
Androguard Documentation

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Anthony Desnos

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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

CHAPTER 1

Documentation

1.1 Introduction

1.1.1 Installation

There are several ways how to install androguard.

Debian

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 3.3 to work.

```
git clone https://github.com/androguard/androguard.git
cd androguard
pip install .
```

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

1.1.2 Getting Started

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.

Open a terminal and type `androlyze.py -s`.

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:

```
a, d, dx = AnalyzeAPK("/home/user/some-app.apk")
```

The three objects you get are `a` an APK object, `d` a `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.

The `Analysis` object contains special classes, which link information about the `classes.dex`.

1.2 Tools

1.2.1 androarsc

```
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
```

`androarsc.main(options, arguments)`

1.2.2 androauto

```
Usage: androauto.py [options]

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

class `androauto.AndroLog(id_file,filename)`
Bases: `object`

class `androauto.AndroTest(directory)`
Bases: `androguard.core.analysis.auto.DirectoryAndroAnalysis`

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

`androauto.main(options, arguments)`

1.2.3 androaxml

```
Usage: androaxml.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
```

`androaxml.main(options, arguments)`

1.2.4 androdd

```
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
-j, --jar             output jar file
-f FORMAT, --format=FORMAT
                      write the method in specific format (png, ...)
-l LIMIT, --limit=LIMIT
                      limit analysis to specific methods/classes by using a
                      regexp
```

`androdd.create_directory(class_name, output)`

`androdd.export_apps_to_format(filename, s, output, methods_filter=None, jar=None, decompiler_type=None, format=None)`

`androdd.main(options, arguments)`

`androdd.valid_class_name(class_name)`

1.2.5 androdis

```
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
```

androdis.**disassemble**(dex, offset, size)

androdis.**main**(options, arguments)

1.2.6 androgui

```
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
```

Androguard Gui

1.2.7 androlyze

androlyze is a tool that spawns an IPython shell.

```
Usage: androlyze.py [options]

Options:
  -h, --help            show this help message and exit
  -s, --shell           open an interactive shell to play more easily with objects
  -v, --version         version of Androguard
  -d, --debug           verbose mode
```

androlyze.**interact**()

androlyze.**main**(options, arguments)

CHAPTER 2

Python API

2.1 androguard package

2.1.1 Subpackages

`androguard.core` package

Subpackages

`androguard.core.analysis` package

Submodules

`androguard.core.analysis.analysis` module

```
class androguard.core.analysis.analysis.Analysis(vm)
    Bases: object

    add(vm)
    create_xref()
    get_class_analysis(class_name)
    get_external_classes()
    get_field_analysis(field)
    get_method(method)
    get_method_analysis(method)
    get_method_analysis_by_name(class_name, method_name, method_descriptor)
    get_method_by_name(class_name, method_name, method_descriptor)
```

```
get_strings_analysis()
is_class_present(class_name)

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, internal=False)
Bases: object

AddFXrefRead(method, classobj, field)
AddFXrefWrite(method, classobj, field)
AddMXrefFrom(method1, classobj, method2, offset)
AddMXrefTo(method1, classobj, method2, offset)
AddXrefFrom(ref_kind, classobj, methodobj, offset)
AddXrefTo(ref_kind, classobj, methodobj, offset)
GetFakeMethod(name, descriptor)
get_field_analysis(field)
get_method_analysis(method)
get_methods()
get_nb_methods()
get_vm_class()
get_xref_from()
get_xref_to()

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.Enum(names)
Bases: object

tuples()

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_methods()

class androguard.core.analysis.analysis.ExternalMethod(class_name, name, descriptor)
    Bases: object

        get_class_name()
        get_descriptor()
        get_name()

class androguard.core.analysis.analysis.FieldClassAnalysis(field)
    Bases: object

        AddXrefRead(classobj, methodobj)
        AddXrefWrite(classobj, methodobj)
        get_xref_read()
        get_xref_write()

class androguard.core.analysis.analysis.MethodAnalysis(vm, method)
    Bases: object

    This class analyses in details a method of a class/dex file

        get_basic_blocks()

            Return type a BasicBlocks object

        get_length()

            Return type an integer which is the length of the code

        get_method()

        get_tags()
            Return the tags of the method

            Return type a Tags object

        get_vm()

        show()

        show_methods()

class androguard.core.analysis.analysis.MethodClassAnalysis(method)
    Bases: object

        AddXrefFrom(classobj, methodobj, offset)
        AddXrefTo(classobj, methodobj, offset)
        get_xref_from()
        get_xref_to()
```

```
class androguard.core.analysis.analysis.StringAnalysis(value)
Bases: object

AddXrefFrom(classobj, methodobj)
get_orig_value()
get_value()
get_xref_from()
set_value(value)
```

```
class androguard.core.analysis.analysis.Tags(patterns={0: [0, 'Landroid'], 1: [0, 'Landroid/telephony'], 2: [0, 'Landroid/telephony/SmsManager'], 3: [0, 'Landroid/telephony/SmsMessage'], 4: [0, 'Landroid/accessibilityservice'], 5: [0, 'Landroid/accounts'], 6: [0, 'Landroid/animation'], 7: [0, 'Landroid/app'], 8: [0, 'Landroid/bluetooth'], 9: [0, 'Landroid/content'], 10: [0, 'Landroid/database'], 11: [0, 'Landroid/os/Debug'], 12: [0, 'Landroid/drm'], 13: [0, 'Landroid/gesture'], 14: [0, 'Landroid/graphics'], 15: [0, 'Landroid/hardware'], 16: [0, 'Landroid/inputmethodservice'], 17: [0, 'Landroid/location'], 18: [0, 'Landroid/media'], 19: [0, 'Landroid/mtp'], 20: [0, 'Landroid/net'], 21: [0, 'Landroid/nfc'], 22: [0, 'Landroid/opengl'], 23: [0, 'Landroid/os'], 24: [0, 'Landroid/preference'], 25: [0, 'Landroid/provider'], 26: [0, 'Landroid/renderscript'], 27: [0, 'Landroid/sax'], 28: [0, 'Landroid/security'], 29: [0, 'Landroid/service'], 30: [0, 'Landroid/speech'], 31: [0, 'Landroid/support'], 32: [0, 'Landroid/test'], 33: [0, 'Landroid/text'], 34: [0, 'Landroid/util'], 35: [0, 'Landroid/view'], 36: [0, 'Landroid/webkit'], 37: [0, 'Landroid/widget'], 38: [0, 'Ldalvik bytecode'], 39: [0, 'Ldalvik/system'], 40: [0, 'Ljava/lang/reflect']}, reverse={0: 'ANDROID', 1: 'TELEPHONY', 2: 'SMS', 3: 'SMSMESSAGE', 4: 'ACCESSIBILITYSERVICE', 5: 'ACCOUNTS', 6: 'ANIMATION', 7: 'APP', 8: 'BLUETOOTH', 9: 'CONTENT', 10: 'DATABASE', 11: 'DEBUG', 12: 'DRM', 13: 'GESTURE', 14: 'GRAPHICS', 15: 'HARDWARE', 16: 'INPUTMETHODSERVICE', 17: 'LOCATION', 18: 'MEDIA', 19: 'MTP', 20: 'NET', 21: 'NFC', 22: 'OPENGL', 23: 'OS', 24: 'PREFERENCE', 25: 'PROVIDER', 26: 'RENDERSRIPT', 27: 'SAX', 28: 'SECURITY', 29: 'SERVICE', 30: 'SPEECH', 31: 'SUPPORT', 32: 'TEST', 33: 'TEXT', 34: 'UTIL', 35: 'VIEW', 36: 'WEBKIT', 37: 'WIDGET', 38: 'DALVIK_BYTECODE', 39: 'DALVIK_SYSTEM', 40: 'JAVA_REFLECTION'})
```

Bases: `object`

Handle specific tags

Parameters patterns –

Params reverse

```
emit (method)
emit_by_classname (classname)
empty ()
get_list ()

androguard.core.analysis.analysis.is_ascii_obfuscation (vm)
```

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 ARSCPParser 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

Rtype 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_dexy** (*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

Parameters **log** – an object which corresponds to a unique app**dump_file** (*filename*)

This method is called to dump the result in a file

Parameters

- **log** – an object which corresponds to a unique app
- **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 filled 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 filter 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 filled with the following format: (filename, raw)

Parameters *q* – the Queue to put new app

Module contents

[androguard.core.api_specific_resources package](#)

Subpackages

[androguard.core.api_specific_resources.aosp_permissions package](#)

Submodules

[androguard.core.api_specific_resources.aosp_permissions.aosp_permissions module](#)

[androguard.core.api_specific_resources.aosp_permissions.aosp_permissions_api10 module](#)

[androguard.core.api_specific_resources.aosp_permissions.aosp_permissions_api14 module](#)

[androguard.core.api_specific_resources.aosp_permissions.aosp_permissions_api15 module](#)

[androguard.core.api_specific_resources.aosp_permissions.aosp_permissions_api16 module](#)

[androguard.core.api_specific_resources.aosp_permissions.aosp_permissions_api17 module](#)

[androguard.core.api_specific_resources.aosp_permissions.aosp_permissions_api18 module](#)

[androguard.core.api_specific_resources.aosp_permissions.aosp_permissions_api19 module](#)

[androguard.core.api_specific_resources.aosp_permissions.aosp_permissions_api21 module](#)

[androguard.core.api_specific_resources.aosp_permissions.aosp_permissions_api22 module](#)

[androguard.core.api_specific_resources.aosp_permissions.aosp_permissions_api9 module](#)

Module contents

[androguard.core.api_specific_resources.api_permission_mappings package](#)

Submodules

[androguard.core.api_specific_resources.api_permission_mappings.api_permission_mappings module](#)

[androguard.core.api_specific_resources.api_permission_mappings.api_permission_mappings_api10 module](#)

[androguard.core.api_specific_resources.api_permission_mappings.api_permission_mappings_api14 module](#)

[androguard.core.api_specific_resources.api_permission_mappings.api_permission_mappings_api15 module](#)

[androguard.core.api_specific_resources.api_permission_mappings.api_permission_mappings_api16 module](#)

This class can access to all elements in an APK file

Parameters

- **filename** (*string*) – specify the path of the file, or raw data
- **raw** (*boolean*) – specify if the filename is a path or raw data (optional)
- **magic_file** (*string*) – specify the magic file (optional)
- **skip_analysis** (*boolean*) – Skip the analysis, e.g. no manifest files are read. (default: False)
- **testzip** (*boolean*) – Test the APK for integrity, e.g. if the ZIP file is broken. Throw an exception on failure (default False)

Example `APK("myfile.apk")` `APK(read("myfile.apk"), raw=True)`

format_value (*value*)

get_activities ()

Return the android:name attribute of all activities

Return type a list of string

get_all_dex ()

Return the raw data of all classes dex files

Return type a generator

get_android_manifest_axml ()

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

Return type AXMLPrinter

get_android_manifest_xml ()

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

Return type object

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

Return type string

get_androidversion_name ()

Return the android version name

Return type string

get_app_icon (*max_dpi=65536*)

Return the first non-greater density than max_dpi icon file name, unless exact icon resolution is set in the manifest, in which case return the exact file

Return type string

get_app_name ()

Return the appname of the APK

Return type string

```
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 x509 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_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 list of string

get_dex()
    Return the raw data of the classes dex file

        Return type a string

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)
    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_file(filename)
    Return the raw data of the specified filename inside the APK

        Return type string

get_filename()
    Return the filename of the APK

        Return type string

get_files()
    Return the files inside the APK

        Return type a list of strings
```

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 string, string, int

get_files_types()

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

Return type a dictionnary

get_intent_filters(*category, name*)**get_libraries()**

Return the android:name attributes for libraries

Return type list

get_main_activity()

Return the name of the main activity

Return type string

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

Return type string

get_permissions()

Return permissions

Return type list of string

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 string

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.

Return type list of strings

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 string

get_signature()

Return the data of the first signature file found.

get_signature_name()

Return the name of the first signature file found.

get_signature_names()

Return a list of the signature file names.

get_signatures()

Return a list of the data of the signature files.

get_target_sdk_version()

Return the android:targetSdkVersion attribute

Return type string

is_valid_APK()

Return true if the APK is valid, false otherwise

Return type boolean

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.get_Name(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.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.apk.sign_apk(filename, keystore, storepass)
```

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()
show_xref(c_a)
    Display where the method is called or which method is called

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)
get_vmanalysis()
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)
```

```

set_vmanalysis (vmanalysis)

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 (m_a=None)

class androguard.core.bytecodes.dvm.ConstString (orig_ins, value)
Bases: androguard.core.bytecodes.dvm.Instruction2lc

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_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_ins_off (*off*)

Get a particular instruction by using the address

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

Return type an *Instruction* object

getInsn ()

Get the insn buffer

Return type string

getInstruction (*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

getInstructions ()

Get the instructions

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

getLength ()

Return the length of this object

Return type int

getRaw ()

Return the raw buffer of this object

Return type string

isCachedInstructions ()

offToPos (*off*)

Get the position of an instruction by using the address

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

Return type int

reload ()

setIdx (*idx*)

Set the start address of the buffer

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

setInsn (*insn*)

Set a new raw buffer to disassemble

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

setInstructions (*instructions*)

Set the instructions

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

```
show (m_a)
    Display (with a pretty print) this object

Parameters m_a – MethodAnalysis object

class androguard.core.bytecodes.dvm.DREF
Bases: object

add (x, y)

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_insn_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_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(m_a)

class androguard.core.bytecodes.dvm.DalvikOdexVMFormat(buff, decompiler=None,
                                                       config=None, us-
                                                       ing_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, con-
                                                       fig=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 *FieldDefItem* 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

param 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 *ClassDefItem* 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 *FieldIdItem* 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 *MethodIdItem* 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

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

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_gvmanalysis (*gvmanalysis*)

set_vmanalysis (*vmanalysis*)

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 encodedCatch_handler of a dex file

Parameters

- **buff** (*Buff object*) – a string which represents a Buff object of the encodedCatch_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()`

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()****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

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

show_xref(*f_a*)
Display where this field is read or written

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_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

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*)

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

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

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

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 lis

Return type int

get_name()

Return the name of the method

Return type string

get_raw()

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

show_xref(m_a)

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.Instruction31i(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.Instruction31t(cm, buff)

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

This class represents all instructions which have the 31t 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()
next(buff, cm)
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

```
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.MethodIdItem(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

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.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 ()

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_obj ()

get_off ()

get_raw ()

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

class androguard.core.bytecodes.dvm.XREF
Bases: object

add(x, y)
```

```
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 flags 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_bytetimes_method(dex_object, ana_object, method)
```

```
androguard.core.bytecodes.dvm.get_bytetimes_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.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.utf8_to_string(buff, length)
```

```
androguard.core.bytecodes.dvm.writesleb128(value)
```

```
androguard.core.bytecodes.dvm.writeuleb128(value)
```

androguard.core.bytecodes.dvm_permissions module

Module contents

androguard.core.data package

Submodules

androguard.core.data.data module

```
class androguard.core.data.data.ApkViewer(a)
    Bases: object

    export_to_gml()

class androguard.core.data.data.DexViewer(vmx, vmmx, gvmx)
    Bases: object

    add_edge(i, id_i, j, id_j, l_eid, val)
    add_exception_node(exception, id_i)
    add_method_node(i, id_i)
    add_node(i, id_i)
    export_to_gml()
    new_id(i, l)

class androguard.core.data.data.Directory(name)
    Bases: object

    set_color(color)

class androguard.core.data.data.File(name, file_type, file_crc)
    Bases: object

androguard.core.data.data.splitall(path, z)
```

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'
```

```
androguard.core.androconf.color_range (startcolor, goalcolor, steps)
    wrapper for interpolate_tuple that accepts colors as html ("#CCCCC" and such)
```

```
androguard.core.androconf.debug (x)
```

```
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.error (x)
    Print out a message and raise an exception TODO should this really raise an exception?
```

Parameters `x` – String to be printed on stderr

```
androguard.core.androconf.get_debug ()
```

```
androguard.core.androconf.info (x)
```

```
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)

androguard.core.androconf.load_api_specific_resource_module(resource_name, api)

androguard.core.androconf.long2int(l)

androguard.core.androconf.long2str(l)
    Convert an integer to a string.

androguard.core.androconf.make_color_tuple(color)
    turn something like “#000000” into 0,0,0 or “#FFFFFF into “255,255,255”

androguard.core.androconf.random_string()

androguard.core.androconf.remove_colors()
    Remove colors from the output (no escape sequences)

androguard.core.androconf.rmdir(directory)

androguard.core.androconf.save_colors()

androguard.core.androconf.save_to_disk(buff, output)

androguard.core.androconf.set_debug()

androguard.core.androconf.set_info()

androguard.core.androconf.set_lazy()

androguard.core.androconf.set_options(key, value)

androguard.core.androconf.str2long(s)
    Convert a string to a long integer.

androguard.core.androconf.warning(x)
    Print out message x and the current traceback (if any)
```

Parameters **x** – String to be printed on stderr

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(input)
    Transform a typical xml format class into java format

    Parameters input – the input class name

    Return type string

androguard.core.bytecode.FormatClassToPython(input)

androguard.core.bytecode.FormatDescriptorToPython(input)

androguard.core.bytecode.FormatNameToPython(input)

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.Warning(msg)

androguard.core.bytecode.disable_print_colors()

androguard.core.bytecode.enable_print_colors(colors)

androguard.core.bytecode.method2dot(mx, colors={})
    Export analysis method to dot format

    @param mx : MethodAnalysis object @param colors : MethodAnalysis object

    @rtype : dot format buffer (it is a subgraph (dict))

```

`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)`

`androguard.core.bytecode.method2json_direct (mx)`

`androguard.core.bytecode.method2json_undirect (mx)`

`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)`

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

        addCatchNode(node)
        num
```

```
    visit (visitor)

androguard.decompiler.dad.basic_blocks.build_node_from_block (block,      vmap,
                                                               gen_ret,      exception_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 irreducible)

```
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, array, 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,
                                                               descriptor=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 = '>>'
EQUAL = '<='
LONGSHL = '<<'
```

```
LONGSHR = '>>'  
LOWER = '<'  
MOD = '%'  
MUL = '*'  
NEG = '-'  
NEQUAL = '!='  
NOT = '~'  
OR = '|'  
SUB = '-'  
XOR = '^'  
  
androguard.decompiler.dad.opcode_ins.addir (ins, vmap)  
androguard.decompiler.dad.opcode_ins.addir2addr (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.divintlit16 (ins, vmap)
```

```
androguard.decompiler.dad.opcode_ins.divintlit8 (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.shlnt (ins, vmap)
androguard.decompiler.dad.opcode_ins.shlnt2addr (ins, vmap)
androguard.decompiler.dad.opcode_ins.shlntlit8 (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(clsdic)
```

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, subsec-
tion='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, path='./decompiler/ded/',
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,
path_dex2jar='./decompiler/dex2jar/',
bin_dex2jar='dex2jar.sh',
path_fernflower='./decompiler/fernflow
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,
    path_dex2jar='./decompiler/dex2jar/',
    bin_dex2jar='dex2jar.sh',
    path_jad='./decompiler/jad/',
    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,
    path_dex2jar='./decompiler/dex2jar/',
    bin_dex2jar='dex2jar.sh',
    path_jad='./decompiler/jad/',
    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.Dex2Jar(vm, path_dex2jar='./decompiler/dex2jar/',
    bin_dex2jar='dex2jar.sh',
    tmp_dir='/tmp/')

Bases: object

get_jar()

class androguard.decompiler.decompiler.MethodFilter(**options)
Bases: pygments.filter.Filter

filter(lexer, stream)
```

Module contents

androguard.gui package

Submodules

androguard.gui.Banners module

```
class androguard.gui.Banners.Banner
Bases: object

changeDisplay()
```

```
getDesiredGeometry()
getOrientation()
getPixmap()
setViewMode(viewMode)

class androguard.gui.Banners.Banners
Bases: androguard.gui.Banners.Observer

BOTTOM_SEPARATOR = 5
add(banner)
banners()
draw(qp, offsetLeft, offsetBottom, maxY)
getBottomOffset()
getLeftOffset()
getTopOffset()
resize(width, height)
setViewMode(viewMode)

class androguard.gui.Banners.BottomBanner(themes, dataModel, viewMode)
Bases: androguard.gui.Banners.Banner

draw()
getDesiredGeometry()
getOrientation()
getPixmap()
resize(width, height)
setViewMode(viewMode)

class androguard.gui.Banners.FileAddrBanner(themes, dataModel, viewMode)
Bases: androguard.gui.Banners.Banner

draw()
getDesiredGeometry()
getOrientation()
getPixmap()
resize(width, height)
setViewMode(viewMode)

class androguard.gui.Banners.Observer
Bases: object

changeViewMode(viewMode)

class androguard.gui.Banners.TopBanner(themes, dataModel, viewMode)
Bases: androguard.gui.Banners.Banner

draw()
getDesiredGeometry()
```

```
getOrientation()
getPixmap()
resize(width, height)
setViewMode(viewMode)
```

androguard.gui.BinViewMode module

```
class androguard.gui.BinViewMode(themes, width, height, data, cursor, wid-
                                  get=None)
Bases: androguard.gui.ViewMode

addop(t)
anon(dx, dy)
cache()
computeTextArea()
draw(refresh=False, row=0, howMany=0)
draw2(qp, refresh=False)
drawAdditionals()
drawCursor(qp)
drawTextMode(qp, row=0, howMany=1)
fontHeight
fontWidth
getColumnsbyRow(row)
getCursorAbsolutePosition()
getDataModel()
getGeometry()
getHeaderInfo()
getPageOffset()
getPixmap()
handleEditMode(modifiers, key, event)
handleKeyEvent(modifiers, key, event=None)
isEditable()
isInCache(page)
keyFilter()
moveCursor(direction)
resize(width, height)
scroll(dx, dy, cachePix=None, pageOffset=None)
scrollPages(number, cachePix=None, pageOffset=None)
scroll_h(dx)
```

```
scroll_v (dy, cachePix=None, pageOffset=None)
setEditMode (mode)
setTransformationEngine (engine)
startCaching ()
startSelection ()
stopSelection ()
```

androguard.gui.DataModel module

```
class androguard.gui.DataModel.ApkModel (apkobj)
Bases: androguard.gui.DataModel.DataModel

GetViews ()
close ()
flush ()
size ()
source

class androguard.gui.DataModel.BufferDataModel (data, name)
Bases: androguard.gui.DataModel.DataModel

close ()
flush ()
size ()
source

class androguard.gui.DataModel.DataModel (data)
Bases: androguard.gui.DataModel.Observer

close ()
dataOffset
flush ()
getBYTE (offset, asString=False)
getChar (offset)
getDWORD (offset, asString=False)
getData ()
getDataSize ()
getLastOffset ()
getOffset ()
getPageOffset (page)
getQWORD (offset, asString=False)
getStream (start, end)
getWORD (offset, asString=False)
```

```
getXYInPage (off)
goTo (off)
inLimits (x)
isDirty ()
offsetInPage (off)
setData_b (offset, b)
setData_s (u, v, s)
size ()
slide (off)
slideLine (factor)
slidePage (factor)
slideToFirstPage ()
slideToLastPage ()
source
update_geometry (rows, cols)
write ()

class androguard.gui.DataModel.DexClassModel (current_class)
Bases: androguard.gui.DataModel.DataModel

GetRawData (current_class)
GetViews ()
close ()
flush ()
getDataSize ()
source

class androguard.gui.DataModel.FileDataModel (filename)
Bases: androguard.gui.DataModel.DataModel

close ()
flush ()
size ()
source
write (offset, stream)

class androguard.gui.DataModel.MyByte (data)
Bases: bytearray

read (size)
seek (a, b=0)

class androguard.gui.DataModel.MyStringIO (data)
Bases: _io.StringIO, object
```

```
class androguard.gui.DataModel.Observer
Bases: object

update_geometry()
```

androguard.gui.DisasmViewMode module

```
class androguard.gui.DisasmViewMode.DisasmViewMode(themes, width, height, data, cursor, widget=None)
Bases: androguard.gui.ViewMode.ViewMode

FeedOpcodes(cnt)
GetLengthOpcodes()
addop(t)
computeTextArea()
draw(refresh=False)
drawAdditionals()
drawBranch(qp)
drawBranch2(qp)
drawCursor(qp)
drawSelected(qp)
drawTextMode(qp)
fontHeight
fontWidth
getColumnsbyRow(row)
getCursorAbsolutePosition()
getCursorOffsetInPage()
getDataModel()
getGeometry()
getHeaderInfo()
getPageOffset()
getPixmap()
goTo(offset)
handleKeyEvent(modifiers, key, event=None)
moveCursor(direction)
resize(width, height)
scroll(dx, dy, cachePix=None, pageOffset=None)
scrollPages(number, cachePix=None, pageOffset=None)
scroll_v(dy, cachePix=None, pageOffset=None)
setTransformationEngine(engine)
```

```
startSelection()
stopSelection()

class androguard.gui.DisasmViewMode.InstructionView(ins)
Bases: object

AddComment(cmt)
Load()
getEndCursor()
getNearestCursor(cx)
getNextCursor(cx, direction="")
getSelectedToken(cx)
getSelectionWidth(cx)
get_comments()
get_hex()
get_length()
get_name()
get_operands(idx=-1)
get_output()
get_symbol()
indexTable
tokens()
```

androguard.gui.HexViewMode module

```
class androguard.gui.HexViewMode.AnnonItem(x, parent, color)
Bases: PyQt5.QtWidgets.QTreeWidgetItem

ID_COLOR = 5
ID_DESCRIPTION = 4
ID_NAME = 0
ID_OFFSET = 1
ID_SIZE = 2
ID_VALUE = 3
getDescription()
getName()
getOffset()
getSize()
getValue()
setDescription(description)
```

```
    setName (name)
    setOffset (offset)
    setSize (size)
    setValue (value)
class androguard.gui.HexViewMode.Annotation (parent, view)
    Bases: PyQt5.QtWidgets.QDialog
        initUI ()
        newFieldName ()
        show (self)
class androguard.gui.HexViewMode.ComboBoxItem (item, column)
    Bases: PyQt5.QtWidgets.QComboBox
class androguard.gui.HexViewMode.HexViewMode (themes, width, height, data, cursor, width=None)
    Bases: androguard.gui.ViewMode.ViewMode
        add_annotation (mode)
        addop (t)
        annotationWindow ()
        anon (dx, dy)
        changeHexColumns ()
        computeTextArea ()
        draw (refresh=False, row=0, howMany=0)
        drawAdditionals ()
        drawCursor (qp)
        drawTextMode (qp, row=0, howMany=1)
        fontHeight
        fontWidth
        getColumnsbyRow (row)
        getCursorAbsolutePosition ()
        getDataModel ()
        getGeometry ()
        getHeaderInfo ()
        getPageOffset ()
        getPixmap ()
        handleEditMode (modifiers, key, event)
        handleKeyEvent (modifiers, key, event=None)
        isEditable ()
        itemChanged (item, column)
        keyFilter ()
```

```
moveCursor (direction)
resize (width, height)
scroll (dx, dy)
scrollPages (number)
scroll_h (dx)
scroll_v (dy)
selectionChanged (selected, deselected)
setEditMode (mode)
setTransformationEngine (engine)
startSelection ()
stopSelection ()

class androguard.gui.HexViewMode.NoEditDelegate (parent=None)
Bases: PyQt5.QtWidgets.QStyledItemDelegate

createEditor (self, QWidget, QStyleOptionViewItem, QModelIndex) → QWidget

class androguard.gui.HexViewMode.QColorButton (*args, **kwargs)
Bases: PyQt5.QtWidgets.QPushButton

Custom Qt Widget to show a chosen color.

Left-clicking the button shows the color-chooser, while right-clicking resets the color to None (no-color).

color ()
colorChanged
mousePressEvent (self, QMouseEvent)
onColorPicker ()
    Show color-picker dialog to select color.

    Qt will use the native dialog by default.

setColor (color)
class androguard.gui.HexViewMode.treeEventFilter (view, widget)
Bases: PyQt5.QtCore.QObject

eventFilter (self, QObject, QEvent) → bool
```

androguard.gui.SourceViewMode module

```
class androguard.gui.SourceViewMode.SourceViewMode (themes, width, height, data, cursor, widget=None)
Bases: androguard.gui.ViewMode.ViewMode

computeTextArea ()
draw (refresh=False)
drawAdditionals ()
drawCursor (qp)
drawLine (qp)
```

```

drawTextMode (qp)
fontHeight
fontWidth
getColumnsbyRow (row)
getCursorAbsolutePosition ()
getCursorOffsetInPage ()
getDataModel ()
getGeometry ()
getPageOffset ()
getPixmap ()
handleKeyEvent (modifiers, key, event=None)
resize (width, height)
setTransformationEngine (engine)

```

androguard.gui.TextDecorators module

```

class androguard.gui.TextDecorators.CTextDecorator
Bases: object

    MZbrush = <PyQt5.QtGui.QBrush object>
    grayBrush = <PyQt5.QtGui.QBrush object>
    greenPen = <PyQt5.QtGui.QPen object>
    normalPen = <PyQt5.QtGui.QPen object>
    redPen = <PyQt5.QtGui.QPen object>
    whitePen = <PyQt5.QtGui.QPen object>

class androguard.gui.TextDecorators.HighlightASCII (decorated)
Bases: androguard.gui.TextDecorators.PageDecorator

    decorate (pageOffset=None)

class androguard.gui.TextDecorators.HighlightPrefix (decorated, text, additionalLength=0, brush=None, pen=None)
Bases: androguard.gui.TextDecorators.PageDecorator

    decorate (pageOffset=None)
    highliteWithPrefix (page, text, additionalLength=0, brush=None, pen=None)

class androguard.gui.TextDecorators.HighlightWideChar (decorated)
Bases: androguard.gui.TextDecorators.PageDecorator

    decorate (pageOffset=None)
    highliteWidechar2 (page)

class androguard.gui.TextDecorators.PageDecorator (decorated)
Bases: androguard.gui.TextDecorators.TextDecorator

```

```
doit()
getBrushMap()
getDataModel()
getPenMap()
reset()

class androguard.gui.TextDecorators.RangePen(decorated, a, b, pen, ignoreHigh-
                                              lights=True)
Bases: androguard.gui.TextDecorators.PageDecorator
decorate(pageOffset=None)

class androguard.gui.TextDecorators.TextDecorator(viewmode)
Bases: androguard.gui.TextDecorators.CTextDecorator
addPenInterval(a, b, pen, ignoreHighlights=True)
chooseBrush(idx)
choosePen(idx)
decorate(pageOffset=None)
getChar(idx)
getDataModel()
isText(c)
D = [] for i in range(256):
    b = False if self.isText(chr(i)):
        b = True
    D.append(b)
print D sys.exit()

reset()
```

androguard.gui.TextSelection module

```
class androguard.gui.TextSelection.DefaultSelection(themes, viewMode)
Bases: androguard.gui.TextSelection.Selection
drawSelection(qp, start, end, brush=None, opacity=0.4)

class androguard.gui.TextSelection.DisasmSelection(themes, viewMode)
Bases: androguard.gui.TextSelection.Selection
drawSelection(qp, start, end, brush=None, opacity=0.4)

class androguard.gui.TextSelection.HexSelection(themes, viewMode)
Bases: androguard.gui.TextSelection.Selection
drawSelection(qp, start, end, brush=None, opacity=0.4)

class androguard.gui.TextSelection.Selection(themes, viewMode)
Bases: object
addSelection(t, type=None)
drawSelection(qp, start, end, brush=None, opacity=0.4)
```

```

drawSelections(qp)
getCurrentSelection()
highlightText()
removeSelection(u, v, type)
resetSelections()
startSelection()
stopSelection()

class androguard.gui.TextSelection.SelectionType
Bases: object

NORMAL = 0
PERMANENT = 1
TEXTHIGHLIGHT = 2

```

androguard.gui.ViewMode module

```

class androguard.gui.ViewMode.Observable
Bases: object

addHandler(h)
notify(rows, cols)

class androguard.gui.ViewMode.ViewMode
Bases: androguard.gui.ViewMode.Observable, object

SPACER = 4
cp437(c)
cp437ToUnicode = [32, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31]
draw(refresh=False)
getCursorOffsetInPage()
getDisplayPage(pageOffset=None)
getGeometry()
getHeaderInfo()
getPageOffset()
goTo(offset)
handleKeyPressEvent(modifier, key)
handleKeyReleaseEvent(modifier, key)
isEditable()
isEditMode()
setEditMode(value)
startSelection()
stopSelection()

```

androguard.gui.apiwindow module

```
class androguard.gui.apiwindow.APIValueWindow(parent=None, win=None, session=None)
    Bases: PyQt5.QtWidgets.QTreeView

    slotDoubleClicked(mi)

class androguard.gui.apiwindow.APIWindow(parent=None, win=None, session=None)
    Bases: PyQt5.QtWidgets.QWidget

    filterRegExpChanged(value)
```

androguard.gui.binwindow module

```
class androguard.gui.binwindow.Observable
    Bases: object

    addHandler(h)

    notify(viewMode)

class androguard.gui.binwindow.Observer
    Bases: object

    changeViewMode(viewMode)

class androguard.gui.binwindow.SearchWindow(parent, plugin, searchable)
    Bases: PyQt5.QtWidgets.QDialog

    initUI()
    onClicked()
    show(self)

class androguard.gui.binwindow.Searchable(dataModel, viewMode)
    Bases: androguard.gui.binwindow.Observer

    lastText
    next(start=None)
    previous(start=None)
    search(text)

class androguard.gui.binwindow.binWidget(parent, source, title)
    Bases: PyQt5.QtWidgets.QWidget, androguard.gui.binwindow.Observable

    disable()
    enable()
    eventFilter(self, QObject, QEvent) → bool
    initUI()
    needsSave()
    paintEvent(self, QPaintEvent)
    resizeEvent(self, QResizeEvent)
    save()
    scroll_from_outside(i)
```

```
scrolled
setTextViewport (qp)
switchViewMode ()
```

androguard.gui.cemu module

```
class androguard.gui.cemu.ConsoleEmulator (qp, rows, cols)
Bases: object

CR ()
LF ()
getXY ()
gotoXY (x, y)
incrementPosition ()
newLine ()
write (s, noBackgroudOnSpaces=False)
writeAt (x, y, s, noBackgroudOnSpaces=False)
writeAt_c (x, y, c, noBackgroudOnSpaces=False)
writeLn ()
write_c (c, noBackgroudOnSpaces=False)

class androguard.gui.cemu.Cursor (x, y)
Bases: object

getPosition ()
move (dx, dy)
moveAbsolute (x, y)

androguard.gui.cemu.Directions
alias of androguard.gui.cemu.Enum

androguard.gui.cemu.enum (**enums)
```

androguard.gui.fileloading module

```
class androguard.gui.fileloading.FileLoadingThread (parent=None)
Bases: PyQt5.QtCore.QThread

file_loaded
load (file_path)
run (self)
```

androguard.gui.helpers module

```
class androguard.gui.helpers.Signature(cls, method=None, descriptor=None)
    Bases: object

androguard.gui.helpers.class2func(path)
    Convert a path such as 'Landroid/support/v4/app/ActivityCompat;' into a
    method string 'CLASS_Landroid_support_v4_app_ActivityCompat' so we can call
    d.CLASS_Landroid_support_v4_app_ActivityCompat.get_source()

androguard.gui.helpers.classdot2class(path)
    Convert a path such as 'android.support.v4.app.ActivityCompat' into a string 'L-
    android/support/v4/app/ActivityCompat' so we can change name of a class by
    d.CLASS_Landroid_support_v4_app_ActivityCompat.set_name(new_name)

androguard.gui.helpers.classdot2func(path)
    Convert a path such as 'android.support.v4.app.ActivityCompat' into a method
    string 'CLASS_Landroid_support_v4_app_ActivityCompat' so we can call
    d.CLASS_Landroid_support_v4_app_ActivityCompat.get_source()

androguard.gui.helpers.classmethod2display(class_, method_, descriptor_)
    Convert two strings such as "Lcom/mwr/example/sieve/AddEntryActivity;" and "onCreate" into a beautiful :)
    string to display Xrefs: "Lcom/mwr/example/sieve/AddEntryActivity; -> onCreate"

androguard.gui.helpers.classmethod2func(class_, method_)
    Convert two strings such as "Lcom/mwr/example/sieve/AddEntryActivity;" and "onCreate" into
    a string "CLASS_Lcom_example_sieve_AddEntryActivity.METHOD_onCreate" so we can access
    d.CLASS_Lcom_example_sieve_AddEntryActivity.METHOD_onCreate.XREFfrom

androguard.gui.helpers.display2classmethod(display)
    Opposite of classmethod2display.

androguard.gui.helpers.method2func(method)

androguard.gui.helpers.proto2methodprotofunc(proto)
    Convert a prototype such as 'Ljava/lang/String;' into a string 'Ljava_lang_String' so we can append that to the
    'METHOD_myMethod' if its export python name contains the prototype
```

androguard.gui.mainwindow module

```
class androguard.gui/mainwindow.MainWindow(parent=None,                                     ses-
                                              session=<androguard.session.Session object>,
                                              input_file=None, input_plugin=None)
    Bases: PyQt5.QtWidgets.QMainWindow

    Main window: self.central: QTabWidget in center area self.dock: QDockWidget in left area self.tree: TreeWin-
    dow(QTreeWidget) in self.dock

    about()
        User clicked About menu. Display a Message box.

    addFile()
    cleanCentral()
    closeEvent(event)
        Clicked [x] to close main window

    doesClassExist(path)
```

```
eventFilter (self, QObject, QEvent) → bool
getMeOpenedWindowIfExists (name)
loadedFile (success)
openAPIDock ()
openApkWindow ()
openBinWindow (current_class)
openFile ()
openMethodsWindow ()
openResourcesWindow ()
openRunPluginWindow ()
openSourceWindow (current_class, method=None)
    Main function to open a decompile source window It checks if it already opened and open that tab, otherwise, initialize a new window.
openStringsWindow ()
saveFile ()
    User clicked Save menu. Display a Dialog to ask where to save.
saveSession (filepath)
    Save androguard session.
setupCentral ()
    Setup empty window supporting tabs at startup.
setupDock ()
    Setup empty Dock at startup.
setupEmptyTree ()
    Setup empty Tree at startup.
setupFileMenu ()
setupHelpMenu ()
setupPluginsMenu ()
setupSession ()
setupTree ()
setupViewMenu ()
showStatus (msg)
    Helper function called by any window to display a message in status bar.
updateDockWithTree (empty=False)
    Update the classes tree. Called when - a new APK has been imported - a classe has been renamed (displayed in the tree)
class androguard.gui.mainwindow.TabsWindow (bin_windows, parent=None)
Bases: PyQt5.QtWidgets.QTabWidget
actioncloseAllTabs ()
actioncloseLeftTabs ()
actioncloseOtherTabs ()
```

```
actioncloseRightTabs()
contextMenuEvent (self, QContextMenuEvent)
currentTabChanged (index)
tabCloseRequestedHandler (index)
```

androguard.gui.methodswindow module

```
class androguard.gui.methodswindow.MethodsValueWindow (parent=None, win=None, session=None)
Bases: PyQt5.QtWidgets.QTreeView
slotDoubleClicked (mi)

class androguard.gui.methodswindow.MethodsWindow (parent=None, win=None, session=None)
Bases: PyQt5.QtWidgets.QWidget
filterRegExpChanged (value)
```

androguard.gui.renamewindow module

```
class androguard.gui.renamewindow.RenameDialog (parent=None, win=None, element="", info=())
Bases: PyQt5.QtWidgets.QDialog
parent: SourceWindow that started the new XrefDialog
cancelClicked ()
okClicked ()
```

androguard.gui.resourceswindow module

```
class androguard.gui.resourceswindow.ResourcesValueWindow (parent=None, win=None, session=None)
Bases: PyQt5.QtWidgets.QTreeView

class androguard.gui.resourceswindow.ResourcesWindow (parent=None, win=None, session=None)
Bases: PyQt5.QtWidgets.QWidget
filterRegExpChanged (value)
```

androguard.gui.sourcewindow module

```
class androguard.gui.sourcewindow.MyHighlighter (parent, lexer=None)
Bases: PyQt5.QtGui.QSyntaxHighlighter
Syntax highlighter that uses Pygments for parsing.

highlightBlock (string)
Highlight a block of text.
```

set_style(*style*)

Sets the style to the specified Pygments style.

set_style_sheet(*stylesheet*)

Sets a CSS stylesheet. The classes in the stylesheet should correspond to those generated by:

```
pygmentize -S <style> -f html
```

Note that ‘set_style’ and ‘set_style_sheet’ completely override each other, i.e. they cannot be used in conjunction.

class androguard.gui.sourcewindow.PygmentsBlockUserData(***kwds*)

Bases: PyQt5.QtGui.QTextBlockUserData

Storage for the user data associated with each line.

syntax_stack = ('root',)**class androguard.gui.sourcewindow.SolarizedStyle**

Bases: pygments.style.Style

background_color = '#002B36'**styles = {Token: '#93A1A1', Token.Comment: '#586E75', Token.Comment.Hashbang: ''}****class androguard.gui.sourcewindow.SourceDocument**(parent=None, lines=[])

Bases: PyQt5.QtGui.QTextDocument

QTextDocument associated with the SourceWindow.

class androguard.gui.sourcewindow.SourceWindow(parent=None, win=None, cur-

rent_class=None, current_title=None,

current_filename=None, current_digest=None, session=None)

Bases: PyQt5.QWidgets.QTextEdit

Each tab is implemented as a Source Window class. Attributes:

mainwin: MainWindow path: class FQN
title: last part of the class FQN
class_item: ClassDefItem
 i.e. class.java object for which we create the tab

CustomContextMenuHandler(*pos*)**actionCopy()****actionGoto()****actionInfo()****actionRename()****actionXref()****browse_to_method**(*method*)

Scroll to the right place were the method is.

TODO: implement it, because does not work for now.

cursor_position_changed()

Used to detect when cursor change position and to auto select word underneath it

field_name_exist(*field_name*)

Check if there is already a field_name field in the current class It is useful before allowing to rename a field to check name does not already exist.

keyPressEvent(*event*)

Keyboard shortcuts

method_name_exist (meth_name)

Check if there is already a meth_name method in the current class It is useful before allowing to rename a method to check name does not already exist.

reload_java_sources ()

Reload completely the sources by asking Androguard to decompile it again. Useful when:

- an element has been renamed to propagate the info
- the current tab is changed because we do not know what user did since then, so we need to propagate previous changes as well

renameElement (oldname, newname, info)

Called back after a user chose a new name for an element.

androguard.gui.stringswindow module

```
class androguard.gui.stringswindow.StringValueWindow (parent=None, win=None, session=None)
```

Bases: PyQt5.QtWidgets.QTreeView

```
slotDoubleClicked (mi)
```

```
class androguard.gui.stringswindow.StringsWindow (parent=None, win=None, session=None)
```

Bases: PyQt5.QtWidgets.QWidget

```
filterRegExpChanged (value)
```

androguard.gui.treewindow module

```
class androguard.gui.treewindow.HashableQTreeWidgetItem
```

Bases: PyQt5.QtWidgets.QTreeWidgetItem

```
class androguard.gui.treewindow.TreeWindow (parent=None, win=None, session=None)
```

Bases: PyQt5.QtWidgets.QTreeWidget

```
actionCollapse ()
```

```
actionExpand ()
```

```
actionXref ()
```

```
collapse_children (item)
```

```
contextMenuEvent (self, QContextMenuEvent)
```

```
createActions ()
```

```
expand_children (item)
```

```
fill ()
```

Parse all the paths ([‘Lcom/example/myclass/MyActivity\$1;’, …]) and build a tree using the QTreeWidget.insertItem insertion method.

```
itemDoubleClickedHandler (item, column)
```

```
setupCaches ()
```

androguard.gui.xrefwindow module

```
class androguard.gui.xrefwindow.XrefDialog(parent=None, win=None, xrefs_list=None, method="")
```

Bases: PyQt5.QtWidgets.QDialog

Dialog holding our Xref listview. parent: SourceWindow that started the new XrefDialog path: complete path of the class we are looking an xref from method (optional): method of the class we are looking xref from xrefs_list: the list of “Class -> Method” strings representing the xrefs

path/method are used for the title of the window xrefs_list for the content of the QListView

```
classmethod get_xrefs_list(class_item, method=None)
```

Static method called before creating a XrefDialog to check if there are xrefs to display

method (optional): method of the class we are looking xref from

```
classmethod get_xrefs_list_from_element(element)
```

Helper for get_xrefs_list

element is a ClassDefItem or MethodDefItem

At the end of the function, we lost if we worked on a class or method but we do not care for now.

```
class androguard.gui.xrefwindow.XrefDialogClass(parent=None, win=None, current_class=None, class_analysis=None)
```

Bases: PyQt5.QtWidgets.QDialog

Dialog holding our Xref listview. parent: SourceWindow that started the new XrefDialog path: complete path of the class we are looking an xref from method (optional): method of the class we are looking xref from xrefs_list: the list of “Class -> Method” strings representing the xrefs

path/method are used for the title of the window xrefs_list for the content of the QListView

```
class androguard.gui.xrefwindow.XrefDialogField(parent=None, win=None, current_class=None, class_analysis=None, field_analysis=None)
```

Bases: PyQt5.QtWidgets.QDialog

```
class androguard.gui.xrefwindow.XrefDialogMethod(parent=None, win=None, method_analysis=None)
```

Bases: PyQt5.QtWidgets.QDialog

```
class androguard.gui.xrefwindow.XrefDialogString(parent=None, win=None, string_analysis=None)
```

Bases: PyQt5.QtWidgets.QDialog

```
class androguard.gui.xrefwindow.XrefListView(parent=None, win=None, xrefs=None, headers=['Origin', 'Method'])
```

Bases: PyQt5.QtWidgets.QWidget

close(self) → bool

filterRegExpChanged(value)

```
class androguard.gui.xrefwindow.XrefValueWindow(parent=None, win=None, xrefs=None, headers=None)
```

Bases: PyQt5.QtWidgets.QTreeView

slotDoubleClicked(mi)

Module contents

androguard.patch package

Submodules

androguard.patch.zipfile module

Module contents

2.1.2 Submodules

2.1.3 androguard.misc module

androguard.misc.**AnalyzeAPK** (*filename*, *session=None*)

Analyze an android application and setup all stuff for a more quickly analysis !

Parameters

- **session** – A session (default None)
- **filename** (*string*) – the filename of the android application or a buffer which represents the application

Return type return the APK, DalvikVMFormat, and VMAnalysis 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)
- **decompiler** –
- **filename** (*string*) – the filename of the android dex file or a buffer which represents the dex file

Return type return the DalvikVMFormat, and VMAnalysis 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

Return type return the DalvikOdexVMFormat, and VMAnalysis objects

androguard.misc.**RunDecompiler** (*d*, *dx*, *decompiler*)

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.**get_default_session()**

Return the default Session from the configuration or create a new one, if the session is None.

```
androguard.misc.init_print_colors()
```

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)
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 ()
runAnalysis (d, dx=None)
```

2.1.5 androguard.util module

```
androguard.util.read (filename, binary=True)
```

2.1.6 Module contents

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