Slyce Android SDK

Version 4.5.5

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Contents

GETTING STARTED

Overview

The Slyce Android SDK enables Android developers to easily interact with the Slyce image recognition platform.
The SDK provides the methods required to submit images and receive results.

Prerequisites

- Minimum Android OS versions 4.0 (API level 14) and higher.
- Android Studio development environment
- Slyce credentials:
  - Slyce client ID for premium users
  - APP KEY and APP SECRET pair for public users

Setup

1.Create libs folder and place the Slyce AAR file inside.

2.Add at build.grade:

```
repositories{
 flatDir {
      dirs 'libs'
       }
      }
```

3.Add at build.grade dependencies (in your application module)

```
compile(name:'slyce', ext:'aar')
compile 'com.google.android.gms:play-services-vision:8.4.0'
```

4. It's important to initialize the Slyce object and call the Slyce.open(---) method in the extended Application class or in the main Activity of the application in order to sync the data as early as possible.

Event reporting

Slyce provides a built-in event tracking system for collecting and aggregating points of interest. Such system allows adding context to in-app customers behaviour by connecting it to the backend e-commerce system. In order to send a custom event please use a method of an initialised SFSlyce Intstance:

public void reportStatistics(final String eventName, final Map<String, String> additionalParams)

This method also allows you to send custom parameters in a form of NSDictionary which can contain only NSStrings as keys and values.

CODE INTEGRATION

SlyceRequest

```
// Implement OnSlyceRequestListener:
public class MainActivity extends Activity implements OnSlyceRequestListener {

//standard
   @Override
   public void onSlyceProgress(final long progress, final String message, String token) {
         // progress - progress percentage
         // message - progress message
         // requestToken - request unique id}

//standard
   @Override
   public void onProgressExt (final  String progress) {
         // progress -String containing the progress extended info.
   }
//premium
   @Override
   public void onImageDetected(String productInfo) {
         // productInfo - representing a short info about the matched 2D products}

//premium
   @Override
   public void onImageInfoReceived(JSONArray products) {
         // products - representing the additional info}

//standard
   @Override
   public void onBarcodeDetected(SlyceBarcode barcode) {}

//standard
   @Override
   public void onResultsReceived(final JSONObject products) {
      // products - founds products (might be empty if no products found)
   }
//standard
   @Override
   public void onResultsReceivedExt(String result) {
      // result  - extended result of the detected image
    }


   //standard
   @Override
   public void onError(final String message) {
         // message - error message }

   //premium
   @Override
   public void onSlyceRequestStage(SlyceRequestStage message) {
         // message - of type StageMessage (enum) indicates stage has been completed.
         // For example: this call back will be invoked after a bitmap has been uploaded to the}

   //premium
    @Override
   public void onBarcodeInfoReceived(JSONObject products) {
```

```
        //  }

//standard
    @Override
    public void onFinished() {}
}
…
}



// Create Slyce singleton object:
Slyce  slyce = Slyce.getInstance(this);

// Initiate Slyce SDK with OnSlyceOpenListener

// For premium users:

slyce.open("YOUR_CLIENT_ID", new OnSlyceOpenListener() {

        @Override
        public void onOpenSuccess() {}

        @Override
        public void onOpenFail(String message) {}
  });

// For public users:

slyce.open("APP_KEY","APP_SECRET", new OnSlyceOpenListener() {

        @Override
        public void onOpenSuccess() {}

        @Override
        public void onOpenFail(String message) {}
  });




// Create SlyceRequest object for searching products by image or by image url

SlyceRequest request = new SlyceRequest(slyce, this, new JSONObject());


// Searching products by image url
String imageUrl = "http://…";
request.getResults (imageUrl);

// Searching products by image (Bitmap)
Bitmap bitmap;
request. getResults (bitmap);

// Cancelling SlyceRequest
request.cancel();
```

// SlyceCamera:
* Scanning products/barcodes/QR codes.
* Managing the camera and displaying its preview

Create a CameraActivity and Implement OnSlyceCameraListener:

```
public class CameraActivity extends Activity implements OnSlyceCameraListener {

//standard
   @Override
   public void onCameraBarcodeDetected(SlyceBarcode barcode) {
      // Called when barcode is found}

//premium
   @Override
   public void onCameraImageDetected(String productInfo) {
      // Called when 2D products are found}


//premium
   @Override
   public void onCameraImageInfoReceived(JSONArray products) {
     // Called when additional info for the previously recognized 2D product is found.}

   //standard
   @Override
   public void onCameraSlyceProgress(long progress, String message, String token) {
    //  Reporting a numeric value and informative message.}


//standard
   @Override
   public void onProgressExt (final  String progress) {
         // progress -String containing the progress extended info.
   }

//premium
   @Override
   public void onCameraSlyceRequestStage(SlyceRequestStage message) {
      // Reporting the stage currently being processed.}

//standard
   @Override
   public void onCameraResultsReceived(JSONObject products) {
      // Called when 3D products are found}

//standard
   @Override
   public void onResultsReceivedExt(String result) {
     // result  - extended result of the detected image
    }

   //standard
   @Override
   public void onSlyceCameraError(String message) {
      // Called when an error occurred}

//standard
   @Override
   public void onTap(float x, float y) {
      // Called when the camera was touched in a specific point.}
```

```
//standard
    @Override
    public void onSnap(Bitmap bitmap) {
        // Called when the snapped bitmap is ready after SlyceCamera.snap() was invoked}

//premium
    @Override
    public void onCameraBarcodeInfoReceived(JSONObject products) {
        // Called when additional info for the previously recognised barcode is found.}



//standard
    @Override
    public void onCameraPreviewMode(boolean front) {
        // Called when camera initiate or when calling SlyceCamera.flipCamera() method}

//standard
    @Override
    public void onCameraFinished() {
       // Called when Slyce search process ended}



// Create and initiate Slyce single object as mentioned earlier

// UI:
```
The SlyceCamera constructor expects an empty SurfaceView, it will take care of displaying the camera preview.
SurfaceView should be added to the Activity xml file.

Create activity_camera.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent" android:layout_height="match_parent">

    <SurfaceView
        android:id="@+id/preview"
        android:layout_width="match_parent"
        android:layout_height="match_parent" />
</RelativeLayout>
```

Please add android:configChanges to the CameraActivity at your manifest.xml

```
    <activity
            android:name=".CameraActivity"
            android:configChanges="orientation|screenSize"
        </activity>
```

Now you can create the SlyceCamera object, it requires:

* Parent Activity
* Opened Slyce object
* The surface
* Options - optional
* OnSlyceCameraListener for notifying results
* Optional - customBarcodeFormat for a set of custom barcode formats

```
// Create the SlyceCamera object
slyceCamera = new SlyceCamera(this, Slyce.getInstance(this), preview, null, this);


// create SlyceCamera object with custom barcode format set
//int barcodeFormat = Barcode.EAN_13+Barcode.EAN_8;// customize barcode detection, the
default is detection of all formats.
//slyceCamera = new SlyceCamera(this, Slyce.getInstance(this), preview, null,
this,barcodeFormat);


// Customize the next parameters if needed:

//slyceCamera.shouldPauseScanner(false);              //pause the detection after a successful scan,
the default is true

//slyceCamera.setShouldPauseScannerDelayTime(5000);     // set a custom time in milliseconds
for resuming auto scanning after a successful scan,the default is 3000

//slyceCamera.setContinuousRecognition(false);         // disable/enable continuous recognition ,the
default is true

//slyceCamera.setContinuousRecognition2D(false);       // disable/enable 2D continuous
recognition the default is true

//slyceCamera.setContinuousRecognitionBarcodes(false);  // disable/enable Barcode continuous
recognition the default is true


You need to handle the life cycle of SlyceCamera:
   @Override
   protected void onResume() {
      super.onResume();
      slyceCamera.start();
   }

   @Override
   protected void onPause() {
      super.onPause();
      slyceCamera.stop();
   }


Now you can start scanning images/barcodes
```

SlyceCameraFragment
Full UI implementation of SlyceCamera.

Create FullUIActivity and its xml file activity_full_ui.xml

Please add android:configChanges to the CameraActivity at your manifest.xml

```
<activity
  …
  android:configChanges="orientation|screenSize"
  …
</activity>
```

Please add a container for SlyceCameraFragment at activity_full_ui.xml

```
<FrameLayout
  android:id="@+id/slyce_camera_fragment_container"
  android:layout_width="match_parent"
  android:layout_height="match_parent">
</FrameLayout>
```

Adding SlyceCameraFragment after Slyce SDK successfully opened.

// For premium users:

```
Slyce slyce = Slyce.getInstance(activity);

slyce.open(clientID, new OnSlyceOpenListener() {
   @Override
   public void onOpenSuccess() {
    // Add SlyceCameraFragment to the FullUIActivity}

   @Override
   public void onOpenFail(String message) {

   }
});
```

// For public users:

```
slyce.open("APP_KEY","APP_SECRET", new OnSlyceOpenListener() {

      @Override
      public void onOpenSuccess() {
    // Add SlyceCameraFragment to the FullUIActivity}

      @Override
      public void onOpenFail(String message) {}
}
```

Add SlyceCameraFragment to the FullUIActivity

SlyceCameraFragment.newInstance() expects 3 or 5 or 6 or 7 parameters in this order (3 factory methods in total):

1. JsonObject Options - optional (can be null)
2. boolean - enabling/disabling the scanner
3. boolean - pause/resume the automatic 2D image/barcode scanner after 2D image/barcode detection.
4. boolean - pause/resume the automatic 2D image scanner after 2D image detection.
5. int - set a custom delay time in milliseconds after each detection and resume automatic scanner (the default is 3000).

6. Int – set of custom barcode formats, the default is "0" – detection of all available formats (example – Barcode.EAN_13+Barcode.EAN_8)

```
// SlyceCameraFragment slyceFragment = SlyceCameraFragment.newInstance(null, true, true,false,false);
// SlyceCameraFragment slyceFragment = SlyceCameraFragment.newInstance(null, true, true,false,false,5000);
// SlyceCameraFragment slyceFragment = SlyceCameraFragment.newInstance(null, true, true,false,false,5000,0);
```

Additional available customizations:

```
//All customized fragments must extend BaseDialogFragment class and implement onDismiss method (example provided in the demo application)

//customize the color of the circular progress
//slyceFragment.setCircularProgressColor(Color.GREEN);

//replace the default "Scanning Tips" screen with a custom fragment (BaseDialogFragment)
//
slyceFragment.setCustomHelpScreen(getCustomDialogScreen(CustomHelpScreen.SCAN_TIPS_DIALOG));

//replace the default "not found" screen with a custom fragment (BaseDialogFragment)
//
slyceFragment.setCustomNotFoundScreen(getCustomDialogScreen(CustomHelpScreen.NOT_FOUND_DIALOG));

//add custom buttons with custom fragments dialogs with a custom fragment (BaseDialogFragment), Position of the custom button are in percent, when 100% is of the screen(both for x and y). //
slyceFragment.addCustomScreenWithButton(getCustomDialogScreen(CustomHelpScreen.GENERAL_DIALOG),50.9f,50f,R.drawable.slyce_flash,this);
```

```
FragmentTransaction transaction = getFragmentManager().beginTransaction();
    transaction.replace(R.id.slyce_fragment_container, slyceFragment);
    transaction.addToBackStack(null);
    transaction.commit();
```

It's important to add SlyceCameraFragment to your Activity BackStack

OnSlyceCameraFragmentListener

In order to receive results please implement OnSlyceCameraFragmentListener at your Activity. Please note its a must!

```
public class SlyceActivity extends Activity implements OnSlyceCameraFragmentListener {

//standard
  @Override
   public void onCameraFragmentBarcodeDetected(SlyceBarcode slyceBarcode) {
     // Called when barcode is found}

//standard
```

```
    @Override
    public void onCameraFragmentImageDetected(String info) {
      // Called when 2D products are found}

//premium
    @Override
    public void onCameraFragmentImageInfoReceived(JSONArray products) {
      // Called when additional info for the previously recognised 2D product is found.}

//standard
    @Override
    public void onCameraFragmentResultsReceived(JSONObject results) {
       // Called when 3D products are found}

//standard
    @Override
    public void onResultsReceivedExt(String result) {
      / / result  - extended result of the detected image
     }

    //standard
    @Override
    public void onCameraFragmentError(String message) {
       // Called when an error occurred}

//premium
    @Override
    public void onCameraFragmentBarcodeInfoReceived(JSONObject products) {
       // Called when additional info for the previously recognised barcode is found. }

//standard
    @Override
    public void onCameraFragmentFinished() {
       // Called when Slyce search process ended}
 }
…
}
```

- execute can be called only once per SlyceProductsRequest
- please note that any call to execute should be triggered after Slyce SDK was successfully opened (initialised).
- requestToken is a unique identifier per a request
- canceled request cannot be resumed

Migrating from SDK 1.x to 2.x

SlyceRequest:
SlyceProductsRequest changed to **SlyceRequest** and it has only one constructor now.

OnSlyceRequestListener methods

* Changed:
  * on2DRecognition changed to onImageDetected
  * on3DRecognition changed to onResultsReceived
  * onStageLevelFinish changed to onSlyceRequestStage
* Added:
  * onBarcodeDetected
  * onImageInfoReceived
  * onFinished
  * onItemDescriptionReceived

New Methods:
getProducts(Bitmap), getProducts(String) for getting a list of products.

getItemDescription(Bitmap), getItemDescription(String) for getting a keywords description of the given image (bitmap/url)

Example code: getting products with image url

```
SlyceRequest request = new SlyceRequest(slyce, this, new JSONObject());
request.getProducts(image_url);
```

Permissions - no need to add app permissions at the AndroidManifest.xml

Slyce singletone:

Slyce.getInstance(Context context) takes only one parameter now.

“ClientID” should be passed now to Slyce.open(…) method.

Example:

```
// For premium users:

        Slyce slyce = Slyce.getInstance(this);

          slyce.open(clientId, new OnSlyceOpenListener() {

              @Override
              public void onOpenSuccess() {

              }

              @Override
              public void onOpenFail(String message) {

              }
           });

// For public users:

        slyce.open("APP_KEY","APP_ID", new OnSlyceOpenListener() {

              @Override
              public void onOpenSuccess() {}

              @Override
              public void onOpenFail(String message) {}
         });
```

Migrating from SDK 2.1 to 2.2

OnSlyceRequestListener methods

* Added:
  * onBarcodeInfoReceived

OnSlyceCameraListener methods

* Added:
  * onCameraBarcodeInfoReceived
  * onCameraPreviewMode

OnSlyceCameraFragmentListener methods

* Added:
  * onCameraFragmentBarcodeInfoReceived

Migrating from SDK 2.2.x to 2.3.x

Add at build.grade dependency to play-services-vision library(in your application module)
compile 'com.google.android.gms:play-services-vision:8.3.0'

Migrating from SDK 2.3.x to 2.4.x

- **Methods added to SLyceCamera class**
  - setShouldPauseScannerDelayTime
  - setContinuousRecognition2D
  - setContinuousRecognitionBarcodes

Migrating from SDK 2.5.x to 2.6.x

- **CompileSdkVersion and targetSdkVersion changed to marshmallow (23)**
- **Gradle build tools should be changed to 2.0.0 and forward in the main Build.Gradle file**
  - **classpath 'com.android.tools.build:gradle:2.0.0'**
- **Marshmallow Permissions handling added, one should catch denied permissions in the Activity that implements the SlyceCamera view as in the example below:**

```
@Override
public void onRequestPermissionsResult(int requestCode,
                                       String permissions[], int[] grantResults) {
    switch (requestCode) {
        case SlyceCamera.MY_PERMISSIONS_REQUEST_CAMERA: {
            // If request is cancelled, the result arrays are empty.
            if (grantResults.length > 0
                    && grantResults[0] == PackageManager.PERMISSION_GRANTED) {

                // permission was granted, no need for action

            } else {

                // permission denied
                Log.e(TAG,"Camera permission denied");

                showMessageOKCancel("You need to allow access to Camera",
                        new DialogInterface.OnClickListener() {
                            @Override
                            public void onClick(DialogInterface dialog, int which)
```

```
        {
                                        requestPermissions(new String[]
        {Manifest.permission.CAMERA},

        SlyceCamera.MY_PERMISSIONS_REQUEST_CAMERA);
                                    }
                                });

                    }
                    return;
                }

                case SlyceCamera.MY_PERMISSIONS_REQUEST_WRITE_EXTERNAL_DATA: {
                    // If request is cancelled, the result arrays are empty.
                    if (grantResults.length > 0
                            && grantResults[0] == PackageManager.PERMISSION_GRANTED) {

                        // permission was granted, no need for action

                    } else {

                        // permission denied
                        Log.e(TAG,"Camera permission denied");

                        showMessageOKCancel("You need to allow access to Storage",
                                new DialogInterface.OnClickListener() {
                                    @Override
                                    public void onClick(DialogInterface dialog, int which)
        {
                                        requestPermissions(new String[]
        {Manifest.permission.WRITE_EXTERNAL_STORAGE},

        SlyceCamera.MY_PERMISSIONS_REQUEST_WRITE_EXTERNAL_DATA);
                                    }
                                });

                    }
                    return;
                }

            }
        }


        private void showMessageOKCancel(String message, DialogInterface.OnClickListener
        okListener) {
            new AlertDialog.Builder(CameraActivity.this)
                    .setMessage(message)
                    .setPositiveButton("OK", okListener)
                    .setNegativeButton("Cancel", null)
                    .create()
                    .show();
        }
```

-

Migrating from SDK 2.6.x to 2.7.x

Two callbacks added and needs to be implemented in the modes of the Slyce Requests: onProgressExt(String) and onResultsReceivedExt(String).