
The OpenCV Manager Manual

Release 2.4.3

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ANDROID OPENCV MANAGER

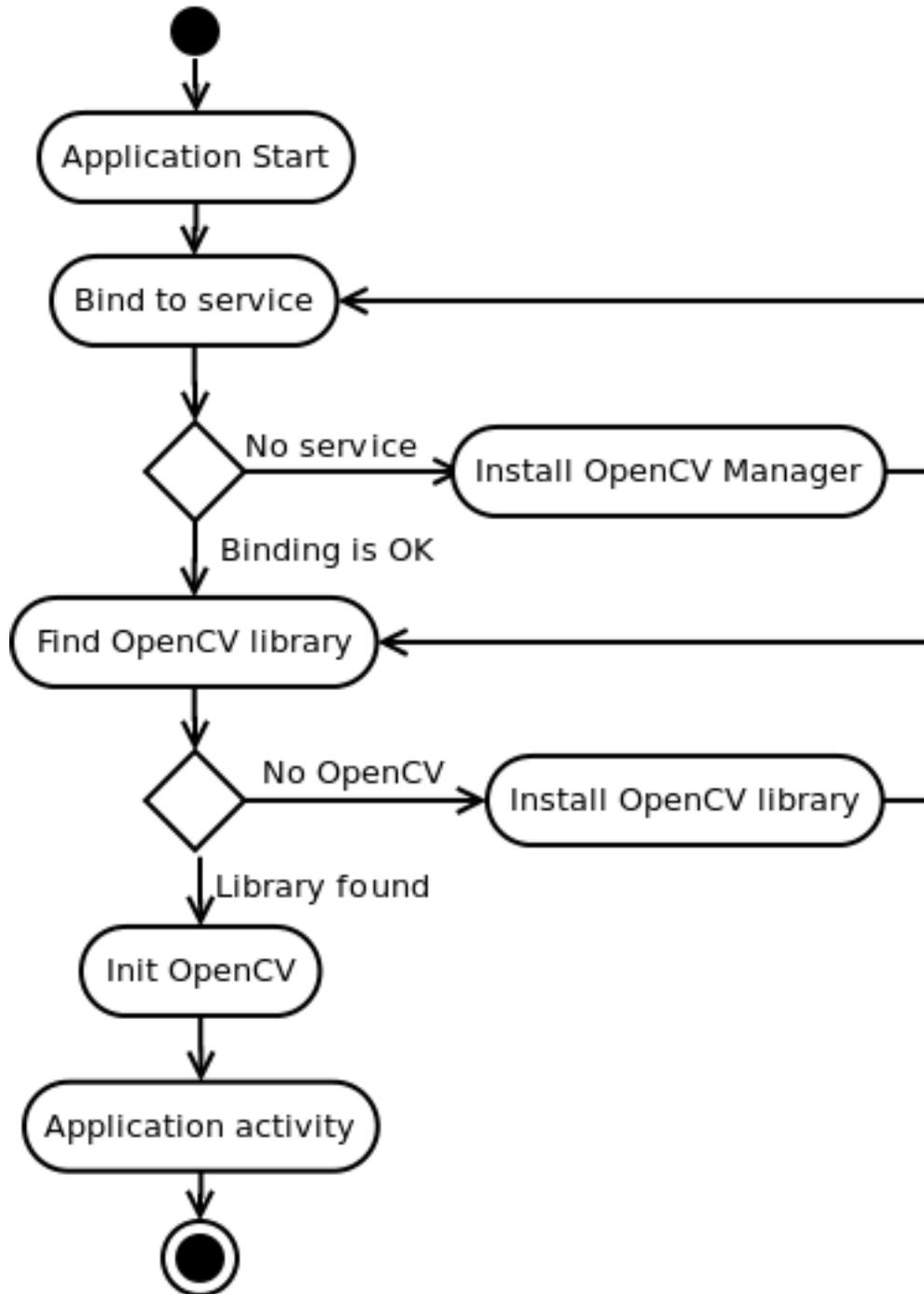
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1.1 Introduction

OpenCV Manager is an Android service targeted to manage OpenCV library binaries on end users devices. It allows sharing the OpenCV dynamic libraries of different versions between applications on the same device. The Manager provides the following benefits:

1. Less memory usage. All apps use the same binaries from service and do not keep native libs inside themselves;
2. Hardware specific optimizations for all supported platforms;
3. Trusted OpenCV library source. All packages with OpenCV are published on Google Play service;
4. Regular updates and bug fixes;

Usage model for target user



First OpenCV app:

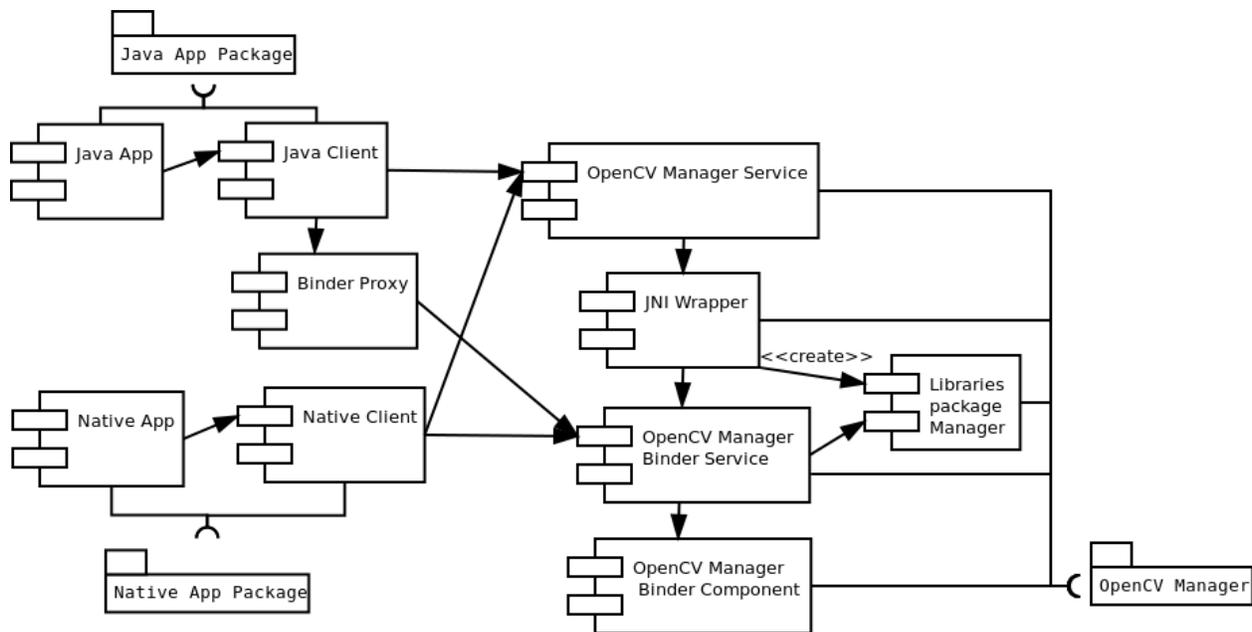
1. Any OpenCV-dependent app is installed from Google Play marketplace or manually;
2. At the first launch, it suggests installing OpenCV Manager;
3. Then OpenCV Manager is downloaded and installed, using Google Play marketplace service.

4. When Manager has been started, the application suggests installing OpenCV library for the target device through Google Play marketplace if it is necessary;
5. After installation is finished, the app may be launched to perform common tasks.

Next OpenCV app:

1. Any OpenCV-dependent app is installed from Google Play marketplace or manually;
2. At the first launch, the app starts as usually;
3. If the selected version is not installed, OpenCV Manager suggests installing OpenCV library for the target device through Google Play marketplace;
4. After installation is finished, the app may be launched to perform common tasks.

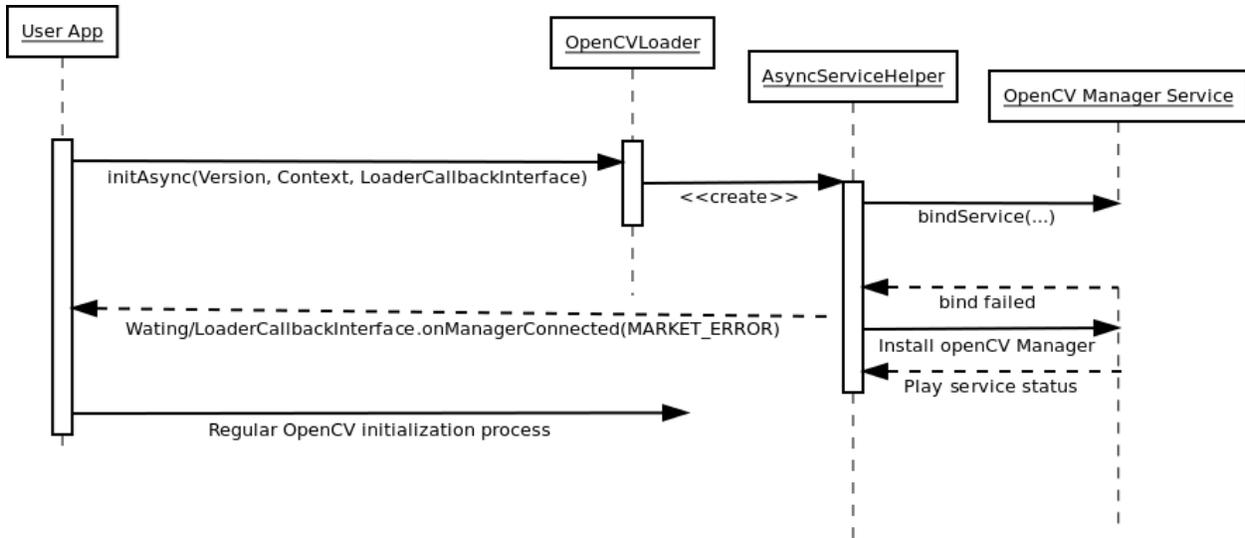
OpenCV Manager structure



1.2 Manager Workflow

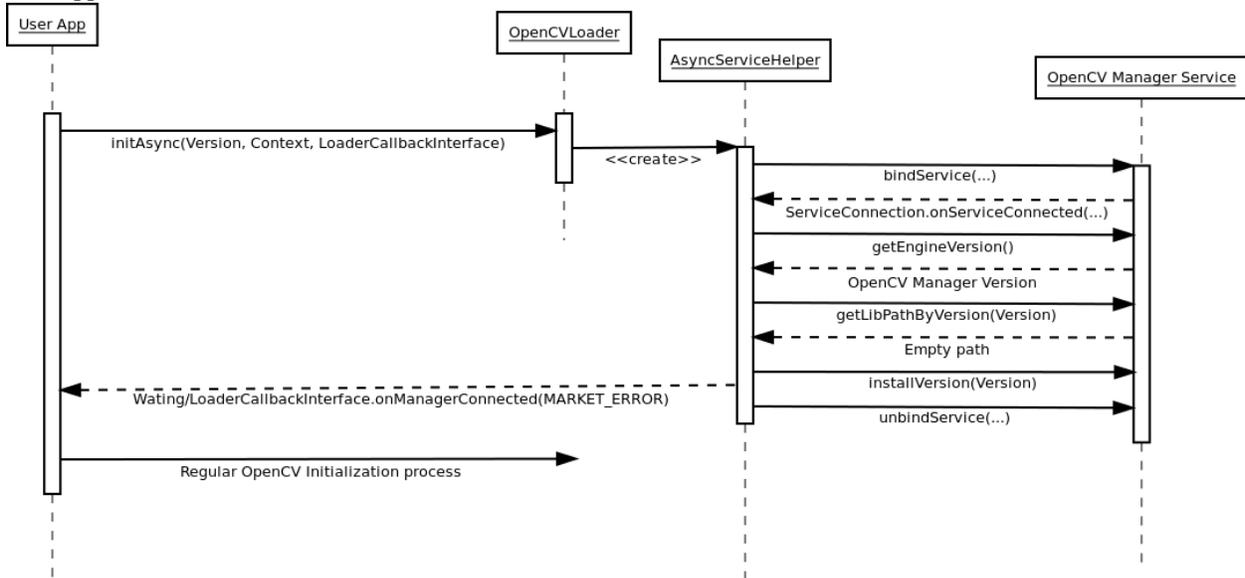
First application start

There is no OpenCV Manager or OpenCV libraries:

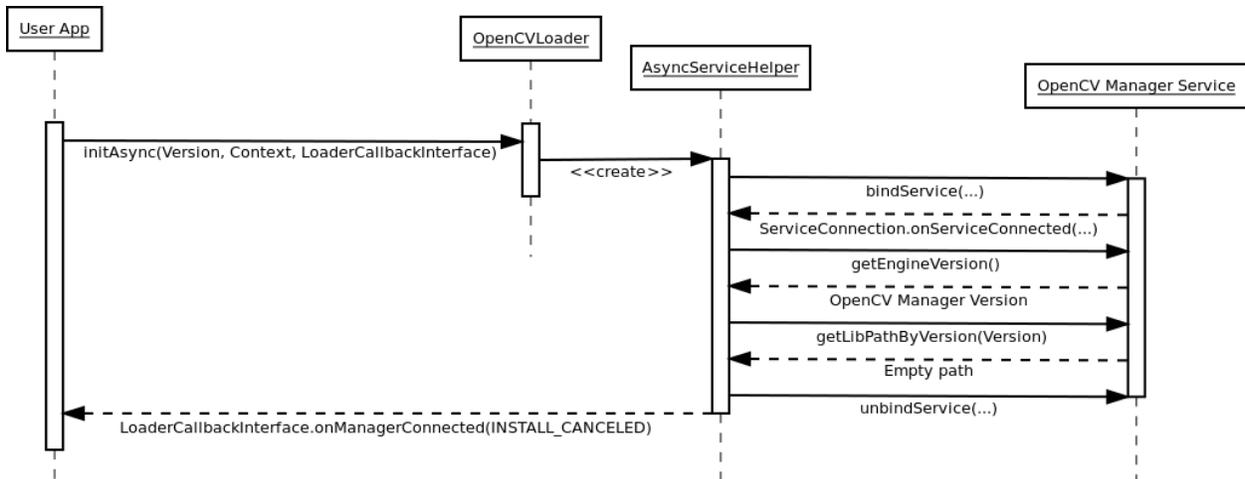


Additional library package installation

There is an OpenCV Manager service, but there is no appropriate OpenCV library. If OpenCV library installation has been approved:

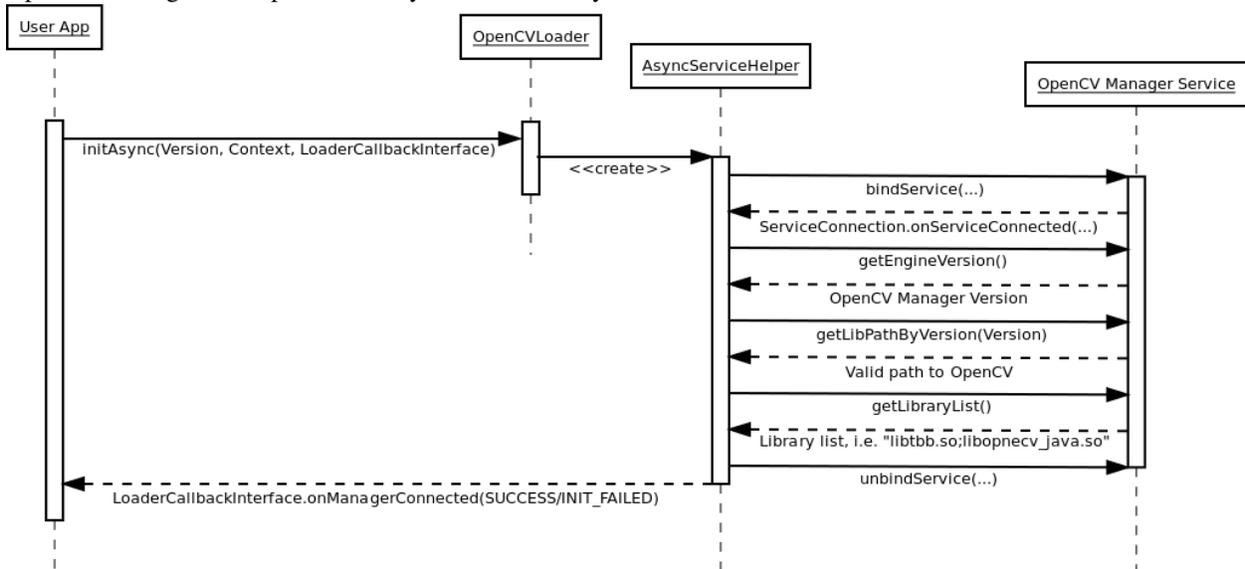


If OpenCV library installation has been canceled:



Regular application start

OpenCV Manager and OpenCV library has been already installed.



1.3 Java OpenCV Loader

class OpenCVLoader

Helper class provides common initialization methods for OpenCV library.

boolean initDebug()

static boolean initDebug()

Loads and initializes OpenCV library from within current application package. Roughly it is analog of `system.loadLibrary("opencv_java")`.

Return type boolean;

Returns returns true if initialization of OpenCV was successful.

Note: This method is deprecated for production code. It is designed for experimental and local development purposes only. If you want to publish your app use approach with async initialization.

boolean initAsync()

static boolean initAsync(String Version, Context AppContext, LoaderCallbackInterface Callback)

Loads and initializes OpenCV library using OpenCV Manager service.

Parameters

Version – OpenCV Library version.

AppContext – application context for connecting to the service.

Callback – object, that implements LoaderCallbackInterface for handling connection status (see BaseLoaderCallback).

Return type boolean;

Returns returns true if initialization of OpenCV starts successfully.

OpenCV version constants

OPENCV_VERSION_2_4_2

OpenCV Library version 2.4.2

OPENCV_VERSION_2_4_3

OpenCV Library version 2.4.3

Other constants

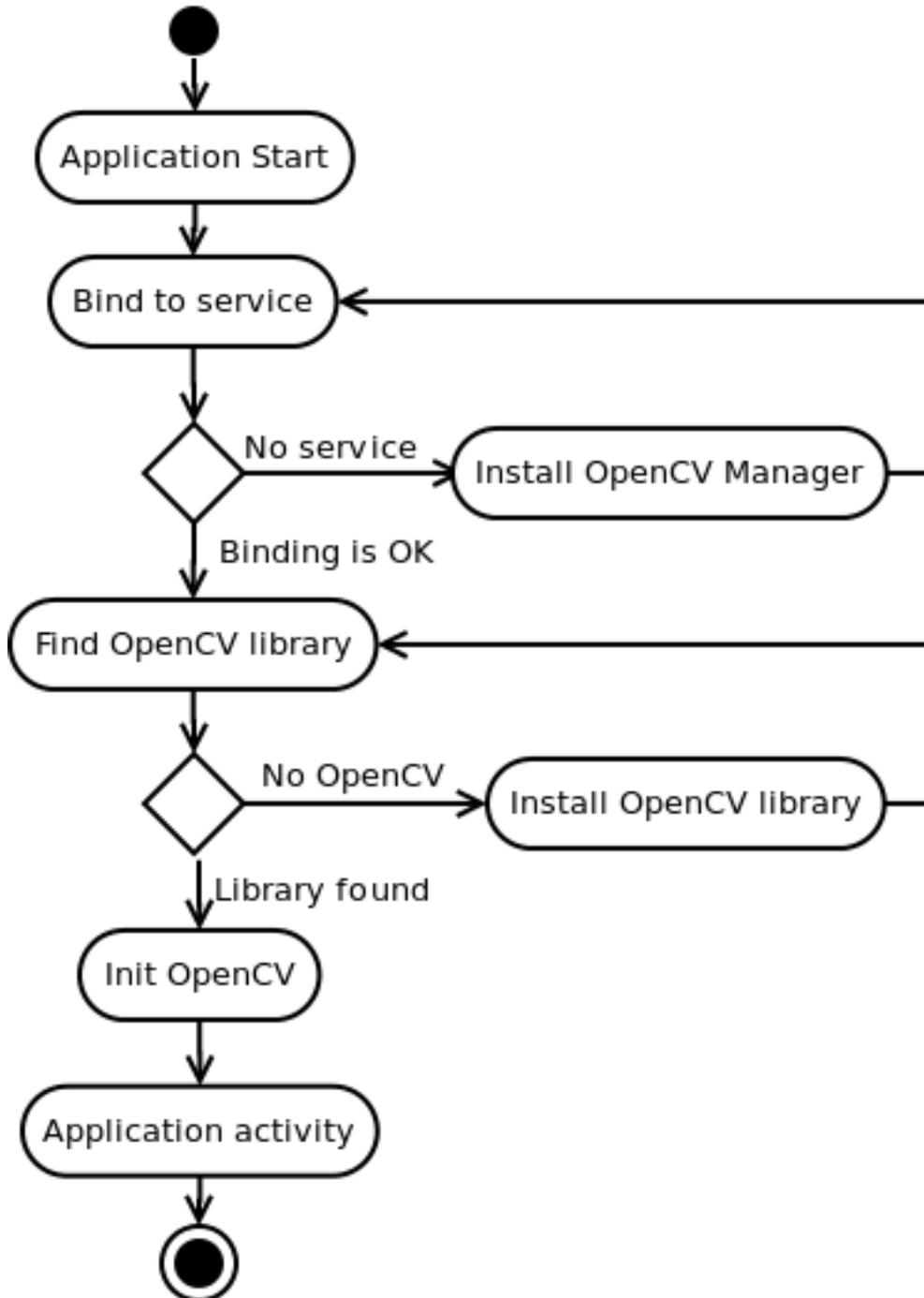
OPEN_CV_SERVICE_URL

Url for OpenCV Manager on Google Play (Android Market)

1.4 Base Loader Callback Interface implementation

class BaseLoaderCallback

Basic implementation of LoaderCallbackInterface. Logic of this implementation is well-described by the following scheme:



Using in Java Activity

There is a very base code snippet implementing the async initialization with `BaseLoaderCallback`. See the “15-puzzle” OpenCV sample for details.

```

1 public class MyActivity extends Activity implements HelperCallbackInterface
2 {
3 private BaseLoaderCallback mOpenCVCallBack = new BaseLoaderCallback(this) {

```

```
4  @Override
5  public void onManagerConnected(int status) {
6      switch (status) {
7          case LoaderCallbackInterface.SUCCESS:
8              {
9                  Log.i(TAG, "OpenCV loaded successfully");
10                 // Create and set View
11                 mView = new puzzle15View(mAppContext);
12                 setContentView(mView);
13             } break;
14             default:
15                 {
16                     super.onManagerConnected(status);
17                 } break;
18         }
19     }
20 };
21
22 /** Call on every application resume */
23 @Override
24 protected void onResume()
25 {
26     Log.i(TAG, "called onResume");
27     super.onResume();
28
29     Log.i(TAG, "Trying to load OpenCV library");
30     if (!OpenCVLoader.initAsync(OpenCVLoader.OPENCV_VERSION_2_4_3, this, mOpenCVCallBack))
31     {
32         Log.e(TAG, "Cannot connect to OpenCV Manager");
33     }
34 }
```

Using in Service

Default BaseLoaderCallback implementation treat application context as Activity and calls Activity.finish() method to exit in case of initialization failure. To override this behavior you need to override finish() method of BaseLoaderCallback class and implement your own finalization method.

1.5 Loader Callback Interface

class LoaderCallbackInterface

Interface for a callback object in case of asynchronous initialization of OpenCV.

void onManagerConnected()

void onManagerConnected(int status)

Callback method that is called after OpenCV Library initialization.

Parameters

status – status of initialization (see Initialization Status Constants).

void onPackageInstall()

void onPackageInstall(InstallCallbackInterface Callback)

Callback method that is called in case when package installation is needed.

Parameters

callback – answer object with approve and cancel methods and package description.

Initialization status constants

SUCCESS

OpenCV initialization finished successfully

MARKET_ERROR

Google Play (Android Market) cannot be invoked

INSTALL_CANCELED

OpenCV library installation was canceled by user

INCOMPATIBLE_MANAGER_VERSION

Version of OpenCV Manager Service is incompatible with this app. Service update is needed

INIT_FAILED

OpenCV library initialization failed

1.6 Install Callback Interface

class InstallCallbackInterface

Callback interface for package installation or update.

String getPackageName()

String getPackageName()

Get name of a package to be installed.

Return type string;

Returns returns package name, i.e. “OpenCV Manager Service” or “OpenCV library”.

void install()

void install()

Installation of package has been approved.

void cancel()

void cancel()

Installation if package has been canceled.

void wait_install()

void wait_install()

Wait for package installation.

JAVA API

[Java API reference external link \(JavaDoc\)](#)