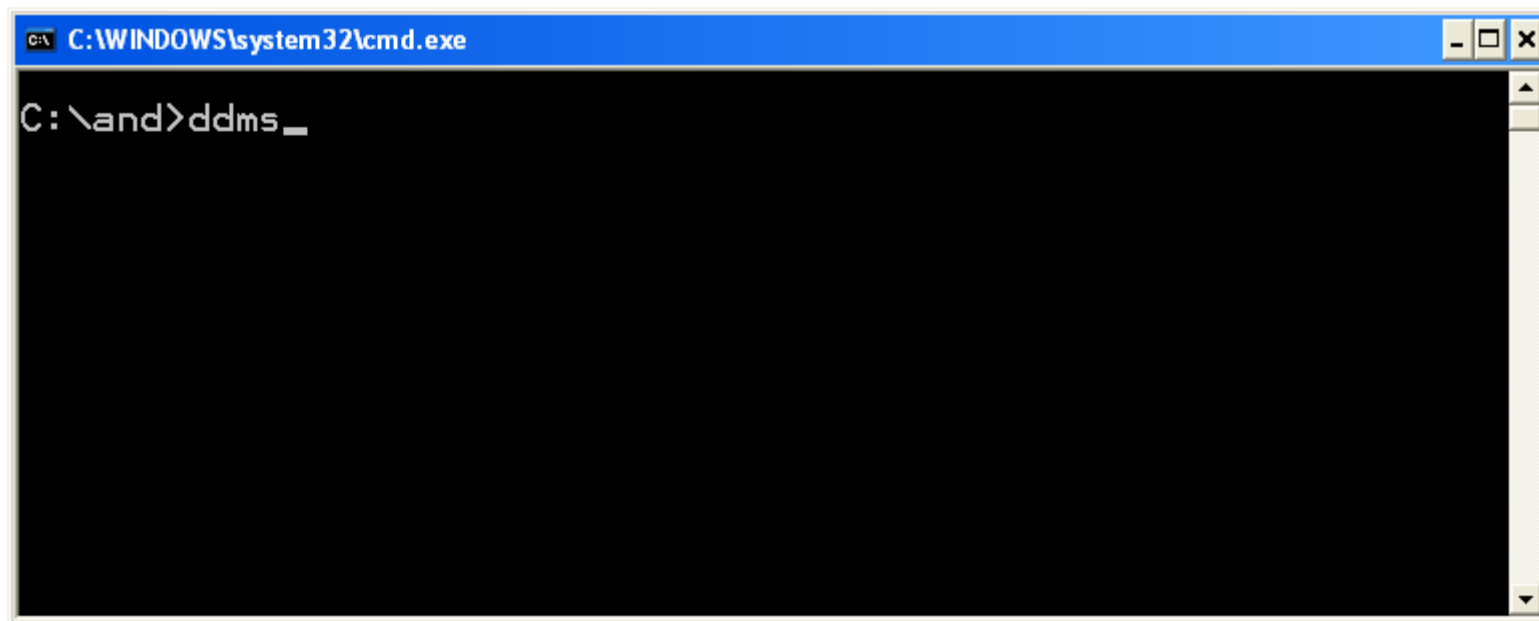
A screenshot of a Windows command prompt window. The title bar is blue and contains the text "C:\WINDOWS\system32\cmd.exe - adb -s emulator-5556 shell". The command prompt itself has a black background with white text. It shows the command "C:\and>adb -s emulator-5556 shell" being entered, followed by a new line starting with a hash symbol "#", indicating that a shell has been successfully accessed. A small horizontal line is visible below the hash symbol.

# The android Tool

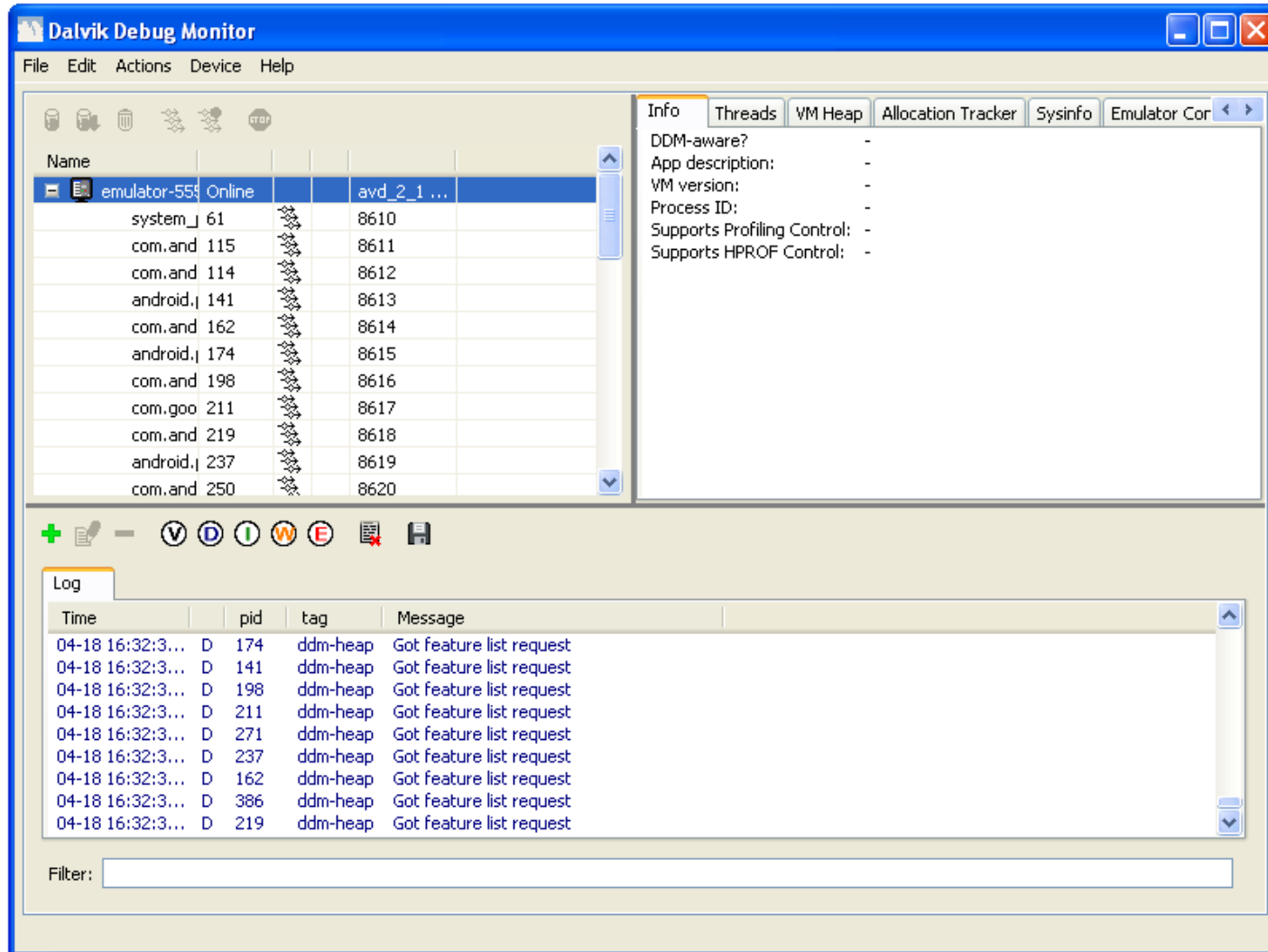
- ❖ We can use this tool to create, delete and view android virtual devices (AVDs).

# The ddms Tool

- ❖ This is the Dalvik Debug Monitor. We can use this tool to track the Dalvik virtual machine.



# The ddm's Tool

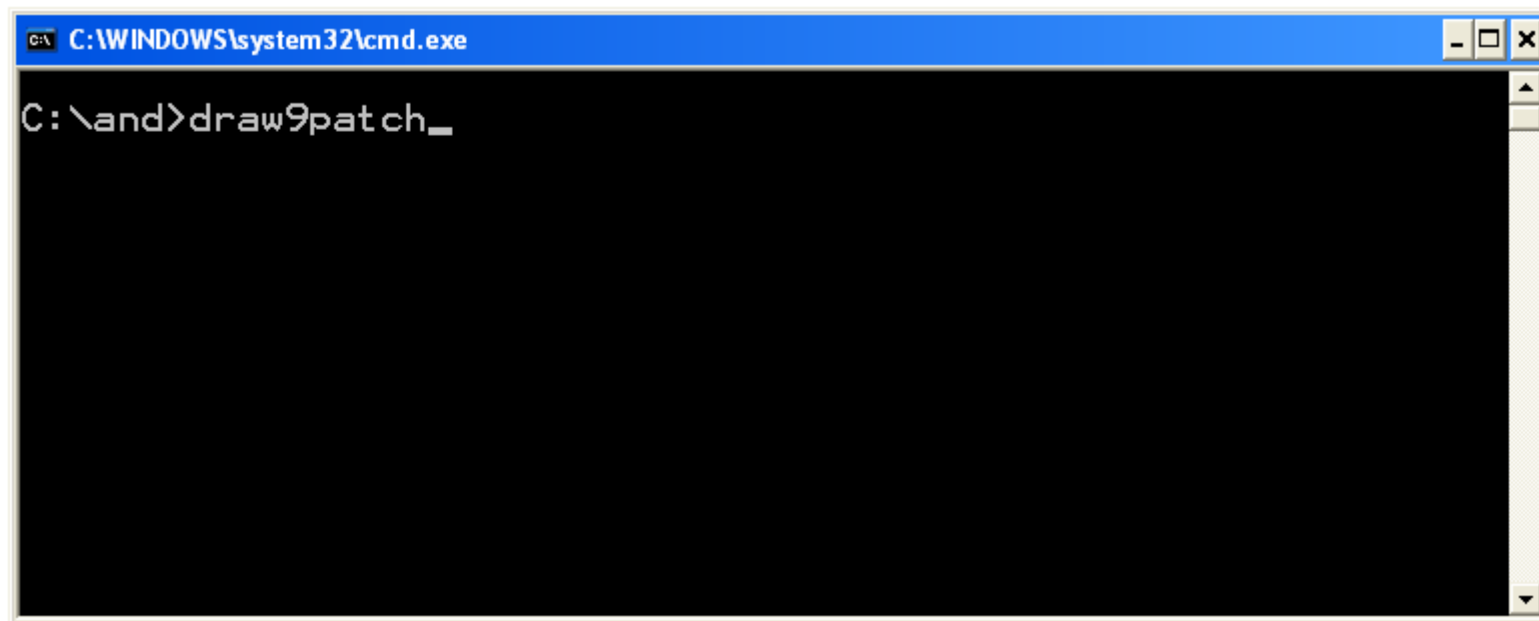


# The dx Tool

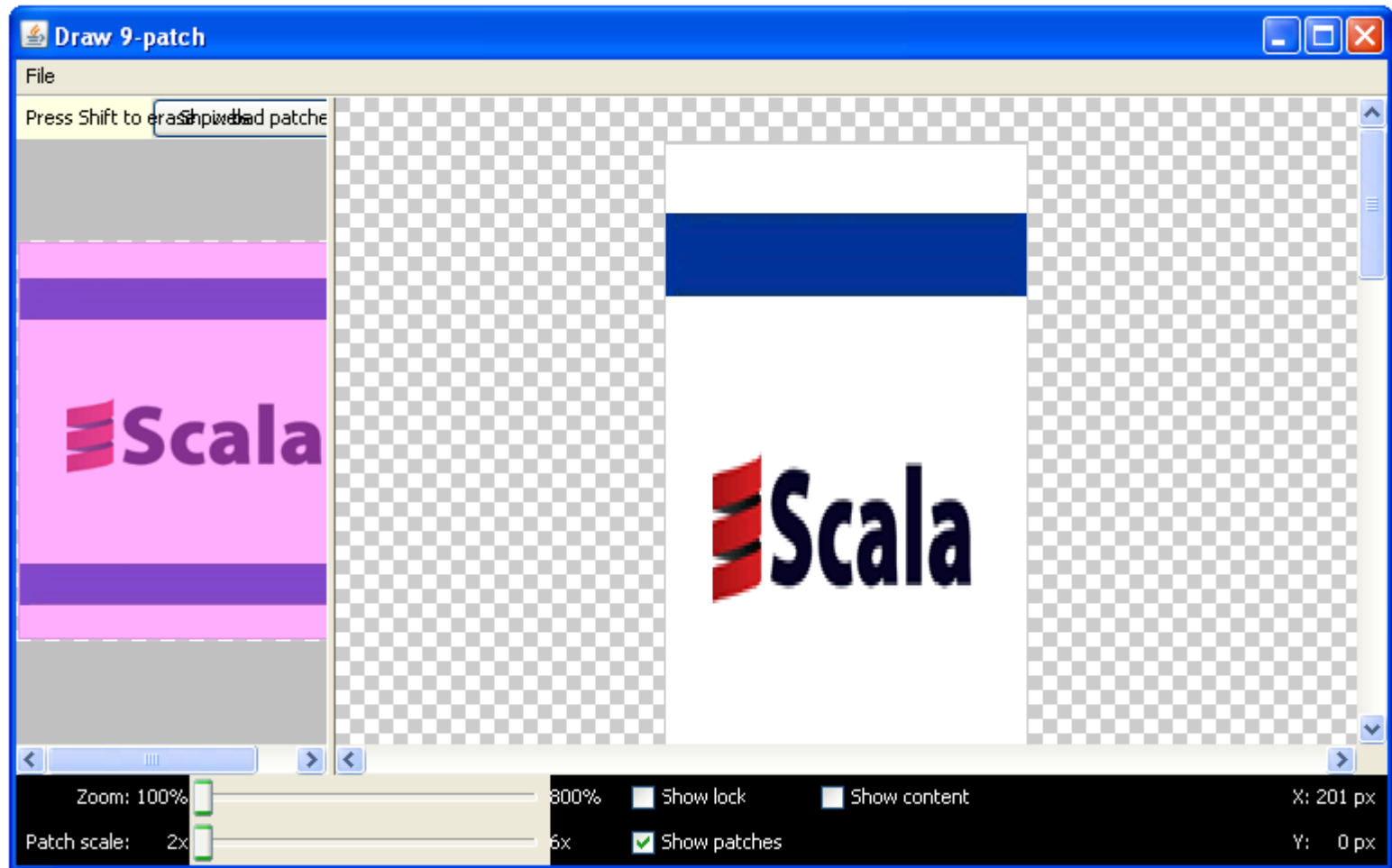
- ❖ This tool converts `.class` files into dalvik executable format `.dex` files, so that they can run on the Android platform.

# The draw9patch Tool

- ❖ This tool creates 9 patch images using a visual WYSIWYG editor.



# The draw9patch Tool

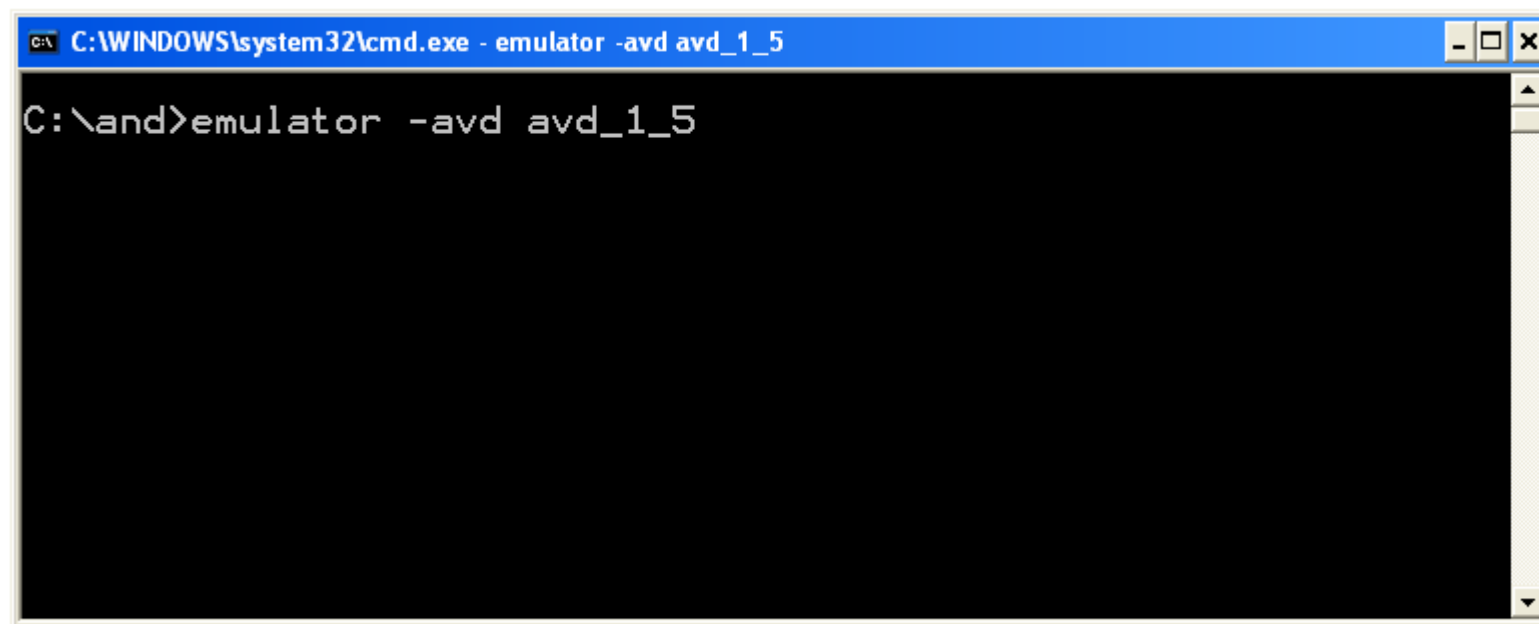




# The emulator Tool

- ❖ We can use this tool to start and to stop the emulator.

```
emulator -avd <avd_name>
```



# Development Tools

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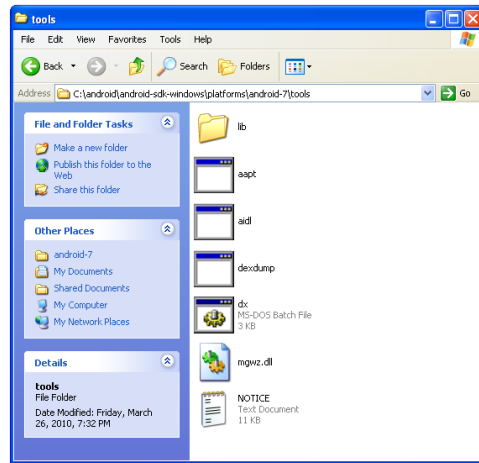
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## The adb Tool

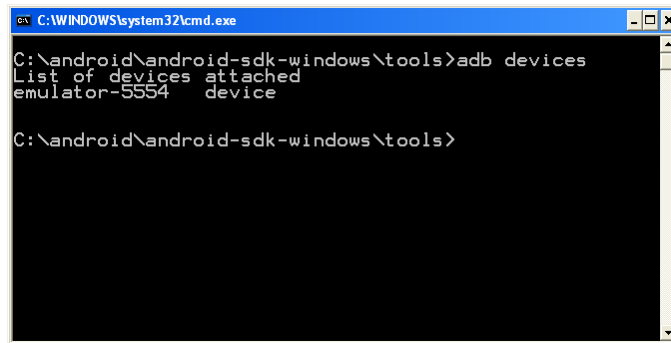
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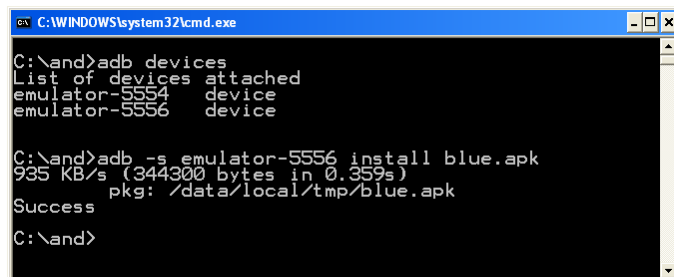
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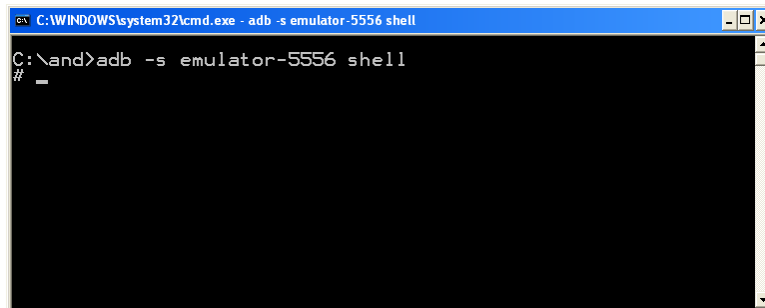
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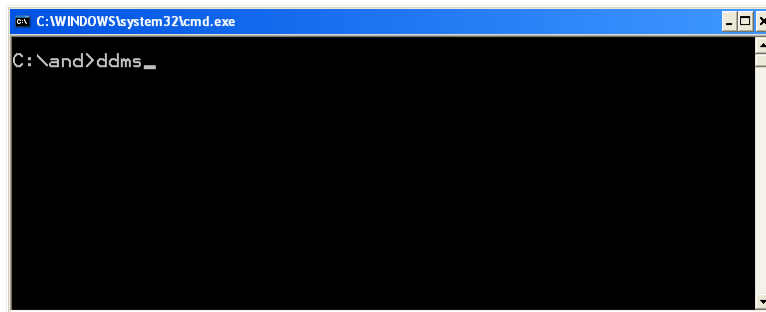
```
C:\WINDOWS\system32\cmd.exe - adb -s emulator-5556 shell
C:\and>adb -s emulator-5556 shell
#
```

## The android Tool

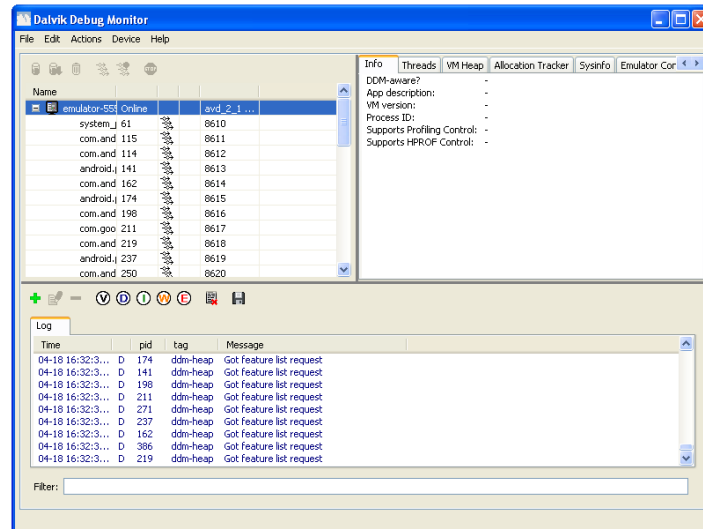
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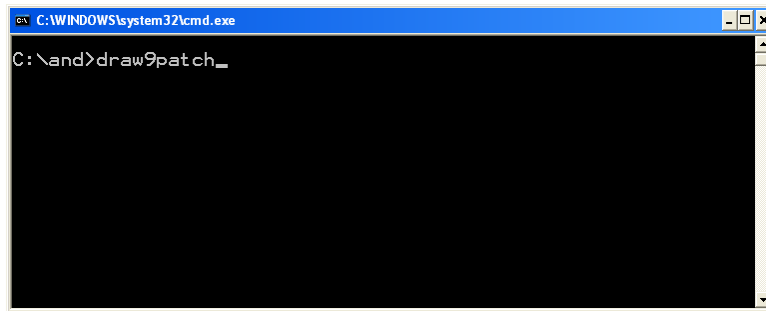
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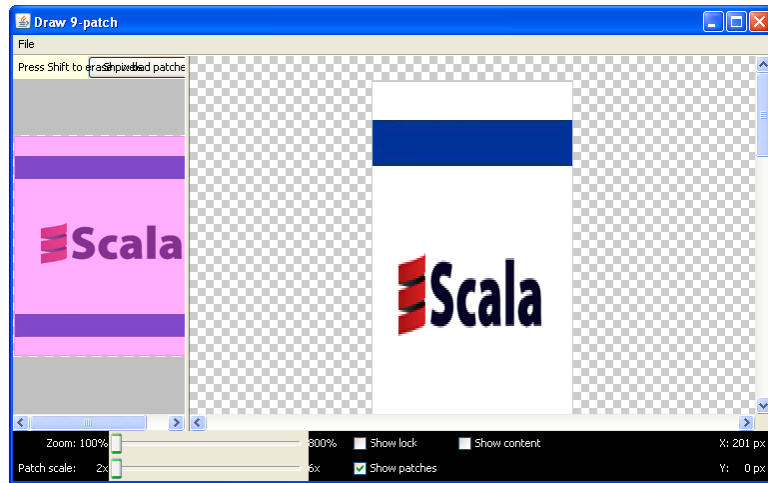
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