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# **Androguard Documentation**

***Release 3.1.2***

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Androguard is a full python tool to play with Android files.

- DEX, ODEX
- APK
- Android's binary xml
- Android resources
- Disassemble DEX/ODEX bytecodes
- Decompiler for DEX/ODEX files

You can either use the cli or graphical frontend for androguard, or use androguard purely as a library for your own tools and scripts.



## 1.1 Introduction

### 1.1.1 Installation

There are several ways how to install androguard.

Before you start, make sure you are using a supported python version! Although androguard should run with python 2.7.x, we highly recommend a newer version like python 3.6! The python 2.x support might be dropped in the future. For Windows, we recommend using the Anaconda python 3.6.x package.

Note that there is no PyQt5 for python 2.x! If you like to use the GUI, please use a newer version of python!

#### PIP

The usual way to install a python packages is by using [pypi.python.org](http://pypi.python.org) and it's package installer *pip*. Just use

```
$ pip install -U androguard[magic,graphing,GUI]
```

to install androguard.

You can also make use of an *virtualenv*, to separate the installation from your system wide packages:

```
$ virtualenv venv-androguard
$ . venv-androguard/bin/activate
$ pip install -U androguard[magic,graphing,GUI]
```

pip should install all required packages too.

#### Debian / Ubuntu

Debian has androguard in its repository. You can just install it using `apt install androguard`. All required dependencies are automatically installed.

### Install from Source

Use git to fetch the sources, then install it. Please install git and python on your own. Beware, that androguard requires python 2.7 or at least 3.4 to work. Pypy >= 5.9.0 should work as well but is not tested. On Windows, there might be some issues with the magic library. Usually the Anaconda suite works fine!

```
$ git clone --recursive https://github.com/androguard/androguard.git
$ cd androguard
$ pip install .[magic]
```

if you like to install the GUI as well, use

```
$ pip install .[magic,GUI,graphing]
```

The dependencies, defined in `setup.py` will be automatically installed.

If you are installing the libraries using `pip`, make sure you download the correct packages. For example, there are a lot of implementations of the `magic` library. Get the one, that is shipped with the `file` command (See [Fine Free File Command](<http://www.darwinsys.com/file/>)) or use `filemagic`, which should work as well.

### 1.1.2 Getting Started

#### Using Androguard tools

There are already some tools for specific purposes.

To just decode the `AndroidManifest.xml` or `resources.arsc`, there are `androaxml.py` and `androarsc.py`. To get information about the certificates use `androsign.py`.

If you want to create call graphs, use `androcg.py`, or if you want control flow graphs, you can use `androdd.py`.

#### Using Androlyze and the python API

The easiest way to analyze APK files, is by using `androlyze.py`. It will start a iPython shell and has all modules loaded to get into action.

For analyzing and loading APK or DEX files, some wrapper functions exists. Use `AnalyzeAPK(filename)` or `AnalyzeDEX(filename)` to load a file and start analyzing. There are already plenty of APKs in the androguard repo, you can either use one of those, or start your own analysis.

```
$ androlyze.py
Androguard version 3.1.1 started
In [1]: a, d, dx = AnalyzeAPK("examples/android/abcore/app-prod-debug.apk")
# Depending on the size of the APK, this might take a while...

In [2]:
```

The three objects you get are `a` an `APK` object, `d` an array of `DalvikVMFormat` object and `dx` an `Analysis` object.

Inside the `APK` object, you can find all information about the APK, like package name, permissions, the `AndroidManifest.xml` or its resources.

The `DalvikVMFormat` corresponds to the DEX file found inside the APK file. You can get classes, methods or strings from the DEX file. But when using multi-DEX APK's it might be a better idea to get those from another place. The `Analysis` object should be used instead, as it contains special classes, which link information about the `classes.dex` and can even handle many DEX files at once.

## Getting Information about an APK

If you have successfully loaded your APK using AnalyzeAPK, you can now start getting information about the APK.

For example, getting the permissions of the APK:

```
In [2]: a.get_permissions()
Out[2]:
['android.permission.INTERNET',
 'android.permission.WRITE_EXTERNAL_STORAGE',
 'android.permission.ACCESS_WIFI_STATE',
 'android.permission.ACCESS_NETWORK_STATE']
```

or getting a list of all activities, which are defined in the AndroidManifest.xml:

```
In [3]: a.get_activities()
Out[3]:
['com.greenaddress.abcore.MainActivity',
 'com.greenaddress.abcore.BitcoinConfEditActivity',
 'com.greenaddress.abcore.AboutActivity',
 'com.greenaddress.abcore.SettingsActivity',
 'com.greenaddress.abcore.DownloadSettingsActivity',
 'com.greenaddress.abcore.PeerActivity',
 'com.greenaddress.abcore.ProgressActivity',
 'com.greenaddress.abcore.LogActivity',
 'com.greenaddress.abcore.ConsoleActivity',
 'com.greenaddress.abcore.DownloadActivity']
```

Get the package name, app name and path of the icon:

```
In [4]: a.get_package()
Out[4]: 'com.greenaddress.abcore'

In [5]: a.get_app_name()
Out[5]: u'ABCORE'

In [6]: a.get_app_icon()
Out[6]: u'res/mipmap-xxxhdpi-v4/ic_launcher.png'
```

Get the numeric version and the version string, and the minimal, maximal, target and effective SDK version:

```
In [7]: a.get_androidversion_code()
Out[7]: '2162'

In [8]: a.get_androidversion_name()
Out[8]: '0.62'

In [9]: a.get_min_sdk_version()
Out[9]: '21'

In [10]: a.get_max_sdk_version()

In [11]: a.get_target_sdk_version()
Out[11]: '27'

In [12]: a.get_effective_target_sdk_version()
Out[12]: 27
```

You can even get the decoded XML for the AndroidManifest.xml:

```
In [15]: a.get_android_manifest_axml().get_xml()
Out[15]: '<manifest xmlns:android="http://schemas.android.com/apk/res/android"
↳ android:versionCode="2162" android:versionName="0.62" package="com.greenaddress.
↳ abcore">\n<uses-sdk android:minSdkVersion="21" android:targetSdkVersion="27">\n</
↳ uses-sdk>\n<uses-permission android:name="android.permission.INTERNET">\n</uses-
↳ permission>\n<uses-permission android:name="android.permission.WRITE_EXTERNAL_
↳ STORAGE">\n</uses-permission>\n<uses-permission android:name="android.permission.
↳ ACCESS_WIFI_STATE">\n</uses-permission>\n<uses-permission android:name="android.
↳ permission.ACCESS_NETWORK_STATE">\n</uses-permission>\n<application android:theme=
↳ "@7F0F0006" android:label="@7F0E001D" android:icon="@7F0D0000" android:debuggable=
↳ "true" android:allowBackup="false" android:supportsRtl="true">\n<activity
↳ android:name="com.greenaddress.abcore.MainActivity">\n<intent-filter>\n<action
↳ android:name="android.intent.action.MAIN">\n</action>\n<category android:name=
↳ "android.intent.category.LAUNCHER">\n</category>\n</intent-filter>\n</activity>\n
↳ <service android:name="com.greenaddress.abcore.DownloadInstallCoreIntentService"
↳ android:exported="false">\n</service>\n<service android:name="com.greenaddress.
↳ abcore.RPCIntentService" android:exported="false">\n</service>\n<service
↳ android:name="com.greenaddress.abcore.ABCoreService" android:exported="false">\n</
↳ service>\n<activity android:name="com.greenaddress.abcore.BitcoinConfEditActivity">
↳ \n<intent-filter>\n<category android:name="android.intent.category.DEFAULT">\n</
↳ category>\n<action android:name="com.greenaddress.abcore.BitcoinConfEditActivity">\n
↳ </action>\n</intent-filter>\n</activity>\n<activity android:name="com.greenaddress.
↳ abcore.AboutActivity">\n</activity>\n<activity android:label="@7F0E0038"
↳ android:name="com.greenaddress.abcore.SettingsActivity" android:noHistory="true">\n
↳ </activity>\n<activity android:label="@7F0E0035" android:name="com.greenaddress.
↳ abcore.DownloadSettingsActivity" android:noHistory="true">\n</activity>\n<activity
↳ android:theme="@7F0F0006" android:label="@7F0E0036" android:name="com.greenaddress.
↳ abcore.PeerActivity">\n</activity>\n<activity android:theme="@7F0F0006"
↳ android:label="@7F0E0037" android:name="com.greenaddress.abcore.ProgressActivity">\n
↳ </activity>\n<activity android:name="com.greenaddress.abcore.LogActivity">\n</
↳ activity>\n<activity android:name="com.greenaddress.abcore.ConsoleActivity">\n</
↳ activity>\n<activity android:name="com.greenaddress.abcore.DownloadActivity">\n</
↳ activity>\n<receiver android:name="com.greenaddress.abcore.PowerBroadcastReceiver">
↳ \n<intent-filter>\n<action android:name="android.intent.action.ACTION_POWER_
↳ CONNECTED">\n</action>\n<action android:name="android.intent.action.ACTION_POWER_
↳ DISCONNECTED">\n</action>\n<action android:name="android.intent.action.ACTION_
↳ SHUTDOWN">\n</action>\n<action android:name="android.intent.action.ACTION_BATTERY_
↳ LOW">\n</action>\n</receiver>\n</application>\n</manifest>\n'
```

Or if you like to use the `AndroidManifest.xml` as an `ElementTree` object, use the following method:

```
In [13]: a.get_android_manifest_xml()
Out[13]: <Element manifest at 0x7f9d01587b00>
```

There are many more methods to explore, just take a look at the API for `APK`.

### 1.1.3 Working with Sessions

If you are working on a larger APK, you might want to save your current work and come back later. That's the reason for sessions: They allow you to save your work on disk and resume it at any point. Sessions could also be used to store the analysis on disk, for example if you do automated analysis and want to analyse certain files later.

There are several ways to work with sessions. The easiest way is to use `AnalyzeAPK()` with a session:

```

from androguard import misc
from androguard import session

# get a default session
sess = misc.get_default_session()

# Use the session
a, d, dx = misc.AnalyzeAPK("examples/android/abcore/app-prod-debug.apk", session=sess)

# Show the current Session information
sess.show()

# Do stuff...

# Save the session to disk
session.Save(sess, "androguard_session.p")

# Load it again
sess = session.Load("androguard_session.p")

```

The session information will look like this:

```

APKs in Session: 1
    d5e26acca809e9cdfaece18afd8e63c60a26d7b6d566d70bd9f44d6934d5c433: [<androguard.
↳core.bytecodes.apk.APK object at 0x7fcec4f3f10>]
DEXs in Session: 2
    8bd7e9f48a6ed29e4c678633364e8bfd4e6ae76ef3e50c43a5ec3c00eb10a5bc: <analysis.
↳Analysis VMs: 2, Classes: 3092, Strings: 3293>
    e2a1e46ecd03b701ce72c31057581e0104279d142fca06cdcdd000dd94a459e0: <analysis.
↳Analysis VMs: 2, Classes: 3092, Strings: 3293>
Analysis in Session: 1
    d5e26acca809e9cdfaece18afd8e63c60a26d7b6d566d70bd9f44d6934d5c433: <analysis.
↳Analysis VMs: 2, Classes: 3092, Strings: 3293>

```

Note, that the session objects store a lot of data and can get very big! It is recommended not to use sessions in automated environments, where hundreds or thousands of APKs are loaded.

If you want to use sessions but keep the session alive only for one or multiple APKs, you can call the `reset()` method on a session, to remove all stored analysis data.

```

from androguard import misc
from androguard import session
import os

# get a default session
sess = misc.get_default_session()

for root, dirs, files in os.walk("examples"):
    for f in files:
        if f.endswith(".apk"):
            # Use the session
            a, d, dx = misc.AnalyzeAPK(os.path.join(root, f), session=sess)

            # Do your stuff

            # Maybe save the session to disk...

```

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```
# But now reset the session for the next analysis
sess.reset()
```

## 1.2 Tools

There are several tools, which gives you the option to do certain tasks directly from the commandline. An exception is *androlyze*, which spawns an IPython shell and let you use the androguard API interactively.

### 1.2.1 androlyze - Androguard Shell

androlyze is a tool that spawns an IPython shell.

```
usage: androlyze.py [-h] [--shell] [--debug] [--ddebug] [--no-session]
                  [--version]
                  [apk]

Open a IPython Shell and start reverse engineering

positional arguments:
  apk                Start the shell with the given APK. a, d, dx are
                    available then. Loading might be slower in this case!

optional arguments:
  -h, --help        show this help message and exit
  --shell, -s       Will do nothing, this argument is just here for your
                    convenience
  --debug, -d, --verbose
                    Print log messages
  --ddebug, -dd, --very-verbose
                    Print log messages (higher verbosity)
  --no-session      Do not start an Androguard session
  --version, -v     Print the Androguard Version and exit
```

### 1.2.2 androcg - Create Call Graph from APK

androcg can create files that can be read using graph visualization software, for example [gephi](#).

#### Synopsis

```
usage: androcg.py [-h] [--output OUTPUT] [--show] [--verbose]
                  [--classname CLASSNAME] [--methodname METHODNAME]
                  [--descriptor DESCRIPTOR] [--accessflag ACCESSFLAG]
                  [--no-isolated]
                  APK

Create a call graph based on the dataof Analysis and export it into a graph
format.

positional arguments:
```

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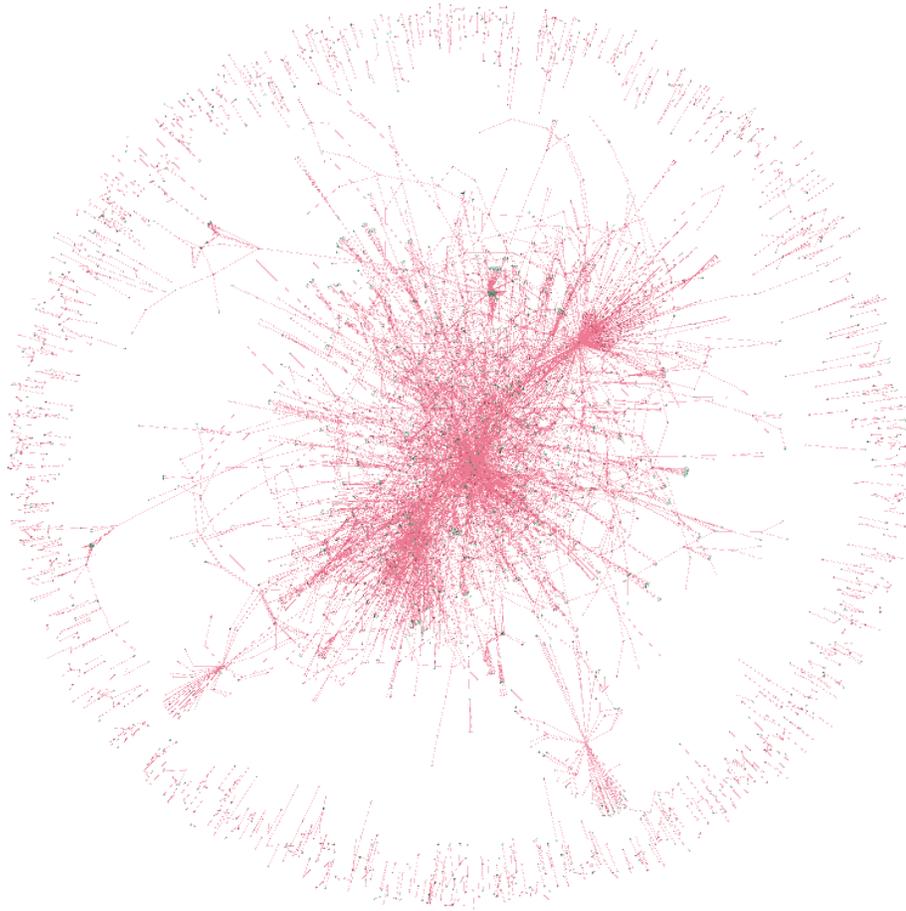
```
APK                The APK to analyze

optional arguments:
-h, --help          show this help message and exit
--output OUTPUT, -o OUTPUT
                    Filename of the output file, the extension is used to
                    decide which format to use (default callgraph.gml)
--show, -s          instead of saving the graph, print it with matplotlib
                    (you might not see anything!)
--verbose, -v       Print more output
--classname CLASSNAME
                    Regex to filter by classname
--methodname METHODNAME
                    Regex to filter by methodname
--descriptor DESCRIPTOR
                    Regex to filter by descriptor
--accessflag ACCESSFLAG
                    Regex to filter by accessflags
--no-isolated       Do not store methods which has no xrefs
```

## Examples

The call graph is constructed from the `Analysis` object and then converted into a networkx *DiGraph*. Note that calls between methods are only added once. Thus, if a method calls some other method multiple times, this is not saved.

The methods to construct the callgraph from can be filtered. It is highly suggested to do that, as call graphs can get very large:



Of course, you can export the call graph with androguard and filter it later.

Here is an example of an already filtered graph, visualized in [gephi](#). Each node has an attribute to indicate if it is an internal (defined somewhere in the DEXs) or external (might be an API, but definitely not defined in the DEXs) method. In this case all green nodes are internal and all red ones are external. You can see the calls of some SMS Trojan to the API methods to write SMS.



### 1.2.3 androgui - Androguard GUI

```
usage: androgui.py [-h] [-d] [-i INPUT_FILE] [-p INPUT_PLUGIN]
```

Androguard GUI

optional arguments:

- h, --help show this help message and exit
- d, --debug
- i INPUT\_FILE, --input\_file INPUT\_FILE
- p INPUT\_PLUGIN, --input\_plugin INPUT\_PLUGIN

### 1.2.4 androsign - Print Certificate Fingerprints

Get the fingerprints of the signing certificates inside an APK.

```
usage: androsign.py [-h] [--hash HASH] [--all] apk [apk ...]
```

Return the fingerprint(s) of all certificates inside an APK

positional arguments:

- apk APK(s) to extract the Fingerprint of Certificates from

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```
optional arguments:
  -h, --help      show this help message and exit
  --hash HASH     Fingerprint Hash algorithm, default SHA1
  --all, -a       Print all supported hashes
```

An example:

```
$ androsign.py --all files/golden-aligned-v1v2-out.apk
golden-aligned-v1v2-out.apk, package: 'android.appsecurity.cts.tinyapp'
Is signed v1: True
Is signed v2: True
Found 1 unique certificates
md5 e995a5ed7137307661f854e66901ee9e
sha1 0aa07c0f297b4ae834dc85a17eea8c2cf9380ff7
sha512
→4da6e6744a4dabef192b198be13b4492b0ce97469f3ce223dd9b7e8df2ee952328e06651e5e65dd3b60ac5e3946e16cf70
sha256 fb5dbd3c669af9fc236c6991e6387b7f11ff0590997f22d0f5c74ff40e04fca8
```

## 1.2.5 androxml - AndroidManifest.xml parser

Parse the AndroidManifest.xml from an APK and show/save the XML file.

```
Usage: androxml.py [options]

Options:
  -h, --help          show this help message and exit
  -i INPUT, --input=INPUT
                      filename input (APK or android's binary xml)
  -o OUTPUT, --output=OUTPUT
                      filename output of the xml
  -v, --version       version of the API
```

## 1.2.6 androarsc - resources.arsc parser

Parse the resources.arsc file from an APK and print human readable XML.

```
Usage: androarsc.py [options]

Options:
  -h, --help          show this help message and exit
  -i INPUT, --input=INPUT
                      filename input (APK or android resources(arsc))
  -p PACKAGE, --package=PACKAGE
                      select the package (optional)
  -l LOCALE, --locale=LOCALE
                      select the locale (optional)
  -t TYPE, --type=TYPE
                      select the type (string, interger, public, ...)
  -o OUTPUT, --output=OUTPUT
                      filename output
  -v, --version       version of the API
```

## 1.2.7 androdd - Decompile APKs and create CFG

androdd is a tool to create a decompiled version of an APK using the available decompilers.

### Synopsis

```
Usage: androdd.py [options]

Options:
  -h, --help            show this help message and exit
  -i INPUT, --input=INPUT
                        file : use this filename
  -o OUTPUT, --output=OUTPUT
                        base directory to output all files
  -d DECOMPILER, --decompiler=DECOMPILER
                        choose a decompiler (default: use DAD)
  -j, --jar             output jar file
  -f FORMAT, --format=FORMAT
                        write CFG of method in specific format (png, raw, ...)
  -l LIMIT, --limit=LIMIT
                        limit analysis to specific methods/classes by using a
                        regexp
```

It also can generate control flow graphs (CFG) for each method using the graphviz format. The CFGs can be exported as image file directly.

Additionally to the decompiled classes in .java format, each method is given in a SMALI like format (.ag files)

All filenames are sanitized, so they should work on most operating systems and filesystems.

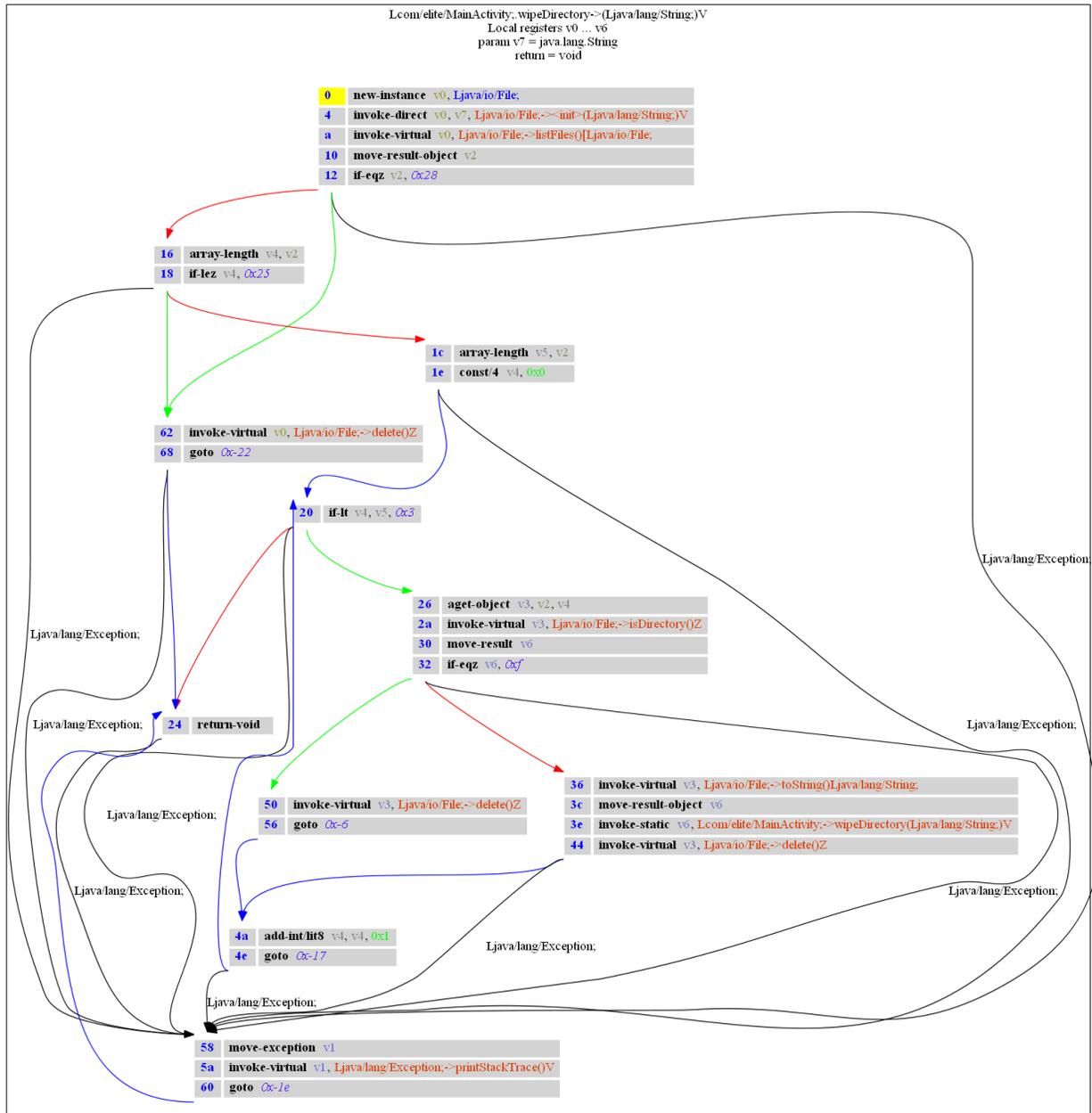
### Examples

To get all CFG in png format and limit the processing only to a certain namespace, the following command can be used:

```
androdd.py -o outputfolder -f png -i someapp.apk --limit "^Lcom/elite/.*"
```

This will decompile the app *someapp.apk* into the folder *outputfolder* and limit the processing to all methods, where the classname starts with *com.elite..*

A CFG might look like this:



while the .ag file has this content:

```

# Lcom/elite/MainActivity;.<wipeDirectory>(Ljava/lang/String;)V [access_flags=private_
->static]
#
# Parameters:
# - local registers: v0...v6
# - v7:java.lang.String
#
# - return:void

wipeDirectory-BB@0x0 : [ wipeDirectory-BB@0x16 wipeDirectory-BB@0x62 ]
    0      (00000000) new-instance      v0, Ljava/io/File;
    
```

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```

1      (00000004) invoke-direct      v0, v7, Ljava/io/File;-><init>(Ljava/lang/
↳String;)V
2      (0000000a) invoke-virtual     v0, Ljava/io/File;->listFiles()[Ljava/io/
↳File;
3      (00000010) move-result-object  v2
4      (00000012) if-eqz             v2, +28
0:55
(Ljava/lang/Exception; -> 58 wipeDirectory-BB@0x58)

wipeDirectory-BB@0x16 : [ wipeDirectory-BB@0x1c wipeDirectory-BB@0x62 ]
5      (00000016) array-length      v4, v2
6      (00000018) if-lez             v4, +25
0:55
(Ljava/lang/Exception; -> 58 wipeDirectory-BB@0x58)

wipeDirectory-BB@0x1c : [ wipeDirectory-BB@0x20 ]
7      (0000001c) array-length      v5, v2
8      (0000001e) const/4           v4, 0
0:55
(Ljava/lang/Exception; -> 58 wipeDirectory-BB@0x58)

wipeDirectory-BB@0x20 : [ wipeDirectory-BB@0x24 wipeDirectory-BB@0x26 ]
9      (00000020) if-lt             v4, v5, +3
0:55
(Ljava/lang/Exception; -> 58 wipeDirectory-BB@0x58)

wipeDirectory-BB@0x24 :
10     (00000024) return-void
0:55
(Ljava/lang/Exception; -> 58 wipeDirectory-BB@0x58)

wipeDirectory-BB@0x26 : [ wipeDirectory-BB@0x36 wipeDirectory-BB@0x50 ]
11     (00000026) aget-object        v3, v2, v4
12     (0000002a) invoke-virtual     v3, Ljava/io/File;->isDirectory()Z
13     (00000030) move-result        v6
14     (00000032) if-eqz             v6, +f
0:55
(Ljava/lang/Exception; -> 58 wipeDirectory-BB@0x58)

wipeDirectory-BB@0x36 : [ wipeDirectory-BB@0x4a ]
15     (00000036) invoke-virtual     v3, Ljava/io/File;->toString()Ljava/lang/
↳String;
16     (0000003c) move-result-object  v6
17     (0000003e) invoke-static      v6, Lcom/elite/MainActivity;->
↳wipeDirectory(Ljava/lang/String;)V
18     (00000044) invoke-virtual     v3, Ljava/io/File;->delete()Z
0:55
(Ljava/lang/Exception; -> 58 wipeDirectory-BB@0x58)

wipeDirectory-BB@0x4a : [ wipeDirectory-BB@0x20 ]
19     (0000004a) add-int/lit8       v4, v4, 1
20     (0000004e) goto               -17
0:55
(Ljava/lang/Exception; -> 58 wipeDirectory-BB@0x58)

wipeDirectory-BB@0x50 : [ wipeDirectory-BB@0x4a ]
21     (00000050) invoke-virtual     v3, Ljava/io/File;->delete()Z

```

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```

22      (00000056) goto          -6
wipeDirectory-BB@0x58 : [ wipeDirectory-BB@0x24 ]
23      (00000058) move-exception    v1
24      (0000005a) invoke-virtual    v1, Ljava/lang/Exception;->
↪printStackTrace()V
25      (00000060) goto          -1e
wipeDirectory-BB@0x62 : [ wipeDirectory-BB@0x24 ]
26      (00000062) invoke-virtual    v0, Ljava/io/File;->delete()Z
27      (00000068) goto          -22
62:67
(Ljava/lang/Exception; -> 58 wipeDirectory-BB@0x58)

```

## 1.2.8 androdis - Disassembler for DEX

androdis is a disassembler for DEX files.

```

Usage: androdis.py [options]

Options:
-h, --help          show this help message and exit
-i INPUT, --input=INPUT
                    file : use this filename (DEX/ODEX)
-o OFFSET, --offset=OFFSET
                    offset to disassemble
-s SIZE, --size=SIZE
                    size

```

## 1.2.9 androauto - run your own analysis

Go into automated mode using androauto.

```

Usage: androauto.py [options]

Options:
-h, --help          show this help message and exit
-d DIRECTORY, --directory=DIRECTORY
                    directory input
-v, --verbose       add debug

```

## 2.1 androguard package

### 2.1.1 Subpackages

**androguard.core** package

#### Subpackages

**androguard.core.analysis** package

The `analysis` module implements an abstraction layer for `androguard.core.bytecodes.dvm.DalvikVMFormat` objects. The the help of the `androguard.core.analysis.analysis.Analysis` object, you can bundle several DEX files together. This is not only useful for multidex files, but also for a single dex, as `Analysis` offers many features to investigate DEX files. One of these features is crossreferencing (XREF). It allows you to build a graph of the methods inside the DEX files. You can then create callgraphs or find methods which use a specific API method.

#### Submodules

**androguard.core.analysis.analysis** module

```
class androguard.core.analysis.analysis.Analysis (vm=None)
```

```
    Bases: object
```

```
    add (vm)
```

```
        Add a DalvikVMFormat to this Analysis
```

```
        Parameters vm – dvm.DalvikVMFormat to add to this Analysis
```

**create\_xref()**

Create Class, Method, String and Field crossreferences for all classes in the Analysis.

If you are using multiple DEX files, this function must be called when all DEX files are added. If you call the function after every DEX file, the crossreferences might be wrong!

**find\_classes** (*name='.\*', no\_external=False*)

Find classes by name, using regular expression This method will return all ClassAnalysis Object that match the name of the class.

**Parameters**

- **name** – regular expression for class name (default “.\*”)
- **no\_external** – Remove external classes from the output (default False)

**Return type** generator of *ClassAnalysis*

**find\_fields** (*classname='.\*', fieldname='.\*', fieldtype='.\*', accessflags='.\*'*)

find fields by regex

**Parameters**

- **classname** – regular expression of the classname
- **fieldname** – regular expression of the fieldname
- **fieldtype** – regular expression of the fieldtype
- **accessflags** – regular expression of the access flags

**Return type** generator of *FieldClassAnalysis*

**find\_methods** (*classname='.\*', methodname='.\*', descriptor='.\*', accessflags='.\*', no\_external=False*)

Find a method by name using regular expression. This method will return all MethodClassAnalysis objects, which match the classname, methodname, descriptor and accessflags of the method.

**Parameters**

- **classname** – regular expression for the classname
- **methodname** – regular expression for the method name
- **descriptor** – regular expression for the descriptor
- **accessflags** – regular expression for the accessflags
- **no\_external** – Remove external method from the output (default False)

**Return type** generator of *MethodClassAnalysis*

**find\_strings** (*string='.\*'*)

Find strings by regex

**Parameters** **string** – regular expression for the string to search for

**Return type** generator of *StringAnalysis*

**get\_call\_graph** (*classname='.\*', methodname='.\*', descriptor='.\*', accessflags='.\*', no\_isolated=False, entry\_points=[]*)

Generate a directed graph based on the methods found by the filters applied. The filters are the same as in `find_methods()`

A `networkx.DiGraph` is returned, containing all edges only once! that means, if a method calls some method twice or more often, there will only be a single connection.

**Parameters**

- **classname** – regular expression of the classname (default: “.\*”)
- **fieldname** – regular expression of the fieldname (default: “.\*”)
- **fieldtype** – regular expression of the fieldtype (default: “.\*”)
- **accessflags** – regular expression of the access flags (default: “.\*”)
- **no\_isolated** – remove isolated nodes from the graph, e.g. methods which do not call anything (default: False)
- **entry\_points** – A list of classes that are marked as entry point

**Return type** DiGraph

**get\_class\_analysis** (*class\_name*)

Returns the *ClassAnalysis* object for a given classname.

**Parameters** **class\_name** – classname like ‘Ljava/lang/Object;’ (including L and ;)

**Returns** *ClassAnalysis*

**get\_classes** ()

Returns a list of *ClassAnalysis* objects

Returns both internal and external classes (if any)

**Return type** list of *ClassAnalysis*

**get\_external\_classes** ()

Returns all external classes, that means all classes that are not defined in the given set of *DalvikVMObjects*.

**Return type** generator of *ClassAnalysis*

**get\_field\_analysis** (*field*)

Get the FieldAnalysis for a given fieldname

**Parameters** **field** – TODO

**Returns** *FieldClassAnalysis*

**get\_fields** ()

Returns a list of *FieldClassAnalysis* objects

**get\_internal\_classes** ()

Returns all external classes, that means all classes that are defined in the given set of *DalvikVMFormat*.

**Return type** generator of *ClassAnalysis*

**get\_method** (*method*)

Get the *MethodAnalysis* object for a given EncodedMethod. This Analysis object is used to enhance EncodedMethods.

**Parameters** **method** – EncodedMethod to search for

**Returns** *MethodAnalysis* object for the given method, or None if method was not found

**get\_method\_analysis** (*method*)

Returns the crossreferencing object for a given Method.

Beware: the similar named function *get\_method()* will return a *MethodAnalysis* object, while this function returns a *MethodClassAnalysis* object!

This Method will only work after a run of *create\_xref()*

**Parameters** **method** – EncodedMethod

**Returns** *MethodClassAnalysis* for the given method or None, if method was not found

**get\_method\_analysis\_by\_name** (*class\_name, method\_name, method\_descriptor*)

Returns the crossreferencing object for a given method.

This function is similar to *get\_method\_analysis()*, with the difference that you can look up the Method by name

**Parameters**

- **class\_name** – name of the class, for example ‘*Ljava/lang/Object;*’
- **method\_name** – name of the method, for example ‘*onCreate*’
- **method\_descriptor** – method descriptor, for example ‘*(II)V*’

**Returns** *MethodClassAnalysis*

**get\_method\_by\_name** (*class\_name, method\_name, method\_descriptor*)

Search for a *EncodedMethod* in all classes in this analysis

**Parameters**

- **class\_name** – name of the class, for example ‘*Ljava/lang/Object;*’
- **method\_name** – name of the method, for example ‘*onCreate*’
- **method\_descriptor** – descriptor, for example ‘*(I I Ljava/lang/String)V*’

**Returns** *EncodedMethod* or *None* if method was not found

**get\_methods** ()

Returns a list of *MethodClassAnalysis* objects

**get\_strings** ()

Returns a list of *StringAnalysis* objects

**Return type** list of *StringAnalysis*

**get\_strings\_analysis** ()

Returns a dictionary of strings and their corresponding *StringAnalysis*

**Returns** a dictionary

**is\_class\_present** (*class\_name*)

Checks if a given class name is part of this Analysis.

**Parameters** **class\_name** – classname like ‘*Ljava/lang/Object;*’ (including L and ;)

**Returns** True if class was found, False otherwise

**class** androguard.core.analysis.analysis.**BasicBlocks** (*\_vm*)

Bases: *object*

This class represents all basic blocks of a method

**get** ()

**Return type** return each basic block (*DVMBasicBlock* object)

**get\_basic\_block** (*idx*)

**get\_basic\_block\_pos** (*idx*)

**gets** ()

**Return type** a list of basic blocks (*DVMBasicBlock* objects)

**pop** (*idx*)

**push** (*bb*)

**class** androguard.core.analysis.analysis.**ClassAnalysis** (*classobj*)

Bases: object

**AddFXrefRead** (*method, classobj, field*)

Add a Field Read to this class

**Parameters**

- **method** –
- **classobj** –
- **field** –

**Returns**

**AddFXrefWrite** (*method, classobj, field*)

Add a Field Write to this class

**Parameters**

- **method** –
- **classobj** –
- **field** –

**Returns**

**AddMXrefFrom** (*method1, classobj, method2, offset*)

**AddMXrefTo** (*method1, classobj, method2, offset*)

**AddXrefFrom** (*ref\_kind, classobj, methodobj, offset*)

Creates a crossreference from this class. XrefFrom means, that the current class is called by another class.

**Parameters**

- **ref\_kind** –
- **classobj** – *ClassAnalysis* object to link
- **methodobj** –
- **offset** – Offset in the methods bytecode, where the call happens

**Returns**

**AddXrefTo** (*ref\_kind, classobj, methodobj, offset*)

Creates a crossreference to another class. XrefTo means, that the current class calls another class. The current class should also be contained in the another class' XrefFrom list.

**Parameters**

- **ref\_kind** –
- **classobj** – *ClassAnalysis* object to link
- **methodobj** –
- **offset** – Offset in the Methods Bytecode, where the call happens

**Returns**

**get\_fake\_method** (*name, descriptor*)

Search for the given method name and descriptor and return a fake (ExternalMethod) if required.

**Parameters**

- **name** – name of the method
- **descriptor** – descriptor of the method, for example *'(III)V'*

**Returns** *ExternalMethod*

**get\_field\_analysis** (*field*)

**get\_fields** ()

Return all *FieldClassAnalysis* objects of this class

**get\_method\_analysis** (*method*)

Return the *MethodClassAnalysis* object for a given *EncodedMethod*

**Parameters** **method** – *EncodedMethod*

**Returns** *MethodClassAnalysis*

**get\_methods** ()

Return all *MethodClassAnalysis* objects of this class

**get\_nb\_methods** ()

Get the number of methods in this class

**get\_vm\_class** ()

**get\_xref\_from** ()

**get\_xref\_to** ()

**is\_android\_api** ()

Tries to guess if the current class is an Android API class.

This might be not very precise unless an apilist is given, with classes that are in fact known APIs. Such a list might be generated by using the *android.jar* files.

**Returns** boolean

**is\_external** ()

Tests wheather this class is an external class

**Returns** True if the Class is external, False otherwise

**class** androguard.core.analysis.analysis.**DVMBasicBlock** (*start, vm, method, context*)

Bases: object

A simple basic block of a dalvik method

**add\_note** (*note*)

**clear\_notes** ()

**get\_end** ()

**get\_exception\_analysis** ()

**get\_instructions** ()

Get all instructions from a basic block.

**Return type** Return all instructions in the current basic block

**get\_last** ()

**get\_last\_length** ()

**get\_method** ()

**get\_name** ()

```

get_nb_instructions ()
get_next ()
    Get next basic blocks

    Return type a list of the next basic blocks
get_notes ()
get_prev ()
    Get previous basic blocks

    Return type a list of the previous basic blocks
get_special_ins (idx)
    Return the associated instruction to a specific instruction (for example a packed/sparse switch)

    Parameters idx – the index of the instruction

    Return type None or an Instruction
get_start ()
push (i)
set_childs (values)
set_exception_analysis (exception_analysis)
set_fathers (f)
set_notes (value)
show ()

class androguard.core.analysis.analysis.ExceptionAnalysis (exception, bb)
    Bases: object

    get ()

    show_buff ()

class androguard.core.analysis.analysis.Exceptions (_vm)
    Bases: object

    add (exceptions, basic_blocks)

    get ()

    get_exception (addr_start, addr_end)

    gets ()

class androguard.core.analysis.analysis.ExternalClass (name)
    Bases: object

    GetMethod (name, descriptor)

    get_method (name, descriptor)
        Get the method by name and descriptor, or create a new one if the requested method does not exists.

        Parameters
            • name – method name
            • descriptor – method descriptor, for example '(IV)'

        Returns ExternalMethod

```

**get\_methods()**  
Return the stored methods for this external class :return:

**get\_name()**  
Returns the name of the ExternalClass object

**class** androguard.core.analysis.analysis.**ExternalMethod**(*class\_name, name, descriptor*)

Bases: object

**get\_access\_flags\_string()**

**get\_class\_name()**

**get\_descriptor()**

**get\_name()**

**class** androguard.core.analysis.analysis.**FieldClassAnalysis**(*field*)

Bases: object

**AddXrefRead**(*classobj, methodobj*)

**AddXrefWrite**(*classobj, methodobj*)

**get\_field()**

**get\_xref\_read()**

**get\_xref\_write()**

**class** androguard.core.analysis.analysis.**MethodAnalysis**(*vm, method*)

Bases: object

**get\_basic\_blocks()**

Return type a *BasicBlocks* object

**get\_length()**

Return type an integer which is the length of the code

**get\_method()**

**get\_vm()**

**show()**

Prints the content of this method to stdout.

This will print the method signature and the decompiled code.

**class** androguard.core.analysis.analysis.**MethodClassAnalysis**(*method*)

Bases: object

**AddXrefFrom**(*classobj, methodobj, offset*)

Add a crossreference from another method (this method is called by another method)

**Parameters**

- **classobj** – *ClassAnalysis*
- **methodobj** – *EncodedMethod*
- **offset** – integer where in the method the call happens

**AddXrefTo**(*classobj, methodobj, offset*)

Add a crossreference to another method (this method calls another method)

**Parameters**

- **classobj** – *ClassAnalysis*
- **methodobj** – *EncodedMethod*
- **offset** – integer where in the method the call happens

**get\_method()**

Return the *EncodedMethod* object that relates to this object :return: *dvm.EncodedMethod*

**get\_xref\_from()**

Returns a list of three tuples containing the class, method and offset of the call, from where this object was called.

The list of tuples has the form: (*ClassAnalysis*, *EncodedMethod* or *ExternalMethod*, int)

**get\_xref\_to()**

Returns a list of three tuples containing the class, method and offset of the call, which are called by this method.

The list of tuples has the form: (*ClassAnalysis*, *EncodedMethod* or *ExternalMethod*, int)

**is\_android\_api()**

Returns True if the method seems to be an Android API method.

This method might be not very precise unless an list of known API methods is given.

**Returns** boolean

**is\_external()**

Return True if the underlying method is external

**Return type** boolean

**class** androguard.core.analysis.analysis.**StringAnalysis** (*value*)

Bases: object

**AddXrefFrom** (*classobj*, *methodobj*)

**get\_orig\_value()**

**get\_value()**

**get\_xref\_from()**

**set\_value** (*value*)

androguard.core.analysis.analysis.**is\_ascii\_obfuscation** (*vm*)

Tests if any class inside a DalvikVMObject uses ASCII Obfuscation (e.g. UTF-8 Chars in Classnames)

**Parameters** *vm* – *DalvikVMObject*

**Returns** True if ascii obfuscation otherwise False

## androguard.core.analysis.auto module

**class** androguard.core.analysis.auto.**AndroAuto** (*settings*)

Bases: object

The main class which analyse automatically android apps by calling methods from a specific object :param settings: the settings of the analysis :type settings: dict

**dump()**

Dump the analysis

**dump\_file** (*filename*)

Dump the analysis in a filename

**go** ()

Launch the analysis

**class** androguard.core.analysis.auto.**DefaultAndroAnalysis**

Bases: object

This class can be used as a template in order to analyse apps

**analysis\_adex** (*log, adexobj*)

This method is called in order to know if the analysis must continue

**Parameters**

- **log** – an object which corresponds to a unique app
- **adexobj** – a VMAnalysis object

**Return type** a boolean

**analysis\_apk** (*log, apkobj*)

This method is called in order to know if the analysis must continue

**Parameters**

- **log** – an object which corresponds to a unique app
- **apkobj** – a APK object

**Return type** a boolean

**analysis\_app** (*log, apkobj, dexobj, adexobj*)

This method is called if you wish to analyse the final app

**Parameters**

- **log** – an object which corresponds to a unique app
- **apkobj** – a APK object
- **dexobj** – a DalvikVMFormat object
- **adexobj** – a VMAnalysis object

**analysis\_arsc** (*log, arscobj*)

This method is called in order to know if the analysis must continue

**Parameters**

- **log** – an object which corresponds to a unique app
- **arscobj** – a ARSCParser object

**Return type** a boolean

**analysis\_axml** (*log, axmlobj*)

This method is called in order to know if the analysis must continue

**Parameters**

- **log** – an object which corresponds to a unique app
- **axmlobj** – a AXMLPrinter object

**Return type** a boolean

**analysis\_dex** (*log, dexobj*)

This method is called in order to know if the analysis must continue

**Parameters**

- **log** – an object which corresponds to a unique app
- **dexobj** – a `DalvikVMFormat` object

**Return type** a boolean

**analysis\_dey** (*log, deyobj*)

This method is called in order to know if the analysis must continue

**Parameters**

- **log** – an object which corresponds to a unique app
- **deyobj** – a `DalvikOdexVMFormat` object

**Return type** a boolean

**crash** (*log, why*)

This method is called if a crash appends

**Parameters**

- **log** – an object which corresponds to a unique app
- **why** – the string exception

**create\_adex** (*log, dexobj*)

This method is called in order to create a `VMAnalysis` object

**Parameters**

- **log** – an object which corresponds to a unique app
- **dexobj** – a `DalvikVMFormat` object

**Rytp** a `Analysis` object

**create\_apk** (*log, fileraw*)

This method is called in order to create a new `APK` object

**Parameters**

- **log** – an object which corresponds to a unique app
- **fileraw** – the raw apk (a string)

**Return type** an `APK` object

**create\_arsc** (*log, fileraw*)

This method is called in order to create a new `ARSC` object

**Parameters**

- **log** – an object which corresponds to a unique app
- **fileraw** – the raw arsc (a string)

**Return type** an `APK` object

**create\_axml** (*log, fileraw*)

This method is called in order to create a new `AXML` object

**Parameters**

- **log** – an object which corresponds to a unique app
- **fileraw** – the raw axml (a string)

**Return type** an APK object

**create\_dex** (*log, dexraw*)

This method is called in order to create a DalvikVMFormat object

**Parameters**

- **log** – an object which corresponds to a unique app
- **dexraw** – the raw classes.dex (a string)

**Return type** a DalvikVMFormat object

**create\_dey** (*log, dexraw*)

This method is called in order to create a DalvikOdexVMFormat object

**Parameters**

- **log** – an object which corresponds to a unique app
- **dexraw** – the raw odex file (a string)

**Return type** a DalvikOdexVMFormat object

**dump** ()

This method is called to dump the result

**dump\_file** (*filename*)

This method is called to dump the result in a file

**Parameters** **filename** – the filename to dump the result

**fetcher** (*q*)

This method is called to fetch a new app in order to analyse it. The queue must be fill with the following format: (filename, raw)

**Parameters** **q** – the Queue to put new app

**filter\_file** (*log, fileraw*)

This method is called in order to filer a specific app

**Parameters**

- **log** – an object which corresponds to a unique app
- **fileraw** – the raw app (a string)

**Return type** a set with 2 elements, the return value (boolean) if it is necessary to continue the analysis and the file type

**finish** (*log*)

This method is called before the end of the analysis

**Parameters** **log** – an object which corresponds to a unique app

**class** androguard.core.analysis.auto.**DirectoryAndroAnalysis** (*directory*)

Bases: *androguard.core.analysis.auto.DefaultAndroAnalysis*

A simple class example to analyse a directory

**fetcher** (*q*)

This method is called to fetch a new app in order to analyse it. The queue must be fill with the following format: (filename, raw)

**Parameters** `q` – the Queue to put new app

## Module contents

### androguard.core.api\_specific\_resources package

#### Module contents

**exception** androguard.core.api\_specific\_resources.**APILevelNotFoundError**

Bases: Exception

androguard.core.api\_specific\_resources.**load\_permission\_mappings** (*apilevel*)

Load the API/Permission mapping for the requested API level. If the requested level was not found, None is returned.

**Parameters** `apilevel` – integer value of the API level, i.e. 24 for Android 7.0

**Returns** a dictionary of {MethodSignature: [List of Permissions]}

androguard.core.api\_specific\_resources.**load\_permissions** (*apilevel*)

Load the Permissions for the given apilevel

**Parameters** `apilevel` – integer value of the API level

**Returns** a dictionary of {Permission Name: {Permission info}}

### androguard.core.bytecodes package

The bytecodes modules are one very important core feature of Androguard. They contain parsers for APK, AXML, DEX, ODEX and DEY files as well for formats used inside these formats. These might be UTF-8 for string encoding in DEX files as well as the widely used LEB128 encoding for numbers.

The most important modules might be `androguard.core.bytecodes.apk.APK` and `androguard.core.bytecodes.dvm.DalvikVMFormat`.

## Submodules

### androguard.core.bytecodes.apk module

**class** androguard.core.bytecodes.apk.**APK** (*filename*, *raw=False*, *magic\_file=None*, *skip\_analysis=False*, *testzip=False*)

Bases: object

#### **files**

Returns a dictionary of filenames and detected magic type

**Returns** dictionary of files and their mime type

#### **get\_activities** ()

Return the android:name attribute of all activities

**Return type** a list of str

#### **get\_all\_dex** ()

Return the raw data of all classes dex files

**Return type** a generator of bytes

**get\_android\_manifest\_axml()**

Return the `AXMLPrinter` object which corresponds to the `AndroidManifest.xml` file

**Return type** `AXMLPrinter`

**get\_android\_manifest\_xml()**

Return the parsed xml object which corresponds to the `AndroidManifest.xml` file

**Return type** `Element`

**get\_android\_resources()**

Return the `ARSCParser` object which corresponds to the `resources.arsc` file

**Return type** `ARSCParser`

**get\_androidversion\_code()**

Return the android version code

This information is read from the `AndroidManifest.xml`

**Return type** `str`

**get\_androidversion\_name()**

Return the android version name

This information is read from the `AndroidManifest.xml`

**Return type** `str`

**get\_app\_icon(max\_dpi=65536)**

Return the first icon file name, which density is not greater than `max_dpi`, unless exact icon resolution is set in the manifest, in which case return the exact file.

This information is read from the `AndroidManifest.xml`

From [https://developer.android.com/guide/practices/screens\\_support.html](https://developer.android.com/guide/practices/screens_support.html) and [https://developer.android.com/ndk/reference/group\\_\\_\\_configuration.html](https://developer.android.com/ndk/reference/group___configuration.html)

- `DEFAULT` 0dpi
- `ldpi` (low) 120dpi
- `mdpi` (medium) 160dpi
- `TV` 213dpi
- `hdpi` (high) 240dpi
- `xhdpi` (extra-high) 320dpi
- `xxhdpi` (extra-extra-high) 480dpi
- `xxxhdpi` (extra-extra-extra-high) 640dpi
- `anydpi` 65534dpi (0xFFFFE)
- `nodpi` 65535dpi (0xFFFF)

There is a difference between `nodpi` and `anydpi`: `nodpi` will be used if no other density is specified. Or the density does not match. `nodpi` is the fallback for everything else. If there is a resource that matches the DPI, this is used. `anydpi` is also valid for all densities but in this case, `anydpi` will overrule all other files! Therefore `anydpi` is usually used with vector graphics and with constraints on the API level. For example adaptive icons are usually marked as `anydpi`.

When it comes now to selecting an icon, there is the following flow: 1) is there an `anydpi` icon? 2) is there an icon for the dpi of the device? 3) is there a `nodpi` icon? 4) (only on very old devices) is there a icon with dpi 0 (the default)

For more information read here: <https://stackoverflow.com/a/34370735/446140>

**Return type** `str`

**get\_app\_name** ()

Return the appname of the APK

This name is read from the AndroidManifest.xml

**Return type** `str`

**get\_certificate** (*filename*)

Return a X.509 certificate object by giving the name in the apk file

**Parameters** **filename** – filename of the signature file in the APK

**Returns** a `Certificate` certificate

**get\_certificate\_der** (*filename*)

Return the DER coded X.509 certificate from the signature file.

**Parameters** **filename** – Signature filename in APK

**Returns** DER coded X.509 certificate as binary

**get\_certificates\_der\_v2** ()

Return a list of DER coded X.509 certificates from the v2 signature

**get\_certificates\_v2** ()

Return a list of `cryptography.x509.Certificate` which are found in the v2 signing block. Note that we simply extract all certificates regardless of the signer. Therefore this is just a list of all certificates found in all signers.

**get\_declared\_permissions** ()

Returns list of the declared permissions.

**Return type** list of strings

**get\_declared\_permissions\_details** ()

Returns declared permissions with the details.

**Return type** dict

**get\_details\_permissions** ()

Return permissions with details

**Return type** dict of {permission: [protectionLevel, label, description]}

**get\_dex** ()

Return the raw data of the classes dex file

This will give you the data of the file called `classes.dex` inside the APK. If the APK has multiple DEX files, you need to use `get_all_dex()`.

**Return type** bytes

**get\_dex\_names** ()

Return the names of all DEX files found in the APK. This method only accounts for “official” dex files, i.e. all files in the root directory of the APK named `classes.dex` or `classes[0-9]+.dex`

**Return type** a list of str

**get\_effective\_target\_sdk\_version** ()

Return the effective targetSdkVersion, always returns int > 0.

If the `targetSdkVersion` is not set, it defaults to 1. This is set based on defaults as defined in: <https://developer.android.com/guide/topics/manifest/uses-sdk-element.html>

**Return type** `int`

**get\_element** (*tag\_name*, *attribute*, *\*\*attribute\_filter*)

Return element in xml files which match with the tag name and the specific attribute

**Parameters**

- **tag\_name** (*string*) – specify the tag name
- **attribute** (*string*) – specify the attribute

**Return type** `string`

**get\_elements** (*tag\_name*, *attribute*, *with\_namespace=True*)

Return elements in xml files which match with the tag name and the specific attribute

**Parameters**

- **tag\_name** – a string which specify the tag name
- **attribute** – a string which specify the attribute

**get\_features** ()

Return a list of all android:names found for the tag uses-feature in the AndroidManifest.xml

**Returns** `list`

**get\_file** (*filename*)

Return the raw data of the specified filename inside the APK

**Return type** `bytes`

**get\_filename** ()

Return the filename of the APK

**Return type** `str`

**get\_files** ()

Return the file names inside the APK.

**Return type** a list of `str`

**get\_files\_crc32** ()

Calculates and returns a dictionary of filenames and CRC32

**Returns** dict of filename: CRC32

**get\_files\_information** ()

Return the files inside the APK with their associated types and crc32

**Return type** `str, str, int`

**get\_files\_types** ()

Return the files inside the APK with their associated types (by using python-magic)

**Return type** a dictionary

**get\_intent\_filters** (*itemtype*, *name*)

Find intent filters for a given item and name.

Intent filter are attached to activities, services or receivers. You can search for the intent filters of such items and get a dictionary of all attached actions and intent categories.

**Parameters**

- **itemtype** – the type of parent item to look for, e.g. *activity*, *service* or *receiver*
- **name** – the *android:name* of the parent item, e.g. activity name

**Returns** a dictionary with the keys *action* and *category* containing the *android:name* of those items

**get\_libraries** ()

Return the android:name attributes for libraries

**Return type** list

**get\_main\_activity** ()

Return the name of the main activity

This value is read from the AndroidManifest.xml

**Return type** str

**get\_max\_sdk\_version** ()

Return the android:maxSdkVersion attribute

**Return type** string

**get\_min\_sdk\_version** ()

Return the android:minSdkVersion attribute

**Return type** string

**get\_package** ()

Return the name of the package

This information is read from the AndroidManifest.xml

**Return type** str

**get\_permissions** ()

Return permissions

**Return type** list of str

**get\_providers** ()

Return the android:name attribute of all providers

**Return type** a list of string

**get\_raw** ()

Return raw bytes of the APK

**Return type** bytes

**get\_receivers** ()

Return the android:name attribute of all receivers

**Return type** a list of string

**get\_requested\_aosp\_permissions** ()

Returns requested permissions declared within AOSP project.

This includes several other permissions as well, which are in the platform apps.

**Return type** list of str

**get\_requested\_aosp\_permissions\_details** ()

Returns requested aosp permissions with details.

**Return type** dictionary

`get_requested_permissions = DeprecationWarning(<function APK.get_requested_permissions`

`get_requested_third_party_permissions ()`

Returns list of requested permissions not declared within AOSP project.

**Return type** list of strings

`get_services ()`

Return the android:name attribute of all services

**Return type** a list of str

`get_signature ()`

Return the data of the first signature file found (v1 Signature / JAR Signature)

**Return type** First signature name or None if not signed

`get_signature_name ()`

Return the name of the first signature file found.

`get_signature_names ()`

Return a list of the signature file names (v1 Signature / JAR Signature)

**Return type** List of filenames matching a Signature

`get_signatures ()`

Return a list of the data of the signature files. Only v1 / JAR Signing.

**Return type** list of bytes

`get_target_sdk_version ()`

Return the android:targetSdkVersion attribute

**Return type** string

`get_uses_implied_permission_list ()`

Return all permissions implied by the target SDK or other permissions.

**Return type** list of string

`is_androidtv ()`

Checks if this application does not require a touchscreen, as this is the rule to get into the TV section of the Play Store See: <https://developer.android.com/training/tv/start/start.html> for more information.

**Returns** True if 'android.hardware.touchscreen' is not required, False otherwise

`is_leanback ()`

Checks if this application is build for TV (Leanback support) by checkin if it uses the feature 'android.software.leanback'

**Returns** True if leanback feature is used, false otherwise

`is_multidex ()`

Test if the APK has multiple DEX files

**Returns** True if multiple dex found, otherwise False

`is_signed ()`

Returns true if either a v1 or v2 (or both) signature was found.

`is_signed_v1 ()`

Returns true if a v1 / JAR signature was found.

Returning *True* does not mean that the file is properly signed! It just says that there is a signature file which needs to be validated.

**is\_signed\_v2()**

Returns true if a v2 / APK signature was found.

Returning *True* does not mean that the file is properly signed! It just says that there is a signature file which needs to be validated.

**is\_valid\_APK()**

Return true if the APK is valid, false otherwise. An APK is seen as valid, if the AndroidManifest.xml could be successfully parsed. This does not mean that the APK has a valid signature nor that the APK can be installed on an Android system.

**Return type** boolean

**is\_wearable()**

Checks if this application is build for wearables by checking if it uses the feature 'android.hardware.type.watch' See: <https://developer.android.com/training/wearables/apps/creating.html> for more information.

Not every app is setting this feature (not even the example Google provides), so it might be wise to not 100% rely on this feature.

**Returns** True if wearable, False otherwise

**new\_zip** (*filename*, *deleted\_files=None*, *new\_files={}*)

Create a new zip file

**Parameters**

- **filename** (*string*) – the output filename of the zip
- **deleted\_files** (*None or a string*) – a regex pattern to remove specific file
- **new\_files** (*a dictionary (key:filename, value:content of the file)*) – a dictionary of new files

**show()**

**exception** androguard.core.bytecodes.apk.**BrokenAPKError**

Bases: *androguard.core.bytecodes.apk.Error*

**exception** androguard.core.bytecodes.apk.**Error**

Bases: Exception

Base class for exceptions in this module.

**exception** androguard.core.bytecodes.apk.**FileNotPresent**

Bases: *androguard.core.bytecodes.apk.Error*

androguard.core.bytecodes.apk.**parse\_lxml\_dom** (*tree*)

androguard.core.bytecodes.apk.**show\_Certificate** (*cert*, *short=False*)

Print Fingerprints, Issuer and Subject of an X509 Certificate.

**Parameters**

- **cert** (*cryptography.x509.Certificate*) – X509 Certificate to print
- **short** (*Boolean*) – Print in shortform for DN (Default: False)

## androguard.core.bytecodes.dvm module

**class** androguard.core.bytecodes.dvm.**AnnotationElement** (*buff*, *cm*)

Bases: object

This class can parse an `annotation_element` of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `annotation_element`
- **cm** (*ClassManager*) – a `ClassManager` object

**get\_length()**

**get\_name\_idx()**

Return the element name, represented as an index into the `string_ids` section

**Return type** `int`

**get\_obj()**

**get\_raw()**

**get\_value()**

Return the element value (`EncodedValue`)

**Return type** a `EncodedValue` object

**show()**

**class** `androguard.core.bytecodes.dvm.AnnotationItem(buff, cm)`

Bases: `object`

This class can parse an `annotation_item` of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `annotation_item`
- **cm** (*ClassManager*) – a `ClassManager` object

**get\_annotation()**

Return the encoded annotation contents

**Return type** a `EncodedAnnotation` object

**get\_length()**

**get\_obj()**

**get\_off()**

**get\_raw()**

**get\_visibility()**

Return the intended visibility of this annotation

**Return type** `int`

**reload()**

**set\_off(off)**

**show()**

**class** `androguard.core.bytecodes.dvm.AnnotationOffItem(buff, cm)`

Bases: `object`

This class can parse an `annotation_off_item` of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the annotation\_off\_item
- **cm** (*ClassManager*) – a ClassManager object

**get\_length()**

**get\_obj()**

**get\_raw()**

**show()**

**class** androguard.core.bytecodes.dvm.**AnnotationSetItem**(*buff, cm*)

Bases: object

This class can parse an annotation\_set\_item of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a Buff object of the annotation\_set\_item
- **cm** (*ClassManager*) – a ClassManager object

**get\_annotation\_off\_item()**

Return the offset from the start of the file to an annotation

**Return type** a list of *AnnotationOffItem*

**get\_length()**

**get\_obj()**

**get\_off()**

**get\_raw()**

**reload()**

**set\_off**(*off*)

**show()**

**class** androguard.core.bytecodes.dvm.**AnnotationSetRefItem**(*buff, cm*)

Bases: object

This class can parse an annotation\_set\_ref\_item of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a Buff object of the annotation\_set\_ref\_item
- **cm** (*ClassManager*) – a ClassManager object

**get\_annotations\_off()**

Return the offset from the start of the file to the referenced annotation set or 0 if there are no annotations for this element.

**Return type** int

**get\_obj()**

**get\_raw()**

**show()**

**class** androguard.core.bytecodes.dvm.**AnnotationSetRefList** (*buff, cm*)

Bases: object

This class can parse an `annotation_set_ref_list_item` of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `annotation_set_ref_list_item`
- **cm** (*ClassManager*) – a `ClassManager` object

**get\_length** ()

**get\_list** ()

Return elements of the list

**Return type** *AnnotationSetRefItem*

**get\_obj** ()

**get\_off** ()

**get\_raw** ()

**reload** ()

**set\_off** (*off*)

**show** ()

**class** androguard.core.bytecodes.dvm.**AnnotationsDirectoryItem** (*buff, cm*)

Bases: object

This class can parse an `annotations_directory_item` of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `annotations_directory_item`
- **cm** (*ClassManager*) – a `ClassManager` object

**get\_annotated\_fields\_size** ()

Return the count of fields annotated by this item

**Return type** int

**get\_annotated\_methods\_size** ()

Return the count of methods annotated by this item

**Return type** int

**get\_annotated\_parameters\_size** ()

Return the count of method parameter lists annotated by this item

**Return type** int

**get\_class\_annotations\_off** ()

Return the offset from the start of the file to the annotations made directly on the class, or 0 if the class has no direct annotations

**Return type** int

**get\_field\_annotations** ()

Return the list of associated field annotations

**Return type** a list of *FieldAnnotation*

`get_length()`

`get_method_annotations()`

Return the list of associated method annotations

**Return type** a list of *MethodAnnotation*

`get_obj()`

`get_off()`

`get_parameter_annotations()`

Return the list of associated method parameter annotations

**Return type** a list of *ParameterAnnotation*

`get_raw()`

`reload()`

`set_off(off)`

`show()`

**class** `androguard.core.bytecodes.dvm.ClassDataItem(buff, cm)`

Bases: `object`

This class can parse a `class_data_item` of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `class_data_item`
- **cm** (*ClassManager*) – a `ClassManager` object

`get_direct_methods()`

Return the defined direct (any of static, private, or constructor) methods, represented as a sequence of encoded elements

**Return type** a list of *EncodedMethod* objects

`get_direct_methods_size()`

Return the number of direct methods defined in this item

**Return type** `int`

`get_fields()`

Return static and instance fields

**Return type** a list of *EncodedField* objects

`get_instance_fields()`

Return the defined instance fields, represented as a sequence of encoded elements

**Return type** a list of *EncodedField* objects

`get_instance_fields_size()`

Return the number of instance fields defined in this item

**Return type** `int`

`get_length()`

`get_methods()`

Return direct and virtual methods

**Return type** a list of *EncodedMethod* objects

`get_obj()`

`get_off()`

`get_raw()`

`get_static_fields()`

Return the defined static fields, represented as a sequence of encoded elements

**Return type** a list of *EncodedField* objects

`get_static_fields_size()`

Return the number of static fields defined in this item

**Return type** int

`get_virtual_methods()`

Return the defined virtual (none of static, private, or constructor) methods, represented as a sequence of encoded elements

**Return type** a list of *EncodedMethod* objects

`get_virtual_methods_size()`

Return the number of virtual methods defined in this item

**Return type** int

`reload()`

`set_off(off)`

`set_static_fields(value)`

`show()`

**class** `androguard.core.bytecodes.dvm.ClassDefItem(buff, cm)`

Bases: `object`

This class can parse a `class_def_item` of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `class_def_item`
- **cm** (*ClassManager*) – a `ClassManager` object

`get_access_flags()`

Return the access flags for the class (public, final, etc.)

**Return type** int

`get_access_flags_string()`

Return the access flags string of the class

**Return type** string

`get_annotations_off()`

Return the offset from the start of the file to the annotations structure for this class, or 0 if there are no annotations on this class.

**Return type** int

`get_ast()`

`get_class_data()`

Return the associated `class_data_item`

**Return type** a *ClassDataItem* object

**get\_class\_data\_off()**

Return the offset from the start of the file to the associated class data for this item, or 0 if there is no class data for this class

**Return type** int

**get\_class\_idx()**

Return the index into the type\_ids list for this class

**Return type** int

**get\_fields()**

Return all fields of this class

**Return type** a list of *EncodedField* objects

**get\_interfaces()**

Return the name of the interface

**Return type** string

**get\_interfaces\_off()**

Return the offset from the start of the file to the list of interfaces, or 0 if there are none

**Return type** int

**get\_length()**

**get\_methods()**

Return all methods of this class

**Return type** a list of *EncodedMethod* objects

**get\_name()**

Return the name of this class

**Return type** int

**get\_obj()**

**get\_raw()**

**get\_source()**

**get\_source\_ext()**

**get\_source\_file\_idx()**

Return the index into the string\_ids list for the name of the file containing the original source for (at least most of) this class, or the special value NO\_INDEX to represent a lack of this information

**Return type** int

**get\_static\_values\_off()**

Return the offset from the start of the file to the list of initial values for static fields, or 0 if there are none (and all static fields are to be initialized with 0 or null)

**Return type** int

**get\_superclass\_idx()**

Return the index into the type\_ids list for the superclass

**Return type** int

**get\_superclassname()**

Return the name of the super class

**Return type** string

**reload()**

**set\_name** (*value*)

**show()**

**source()**

Return the source code of the entire class

**Return type** string

**class** androguard.core.bytecodes.dvm.**ClassHDefItem** (*size, buff, cm*)

Bases: object

This class can parse a list of class\_def\_item of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the list of class\_def\_item
- **cm** (*ClassManager*) – a ClassManager object

**get\_class\_idx** (*idx*)

**get\_length** ()

**get\_method** (*name\_class, name\_method*)

**get\_names** ()

**get\_obj** ()

**get\_off** ()

**get\_raw** ()

**reload** ()

**set\_off** (*off*)

**show** ()

**class** androguard.core.bytecodes.dvm.**ClassManager** (*vm, config*)

Bases: object

This class is used to access to all elements (strings, type, proto ...) of the dex format

**add\_type\_item** (*type\_item, c\_item, item*)

**get\_all\_engine** ()

**get\_ascii\_string** (*s*)

**get\_class\_data\_item** (*off*)

**get\_code** (*idx*)

**get\_debug\_off** (*off*)

**get\_encoded\_array\_item** (*off*)

**get\_engine** ()

**get\_field** (*idx*)

**get\_field\_ref** (*idx*)

**get\_item\_by\_offset** (*offset*)

```

get_lazy_analysis ()
get_method (idx)
get_method_ref (idx)
get_next_offset_item (idx)
get_obj_by_offset (offset)
get_odex_format ()
get_proto (idx)
get_raw_string (idx)
get_string (idx)
get_string_by_offset (offset)
get_type (idx)
get_type_list (off)
get_type_ref (idx)
set_decompiler (decompiler)
set_hook_class_name (class_def, value)
set_hook_field_name (encoded_field, value)
set_hook_method_name (encoded_method, value)
set_hook_string (idx, value)

class androguard.core.bytecodes.dvm.CodeItem (size, buff, cm)
    Bases: object
get_code (off)
get_length ()
get_obj ()
get_off ()
get_raw ()
reload ()
set_off (off)
show ()

class androguard.core.bytecodes.dvm.ConstString (orig_ins, value)
    Bases: androguard.core.bytecodes.dvm.Instruction21c
    Simulate a const-string instruction.
get_operands (idx=-1)
    Return all operands
    Return type list
get_raw_string ()

class androguard.core.bytecodes.dvm.DBGBytecode (cm, op_value)
    Bases: object

```

`add (value, ttype)`

`get_obj ()`

`get_op_value ()`

`get_raw ()`

`get_value ()`

`show ()`

**class** `androguard.core.bytecodes.dvm.DCode (class_manager, offset, size, buff)`

Bases: `object`

This class represents the instructions of a method

#### Parameters

- **class\_manager** (*ClassManager* object) – the *ClassManager*
- **offset** (*int*) – the offset of the buffer
- **size** (*int*) – the total size of the buffer
- **buff** (*string*) – a raw buffer where are the instructions

`add_innote (msg, idx, off=None)`

Add a message to a specific instruction by using (default) the index of the address if specified

#### Parameters

- **msg** (*string*) – the message
- **idx** (*int*) – index of the instruction (the position in the list of the instruction)
- **off** (*int*) – address of the instruction

`get_ins_off (off)`

Get a particular instruction by using the address

**Parameters** **off** (*int*) – address of the instruction

**Return type** an *Instruction* object

`get_insn ()`

Get the insn buffer

**Return type** `string`

`get_instruction (idx, off=None)`

Get a particular instruction by using (default) the index of the address if specified

#### Parameters

- **idx** (*int*) – index of the instruction (the position in the list of the instruction)
- **off** (*int*) – address of the instruction

**Return type** an *Instruction* object

`get_instructions ()`

Get the instructions

**Return type** a generator of each *Instruction* (or a cached list of instructions if you have setup instructions)

`get_length ()`

Return the length of this object

**Return type** int

**get\_raw** ()

Return the raw buffer of this object

**Return type** bytearray

**is\_cached\_instructions** ()

**off\_to\_pos** (*off*)

Get the position of an instruction by using the address

**Parameters** **off** (*int*) – address of the instruction

**Return type** int

**reload** ()

**set\_idx** (*idx*)

Set the start address of the buffer

**Parameters** **idx** (*int*) – the index

**set\_insn** (*insn*)

Set a new raw buffer to disassemble

**Parameters** **insn** (*string*) – the buffer

**set\_instructions** (*instructions*)

Set the instructions

**Parameters** **instructions** (a list of *Instruction*) – the list of instructions

**show** ()

Display (with a pretty print) this object

**class** androguard.core.bytecodes.dvm.**DalvikCode** (*buff, cm*)

Bases: object

This class represents the instructions of a method

**Parameters**

- **buff** (*string*) – a raw buffer where are the instructions
- **cm** (*ClassManager* object) – the ClassManager

**add\_inote** (*msg, idx, off=None*)

Add a message to a specific instruction by using (default) the index of the address if specified

**Parameters**

- **msg** (*string*) – the message
- **idx** (*int*) – index of the instruction (the position in the list of the instruction)
- **off** (*int*) – address of the instruction

**get\_bc** ()

Return the associated code object

**Return type** *DCode*

**get\_debug** ()

Return the associated debug object

**Return type** *DebugInfoItem*

**get\_debug\_info\_off()**

Get the offset from the start of the file to the debug info (line numbers + local variable info) sequence for this code, or 0 if there simply is no information

**Return type** int

**get\_handlers()**

Get the bytes representing a list of lists of catch types and associated handler addresses.

**Return type** *EncodedCatchHandlerList*

**get\_ins\_size()**

Get the number of words of incoming arguments to the method that this code is for

**Return type** int

**get\_insns\_size()**

Get the size of the instructions list, in 16-bit code units

**Return type** int

**get\_instruction(*idx*, *off=None*)**

**get\_length()**

**get\_obj()**

**get\_off()**

**get\_outs\_size()**

Get the number of words of outgoing argument space required by this code for method invocation

**Return type** int

**get\_raw()**

Get the reconstructed code as bytearray

**Return type** bytearray

**get\_registers\_size()**

Get the number of registers used by this code

**Return type** int

**get\_size()**

**get\_tries()**

Get the array indicating where in the code exceptions are caught and how to handle them

**Return type** a list of *TryItem* objects

**get\_tries\_size()**

Get the number of *TryItem* for this instance

**Return type** int

**reload()**

**set\_idx(*idx*)**

**set\_off(*off*)**

**show()**

**class** androguard.core.bytecodes.dvm.DalvikOdexVMFormat (*buff*, *decompiler=None*,  
*config=None*, *using\_api=None*)

Bases: *androguard.core.bytecodes.dvm.DalvikVMFormat*

This class can parse an odex file

#### Parameters

- **buff** (*string*) – a string which represents the odex file
- **decompiler** (*object*) – associate a decompiler object to display the java source code

**Example** DalvikOdexVMFormat( read(“classes.odex”) )

**get\_buff** ()

**get\_dependencies** ()

Return the odex dependencies object

**Return type** an OdexDependencies object

**get\_format\_type** ()

Return the type

**Return type** a string

**save** ()

Do not use !

**class** androguard.core.bytecodes.dvm.DalvikVMFormat (*buff*, *decompiler=None*, *config=None*, *using\_api=None*)

Bases: androguard.core.bytecode.\_Bytecode

This class can parse a classes.dex file of an Android application (APK).

#### Parameters

- **buff** (*string*) – a string which represents the classes.dex file
- **decompiler** (*object*) – associate a decompiler object to display the java source code

**Example** DalvikVMFormat( read(“classes.dex”) )

**colorize\_operands** (*operands*, *colors*)

**create\_python\_export** ()

Export classes/methods/fields’ names in the python namespace

**disassemble** (*offset*, *size*)

Disassembles a given offset in the DEX file

#### Parameters

- **offset** (*int*) – offset to disassemble in the file (from the beginning of the file)
- **size** –

**fix\_checksums** (*buff*)

Fix a dex format buffer by setting all checksums

**Return type** string

**get\_BRANCH\_DVM\_OPCODES** ()

**get\_all\_fields** ()

Return a list of field items

**Return type** a list of *FieldIdItem* objects

**get\_api\_version** ()

This method returns api version that should be used for loading api specific resources.

**Return type** int

**get\_class** (*name*)  
Return a specific class

**Parameters** **name** – the name of the class

**Return type** a *ClassDefItem* object

**get\_class\_manager** ()  
This function returns a ClassManager object which allow you to get access to all index references (strings, methods, fields, ...)

**Return type** *ClassManager* object

**get\_classes** ()  
Return all classes

**Return type** a list of *ClassDefItem* objects

**get\_classes\_def\_item** ()  
This function returns the class def item

**Return type** *ClassHDefItem* object

**get\_classes\_names** (*update=False*)  
Return the names of classes

**Parameters** **update** – True indicates to recompute the list. Maybe needed after using a My-Class.set\_name().

**Return type** a list of string

**get\_cm\_field** (*idx*)  
Get a specific field by using an index

**Parameters** **idx** (*int*) – index of the field

**get\_cm\_method** (*idx*)  
Get a specific method by using an index

**Parameters** **idx** (*int*) – index of the method

**get\_cm\_string** (*idx*)  
Get a specific string by using an index

**Parameters** **idx** (*int*) – index of the string

**get\_cm\_type** (*idx*)  
Get a specific type by using an index

**Parameters** **idx** (*int*) – index of the type

**get\_codes\_item** ()  
This function returns the code item

**Return type** *CodeItem* object

**get\_debug\_info\_item** ()  
This function returns the debug info item

**Return type** *DebugInfoItem* object

**get\_determineException** ()

**get\_determineNext** ()

**get\_field** (*name*)  
Return a list all fields which corresponds to the regexp

**Parameters** **name** – the name of the field (a python regexp)

**Return type** a list with all *EncodedField* objects

**get\_field\_descriptor** (*class\_name*, *field\_name*, *descriptor*)

Return the specific field

**Parameters**

- **class\_name** (*string*) – the class name of the field
- **field\_name** (*string*) – the name of the field
- **descriptor** (*string*) – the descriptor of the field

**Return type** None or a *EncodedField* object

**get\_fields** ()

Return all field objects

**Return type** a list of *EncodedField* objects

**get\_fields\_class** (*class\_name*)

Return all fields of a specific class

**Parameters** **class\_name** (*string*) – the class name

**Return type** a list with *EncodedField* objects

**get\_fields\_id\_item** ()

This function returns the field id item

**Return type** *FieldHidItem* object

**get\_format** ()

**get\_format\_type** ()

Return the type

**Return type** a string

**get\_header\_item** ()

This function returns the header item

**Return type** *HeaderItem* object

**get\_len\_methods** ()

Return the number of methods

**Return type** int

**get\_method** (*name*)

Return a list all methods which corresponds to the regexp

**Parameters** **name** – the name of the method (a python regexp)

**Return type** a list with all *EncodedMethod* objects

**get\_method\_by\_idx** (*idx*)

Return a specific method by using an index :param idx: the index of the method :type idx: int

**Return type** None or an *EncodedMethod* object

**get\_method\_descriptor** (*class\_name*, *method\_name*, *descriptor*)

Return the specific method

**Parameters**

- **class\_name** (*string*) – the class name of the method
- **method\_name** (*string*) – the name of the method
- **descriptor** (*string*) – the descriptor of the method

**Return type** None or a *EncodedMethod* object

**get\_methods** ()

Return all method objects

**Return type** a list of *EncodedMethod* objects

**get\_methods\_class** (*class\_name*)

Return all methods of a specific class

**Parameters** **class\_name** (*string*) – the class name

**Return type** a list with *EncodedMethod* objects

**get\_methods\_descriptor** (*class\_name*, *method\_name*)

Return the specific methods of the class

**Parameters**

- **class\_name** (*string*) – the class name of the method
- **method\_name** (*string*) – the name of the method

**Return type** None or a *EncodedMethod* object

**get\_methods\_id\_item** ()

This function returns the method id item

**Return type** *MethodHidItem* object

**get\_operand\_html** (*operand*, *registers\_colors*, *colors*, *escape\_fct*, *wrap\_fct*)

**get\_regex\_strings** (*regular\_expressions*)

Return all target strings matched the regex

**Parameters** **regular\_expressions** (*string*) – the python regex

**Return type** a list of strings matching the regex expression

**get\_string\_data\_item** ()

This function returns the string data item

**Return type** *StringDataItem* object

**get\_strings** ()

Return all strings

The strings will have escaped surrogates, if only a single high or low surrogate is found. Complete surrogates are put together into the representing 32bit character.

**Return type** a list with all strings used in the format (types, names ...)

**get\_strings\_unicode** ()

Return all strings

This method will return pure UTF-16 strings. This is the “exact” same string as used in Java. Those strings can be problematic for python, as they can contain surrogates as well as “broken” surrogate pairs, ie single high or low surrogates. Such a string can for example not be printed. To avoid such problems, there is an escape mechanism to detect such lonely surrogates and escape them in the string. Of course, this results in a different string than in the Java Source!

Use `get_strings()` as a general purpose and `get_strings_unicode()` if you require the exact string from the Java Source. You can always escape the string from `get_strings_unicode()` using the function `androguard.core.bytecodes.mutfs8.patch_string()`

**Return type** a list with all strings used in the format (types, names ...)

**get\_vmanalysis ()**

The Analysis Object should contain all the information required, including the DalvikVMFormats.

**list\_classes\_hierarchy ()**

**print\_classes\_hierarchy ()**

**save ()**

Return the dex (with the modifications) into raw format (fix checksums) (beta: do not use !)

**Return type** string

**set\_decompiler (decompiler)**

**set\_vmanalysis (analysis)**

The Analysis Object should contain all the information required, including the DalvikVMFormats.

**show ()**

Show the all information in the object

**class** androguard.core.bytecodes.dvm.**DebugInfoItem** (*buff, cm*)

Bases: object

**get\_bytecodes ()**

**get\_line\_start ()**

**get\_off ()**

**get\_parameter\_names ()**

**get\_parameters\_size ()**

**get\_raw ()**

**get\_translated\_parameter\_names ()**

**reload ()**

**show ()**

**class** androguard.core.bytecodes.dvm.**DebugInfoItemEmpty** (*buff, cm*)

Bases: object

**get\_length ()**

**get\_obj ()**

**get\_off ()**

**get\_raw ()**

**reload ()**

**set\_off (off)**

**show ()**

**class** androguard.core.bytecodes.dvm.**EncodedAnnotation** (*buff, cm*)

Bases: object

This class can parse an encoded\_annotation of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the encoded\_annotation
- **cm** (*ClassManager*) – a ClassManager object

**get\_elements()**

Return the elements of the annotation, represented directly in-line (not as offsets)

**Return type** a list of *AnnotationElement* objects

**get\_length()****get\_obj()****get\_raw()****get\_size()**

Return the number of name-value mappings in this annotation

:rtype:int

**get\_type\_idx()**

Return the type of the annotation. This must be a class (not array or primitive) type

**Return type** int

**show()**

**class** androguard.core.bytecodes.dvm.**EncodedArray** (*buff, cm*)

Bases: object

This class can parse an encoded\_array of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the encoded\_array
- **cm** (*ClassManager*) – a ClassManager object

**get\_length()****get\_obj()****get\_raw()****get\_size()**

Return the number of elements in the array

**Return type** int

**get\_values()**

Return a series of size encoded\_value byte sequences in the format specified by this section, concatenated sequentially

**Return type** a list of *EncodedValue* objects

**show()**

**class** androguard.core.bytecodes.dvm.**EncodedArrayItem** (*buff, cm*)

Bases: object

This class can parse an encoded\_array\_item of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the encoded\_array\_item

- **cm** (*ClassManager*) – a *ClassManager* object

**get\_length** ()

**get\_obj** ()

**get\_off** ()

**get\_raw** ()

**get\_value** ()

Return the bytes representing the encoded array value

**Return type** a *EncodedArray* object

**reload** ()

**set\_off** (*off*)

**show** ()

**class** androguard.core.bytecodes.dvm.**EncodedCatchHandler** (*buff*, *cm*)

Bases: object

This class can parse an `encoded_catch_handler` of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a *Buff* object of the `encoded_catch_handler`
- **cm** (*ClassManager*) – a *ClassManager* object

**get\_catch\_all\_addr** ()

Return the bytecode address of the catch-all handler. This element is only present if size is non-positive.

**Return type** int

**get\_handlers** ()

Return the stream of `abs(size)` encoded items, one for each caught type, in the order that the types should be tested.

**Return type** a list of *EncodedTypeAddrPair* objects

**get\_length** ()

**get\_off** ()

**get\_raw** ()

**Return type** bytearray

**get\_size** ()

Return the number of catch types in this list

**Return type** int

**set\_off** (*off*)

**show** ()

**class** androguard.core.bytecodes.dvm.**EncodedCatchHandlerList** (*buff*, *cm*)

Bases: object

This class can parse an `encoded_catch_handler_list` of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a Buff object of the encoded\_catch\_handler\_list
- **cm** (*ClassManager*) – a ClassManager object

**get\_length** ()

**get\_list** ()

Return the actual list of handler lists, represented directly (not as offsets), and concatenated sequentially

**Return type** a list of *EncodedCatchHandler* objects

**get\_obj** ()

**get\_off** ()

**get\_raw** ()

**Return type** bytearray

**get\_size** ()

Return the size of this list, in entries

**Return type** int

**set\_off** (*off*)

**show** ()

**class** androguard.core.bytecodes.dvm.**EncodedField** (*buff, cm*)

Bases: object

This class can parse an encoded\_field of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the encoded field
- **cm** (*ClassManager*) – a ClassManager object

**adjust\_idx** (*val*)

**get\_access\_flags** ()

Return the access flags of the field

**Return type** int

**get\_access\_flags\_string** ()

Return the access flags string of the field

**Return type** string

**get\_class\_name** ()

Return the class name of the field

**Return type** string

**get\_descriptor** ()

Return the descriptor of the field

The descriptor of a field is the type of the field.

**Return type** string

**get\_field\_idx** ()

Return the real index of the method

**Return type** int

**get\_field\_idx\_diff()**

Return the index into the field\_ids list for the identity of this field (includes the name and descriptor), represented as a difference from the index of previous element in the list

**Return type** int

**get\_init\_value()**

Return the init value object of the field

**Return type** *EncodedValue*

**get\_name()**

Return the name of the field

**Return type** string

**get\_obj()**

**get\_raw()**

**get\_size()**

**load()**

**reload()**

**set\_init\_value(value)**

Setup the init value object of the field

**Parameters** **value** (*EncodedValue*) – the init value

**set\_name(value)**

**show()**

Display the information (with a pretty print) about the field

**class** androguard.core.bytecodes.dvm.**EncodedMethod** (*buff, cm*)

Bases: object

This class can parse an encoded\_method of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the encoded\_method
- **cm** (*ClassManager*) – a ClassManager object

**access\_flags = None**

access flags of the method

**add\_innote(msg, idx, off=None)**

Add a message to a specific instruction by using (default) the index of the address if specified

**Parameters**

- **msg** (*string*) – the message
- **idx** (*int*) – index of the instruction (the position in the list of the instruction)
- **off** (*int*) – address of the instruction

**add\_note(msg)**

Add a message to this method

**Parameters** **msg** (*string*) – the message

**adjust\_idx(val)**

**code\_off = None**

offset of the code section

**each\_params\_by\_register** (*nb, proto*)

From the Dalvik Bytecode documentation:

> The N arguments to a method land in the last N registers > of the method's invocation frame, in order.  
> Wide arguments consume two registers. > Instance methods are passed a this reference as their first argument.

This method will print a description of the register usage to stdout.

**Parameters**

- **nb** – number of registers
- **proto** – descriptor of method

**get\_access\_flags** ()

Return the access flags of the method

**Return type** int

**get\_access\_flags\_string** ()

Return the access flags string of the method

A description of all access flags can be found here: <https://source.android.com/devices/tech/dalvik/dex-format#access-flags>

**Return type** string

**get\_address** ()

Return the offset from the start of the file to the code structure for this method, or 0 if this method is either abstract or native

**Return type** int

**get\_class\_name** ()

Return the class name of the method

**Return type** string

**get\_code** ()

Return the code object associated to the method

**Return type** *DalvikCode* object or None if no Code

**get\_code\_off** ()

Return the offset from the start of the file to the code structure for this method, or 0 if this method is either abstract or native

**Return type** int

**get\_debug** ()

Return the debug object associated to this method

**Return type** *DebugInfoItem*

**get\_descriptor** ()

Return the descriptor of the method A method descriptor will have the form (A A A ... )R Where A are the arguments to the method and R is the return type. Basic types will have the short form, i.e. I for integer, V for void and class types will be named like a classname, e.g. Ljava/lang/String;.

Typical descriptors will look like this: `(I)I` // one integer argument, integer return  
 `(C)Z` // one char argument, boolean as return  
 `(Ljava/lang/CharSequence; I)I` // CharSequence and integer as argument, integer as return  
 `(C)Ljava/lang/String;` // char as argument, String as return.

More information about type descriptors are found here: <https://source.android.com/devices/tech/dalvik/dex-format#typedescriptor>

**Return type** string

**get\_information()**

**get\_instruction**(*idx*, *off=None*)

Get a particular instruction by using (default) the index of the address if specified

**Parameters**

- **idx** (*int*) – index of the instruction (the position in the list of the instruction)
- **off** (*int*) – address of the instruction

**Return type** an *Instruction* object

**get\_instructions()**

Get the instructions

**Return type** a generator of each *Instruction* (or a cached list of instructions if you have setup instructions)

**get\_length()**

Return the length of the associated code of the method

**Return type** int

**get\_locals()**

**get\_method\_idx()**

Return the real index of the method

**Return type** int

**get\_method\_idx\_diff()**

Return index into the *method\_ids* list for the identity of this method (includes the name and descriptor), represented as a difference from the index of previous element in the list

**Return type** int

**get\_name()**

Return the name of the method

**Return type** string

**get\_raw()**

**get\_short\_string()**

Return a shorter formatted String which encodes this method. The returned name has the form: `<classname> <methodname> ([arguments ...])<returntype>`

- All Class names are condensed to the actual name (no package).
- Access flags are not returned.
- `<init>` and `<clinit>` are NOT replaced by the classname!

This name might not be unique!

**Returns** str

**get\_size**()

**get\_source**()

**get\_triple**()

**is\_cached\_instructions**()

**load**()

**method\_idx\_diff** = None

method index diff in the corresponding section

**reload**()

**set\_code\_idx**(*idx*)

Set the start address of the buffer to disassemble

**Parameters** *idx* (*int*) – the index

**set\_instructions**(*instructions*)

Set the instructions

**Parameters** *instructions* (a list of *Instruction*) – the list of instructions

**set\_name**(*value*)

**show**()

Display the information (with a pretty print) about the method

**show\_info**()

Display the basic information about the method

**show\_notes**()

Display the notes about the method

**source**()

Return the source code of this method

**Return type** string

**class** androguard.core.bytecodes.dvm.**EncodedTypeAddrPair**(*buff*)

Bases: object

This class can parse an `encoded_type_addr_pair` of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `encoded_type_addr_pair`
- **cm** (*ClassManager*) – a `ClassManager` object

**get\_addr**()

Return the bytecode address of the associated exception handler

**Return type** int

**get\_length**()

**get\_obj**()

**get\_raw**()

**get\_type\_idx**()

Return the index into the `type_ids` list for the type of the exception to catch

**Return type** int

**show()**

**class** androguard.core.bytecodes.dvm.**EncodedValue** (*buff, cm*)

Bases: object

This class can parse an `encoded_value` of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `encoded_value`
- **cm** (*ClassManager*) – a `ClassManager` object

**get\_length()**

**get\_obj()**

**get\_raw()**

**get\_value()**

Return the bytes representing the value, variable in length and interpreted differently for different `value_type` bytes, though always little-endian

**Return type** an object representing the value

**get\_value\_arg()**

**get\_value\_type()**

**show()**

**exception** androguard.core.bytecodes.dvm.**Error**

Bases: Exception

Base class for exceptions in this module.

**class** androguard.core.bytecodes.dvm.**ExportObject**

Bases: object

**class** androguard.core.bytecodes.dvm.**FakeNop** (*length*)

Bases: *androguard.core.bytecodes.dvm.Instruction10x*

Simulate a nop instruction.

**get\_length()**

Return the length of the instruction

**Return type** int

**class** androguard.core.bytecodes.dvm.**FieldAnnotation** (*buff, cm*)

Bases: object

This class can parse a `field_annotation` of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `field_annotation`
- **cm** (*ClassManager*) – a `ClassManager` object

**get\_annotations\_off()**

Return the offset from the start of the file to the list of annotations for the field

**Return type** int

**get\_field\_idx()**

Return the index into the field\_ids list for the identity of the field being annotated

**Return type** int

**get\_length()**

**get\_obj()**

**get\_off()**

**get\_raw()**

**set\_off(off)**

**show()**

**class** androguard.core.bytecodes.dvm.**FieldHidItem**(size, buff, cm)

Bases: object

This class can parse a list of field\_id\_item of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the list of field\_id\_item
- **cm** (*ClassManager*) – a ClassManager object

**get(idx)**

**get\_length()**

**get\_obj()**

**get\_off()**

**get\_raw()**

**gets()**

**reload()**

**set\_off(off)**

**show()**

**class** androguard.core.bytecodes.dvm.**FieldIdItem**(buff, cm)

Bases: object

This class can parse a field\_id\_item of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the field\_id\_item
- **cm** (*ClassManager*) – a ClassManager object

**get\_class\_idx()**

Return the index into the type\_ids list for the definer of this field

**Return type** int

**get\_class\_name()**

Return the class name of the field

**Return type** string

**get\_descriptor()**

Return the descriptor of the field

**Return type** string

`get_length()`

`get_list()`

`get_name()`

Return the name of the field

**Return type** string

`get_name_idx()`

Return the index into the `string_ids` list for the name of this field

**Return type** int

`get_obj()`

`get_raw()`

`get_type()`

Return the type of the field

**Return type** string

`get_type_idx()`

Return the index into the `type_ids` list for the type of this field

**Return type** int

`reload()`

`show()`

**class** `androguard.core.bytecodes.dvm.FieldIdItemInvalid`

Bases: `object`

`get_class_name()`

`get_descriptor()`

`get_list()`

`get_name()`

`get_type()`

`show()`

**class** `androguard.core.bytecodes.dvm.FillArrayData` (*buff*)

Bases: `object`

This class can parse a `FillArrayData` instruction

**Parameters** `buff` – a `Buff` object which represents a buffer where the instruction is stored

`add_note` (*msg*)

Add a note to this instruction

**Parameters** `msg` (*objects (string)*) – the message

`get_data()`

Return the data of this instruction (the payload)

**Return type** string

`get_formatted_operands()`

`get_hex()`

**get\_length()**  
Return the length of the instruction

**Return type** int

**get\_name()**  
Return the name of the instruction

**Return type** string

**get\_notes()**  
Get all notes from this instruction

**Return type** a list of objects

**get\_op\_value()**  
Get the value of the opcode

**Return type** int

**get\_operands(*idx=-1*)**

**get\_output(*idx=-1*)**  
Return an additional output of the instruction

**Return type** string

**get\_raw()**

**show(*pos*)**  
Print the instruction

**show\_buff(*pos*)**  
Return the display of the instruction

**Return type** string

**class** androguard.core.bytecodes.dvm.**HeaderItem**(*size, buff, cm*)

Bases: object

This class can parse an header\_item of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the header\_item
- **cm** (*ClassManager*) – a ClassManager object

**get\_length()**

**get\_obj()**

**get\_off()**

**get\_raw()**

**reload()**

**set\_off(*off*)**

**show()**

**class** androguard.core.bytecodes.dvm.**Instruction**

Bases: object

This class represents a dalvik instruction

**get\_formatted\_operands()**

**get\_hex()**

**get\_kind()**

Return the 'kind' argument of the instruction

**Return type** int

**get\_length()**

Return the length of the instruction

**Return type** int

**get\_literals()**

Return the associated literals

**Return type** list of int

**get\_name()**

Return the name of the instruction

**Return type** string

**get\_op\_value()**

Return the value of the opcode

**Return type** int

**get\_operands(*idx=-1*)**

Return all operands

**Return type** list

**get\_output(*idx=-1*)**

Return an additional output of the instruction

**Return type** string

**get\_raw()**

Return the object in a raw format

**Return type** string

**get\_ref\_kind()**

Return the value of the 'kind' argument

**Return type** value

**get\_translated\_kind()**

Return the translated value of the 'kind' argument

**Return type** string

**show(*idx*)**

Print the instruction

**show\_buff(*idx*)**

Return the display of the instruction

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction10t**(*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 10t format

**get\_length()**

Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**get\_ref\_off** ()

**class** androguard.core.bytecodes.dvm.**Instruction10x** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 10x format

**get\_length** ()  
Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction11n** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 11n format

**get\_length** ()  
Return the length of the instruction

**Return type** int

**get\_literals** ()  
Return the associated literals

**Return type** list of int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw()**

Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction11x**(*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 11x format

**get\_length()**

Return the length of the instruction

**Return type** int

**get\_operands**(*idx=-1*)

Return all operands

**Return type** list

**get\_output**(*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_raw()**

Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction12x**(*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 12x format

**get\_length()**

Return the length of the instruction

**Return type** int

**get\_operands**(*idx=-1*)

Return all operands

**Return type** list

**get\_output**(*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_raw()**

Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction20bc**(*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 20bc format

**get\_length()**

Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction20t** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 20t format

**get\_length** ()  
Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**get\_ref\_off** ()

**class** androguard.core.bytecodes.dvm.**Instruction21c** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 21c format

**get\_length** ()  
Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

`get_raw_string()`

`get_ref_kind()`

Return the value of the 'kind' argument

**Return type** value

`get_string()`

**class** `androguard.core.bytecodes.dvm.Instruction21h` (*cm, buff*)

Bases: `androguard.core.bytecodes.dvm.Instruction`

This class represents all instructions which have the 21h format

`get_formatted_operands()`

`get_length()`

Return the length of the instruction

**Return type** int

`get_literals()`

Return the associated literals

**Return type** list of int

`get_operands` (*idx=-1*)

Return all operands

**Return type** list

`get_output` (*idx=-1*)

Return an additional output of the instruction

**Return type** string

`get_raw()`

Return the object in a raw format

**Return type** string

**class** `androguard.core.bytecodes.dvm.Instruction21s` (*cm, buff*)

Bases: `androguard.core.bytecodes.dvm.Instruction`

This class represents all instructions which have the 21s format

`get_formatted_operands()`

`get_length()`

Return the length of the instruction

**Return type** int

`get_literals()`

Return the associated literals

**Return type** list of int

`get_operands` (*idx=-1*)

Return all operands

**Return type** list

`get_output` (*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_raw()**  
Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction21t**(*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 21t format

**get\_length()**  
Return the length of the instruction

**Return type** int

**get\_operands**(*idx=-1*)  
Return all operands

**Return type** list

**get\_output**(*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw()**  
Return the object in a raw format

**Return type** string

**get\_ref\_off()**

**class** androguard.core.bytecodes.dvm.**Instruction22b**(*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 22b format

**get\_length()**  
Return the length of the instruction

**Return type** int

**get\_literals()**  
Return the associated literals

**Return type** list of int

**get\_operands**(*idx=-1*)  
Return all operands

**Return type** list

**get\_output**(*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw()**  
Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction22c**(*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 22c format

**get\_length()**  
Return the length of the instruction

**Return type** int

**get\_operands (idx=-1)**  
Return all operands

**Return type** list

**get\_output (idx=-1)**  
Return an additional output of the instruction

**Return type** string

**get\_raw()**  
Return the object in a raw format

**Return type** string

**get\_ref\_kind()**  
Return the value of the 'kind' argument

**Return type** value

**class** androguard.core.bytecodes.dvm.**Instruction22cs** (*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 22cs format

**get\_length()**  
Return the length of the instruction

**Return type** int

**get\_operands (idx=-1)**  
Return all operands

**Return type** list

**get\_output (idx=-1)**  
Return an additional output of the instruction

**Return type** string

**get\_raw()**  
Return the object in a raw format

**Return type** string

**get\_ref\_kind()**  
Return the value of the 'kind' argument

**Return type** value

**class** androguard.core.bytecodes.dvm.**Instruction22s** (*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 22s format

**get\_length()**  
Return the length of the instruction

**Return type** int

**get\_literals()**  
Return the associated literals

**Return type** list of int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction22t** (*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 22t format

**get\_length** ()  
Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**get\_ref\_off** ()

**class** androguard.core.bytecodes.dvm.**Instruction22x** (*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 22x format

**get\_length** ()  
Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction23x** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 23x format

**get\_length** ()

Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)

Return all operands

**Return type** list

**get\_output** (*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_raw** ()

Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction30t** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 30t format

**get\_length** ()

Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)

Return all operands

**Return type** list

**get\_output** (*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_raw** ()

Return the object in a raw format

**Return type** string

**get\_ref\_off** ()

**class** androguard.core.bytecodes.dvm.**Instruction31c** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 31c format

**get\_length** ()

Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)

Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**get\_raw\_string** ()

**get\_ref\_kind** ()  
Return the value of the 'kind' argument

**Return type** value

**get\_string** ()  
Return the string associated to the 'kind' argument

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction3li** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 3li format

**get\_formatted\_operands** ()

**get\_length** ()  
Return the length of the instruction

**Return type** int

**get\_literals** ()  
Return the associated literals

**Return type** list of int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction3lt** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 3lt format

**get\_length** ()  
Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)

Return all operands

**Return type** list

**get\_output** (*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_raw** ()

Return the object in a raw format

**Return type** string

**get\_ref\_off** ()

**class** androguard.core.bytecodes.dvm.**Instruction32x** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 32x format

**get\_length** ()

Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)

Return all operands

**Return type** list

**get\_output** (*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_raw** ()

Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction35c** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 35c format

**get\_length** ()

Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)

Return all operands

**Return type** list

**get\_output** (*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_raw** ()

Return the object in a raw format

**Return type** string

**get\_ref\_kind()**  
Return the value of the 'kind' argument

**Return type** value

**class** androguard.core.bytecodes.dvm.**Instruction35mi** (*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 35mi format

**get\_length()**  
Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw()**  
Return the object in a raw format

**Return type** string

**get\_ref\_kind()**  
Return the value of the 'kind' argument

**Return type** value

**class** androguard.core.bytecodes.dvm.**Instruction35ms** (*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 35ms format

**get\_length()**  
Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw()**  
Return the object in a raw format

**Return type** string

**get\_ref\_kind()**  
Return the value of the 'kind' argument

**Return type** value

**class** `androguard.core.bytecodes.dvm.Instruction3rc` (*cm, buff*)

Bases: `androguard.core.bytecodes.dvm.Instruction`

This class represents all instructions which have the 3rc format

**get\_length** ()

Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)

Return all operands

**Return type** list

**get\_output** (*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_raw** ()

Return the object in a raw format

**Return type** string

**get\_ref\_kind** ()

Return the value of the 'kind' argument

**Return type** value

**class** `androguard.core.bytecodes.dvm.Instruction3rmi` (*cm, buff*)

Bases: `androguard.core.bytecodes.dvm.Instruction`

This class represents all instructions which have the 3rmi format

**get\_length** ()

Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)

Return all operands

**Return type** list

**get\_output** (*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_raw** ()

Return the object in a raw format

**Return type** string

**get\_ref\_kind** ()

Return the value of the 'kind' argument

**Return type** value

**class** `androguard.core.bytecodes.dvm.Instruction3rms` (*cm, buff*)

Bases: `androguard.core.bytecodes.dvm.Instruction`

This class represents all instructions which have the 3rms format

**get\_length** ()

Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**get\_ref\_kind** ()  
Return the value of the 'kind' argument

**Return type** value

**class** androguard.core.bytecodes.dvm.**Instruction40sc** (*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 40sc format

**get\_length** ()  
Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**get\_ref\_kind** ()  
Return the value of the 'kind' argument

**Return type** value

**class** androguard.core.bytecodes.dvm.**Instruction41c** (*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 41c format

**get\_length** ()  
Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**get\_ref\_kind** ()  
Return the value of the ‘kind’ argument

**Return type** value

**class** androguard.core.bytecodes.dvm.**Instruction511** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 511 format

**get\_formatted\_operands** ()

**get\_length** ()  
Return the length of the instruction

**Return type** int

**get\_literals** ()  
Return the associated literals

**Return type** list of int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw** ()  
Return the object in a raw format

**Return type** string

**class** androguard.core.bytecodes.dvm.**Instruction52c** (*cm, buff*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 52c format

**get\_length** ()  
Return the length of the instruction

**Return type** int

**get\_operands** (*idx=-1*)  
Return all operands

**Return type** list

**get\_output** (*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw()**  
Return the object in a raw format

**Return type** string

**get\_ref\_kind()**  
Return the value of the 'kind' argument

**Return type** value

**class** androguard.core.bytecodes.dvm.**Instruction5rc**(*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents all instructions which have the 5rc format

**get\_length()**  
Return the length of the instruction

**Return type** int

**get\_operands**(*idx=-1*)  
Return all operands

**Return type** list

**get\_output**(*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw()**  
Return the object in a raw format

**Return type** string

**get\_ref\_kind()**  
Return the value of the 'kind' argument

**Return type** value

**class** androguard.core.bytecodes.dvm.**InstructionInvalid**(*cm, buff*)  
Bases: *androguard.core.bytecodes.dvm.Instruction*

This class represents an invalid instruction

**get\_length()**  
Return the length of the instruction

**Return type** int

**get\_name()**  
Return the name of the instruction

**Return type** string

**get\_operands**(*idx=-1*)  
Return all operands

**Return type** list

**get\_output**(*idx=-1*)  
Return an additional output of the instruction

**Return type** string

**get\_raw()**  
Return the object in a raw format

**Return type** string

**exception** androguard.core.bytecodes.dvm.InvalidInstruction

Bases: *androguard.core.bytecodes.dvm.Error*

**class** androguard.core.bytecodes.dvm.LinearSweepAlgorithm

Bases: object

This class is used to disassemble a method. The algorithm used by this class is linear sweep.

**get\_instructions** (*cm, size, insn, idx*)

**Parameters**

- **cm** (*ClassManager* object) – a ClassManager object
- **size** (*int*) – the total size of the buffer
- **insn** (*string*) – a raw buffer where are the instructions
- **idx** (*int*) – a start address in the buffer

**Return type** a generator of *Instruction* objects

**class** androguard.core.bytecodes.dvm.MapItem (*buff, cm*)

Bases: object

**get\_item** ()

**get\_length** ()

**get\_obj** ()

**get\_off** ()

**get\_offset** ()

**get\_raw** ()

**get\_size** ()

**get\_type** ()

**parse** ()

**reload** ()

**set\_item** (*item*)

**show** ()

**class** androguard.core.bytecodes.dvm.MapList (*cm, off, buff*)

Bases: object

This class can parse the “map\_list” of the dex format

<https://source.android.com/devices/tech/dalvik/dex-format#map-list>

**get\_class\_manager** ()

**get\_item\_type** (*ttype*)

Get a particular item type

**Parameters** *ttype* – a string which represents the desired type

**Return type** None or the item object

**get\_length** ()

**get\_obj** ()

`get_off()`

`get_raw()`

`reload()`

`set_off(off)`

`show()`

Print with a pretty display the MapList object

**class** `androguard.core.bytecodes.dvm.MethodAnnotation(buff, cm)`

Bases: `object`

This class can parse a `method_annotation` of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `method_annotation`
- **cm** (*ClassManager*) – a `ClassManager` object

`get_annotations_off()`

Return the offset from the start of the file to the list of annotations for the method

**Return type** `int`

`get_length()`

`get_method_idx()`

Return the index into the `method_ids` list for the identity of the method being annotated

**Return type** `int`

`get_obj()`

`get_off()`

`get_raw()`

`set_off(off)`

`show()`

**class** `androguard.core.bytecodes.dvm.MethodHidItem(size, buff, cm)`

Bases: `object`

This class can parse a list of `method_id_item` of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a `Buff` object of the list of `method_id_item`
- **cm** (*ClassManager*) – a `ClassManager` object

`get(idx)`

`get_length()`

`get_obj()`

`get_off()`

`get_raw()`

`reload()`

`set_off(off)`

**show()**

**class** androguard.core.bytecodes.dvm.**MethodIdItem**(*buff, cm*)

Bases: object

This class can parse a `method_id_item` of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `method_id_item`
- **cm** (*ClassManager*) – a `ClassManager` object

**get\_class\_idx()**

Return the index into the `type_ids` list for the definer of this method

**Return type** int

**get\_class\_name()**

Return the class name of the method

**Return type** string

**get\_descriptor()**

Return the descriptor

**Return type** string

**get\_length()**

**get\_list()**

**get\_name()**

Return the name of the method

**Return type** string

**get\_name\_idx()**

Return the index into the `string_ids` list for the name of this method

**Return type** int

**get\_obj()**

**get\_proto()**

Return the prototype of the method

**Return type** string

**get\_proto\_idx()**

Return the index into the `proto_ids` list for the prototype of this method

**Return type** int

**get\_raw()**

**get\_real\_descriptor()**

Return the real descriptor (i.e. without extra spaces)

**Return type** string

**get\_triple()**

**reload()**

**show()**

**class** androguard.core.bytecodes.dvm.**MethodIdItemInvalid**

Bases: object

**get\_class\_name** ()

**get\_descriptor** ()

**get\_list** ()

**get\_name** ()

**get\_proto** ()

**show** ()

**class** androguard.core.bytecodes.dvm.**OdexDependencies** (*buff*)

Bases: object

This class can parse the odex dependencies

**Parameters** **buff** – a Buff object string which represents the odex dependencies

**get\_dependencies** ()

Return the list of dependencies

**Return type** a list of strings

**get\_raw** ()

**class** androguard.core.bytecodes.dvm.**OdexHeaderItem** (*buff*)

Bases: object

This class can parse the odex header

**Parameters** **buff** – a Buff object string which represents the odex dependencies

**get\_raw** ()

**show** ()

**class** androguard.core.bytecodes.dvm.**OffObj** (*o*)

Bases: object

**class** androguard.core.bytecodes.dvm.**PackedSwitch** (*buff*)

Bases: object

This class can parse a PackedSwitch instruction

**Parameters** **buff** – a Buff object which represents a buffer where the instruction is stored

**add\_note** (*msg*)

Add a note to this instruction

**Parameters** **msg** (*objects* (*string*)) – the message

**get\_formatted\_operands** ()

**get\_hex** ()

**get\_keys** ()

Return the keys of the instruction

**Return type** a list of long

**get\_length** ()

**get\_name** ()

Return the name of the instruction

**Return type** string

**get\_notes** ()

Get all notes from this instruction

**Return type** a list of objects

**get\_op\_value** ()

Get the value of the opcode

**Return type** int

**get\_operands** (*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_output** (*idx=-1*)

Return an additional output of the instruction

**rtype** string

**get\_raw** ()

**get\_targets** ()

Return the targets (address) of the instruction

**Return type** a list of long

**get\_values** ()

**show** (*pos*)

Print the instruction

**show\_buff** (*pos*)

Return the display of the instruction

**Return type** string

**class** androguard.core.bytecodes.dvm.**ParameterAnnotation** (*buff, cm*)

Bases: object

This class can parse a parameter\_annotation of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the parameter\_annotation
- **cm** (*ClassManager*) – a ClassManager object

**get\_annotations\_off** ()

Return the offset from the start of the file to the list of annotations for the method parameters

**Return type** int

**get\_length** ()

**get\_method\_idx** ()

Return the index into the method\_ids list for the identity of the method whose parameters are being annotated

**Return type** int

**get\_obj** ()

**get\_off** ()

```
get_raw ()
set_off (off)
show ()
```

```
class androguard.core.bytecodes.dvm.ProtoHidItem (size, buff, cm)
```

Bases: object

This class can parse a list of proto\_id\_item of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a Buff object of the list of proto\_id\_item
- **cm** (*ClassManager*) – a ClassManager object

```
get (idx)
get_length ()
get_obj ()
get_off ()
get_raw ()
reload ()
set_off (off)
show ()
```

```
class androguard.core.bytecodes.dvm.ProtoIdItem (buff, cm)
```

Bases: object

This class can parse a proto\_id\_item of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a Buff object of the proto\_id\_item
- **cm** (*ClassManager*) – a ClassManager object

```
get_length ()
```

```
get_obj ()
```

```
get_parameters_off ()
```

Return the offset from the start of the file to the list of parameter types for this prototype, or 0 if this prototype has no parameters

**Return type** int

```
get_parameters_off_value ()
```

Return the string associated to the parameters\_off

**Return type** string

```
get_raw ()
```

```
get_return_type_idx ()
```

Return the index into the type\_ids list for the return type of this prototype

**Return type** int

```
get_return_type_idx_value ()
```

Return the string associated to the return\_type\_idx

**Return type** string

**get\_shorty\_idx()**

Return the index into the string\_ids list for the short-form descriptor string of this prototype

**Return type** int

**get\_shorty\_idx\_value()**

Return the string associated to the shorty\_idx

**Return type** string

**reload()**

**show()**

**class** androguard.core.bytecodes.dvm.**ProtoIdItemInvalid**

Bases: object

**get\_params()**

**get\_return\_type()**

**get\_shorty()**

**show()**

**class** androguard.core.bytecodes.dvm.**SparseSwitch**(*buff*)

Bases: object

This class can parse a SparseSwitch instruction

**Parameters** *buff* – a Buff object which represents a buffer where the instruction is stored

**add\_note**(*msg*)

Add a note to this instruction

**Parameters** *msg* (*objects* (*string*)) – the message

**get\_formatted\_operands()**

**get\_hex()**

**get\_keys()**

Return the keys of the instruction

**Return type** a list of long

**get\_length()**

**get\_name()**

Return the name of the instruction

**Return type** string

**get\_notes()**

Get all notes from this instruction

**Return type** a list of objects

**get\_op\_value()**

Get the value of the opcode

**Return type** int

**get\_operands**(*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_output** (*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_raw** ()

**get\_targets** ()

Return the targets (address) of the instruction

**Return type** a list of long

**get\_values** ()

**show** (*pos*)

Print the instruction

**show\_buff** (*pos*)

Return the display of the instruction

**Return type** string

**class** androguard.core.bytecodes.dvm.**StringDataItem** (*buff, cm*)

Bases: object

This class can parse a string\_data\_item of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the string\_data\_item
- **cm** (*ClassManager*) – a ClassManager object

**get** ()

Returns a printable string. In this case, all lonely surrogates are escaped, thus are represented in the string as 6 characters: ud853 Valid surrogates are encoded as 32bit values, ie. .

**get\_data** ()

Return a series of MUTF-8 code units (a.k.a. octets, a.k.a. bytes) followed by a byte of value 0

**Return type** string

**get\_length** ()

Get the length of the raw string including the ULEB128 coded length and the null byte terminator

**Returns** int

**get\_obj** ()

**get\_off** ()

**get\_raw** ()

Returns the raw string including the ULEB128 coded length and null byte string terminator

**Returns** bytes

**get\_unicode** ()

Returns an Unicode String This is the actual string. Beware that some strings might be not decodeable with usual UTF-16 decoder, as they use surrogates that are not supported by python.

**get\_utf16\_size** ()

Return the size of this string, in UTF-16 code units

:rtype:int

`reload()`

`set_off(off)`

`show()`

**class** `androguard.core.bytecodes.dvm.StringIdItem(buff, cm)`

Bases: `object`

This class can parse a `string_id_item` of a dex file

#### Parameters

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `string_id_item`
- **cm** (*ClassManager*) – a `ClassManager` object

`get_length()`

`get_obj()`

`get_off()`

`get_raw()`

`get_string_data_off()`

Return the offset from the start of the file to the string data for this item

**Return type** `int`

`reload()`

`set_off(off)`

`show()`

**class** `androguard.core.bytecodes.dvm.TryItem(buff, cm)`

Bases: `object`

This class represents the `try_item` format

#### Parameters

- **buff** (*string*) – a raw buffer where are the `try_item` format
- **cm** (*ClassManager object*) – the `ClassManager`

`get_handler_off()`

Get the offset in bytes from the start of the associated `EncodedCatchHandlerList` to the `EncodedCatchHandler` for this entry.

**Return type** `int`

`get_insn_count()`

Get the number of 16-bit code units covered by this entry

**Return type** `int`

`get_length()`

`get_off()`

`get_raw()`

`get_start_addr()`

Get the start address of the block of code covered by this entry. The address is a count of 16-bit code units to the start of the first covered instruction.

**Return type** `int`

**set\_off** (*off*)

**class** androguard.core.bytecodes.dvm.**TypeHidItem** (*size, buff, cm*)

Bases: object

This class can parse a list of `type_id_item` of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a `Buff` object of the list of `type_id_item`
- **cm** (*ClassManager*) – a `ClassManager` object

**get** (*idx*)

**get\_length** ()

**get\_obj** ()

**get\_off** ()

**get\_raw** ()

**get\_type** ()

Return the list of `type_id_item`

**Return type** a list of `TypeIdItem` objects

**reload** ()

**set\_off** (*off*)

**show** ()

**class** androguard.core.bytecodes.dvm.**TypeIdItem** (*buff, cm*)

Bases: object

This class can parse a `type_id_item` of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a `Buff` object of the `type_id_item`
- **cm** (*ClassManager*) – a `ClassManager` object

**get\_descriptor\_idx** ()

Return the index into the `string_ids` list for the descriptor string of this type

**Return type** int

**get\_descriptor\_idx\_value** ()

Return the string associated to the descriptor

**Return type** string

**get\_length** ()

**get\_obj** ()

**get\_raw** ()

**reload** ()

**show** ()

**class** androguard.core.bytecodes.dvm.**TypeItem** (*buff, cm*)

Bases: object

This class can parse a `type_item` of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the type\_item
- **cm** (*ClassManager*) – a ClassManager object

**get\_length()****get\_obj()****get\_raw()****get\_string()**

Return the type string

**Return type** string**get\_type\_idx()**

Return the index into the type\_ids list

**Return type** int**show()****class** androguard.core.bytecodes.dvm.**TypeList** (*buff, cm*)

Bases: object

This class can parse a type\_list of a dex file

**Parameters**

- **buff** (*Buff object*) – a string which represents a Buff object of the type\_list
- **cm** (*ClassManager*) – a ClassManager object

**get\_length()****get\_list()**

Return the list of TypeItem

**Return type** a list of *TypeItem* objects**get\_obj()****get\_off()****get\_pad()**

Return the alignment string

**Return type** string**get\_raw()****get\_size()**

Return the size of the list, in entries

**Return type** int**get\_string()**

Return the concatenation of all strings

**Return type** string**get\_type\_list\_off()**

Return the offset of the item

**Return type** int**reload()**

**set\_off** (*off*)

**show** ()

**class** androguard.core.bytecodes.dvm.**Unresolved** (*cm, data*)

Bases: *androguard.core.bytecodes.dvm.Instruction*

**get\_length** ()

Return the length of the instruction

**Return type** int

**get\_name** ()

Return the name of the instruction

**Return type** string

**get\_op\_value** ()

Return the value of the opcode

**Return type** int

**get\_operands** (*idx=-1*)

Return all operands

**Return type** list

**get\_output** (*idx=-1*)

Return an additional output of the instruction

**Return type** string

**get\_raw** ()

Return the object in a raw format

**Return type** string

androguard.core.bytecodes.dvm.**clean\_name\_instruction** (*instruction*)

androguard.core.bytecodes.dvm.**determineException** (*vm, m*)

androguard.core.bytecodes.dvm.**determineNext** (*i, end, m*)

androguard.core.bytecodes.dvm.**get\_access\_flags\_string** (*value*)

Transform an access flag field to the corresponding string

**Parameters** *value* (*int*) – the value of the access flags

**Return type** string

androguard.core.bytecodes.dvm.**get\_byte** (*buff*)

androguard.core.bytecodes.dvm.**get\_bytecodes\_method** (*dex\_object, ana\_object, method*)

androguard.core.bytecodes.dvm.**get\_bytecodes\_methodx** (*method, mx*)

androguard.core.bytecodes.dvm.**get\_extented\_instruction** (*cm, op\_value, buff*)

androguard.core.bytecodes.dvm.**get\_instruction** (*cm, op\_value, buff, odex=False*)

androguard.core.bytecodes.dvm.**get\_instruction\_payload** (*op\_value, buff*)

androguard.core.bytecodes.dvm.**get\_kind** (*cm, kind, value*)

Return the value of the 'kind' argument

**Parameters**

- **cm** (*ClassManager*) – a ClassManager object

- **kind** (*int*) – the type of the ‘kind’ argument
- **value** (*int*) – the value of the ‘kind’ argument

**Return type** string

`androguard.core.bytecodes.dvm.get_optimized_instruction` (*cm, op\_value, buff*)

`androguard.core.bytecodes.dvm.get_params_info` (*nb, proto*)

`androguard.core.bytecodes.dvm.get_sbyte` (*buff*)

`androguard.core.bytecodes.dvm.get_type` (*atype, size=None*)

Retrieve the type of a descriptor (e.g : I)

`androguard.core.bytecodes.dvm.read_null_terminated_string` (*f*)

Read a null terminated string from a file-like object.

**Parameters** *f* – file-like object

**Return type** bytearray

`androguard.core.bytecodes.dvm.readsleb128` (*buff*)

`androguard.core.bytecodes.dvm.readuleb128` (*buff*)

`androguard.core.bytecodes.dvm.readuleb128p1` (*buff*)

`androguard.core.bytecodes.dvm.readusleb128` (*buff*)

`androguard.core.bytecodes.dvm.static_operand_instruction` (*instruction*)

`androguard.core.bytecodes.dvm.writesleb128` (*value*)

`androguard.core.bytecodes.dvm.writeuleb128` (*value*)

## androguard.core.bytecodes.axml module

**class** `androguard.core.bytecodes.axml.ARSCComplex` (*buff, parent=None*)

Bases: object

**class** `androguard.core.bytecodes.axml.ARSCHeader` (*buff*)

Bases: object

**SIZE = 8**

**class** `androguard.core.bytecodes.axml.ARSCParser` (*raw\_buff*)

Bases: object

Parser for resource.arsc files

**class** `ResourceResolver` (*android\_resources, config=None*)

Bases: object

**put\_ate\_value** (*result, ate, config*)

**put\_item\_value** (*result, item, config, complex\_*)

**resolve** (*res\_id*)

**get\_bool\_resources** (*package\_name, locale='x00x00'*)

**get\_color\_resources** (*package\_name, locale='x00x00'*)

**get\_dimen\_resources** (*package\_name, locale='x00x00'*)

**get\_id** (*package\_name, rid, locale='x00x00'*)

**get\_id\_resources** (*package\_name*, *locale*='x00x00')

**get\_integer\_resources** (*package\_name*, *locale*='x00x00')

**get\_items** (*package\_name*)

**get\_locales** (*package\_name*)

**get\_packages\_names** ()

**get\_public\_resources** (*package\_name*, *locale*='x00x00')

**get\_res\_configs** (*rid*, *config*=None, *fallback*=True)

Return the resources found with the ID *rid* and select the right one based on the configuration, or return all if no configuration was set.

But we try to be generous here and at least try to resolve something: This method uses a fallback to return at least one resource (the first one in the list) if more than one items are found and the default config is used and no default entry could be found.

This is usually a bad sign (i.e. the developer did not follow the android documentation: <https://developer.android.com/guide/topics/resources/localization.html#failing2>) In practise an app might just be designed to run on a single locale and thus only has those locales set.

You can disable this fallback behaviour, to just return exactly the given result.

#### Parameters

- **rid** – resource id as int
- **config** – a config to resolve from, or None to get all results
- **fallback** – Enable the fallback for resolving default configuration (default: True)

**Returns** a list of ARSCResTableConfig: ARSCResTableEntry

**get\_res\_id\_by\_key** (*package\_name*, *resource\_type*, *key*)

**get\_resolved\_res\_configs** (*rid*, *config*=None)

**get\_resolved\_strings** ()

**get\_resource\_bool** (*ate*)

**get\_resource\_color** (*ate*)

**get\_resource\_dimen** (*ate*)

**get\_resource\_id** (*ate*)

**get\_resource\_integer** (*ate*)

**get\_resource\_string** (*ate*)

**get\_resource\_style** (*ate*)

**get\_string** (*package\_name*, *name*, *locale*='x00x00')

**get\_string\_resources** (*package\_name*, *locale*='x00x00')

**get\_strings\_resources** ()

**get\_type\_configs** (*package\_name*, *type\_name*=None)

**get\_types** (*package\_name*, *locale*)

**class** androguard.core.bytecodes.axml.**ARSCResStringPoolRef** (*buff*, *parent*=None)

Bases: object

```

    format_value ()
    get_data ()
    get_data_type ()
    get_data_type_string ()
    get_data_value ()
    is_reference ()
class androguard.core.bytecodes.axml.ARSCResTableConfig (buff=None, **kwargs)
    Bases: object
    classmethod default_config ()
    get_country ()
    get_density ()
    get_language ()
class androguard.core.bytecodes.axml.ARSCResTableEntry (buff, mResId, parent=None)
    Bases: object
    See https://github.com/LineageOS/android\_frameworks\_base/blob/df2898d9ce306bb2fe922d3beaa34a9cf6873d27/include/androidfw/ResourceTypes.h#L1370
    FLAG_COMPLEX = 1
    FLAG_PUBLIC = 2
    FLAG_WEAK = 4
    get_index ()
    get_key_data ()
    get_value ()
    is_complex ()
    is_public ()
    is_weak ()
class androguard.core.bytecodes.axml.ARSCResTablePackage (buff, header)
    Bases: object
    get_name ()
class androguard.core.bytecodes.axml.ARSCResType (buff, parent=None)
    Bases: object
    get_package_name ()
    get_type ()
class androguard.core.bytecodes.axml.ARSCResTypeSpec (buff, parent=None)
    Bases: object
class androguard.core.bytecodes.axml.AXMLParser (raw_buff)
    Bases: object
    doNext ()
    getAttributeCount ()

```

**getAttributeName** (*index*)

**getAttributeOffset** (*index*)

**getAttributePrefix** (*index*)

**getAttributeValue** (*index*)

This function is only used to look up strings All other work is made by format\_value # FIXME should unite those functions :param index: :return:

**getAttributeValueData** (*index*)

**getAttributeValueType** (*index*)

**getName** ()

**getNamespaceCount** (*pos*)

**getNamespacePrefix** (*pos*)

**getNamespaceUri** (*pos*)

**getPrefix** ()

**getPrefixByUri** (*uri*)

**getText** ()

**getXMLNS** ()

**is\_valid** ()

**reset** ()

**class** androguard.core.bytecodes.axml.**AXMLPrinter** (*raw\_buff*)

Bases: object

Converter for AXML Files into a XML string

**getAttributeValue** (*index*)

Wrapper function for format\_value to resolve the actual value of an attribute in a tag :param index: :return:

**getPrefix** (*prefix*)

**get\_buff** ()

**get\_xml** ()

Get the XML as an UTF-8 string

**Returns** str

**get\_xml\_obj** ()

Get the XML as an ElementTree object

**Returns** Element

**is\_packed** ()

Return True if we believe that the AXML file is packed If it is, we can not be sure that the AXML file can be read by a XML Parser

**Returns** boolean

**class** androguard.core.bytecodes.axml.**PackageContext** (*current\_package*, *string-pool\_main*, *mTableStrings*, *mKeyStrings*)

Bases: object

**get\_mResId** ()

**get\_package\_name** ()

**set\_mResId** (*mResId*)

**class** androguard.core.bytecodes.axml.**StringBlock** (*buff, header*)

Bases: object

StringBlock is a CHUNK inside an AXML File It contains all strings, which are used by referecing to ID's

TODO might migrate this block into the ARSCParser, as it it not a "special" block but a normal tag.

**decode16** (*offset*)

**decode8** (*offset*)

**decodeLength** (*offset, sizeof\_char*)

**decode\_bytes** (*data, encoding, str\_len*)

**getString** (*idx*)

**getStyle** (*idx*)

**show** ()

androguard.core.bytecodes.axml.**complexToFloat** (*xcomplex*)

androguard.core.bytecodes.axml.**format\_value** (*\_type, \_data, lookup\_string=<function <lambda>>*)

androguard.core.bytecodes.axml.**getPackage** (*i*)

androguard.core.bytecodes.axml.**get\_arsc\_info** (*arscobj*)

Return a string containing all resources packages ordered by packagename, locale and type.

**Parameters** *arscobj* – *ARSCParser*

**Returns** a string

androguard.core.bytecodes.axml.**long2int** (*l*)

## androguard.core.bytecodes.mutf8 module

**class** androguard.core.bytecodes.mutf8.**PeekIterator** (*s*)

Bases: object

A quick'n'dirty variant of an Iterator that has a special function peek, which will return the next object but not consume it.

**idx** = 0

**next** ()

**peek** ()

androguard.core.bytecodes.mutf8.**chr** (*val*)

Patched Version of builtins.chr, to work with narrow python builds In those versions, the function unichr does not work with inputs >0x10000

This seems to be a problem usually on older windows builds.

**Parameters** *val* – integer value of character

**Returns** character

`androguard.core.bytecodes.mutf8.decode(b)`

Decode bytes as MUTF-8 See <https://docs.oracle.com/javase/6/docs/api/java/io/DataInput.html#modified-utf-8> for more information

Surrogates will be returned as two 16 bit characters.

**Parameters** **b** – bytes to decode

**Return type** unicode (py2), str (py3) of 16bit chars

`androguard.core.bytecodes.mutf8.patch_string(s)`

Reorganize a String in such a way that surrogates are printable and lonely surrogates are escaped.

**Parameters** **s** – input string

**Returns** string with escaped lonely surrogates and 32bit surrogates

### Module contents

`androguard.core.resources` package

### Submodules

`androguard.core.resources.public` module

### Module contents

### Submodules

`androguard.core.androconf` module

**class** `androguard.core.androconf.Color`

Bases: object

**Black** = '\x1b[30m'

**Blue** = '\x1b[34m'

**Bold** = '\x1b[1m'

**Cyan** = '\x1b[36m'

**Green** = '\x1b[32m'

**Grey** = '\x1b[37m'

**Normal** = '\x1b[0m'

**Purple** = '\x1b[35m'

**Red** = '\x1b[31m'

**Yellow** = '\x1b[33m'

**class** `androguard.core.androconf.Configuration`

Bases: object

**instance** = {'BIN\_DED': 'ded.sh', 'BIN\_DEX2JAR': 'dex2jar.sh', 'BIN\_FERNFLOWER': 'fernf

**exception** androguard.core.androconf.InvalidResourceError

Bases: Exception

Invalid Resource Error is thrown by load\_api\_specific\_resource\_module

androguard.core.androconf.**color\_range** (*startcolor, goalcolor, steps*)  
 wrapper for interpolate\_tuple that accepts colors as html (“#CCCCC” and such)

androguard.core.androconf.**default\_colors** (*obj*)

androguard.core.androconf.**disable\_colors** ()  
 Disable colors from the output (color = normal)

androguard.core.androconf.**enable\_colors** (*colors*)

androguard.core.androconf.**interpolate\_tuple** (*startcolor, goalcolor, steps*)  
 Take two RGB color sets and mix them over a specified number of steps. Return the list

androguard.core.androconf.**is\_android** (*filename*)  
 Return the type of the file

@param filename : the filename @rtype : “APK”, “DEX”, None

androguard.core.androconf.**is\_android\_raw** (*raw*)  
 Returns a string that describes the type of file, for common Android specific formats

androguard.core.androconf.**is\_ascii\_problem** (*s*)  
 Test if a string contains other chars than ASCII

**Parameters** *s* – a string to test

**Returns** True if string contains other chars than ASCII, False otherwise

androguard.core.androconf.**load\_api\_specific\_resource\_module** (*resource\_name, api=None*)

Load the module from the JSON files and return a dict, which might be empty if the resource could not be loaded.

If no api version is given, the default one from the CONF dict is used.

**Parameters**

- **resource\_name** – Name of the resource to load
- **api** – API version

**Returns** dict

androguard.core.androconf.**make\_color\_tuple** (*color*)  
 turn something like “#000000” into 0,0,0 or “#FFFFFF” into “255,255,255”

androguard.core.androconf.**remove\_colors** ()  
 Remove colors from the output (no escape sequences)

androguard.core.androconf.**rrmdir** (*directory*)  
 Recursively delete a directory

**Parameters** *directory* – directory to remove

androguard.core.androconf.**save\_colors** ()

androguard.core.androconf.**set\_options** (*key, value*)

androguard.core.androconf.**show\_logging** (*level=20*)  
 enable log messages on stdout

We will catch all messages here! From all loggers...

## androguard.core.bytecode module

**class** androguard.core.bytecode.**Buff** (*offset, buff*)  
Bases: object

**class** androguard.core.bytecode.**BuffHandle** (*buff*)  
Bases: object

**end** ()

**get\_idx** ()

**read** (*size*)

**readNullString** (*size*)

**read\_at** (*offset, size*)

**read\_b** (*size*)

**set\_idx** (*idx*)

**size** ()

androguard.core.bytecode.**Exit** (*msg*)

androguard.core.bytecode.**FormatClassToJava** (*i*)  
Transform a typical xml format class into java format

**Parameters** *i* – the input class name

**Return type** string

androguard.core.bytecode.**FormatClassToPython** (*i*)

androguard.core.bytecode.**FormatDescriptorToPython** (*i*)

androguard.core.bytecode.**FormatNameToPython** (*i*)

**class** androguard.core.bytecode.**MethodBC**  
Bases: object

**show** (*value*)

**class** androguard.core.bytecode.**Node** (*n, s*)  
Bases: object

androguard.core.bytecode.**PrettyShow** (*m\_a, basic\_blocks, notes={}*)

androguard.core.bytecode.**PrettyShowEx** (*exceptions*)

**class** androguard.core.bytecode.**SV** (*size, buff*)  
Bases: object

**get\_value** ()

**get\_value\_buff** ()

**set\_value** (*attr*)

**class** androguard.core.bytecode.**SVs** (*size, ntuple, buff*)  
Bases: object

**get\_value** ()

**get\_value\_buff** ()

**set\_value** (*attr*)

**class** androguard.core.bytecode.**TmpBlock** (*name*)

Bases: object

**get\_name** ()

androguard.core.bytecode.**disable\_print\_colors** ()

androguard.core.bytecode.**enable\_print\_colors** (*colors*)

androguard.core.bytecode.**method2dot** (*mx, colors=None*)

Export analysis method to dot format

#### Parameters

- **mx** – *MethodAnalysis*
- **colors** – dict of colors to use, if colors is None the default colors are used

**Returns** a string which contains the dot graph

androguard.core.bytecode.**method2format** (*output, \_format='png', mx=None, raw=None*)

Export method to a specific file format

@param *output* : output filename @param *\_format* : format type (png, jpg ...) (default : png) @param *mx* : specify the *MethodAnalysis* object @param *raw* : use directly a dot raw buffer if None

androguard.core.bytecode.**method2jpg** (*output, mx, raw=False*)

Export method to a jpg file format

#### Parameters

- **output** (*string*) – output filename
- **mx** (*MethodAnalysis* object) – specify the *MethodAnalysis* object
- **raw** (*string*) – use directly a dot raw buffer (optional)

androguard.core.bytecode.**method2json** (*mx, directed\_graph=False*)

Create directed or undirected graph in the json format.

#### Parameters

- **mx** – *MethodAnalysis*
- **directed\_graph** – True if a directed graph should be created (default: False)

#### Returns

androguard.core.bytecode.**method2json\_direct** (*mx*)

**Parameters** **mx** – *MethodAnalysis*

#### Returns

androguard.core.bytecode.**method2json\_undirect** (*mx*)

**Parameters** **mx** – *MethodAnalysis*

#### Returns

androguard.core.bytecode.**method2png** (*output, mx, raw=False*)

Export method to a png file format

#### Parameters

- **output** (*string*) – output filename
- **mx** (*MethodAnalysis* object) – specify the *MethodAnalysis* object

- **raw**(*string*) – use directly a dot raw buffer

`androguard.core.bytecode.object_to_bytes` (*obj*)

Convert a object to a bytearray or call `get_raw()` of the object if no useful type was found.

`androguard.core.bytecode.vm2json` (*vm*)

Get a JSON representation of a DEX file

**Parameters** *vm* – *DalvikVMFormat*

**Returns**

### Module contents

`androguard.decompiler` package

Subpackages

`androguard.decompiler.dad` package

Submodules

`androguard.decompiler.dad.ast` module

This file is a simplified version of `writer.py` that outputs an AST instead of source code.

**class** `androguard.decompiler.dad.ast.JSONWriter` (*graph, method*)

Bases: `object`

**add** (*val*)

**get\_ast** ()

**get\_cond** (*node*)

**visit\_cond\_node** (*cond*)

**visit\_ins** (*op*)

**visit\_loop\_node** (*loop*)

**visit\_node** (*node*)

**visit\_return\_node** (*ret*)

**visit\_statement\_node** (*stmt*)

**visit\_switch\_node** (*switch*)

**visit\_throw\_node** (*throw*)

**visit\_try\_node** (*try\_node*)

`androguard.decompiler.dad.ast.array_access` (*arr, ind*)

`androguard.decompiler.dad.ast.array_creation` (*tn, params, dim*)

`androguard.decompiler.dad.ast.array_initializer` (*params, tn=None*)

`androguard.decompiler.dad.ast.assignment` (*lhs, rhs, op=""*)

`androguard.decompiler.dad.ast.binary_infix` (*op, left, right*)

androguard.decompiler.dad.ast.**cast** (*tn, arg*)  
androguard.decompiler.dad.ast.**dummy** (*\*args*)  
androguard.decompiler.dad.ast.**expression\_stmt** (*expr*)  
androguard.decompiler.dad.ast.**field\_access** (*triple, left*)  
androguard.decompiler.dad.ast.**if\_stmt** (*cond\_expr, scopes*)  
androguard.decompiler.dad.ast.**jump\_stmt** (*keyword*)  
androguard.decompiler.dad.ast.**literal** (*result, tt*)  
androguard.decompiler.dad.ast.**literal\_bool** (*b*)  
androguard.decompiler.dad.ast.**literal\_class** (*desc*)  
androguard.decompiler.dad.ast.**literal\_double** (*f*)  
androguard.decompiler.dad.ast.**literal\_float** (*f*)  
androguard.decompiler.dad.ast.**literal\_hex\_int** (*b*)  
androguard.decompiler.dad.ast.**literal\_int** (*b*)  
androguard.decompiler.dad.ast.**literal\_long** (*b*)  
androguard.decompiler.dad.ast.**literal\_null** ()  
androguard.decompiler.dad.ast.**literal\_string** (*s*)  
androguard.decompiler.dad.ast.**local** (*name*)  
androguard.decompiler.dad.ast.**local\_decl\_stmt** (*expr, decl*)  
androguard.decompiler.dad.ast.**loop\_stmt** (*isdo, cond\_expr, body*)  
androguard.decompiler.dad.ast.**method\_invocation** (*triple, name, base, params*)  
androguard.decompiler.dad.ast.**parenthesis** (*expr*)  
androguard.decompiler.dad.ast.**parse\_descriptor** (*desc*)  
androguard.decompiler.dad.ast.**return\_stmt** (*expr*)  
androguard.decompiler.dad.ast.**statement\_block** ()  
androguard.decompiler.dad.ast.**switch\_stmt** (*cond\_expr, ksv\_pairs*)  
androguard.decompiler.dad.ast.**throw\_stmt** (*expr*)  
androguard.decompiler.dad.ast.**try\_stmt** (*tryb, pairs*)  
androguard.decompiler.dad.ast.**typen** (*baset, dim*)  
androguard.decompiler.dad.ast.**unary\_postfix** (*left, op*)  
androguard.decompiler.dad.ast.**unary\_prefix** (*op, left*)  
androguard.decompiler.dad.ast.**var\_decl** (*typen, var*)  
androguard.decompiler.dad.ast.**visit\_arr\_data** (*value*)  
androguard.decompiler.dad.ast.**visit\_decl** (*var, init\_expr=None*)  
androguard.decompiler.dad.ast.**visit\_expr** (*op*)  
androguard.decompiler.dad.ast.**visit\_ins** (*op, isCtor=False*)  
androguard.decompiler.dad.ast.**write\_inplace\_if\_possible** (*lhs, rhs*)

**androguard.decompiler.dad.basic\_blocks module**

```
class androguard.decompiler.dad.basic_blocks.BasicBlock (name, block_ins)
    Bases: androguard.decompiler.dad.node.Node

    add_ins (new_ins_list)
    add_variable_declaration (variable)
    get_ins ()
    get_loc_with_ins ()
    number_ins (num)
    remove_ins (loc, ins)
    set_catch_type (_type)

class androguard.decompiler.dad.basic_blocks.CatchBlock (node)
    Bases: androguard.decompiler.dad.basic_blocks.BasicBlock

    visit (visitor)
    visit_exception (visitor)

class androguard.decompiler.dad.basic_blocks.CondBlock (name, block_ins)
    Bases: androguard.decompiler.dad.basic_blocks.BasicBlock

    neg ()
    update_attribute_with (n_map)
    visit (visitor)
    visit_cond (visitor)

class androguard.decompiler.dad.basic_blocks.Condition (cond1, cond2, isand, isnot)
    Bases: object

    get_ins ()
    get_loc_with_ins ()
    neg ()
    visit (visitor)

class androguard.decompiler.dad.basic_blocks.LoopBlock (name, cond)
    Bases: androguard.decompiler.dad.basic_blocks.CondBlock

    get_ins ()
    get_loc_with_ins ()
    neg ()
    update_attribute_with (n_map)
    visit (visitor)
    visit_cond (visitor)

class androguard.decompiler.dad.basic_blocks.ReturnBlock (name, block_ins)
    Bases: androguard.decompiler.dad.basic_blocks.BasicBlock

    visit (visitor)
```

```

class androguard.decompiler.dad.basic_blocks.ShortCircuitBlock (name, cond)
    Bases: androguard.decompiler.dad.basic_blocks.CondBlock

    get_ins ()

    get_loc_with_ins ()

    neg ()

    visit_cond (visitor)

class androguard.decompiler.dad.basic_blocks.StatementBlock (name, block_ins)
    Bases: androguard.decompiler.dad.basic_blocks.BasicBlock

    visit (visitor)

class androguard.decompiler.dad.basic_blocks.SwitchBlock (name, switch, block_ins)
    Bases: androguard.decompiler.dad.basic_blocks.BasicBlock

    add_case (case)

    copy_from (node)

    order_cases ()

    update_attribute_with (n_map)

    visit (visitor)

class androguard.decompiler.dad.basic_blocks.ThrowBlock (name, block_ins)
    Bases: androguard.decompiler.dad.basic_blocks.BasicBlock

    visit (visitor)

class androguard.decompiler.dad.basic_blocks.TryBlock (node)
    Bases: androguard.decompiler.dad.basic_blocks.BasicBlock

    add_catch_node (node)

    num

    visit (visitor)

androguard.decompiler.dad.basic_blocks.build_node_from_block (block,          vmap,
                                                             gen_ret,    excep-
                                                             tion_type=None)

```

## androguard.decompiler.dad.control\_flow module

```

androguard.decompiler.dad.control_flow.catch_struct (graph, idoms)

androguard.decompiler.dad.control_flow.derived_sequence (graph)
    Compute the derived sequence of the graph G The intervals of G are collapsed into nodes, intervals of these
    nodes are built, and the process is repeated iteratively until we obtain a single node (if the graph is not irre-
    ducible)

androguard.decompiler.dad.control_flow.identify_structures (graph, idoms)

androguard.decompiler.dad.control_flow.if_struct (graph, idoms)

androguard.decompiler.dad.control_flow.intervals (graph)
    Compute the intervals of the graph Returns interval_graph: a graph of the intervals of G interv_heads: a dict of
    (header node, interval)

androguard.decompiler.dad.control_flow.loop_follow (start, end, nodes_in_loop)

```

`androguard.decompiler.dad.control_flow.loop_struct` (*graphs\_list, intervals\_list*)  
`androguard.decompiler.dad.control_flow.loop_type` (*start, end, nodes\_in\_loop*)  
`androguard.decompiler.dad.control_flow.mark_loop` (*graph, start, end, interval*)  
`androguard.decompiler.dad.control_flow.mark_loop_rec` (*graph, node, s\_num, e\_num, interval, nodes\_in\_loop*)  
`androguard.decompiler.dad.control_flow.short_circuit_struct` (*graph, idom, node\_map*)  
`androguard.decompiler.dad.control_flow.switch_struct` (*graph, idoms*)  
`androguard.decompiler.dad.control_flow.update_dom` (*idoms, node\_map*)  
`androguard.decompiler.dad.control_flow.while_block_struct` (*graph, node\_map*)

### androguard.decompiler.dad.dataflow module

**class** `androguard.decompiler.dad.dataflow.BasicReachDef` (*graph, params*)  
Bases: `object`

**run** ()

**class** `androguard.decompiler.dad.dataflow.DummyNode` (*name*)  
Bases: `androguard.decompiler.dad.node.Node`

**get\_loc\_with\_ins** ()

`androguard.decompiler.dad.dataflow.build_def_use` (*graph, lparams*)  
Builds the Def-Use and Use-Def (DU/UD) chains of the variables of the method.

`androguard.decompiler.dad.dataflow.clear_path` (*graph, reg, loc1, loc2*)  
Check that the path from `loc1` to `loc2` is clear. We have to check that there is no side effect between the two location points. We also have to check that the variable `reg` is not redefined along one of the possible paths from `loc1` to `loc2`.

`androguard.decompiler.dad.dataflow.clear_path_node` (*graph, reg, loc1, loc2*)

`androguard.decompiler.dad.dataflow.dead_code_elimination` (*graph, du, ud*)  
Run a dead code elimination pass. Instructions are checked to be dead. If it is the case, we remove them and we update the DU & UD chains of its variables to check for further dead instructions.

`androguard.decompiler.dad.dataflow.group_variables` (*lvars, DU, UD*)

`androguard.decompiler.dad.dataflow.place_declarations` (*graph, dvars, du, ud*)

`androguard.decompiler.dad.dataflow.reach_def_analysis` (*graph, lparams*)

`androguard.decompiler.dad.dataflow.register_propagation` (*graph, du, ud*)  
Propagate the temporary registers between instructions and remove them if necessary. We process the nodes of the graph in reverse post order. For each instruction in the node, we look at the variables that it uses. For each of these variables we look where it is defined and if we can replace it with its definition. We have to be careful to the side effects some instructions may have. To do the propagation, we use the computed DU and UD chains.

`androguard.decompiler.dad.dataflow.split_variables` (*graph, lvars, DU, UD*)

`androguard.decompiler.dad.dataflow.update_chain` (*graph, loc, du, ud*)  
Updates the DU chain of the instruction located at `loc` such that there is no more reference to it so that we can remove it. When an instruction is found to be dead (i.e it has no side effect, and the register defined is not used) we have to update the DU chain of all the variables that may be used by the dead instruction.

**androguard.decompiler.dad.decompile module**

```

class androguard.decompiler.dad.decompile.DvClass (dvclass, vma)
    Bases: object
        get_ast ()
        get_methods ()
        get_source ()
        get_source_ext ()
        process (doAST=False)
        process_method (num, doAST=False)
        show_source ()
class androguard.decompiler.dad.decompile.DvMachine (name)
    Bases: object
        get_class (class_name)
        get_classes ()
        process ()
        process_and_show ()
        show_source ()
class androguard.decompiler.dad.decompile.DvMethod (methanalysis)
    Bases: object
        get_ast ()
        get_source ()
        get_source_ext ()
        process (doAST=False)
        show_source ()
androguard.decompiler.dad.decompile.auto_vm (filename)
androguard.decompiler.dad.decompile.get_field_ast (field)
androguard.decompiler.dad.decompile.main ()

```

**androguard.decompiler.dad.graph module**

```

class androguard.decompiler.dad.graph.GenInvokeRetName
    Bases: object
        last ()
        new ()
        set_to (ret)
class androguard.decompiler.dad.graph.Graph
    Bases: object
        add_catch_edge (e1, e2)

```

**add\_edge** (*e1*, *e2*)

**add\_node** (*node*)

**all\_preds** (*node*)

**all\_sucs** (*node*)

**compute\_rpo** ()

Number the nodes in reverse post order. An RPO traversal visit as many predecessors of a node as possible before visiting the node itself.

**draw** (*name*, *dname*, *draw\_branches=True*)

**get\_ins\_from\_loc** (*loc*)

**get\_node\_from\_loc** (*loc*)

**immediate\_dominators** ()

**number\_ins** ()

**post\_order** ()

Return the nodes of the graph in post-order i.e we visit all the children of a node before visiting the node itself.

**preds** (*node*)

**remove\_ins** (*loc*)

**remove\_node** (*node*)

**sucs** (*node*)

`androguard.decompiler.dad.graph.bfs` (*start*)

`androguard.decompiler.dad.graph.construct` (*start\_block*, *vmap*, *exceptions*)

`androguard.decompiler.dad.graph.dom_lt` (*graph*)

Dominator algorithm from Lengaeur-Tarjan

`androguard.decompiler.dad.graph.make_node` (*graph*, *block*, *block\_to\_node*, *vmap*, *gen\_ret*)

`androguard.decompiler.dad.graph.simplify` (*graph*)

Simplify the CFG by merging/deleting statement nodes when possible: If statement B follows statement A and if B has no other predecessor besides A, then we can merge A and B into a new statement node. We also remove nodes which do nothing except redirecting the control flow (nodes which only contains a goto).

`androguard.decompiler.dad.graph.split_if_nodes` (*graph*)

Split IfNodes in two nodes, the first node is the header node, the second one is only composed of the jump condition.

## androguard.decompiler.dad.instruction module

**class** `androguard.decompiler.dad.instruction.ArrayExpression`

Bases: `androguard.decompiler.dad.instruction.IRForm`

**class** `androguard.decompiler.dad.instruction.ArrayLengthExpression` (*array*)

Bases: `androguard.decompiler.dad.instruction.ArrayExpression`

**get\_type** ()

**get\_used\_vars** ()

**replace** (*old*, *new*)

```

    replace_var (old, new)
    visit (visitor)
class androguard.decompiler.dad.instruction.ArrayLoadExpression (arg, index,
                                                                _type)
    Bases: androguard.decompiler.dad.instruction.ArrayExpression
    get_type ()
    get_used_vars ()
    replace (old, new)
    replace_var (old, new)
    visit (visitor)
class androguard.decompiler.dad.instruction.ArrayStoreInstruction (rhs, ar-
                                                                ray, index,
                                                                _type)
    Bases: androguard.decompiler.dad.instruction.IRForm
    get_used_vars ()
    has_side_effect ()
    replace (old, new)
    replace_var (old, new)
    visit (visitor)
class androguard.decompiler.dad.instruction.AssignExpression (lhs, rhs)
    Bases: androguard.decompiler.dad.instruction.IRForm
    get_lhs ()
    get_rhs ()
    get_used_vars ()
    has_side_effect ()
    is_call ()
    is_propagable ()
    remove_defined_var ()
    replace (old, new)
    replace_lhs (new)
    replace_var (old, new)
    visit (visitor)
class androguard.decompiler.dad.instruction.BaseClass (name, descriptor=None)
    Bases: androguard.decompiler.dad.instruction.IRForm
    is_const ()
    visit (visitor)
class androguard.decompiler.dad.instruction.BinaryCompExpression (op, arg1,
                                                                arg2, _type)
    Bases: androguard.decompiler.dad.instruction.BinaryExpression

```

```
    visit (visitor)
class androguard.decompiler.dad.instruction.BinaryExpression(op, arg1, arg2,
                                                             _type)
    Bases: androguard.decompiler.dad.instruction.IRForm
    get_used_vars ()
    has_side_effect ()
    replace (old, new)
    replace_var (old, new)
    visit (visitor)
class androguard.decompiler.dad.instruction.BinaryExpression2Addr(op, dest,
                                                                    arg, _type)
    Bases: androguard.decompiler.dad.instruction.BinaryExpression
class androguard.decompiler.dad.instruction.BinaryExpressionLit(op, arg1,
                                                                    arg2)
    Bases: androguard.decompiler.dad.instruction.BinaryExpression
class androguard.decompiler.dad.instruction.CastExpression(op, atype, arg)
    Bases: androguard.decompiler.dad.instruction.UnaryExpression
    get_type ()
    get_used_vars ()
    is_const ()
    visit (visitor)
class androguard.decompiler.dad.instruction.CheckCastExpression(arg, _type,
                                                                    descrip-
                                                                    tor=None)
    Bases: androguard.decompiler.dad.instruction.IRForm
    get_used_vars ()
    is_const ()
    replace (old, new)
    replace_var (old, new)
    visit (visitor)
class androguard.decompiler.dad.instruction.ConditionalExpression(op, arg1,
                                                                    arg2)
    Bases: androguard.decompiler.dad.instruction.IRForm
    get_lhs ()
    get_used_vars ()
    is_cond ()
    neg ()
    replace (old, new)
    replace_var (old, new)
    visit (visitor)
```

---

```
class androguard.decompiler.dad.instruction.ConditionalZExpression (op, arg)
    Bases: androguard.decompiler.dad.instruction.IRForm

    get_lhs ()
    get_used_vars ()
    is_cond ()
    neg ()
    replace (old, new)
    replace_var (old, new)
    visit (visitor)

class androguard.decompiler.dad.instruction.Constant (value, atype, int_value=None,
                                                    descriptor=None)
    Bases: androguard.decompiler.dad.instruction.IRForm

    get_int_value ()
    get_type ()
    get_used_vars ()
    is_const ()
    visit (visitor)

class androguard.decompiler.dad.instruction.FillArrayExpression (reg, value)
    Bases: androguard.decompiler.dad.instruction.ArrayExpression

    get_rhs ()
    get_used_vars ()
    is_propagable ()
    replace (old, new)
    replace_var (old, new)
    visit (visitor)

class androguard.decompiler.dad.instruction.FilledArrayExpression (asize, atype,
                                                                    args)
    Bases: androguard.decompiler.dad.instruction.ArrayExpression

    get_used_vars ()
    replace (old, new)
    replace_var (old, new)
    visit (visitor)

class androguard.decompiler.dad.instruction.IRForm
    Bases: object

    get_lhs ()
    get_rhs ()
    get_type ()
    get_used_vars ()
    has_side_effect ()
```

```
is_call()
is_cond()
is_const()
is_ident()
is_propagable()
remove_defined_var()
replace(old, new)
replace_lhs(new)
replace_var(old, new)
set_type(_type)
visit(visitor)
```

```
class androguard.decompiler.dad.instruction.InstanceExpression(arg, klass, ftype,
                                                                name)
```

Bases: *androguard.decompiler.dad.instruction.IRForm*

```
get_type()
get_used_vars()
replace(old, new)
replace_var(old, new)
visit(visitor)
```

```
class androguard.decompiler.dad.instruction.InstanceInstruction(rhs, lhs, klass,
                                                                atype, name)
```

Bases: *androguard.decompiler.dad.instruction.IRForm*

```
get_lhs()
get_used_vars()
has_side_effect()
replace(old, new)
replace_var(old, new)
visit(visitor)
```

```
class androguard.decompiler.dad.instruction.InvokeDirectInstruction(clsname,
                                                                    name,
                                                                    base,
                                                                    rtype,
                                                                    ptype,
                                                                    args,
                                                                    triple)
```

Bases: *androguard.decompiler.dad.instruction.InvokeInstruction*

```
class androguard.decompiler.dad.instruction.InvokeInstruction(clsname, name,
                                                                base, rtype, ptype,
                                                                args, triple)
```

Bases: *androguard.decompiler.dad.instruction.IRForm*

```
get_type()
```

```

get_used_vars ()
has_side_effect ()
is_call ()
replace (old, new)
replace_var (old, new)
visit (visitor)
class androguard.decompiler.dad.instruction.InvokeRangeInstruction (clsname,
                                                                    name,
                                                                    rtype,
                                                                    ptype,
                                                                    args,
                                                                    triple)
    Bases: androguard.decompiler.dad.instruction.InvokeInstruction
class androguard.decompiler.dad.instruction.InvokeStaticInstruction (clsname,
                                                                    name,
                                                                    base,
                                                                    rtype,
                                                                    ptype,
                                                                    args,
                                                                    triple)
    Bases: androguard.decompiler.dad.instruction.InvokeInstruction
get_used_vars ()
class androguard.decompiler.dad.instruction.MonitorEnterExpression (ref)
    Bases: androguard.decompiler.dad.instruction.RefExpression
visit (visitor)
class androguard.decompiler.dad.instruction.MonitorExitExpression (ref)
    Bases: androguard.decompiler.dad.instruction.RefExpression
visit (visitor)
class androguard.decompiler.dad.instruction.MoveExceptionExpression (ref,
                                                                    _type)
    Bases: androguard.decompiler.dad.instruction.RefExpression
get_lhs ()
get_used_vars ()
has_side_effect ()
replace_lhs (new)
visit (visitor)
class androguard.decompiler.dad.instruction.MoveExpression (lhs, rhs)
    Bases: androguard.decompiler.dad.instruction.IRForm
get_lhs ()
get_rhs ()
get_used_vars ()
has_side_effect ()

```

```
is_call ()
replace (old, new)
replace_lhs (new)
replace_var (old, new)
visit (visitor)
```

```
class androguard.decompiler.dad.instruction.MoveResultExpression (lhs, rhs)
    Bases: androguard.decompiler.dad.instruction.MoveExpression
```

```
has_side_effect ()
is_propagable ()
visit (visitor)
```

```
class androguard.decompiler.dad.instruction.NewArrayExpression (asize, atype)
    Bases: androguard.decompiler.dad.instruction.ArrayExpression
```

```
get_used_vars ()
is_propagable ()
replace (old, new)
replace_var (old, new)
visit (visitor)
```

```
class androguard.decompiler.dad.instruction.NewInstance (ins_type)
    Bases: androguard.decompiler.dad.instruction.IRForm
```

```
get_type ()
get_used_vars ()
replace (old, new)
visit (visitor)
```

```
class androguard.decompiler.dad.instruction.NopExpression
    Bases: androguard.decompiler.dad.instruction.IRForm
```

```
get_lhs ()
get_used_vars ()
visit (visitor)
```

```
class androguard.decompiler.dad.instruction.Param (value, atype)
    Bases: androguard.decompiler.dad.instruction.Variable
```

```
is_const ()
visit (visitor)
```

```
class androguard.decompiler.dad.instruction.RefExpression (ref)
    Bases: androguard.decompiler.dad.instruction.IRForm
```

```
get_used_vars ()
is_propagable ()
replace (old, new)
replace_var (old, new)
```

```
class androguard.decompiler.dad.instruction.ReturnInstruction (arg)
    Bases: androguard.decompiler.dad.instruction.IRForm

    get_lhs ()
    get_used_vars ()
    replace (old, new)
    replace_var (old, new)
    visit (visitor)

class androguard.decompiler.dad.instruction.StaticExpression (cls_name,
                                                             field_type,
                                                             field_name)
    Bases: androguard.decompiler.dad.instruction.IRForm

    get_type ()
    replace (old, new)
    visit (visitor)

class androguard.decompiler.dad.instruction.StaticInstruction (rhs, klass, ftype,
                                                                name)
    Bases: androguard.decompiler.dad.instruction.IRForm

    get_lhs ()
    get_used_vars ()
    has_side_effect ()
    replace (old, new)
    replace_var (old, new)
    visit (visitor)

class androguard.decompiler.dad.instruction.SwitchExpression (src, branch)
    Bases: androguard.decompiler.dad.instruction.IRForm

    get_used_vars ()
    replace (old, new)
    replace_var (old, new)
    visit (visitor)

class androguard.decompiler.dad.instruction.ThisParam (value, atype)
    Bases: androguard.decompiler.dad.instruction.Param

    visit (visitor)

class androguard.decompiler.dad.instruction.ThrowExpression (ref)
    Bases: androguard.decompiler.dad.instruction.RefExpression

    visit (visitor)

class androguard.decompiler.dad.instruction.UnaryExpression (op, arg, _type)
    Bases: androguard.decompiler.dad.instruction.IRForm

    get_type ()
    get_used_vars ()
    replace (old, new)
```

**replace\_var** (*old, new*)

**visit** (*visitor*)

**class** androguard.decompiler.dad.instruction.**Variable** (*value*)

Bases: *androguard.decompiler.dad.instruction.IRForm*

**get\_used\_vars** ()

**is\_ident** ()

**value** ()

**visit** (*visitor*)

**visit\_decl** (*visitor*)

### androguard.decompiler.dad.node module

**class** androguard.decompiler.dad.node.**Interval** (*head*)

Bases: object

**add\_node** (*node*)

**compute\_end** (*graph*)

**get\_end** ()

**get\_head** ()

**class** androguard.decompiler.dad.node.**LoopType**

Bases: object

**copy** ()

**is\_endless**

**is\_posttest**

**is\_pretest**

**class** androguard.decompiler.dad.node.**MakeProperties** (*name, bases, dct*)

Bases: type

**class** androguard.decompiler.dad.node.**Node** (*name*)

Bases: object

**copy\_from** (*node*)

**get\_end** ()

**get\_head** ()

**update\_attribute\_with** (*n\_map*)

**class** androguard.decompiler.dad.node.**NodeType**

Bases: object

**copy** ()

**is\_cond**

**is\_return**

**is\_stmt**

**is\_switch**

`is_throw`

## androguard.decompiler.dad.opcode\_ins module

**class** androguard.decompiler.dad.opcode\_ins.Op

Bases: object

**ADD** = '+'

**AND** = '&'

**CMP** = 'cmp'

**DIV** = '/'

**EQUAL** = '=='

**GEQUAL** = '>='

**GREATER** = '>'

**INTSHL** = '<<'

**INTSHR** = '>>'

**LEQUAL** = '<='

**LONGSHL** = '<<'

**LONGSHR** = '>>'

**LOWER** = '<'

**MOD** = '%'

**MUL** = '\*'

**NEG** = '-'

**NEQUAL** = '!='

**NOT** = '~'

**OR** = '|'

**SUB** = '-'

**XOR** = '^'

androguard.decompiler.dad.opcode\_ins.**adddouble** (*ins*, *vmap*)

androguard.decompiler.dad.opcode\_ins.**adddouble2addr** (*ins*, *vmap*)

androguard.decompiler.dad.opcode\_ins.**addfloat** (*ins*, *vmap*)

androguard.decompiler.dad.opcode\_ins.**addfloat2addr** (*ins*, *vmap*)

androguard.decompiler.dad.opcode\_ins.**addint** (*ins*, *vmap*)

androguard.decompiler.dad.opcode\_ins.**addint2addr** (*ins*, *vmap*)

androguard.decompiler.dad.opcode\_ins.**addintlit16** (*ins*, *vmap*)

androguard.decompiler.dad.opcode\_ins.**addintlit8** (*ins*, *vmap*)

androguard.decompiler.dad.opcode\_ins.**addlong** (*ins*, *vmap*)

androguard.decompiler.dad.opcode\_ins.**addlong2addr** (*ins*, *vmap*)

androguard.decompiler.dad.opcode\_ins.**aget** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**agetboolean** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**agetbyte** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**agetchar** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**agetobject** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**agetshort** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**agetwide** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**andint** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**andint2addr** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**andintlit16** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**andintlit8** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**andlong** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**andlong2addr** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**aput** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**aputboolean** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**aputbyte** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**aputchar** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**aputobject** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**aputshort** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**aputwide** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**arraylength** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**assign\_binary\_2addr\_exp** (*ins, val\_op, op\_type, vmap*)

androguard.decompiler.dad.opcode\_ins.**assign\_binary\_exp** (*ins, val\_op, op\_type, vmap*)

androguard.decompiler.dad.opcode\_ins.**assign\_cast\_exp** (*val\_a, val\_b, val\_op, op\_type, vmap*)

androguard.decompiler.dad.opcode\_ins.**assign\_cmp** (*val\_a, val\_b, val\_c, cmp\_type, vmap*)

androguard.decompiler.dad.opcode\_ins.**assign\_const** (*dest\_reg, cst, vmap*)

androguard.decompiler.dad.opcode\_ins.**assign\_lit** (*op\_type, val\_cst, val\_a, val\_b, vmap*)

androguard.decompiler.dad.opcode\_ins.**checkcast** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**cmpgdouble** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**cmpgfloat** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**cmpldouble** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**cmplfloat** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**cmplong** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**const** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**const16** (*ins, vmap*)

---

androguard.decompiler.dad.opcode\_ins.**const4** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**constclass** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**consthigh16** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**conststring** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**conststringjumbo** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**constwide** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**constwide16** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**constwide32** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**constwidehigh16** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**divdouble** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**divdouble2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**divfloat** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**divfloat2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**divint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**divint2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**divintl16** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**divintl8** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**divlong** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**divlong2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**doubletofloat** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**doubletoint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**doubletolong** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**fillarraydata** (*ins, vmap, value*)  
androguard.decompiler.dad.opcode\_ins.**fillarraydatapayload** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**fillednewarray** (*ins, vmap, ret*)  
androguard.decompiler.dad.opcode\_ins.**fillednewarrayrange** (*ins, vmap, ret*)  
androguard.decompiler.dad.opcode\_ins.**floattodouble** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**floattoint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**floattolong** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**get\_args** (*vmap, param\_type, largs*)  
androguard.decompiler.dad.opcode\_ins.**get\_variables** (*vmap, \*variables*)  
androguard.decompiler.dad.opcode\_ins.**goto** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**goto16** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**goto32** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**ifeq** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**ifeqz** (*ins, vmap*)

`androguard.decompiler.dad.opcode_ins.ifge (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.ifgez (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.ifgt (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.ifgtz (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.ifle (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.iflez (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.iflt (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.ifltz (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.ifne (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.ifnez (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.iget (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.igetboolean (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.igetbyte (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.igetchar (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.igetobject (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.igetshort (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.igetwide (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.instanceof (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.inttobyte (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.inttochar (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.inttodouble (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.inttofloat (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.inttolong (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.inttoshort (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.invokedirect (ins, vmap, ret)`  
`androguard.decompiler.dad.opcode_ins.invokedirectrange (ins, vmap, ret)`  
`androguard.decompiler.dad.opcode_ins.invokeinterface (ins, vmap, ret)`  
`androguard.decompiler.dad.opcode_ins.invokeinterfacerange (ins, vmap, ret)`  
`androguard.decompiler.dad.opcode_ins.invokestatic (ins, vmap, ret)`  
`androguard.decompiler.dad.opcode_ins.invokestaticrange (ins, vmap, ret)`  
`androguard.decompiler.dad.opcode_ins.invokesuper (ins, vmap, ret)`  
`androguard.decompiler.dad.opcode_ins.invokesuperrange (ins, vmap, ret)`  
`androguard.decompiler.dad.opcode_ins.invokevirtual (ins, vmap, ret)`  
`androguard.decompiler.dad.opcode_ins.invokevirtualrange (ins, vmap, ret)`  
`androguard.decompiler.dad.opcode_ins.iput (ins, vmap)`  
`androguard.decompiler.dad.opcode_ins.iputboolean (ins, vmap)`

`androguard.decompiler.dad.opcode_ins.iputbyte` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.iputchar` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.iputobject` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.iputshort` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.iputwide` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.load_array_exp` (*val\_a*, *val\_b*, *val\_c*, *ar\_type*,  
*vmap*)  
`androguard.decompiler.dad.opcode_ins.longtodouble` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.longtofloat` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.longtoint` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.monitorenter` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.monitorexit` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.move` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.move16` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.moveexception` (*ins*, *vmap*, *\_type*)  
`androguard.decompiler.dad.opcode_ins.movefrom16` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.moveobject` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.moveobject16` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.moveobjectfrom16` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.moveresult` (*ins*, *vmap*, *ret*)  
`androguard.decompiler.dad.opcode_ins.moveresultobject` (*ins*, *vmap*, *ret*)  
`androguard.decompiler.dad.opcode_ins.moveresultwide` (*ins*, *vmap*, *ret*)  
`androguard.decompiler.dad.opcode_ins.movewide` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.movewide16` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.movewidefrom16` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.muldouble` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.muldouble2addr` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.mulfloat` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.mulfloat2addr` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.mulint` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.mulint2addr` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.mulintlit16` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.mulintlit8` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.mullong` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.mullong2addr` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.negdouble` (*ins*, *vmap*)  
`androguard.decompiler.dad.opcode_ins.negfloat` (*ins*, *vmap*)

androguard.decompiler.dad.opcode\_ins.**negint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**neglong** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**newarray** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**newinstance** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**nop** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**notint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**notlong** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**orint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**orint2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**orintlit16** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**orintlit8** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**orlong** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**orlong2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**packedswitch** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**remdouble** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**remdouble2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**remfloat** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**remfloat2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**remint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**remint2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**remintlit16** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**remintlit8** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**remlong** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**remlong2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**return\_reg** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**returnobject** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**returnvoid** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**returnwide** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**rsubint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**rsubintlit8** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sget** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sgetboolean** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sgetbyte** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sgetchar** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sgetobject** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sgetshort** (*ins, vmap*)

androguard.decompiler.dad.opcode\_ins.**sgetwide** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**shlint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**shlint2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**shlintlit8** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**shllong** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**shllong2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**shrint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**shrint2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**shrintlit8** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**shrlong** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**shrlong2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sparseswitch** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sput** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sputboolean** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sputbyte** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sputchar** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sputobject** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sputshort** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sputwide** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**store\_array\_inst** (*val\_a, val\_b, val\_c, ar\_type, vmap*)  
androguard.decompiler.dad.opcode\_ins.**subdouble** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**subdouble2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**subfloat** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**subfloat2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**subint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**subint2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sublong** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**sublong2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**throw** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**ushrint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**ushrint2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**ushrintlit8** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**ushrlong** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**ushrlong2addr** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**xorint** (*ins, vmap*)  
androguard.decompiler.dad.opcode\_ins.**xorint2addr** (*ins, vmap*)

`androguard.decompiler.dad.opcode_ins.xorintlit16` (*ins, vmap*)

`androguard.decompiler.dad.opcode_ins.xorintlit8` (*ins, vmap*)

`androguard.decompiler.dad.opcode_ins.xorlong` (*ins, vmap*)

`androguard.decompiler.dad.opcode_ins.xorlong2addr` (*ins, vmap*)

### androguard.decompiler.dad.util module

`androguard.decompiler.dad.util.build_path` (*graph, node1, node2, path=None*)

Build the path from node1 to node2. The path is composed of all the nodes between node1 and node2, node1 excluded. Although if there is a loop starting from node1, it will be included in the path.

`androguard.decompiler.dad.util.common_dom` (*idom, cur, pred*)

`androguard.decompiler.dad.util.create_png` (*cls\_name, meth\_name, graph, dir\_name='graphs2'*)

`androguard.decompiler.dad.util.get_access_class` (*access*)

`androguard.decompiler.dad.util.get_access_field` (*access*)

`androguard.decompiler.dad.util.get_access_method` (*access*)

`androguard.decompiler.dad.util.get_params_type` (*descriptor*)

Return the parameters type of a descriptor (e.g (IC)V)

`androguard.decompiler.dad.util.get_type` (*atype, size=None*)

Retrieve the java type of a descriptor (e.g : I)

`androguard.decompiler.dad.util.get_type_size` (*param*)

Return the number of register needed by the type @param

`androguard.decompiler.dad.util.merge_inner` (*clsdict*)

Merge the inner class(es) of a class: e.g class A { ... } class A\$foo{ ... } class A\$bar{ ... } ==> class A { class foo{...} class bar{...} ... }

### androguard.decompiler.dad.writer module

**class** `androguard.decompiler.dad.writer.Writer` (*graph, method*)

Bases: object

**dec\_ind** (*i=1*)

**end\_ins** ()

**inc\_ind** (*i=1*)

**space** ()

**str\_ext** ()

**visit\_alength** (*array*)

**visit\_aload** (*array, index*)

**visit\_assign** (*lhs, rhs*)

**visit\_astore** (*array, index, rhs, data=None*)

**visit\_base\_class** (*cls, data=None*)

**visit\_binary\_expression** (*op, arg1, arg2*)

**visit\_cast** (*op, arg*)  
**visit\_catch\_node** (*catch\_node*)  
**visit\_check\_cast** (*arg, atype*)  
**visit\_cond\_expression** (*op, arg1, arg2*)  
**visit\_cond\_node** (*cond*)  
**visit\_condz\_expression** (*op, arg*)  
**visit\_constant** (*cst*)  
**visit\_decl** (*var*)  
**visit\_fill\_array** (*array, value*)  
**visit\_filled\_new\_array** (*atype, size, args*)  
**visit\_get\_instance** (*arg, name, data=None*)  
**visit\_get\_static** (*cls, name*)  
**visit\_ins** (*ins*)  
**visit\_invoke** (*name, base, ptype, rtype, args, invokeInstr*)  
**visit\_loop\_node** (*loop*)  
**visit\_monitor\_enter** (*ref*)  
**visit\_monitor\_exit** (*ref*)  
**visit\_move** (*lhs, rhs*)  
**visit\_move\_exception** (*var, data=None*)  
**visit\_move\_result** (*lhs, rhs*)  
**visit\_new** (*atype, data=None*)  
**visit\_new\_array** (*atype, size*)  
**visit\_node** (*node*)  
**visit\_nop** ()  
**visit\_param** (*param, data=None*)  
**visit\_put\_instance** (*lhs, name, rhs, data=None*)  
**visit\_put\_static** (*cls, name, rhs*)  
**visit\_return** (*arg*)  
**visit\_return\_node** (*ret*)  
**visit\_return\_void** ()  
**visit\_short\_circuit\_condition** (*nnot, aand, cond1, cond2*)  
**visit\_statement\_node** (*stmt*)  
**visit\_super** ()  
**visit\_switch** (*arg*)  
**visit\_switch\_node** (*switch*)  
**visit\_this** ()

```
visit_throw (ref)  
visit_throw_node (throw)  
visit_try_node (try_node)  
visit_unary_expression (op, arg)  
visit_variable (var)  
write (s, data=None)  
write_ext (t)  
write_ind ()  
write_ind_visit_end (lhs, s, rhs=None, data=None)  
write_ind_visit_end_ext (lhs, before, s, after, rhs=None, data=None, subsection='UNKNOWN_SUBSECTION')  
write_inplace_if_possible (lhs, rhs)  
write_method ()
```

`androguard.decompiler.dad.writer.string` (*s*)

Convert a string to a escaped ASCII representation including quotation marks :param s: a string :return: ASCII escaped string

## Module contents

### Submodules

#### androguard.decompiler.decompiler module

```
class androguard.decompiler.decompiler.DecompilerDAD (vm, vmx)
```

Bases: object

```
display_all (_class)  
display_source (m)  
get_all (class_name)  
get_ast_class (_class)  
get_ast_method (m)  
get_source_class (_class)  
get_source_class_ext (_class)  
get_source_method (m)
```

```
class androguard.decompiler.decompiler.DecompilerDed (vm, bin_ded='ded.sh', tmp_dir='/tmp/')
```

Bases: object

```
display_all (_class)  
display_source (method)  
get_all (class_name)  
get_source_class (_class)
```

`get_source_method` (*method*)

```
class androguard.decompiler.decompiler.DecompilerDex2Fernflower (vm,
    bin_dex2jar='dex2jar.sh',
    bin_fernflower='fernflower.jar',
    op-
    tions_fernflower={'asc':
        'I',      'dgs':
        'I'},
    tmp_dir='/tmp/')
```

Bases: object

`display_all` (*\_class*)

`display_source` (*method*)

`get_all` (*class\_name*)

`get_source_class` (*\_class*)

`get_source_method` (*method*)

```
class androguard.decompiler.decompiler.DecompilerDex2Jad (vm,
    bin_dex2jar='dex2jar.sh',
    bin_jad='jad',
    tmp_dir='/tmp/')
```

Bases: object

`display_all` (*\_class*)

`display_source` (*method*)

`get_all` (*class\_name*)

`get_source_class` (*\_class*)

`get_source_method` (*method*)

```
class androguard.decompiler.decompiler.DecompilerDex2WineJad (vm,
    bin_dex2jar='dex2jar.sh',
    bin_jad='jad',
    tmp_dir='/tmp/')
```

Bases: object

`display_all` (*\_class*)

`display_source` (*method*)

`get_all` (*class\_name*)

`get_source_class` (*\_class*)

`get_source_method` (*method*)

```
class androguard.decompiler.decompiler.DecompilerJADX (vm, vmx, jadx='jadx', keep-
    files=False)
```

Bases: object

`display_all` (*\_class*)

???

**Parameters** *\_class* –

**Returns**

**display\_source** (*m*)

This method does the same as *get\_source\_method* but prints the result directly to stdout

**Parameters** *m* – *EncodedMethod* to print

**Returns**

**get\_all** (*class\_name*)

???

**Parameters** *class\_name* –

**Returns**

**get\_source\_class** (*\_class*)

Return the Java source code of a whole class

**Parameters** *\_class* – *ClassDefItem* object, to get the source from

**Returns**

**get\_source\_method** (*m*)

Return the Java source of a single method

**Parameters** *m* – *EncodedMethod* Object

**Returns**

**class** androguard.decompiler.decompiler.**Dex2Jar** (*vm*, *bin\_dex2jar='dex2jar.sh'*,  
*tmp\_dir='/tmp/'*)

Bases: object

**get\_jar** ()

**exception** androguard.decompiler.decompiler.**JADXDecompilerError**

Bases: Exception

Exception for JADX related problems

**class** androguard.decompiler.decompiler.**MethodFilter** (\*\**options*)

Bases: pygments.filter.Filter

**filter** (*lexer*, *stream*)

## Module contents

### 2.1.2 Submodules

### 2.1.3 androguard.misc module

androguard.misc.**AnalyzeAPK** (*\_file*, *session=None*, *raw=False*)

Analyze an android application and setup all stuff for a more quickly analysis! If session is None, no session is used at all. This is the default behaviour. If you like to continue your work later, it might be a good idea to use a session. A default session can be created by using *get\_default\_session* ().

**Parameters**

- **\_file** (*string* (for filename) or *bytes* (for raw)) – the filename of the android application or a buffer which represents the application
- **session** – A session (default: None)
- **raw** – boolean if raw bytes are supplied instead of a filename

**Return type** return the *APK*, list of *DalvikVMFormat*, and *Analysis* objects

`androguard.misc.AnalyzeDex(filename, session=None)`

Analyze an android dex file and setup all stuff for a more quickly analysis !

#### Parameters

- **session** – A session (Default None)
- **filename** (*string*) – the filename of the android dex file or a buffer which represents the dex file

**Return type** return the *DalvikVMFormat*, and *Analysis* objects

`androguard.misc.AnalyzeODex(filename, session=None)`

Analyze an android odex file and setup all stuff for a more quickly analysis !

#### Parameters

- **filename** (*string*) – the filename of the android dex file or a buffer which represents the dex file
- **session** – The Androguard Session to add the ODex to (default: None)

**Return type** return the *DalvikOdexVMFormat*, and *Analysis* objects

`androguard.misc.RunDecompiler(d, dx, decompiler_name)`

Run the decompiler on a specific analysis

#### Parameters

- **d** (*DalvikVMFormat* object) – the *DalvikVMFormat* object
- **dx** (*VMAnalysis* object) – the analysis of the format
- **decompiler** (*string*) – the type of decompiler to use (“dad”, “dex2jad”, “ded”)

`androguard.misc.clean_file_name(filename, unique=True, replace='_', force_nt=False)`

Return a filename version, which has no characters in it which are forbidden. On Windows these are for example <, /, ?, ...

The intention of this function is to allow distribution of files to different OSes.

#### Parameters

- **filename** – string to clean
- **unique** – check if the filename is already taken and append an integer to be unique (default: True)
- **replace** – replacement character. (default: ‘\_’)
- **force\_nt** – Force shortening of paths like on NT systems (default: False)

**Returns** clean string

`androguard.misc.get_default_session()`

Return the default Session from the configuration or create a new one, if the session in the configuration is None.

`androguard.misc.init_print_colors()`

`androguard.misc.sign_apk(filename, keystore, storepass)`

Use jarsigner to sign an APK file.

#### Parameters

- **filename** – APK file on disk to sign (path)

- **keystore** – path to keystore
- **storepass** – your keystore passphrase

## 2.1.4 androguard.session module

`androguard.session.Load(filename)`

load your session!

**Parameters** **filename** (*string*) – the filename where the session has been saved

**Return type** the elements of your session :)

**Example** `s = session.Load("mysession.p")`

`androguard.session.Save(session, filename)`

save your session!

**Parameters**

- **session** – A Session object to save
- **filename** (*string*) – output filename to save the session

**Example** `s = session.Session() session.Save(s, "msession.p")`

**class** `androguard.session.Session` (*export\_ipython=False*)

Bases: `object`

**add** (*filename, raw\_data, dx=None*)

**addAPK** (*filename, data*)

Add an APK file to the Session and run analysis on it.

**Parameters**

- **filename** – (file)name of APK file
- **data** – binary data of the APK file

**Returns** a tuple of SHA256 Checksum and APK Object

**addDEX** (*filename, data, dx=None*)

Add a DEX file to the Session and run analysis.

**Parameters**

- **filename** – the (file)name of the DEX file
- **data** – binary data of the dex file
- **dx** – an existing Analysis Object (optional)

**Returns** A tuple of SHA256 Hash, DalvikVMFormat Object and Analysis object

**addDEY** (*filename, data, dx=None*)

**get\_all\_apks** ()

**get\_analysis** (*current\_class*)

**get\_classes** ()

**get\_digest\_by\_class** (*current\_class*)

**get\_filename\_by\_class** (*current\_class*)

**get\_format** (*current\_class*)

`get_nb_strings()`  
`get_objects_apk(filename, digest=None)`  
`get_objects_dex()`  
`get_strings()`  
`isOpen()`  
Test if any file was analyzed in this session  
**Returns** *True* if any file was analyzed, *False* otherwise  
`reset()`  
Reset the current session, delete all added files.  
`show()`  
Print information about the current session

### 2.1.5 androguard.util module

`androguard.util.get_certificate_name_string(name, short=False)`

Return the distinguished name of an X509 Certificate

**Parameters**

- **name** (`cryptography.x509.Name`) – Name object to return the DN from
- **short** (*Boolean*) – Use short form (Default: *False*)

**Return type** `str`

`androguard.util.read(filename, binary=True)`

### 2.1.6 Module contents



## CHAPTER 3

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