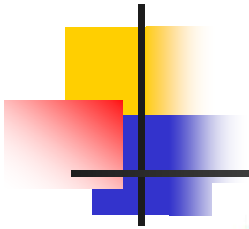


Google™

Invoice

Invoice number: 3529799714

Google Commerce Limited
Gordon House
Barrow Street
Dublin 4
Ireland
VAT number: SK4020458739

Bill to

Peter Borovansky
Bjornsonova 8
Bratislava
81105 Bratislava
Slovakia

Details

Invoice number	3529799714
Invoice date	Nov 30, 2018
Billing ID	0195-6775-5589
Account ID	01C0FC-18FCE4-B5792B

Google Cloud Platform, Firebase, and APIs

Total in EUR	**€0.00**

Summary for Nov 1, 2018 - Nov 29, 2018

Subtotal in EUR	€0.00
VAT (20%)	€0.00
Total in EUR	€0.00

Android
-
Firebase

Peter Borovanský
KAI, I-18

borovan 'at' ii.fmph.uniba.sk

Kam (inam) uložiť naše dáta

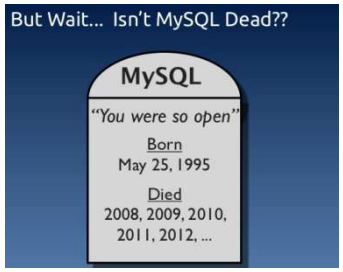
bolo:

W - Windows
A - Apache
M - MySql
P - Php

WAMP - Server

- máme vlastný server – protokol najčastejšie http-https
  - najčastejšie (v bakalárkach) AMP – Apache-MySQL-PHP, prip. java-servlets
  - tak trochu doba minulá...

LinuxDays 2017:
MySQL sežere Vaše data
David Karban



bude:

- cloudové úložiská a ich služby
  - Relačné - tabuľkovo orientované
    Parse.com -> http://parseplatform.org/ (Facebook)

  - nosql – json
    firebase.com (Google)

Parse vs. Parse Server

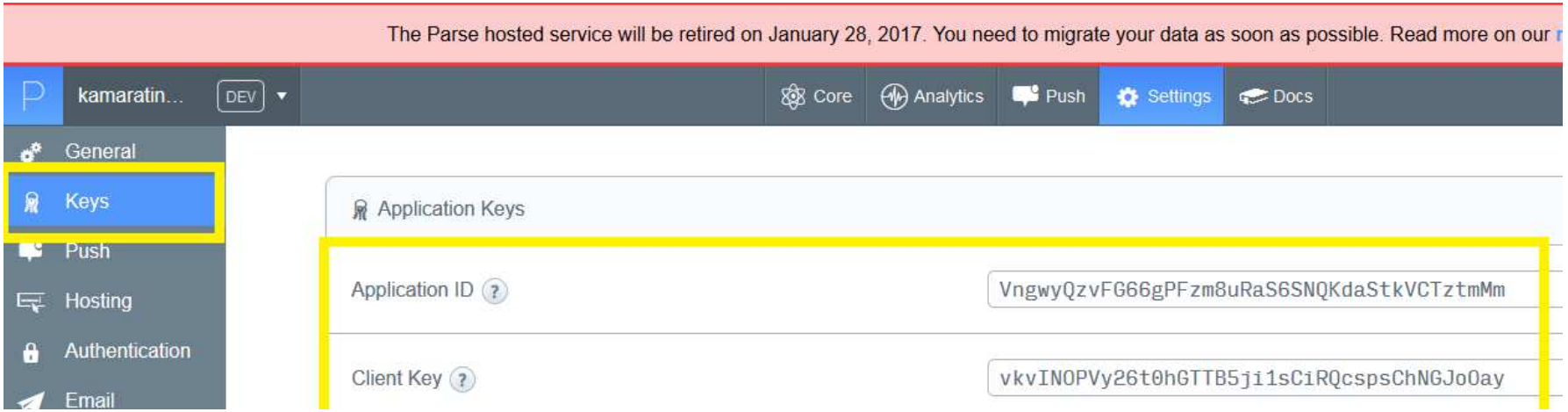
Parse + facebook

- API pre komunikáciu mobilných/web aplikácií, ukladanie/zdieľanie dát
- podporoval PUSH notifikácie pomocou Google Cloud Messaging (GCM)
  vaša aplikácia dostane notifikáciu zo servera, ak iný užívateľ vyvolá event

Parse.com kúpeny FB 2013 (free) končí v 2017 ☹

Ponúka migráciu na open-source Parse Server

- s veľmi podobným API ☺
- na vlastnom serveri, s infraštruktúrou Node.js + MongoDB + Python



Alternatívy

(k Parse Server)

Veci zadarmo sú (často) síce najlepšie, ale zase pomíjivé.

Treba pozrieť konkurenciu:

- Google datastore API – iOS, Android, JS, PHP, ...
  https://cloud.google.com/solutions/mobile/

Google Cloud

- Amazon AWS – iOS, Android, Web, ReactNative, ...
  https://aws.amazon.com/amplify/

aws

- MS Azure Mobile App SDK – iOS, Android, Xamarin, Cordova, …

Azure

https://docs.microsoft.com/en-us/azure/app-service-mobile/app-service-mobile-android-how-to-use-client-library

- Firebase – iOS, Android, Flutter, Web, …
  - realtime JSON oriented DB,
  - PUSH notifikácie, analytics, REST

Firebase

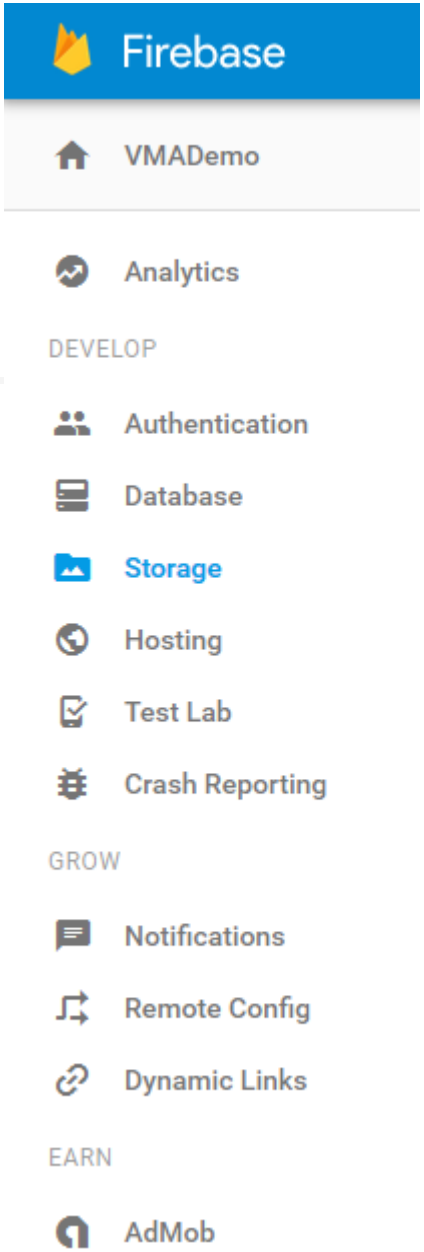
- https://www.raywenderlich.com/126098/top-5-parse-alternatives
  - Amazon Web Services Mobile Hub
  - CloudKit limited to iOS

Firebase

Startup Firebase(2011) kúpil Google(2014)

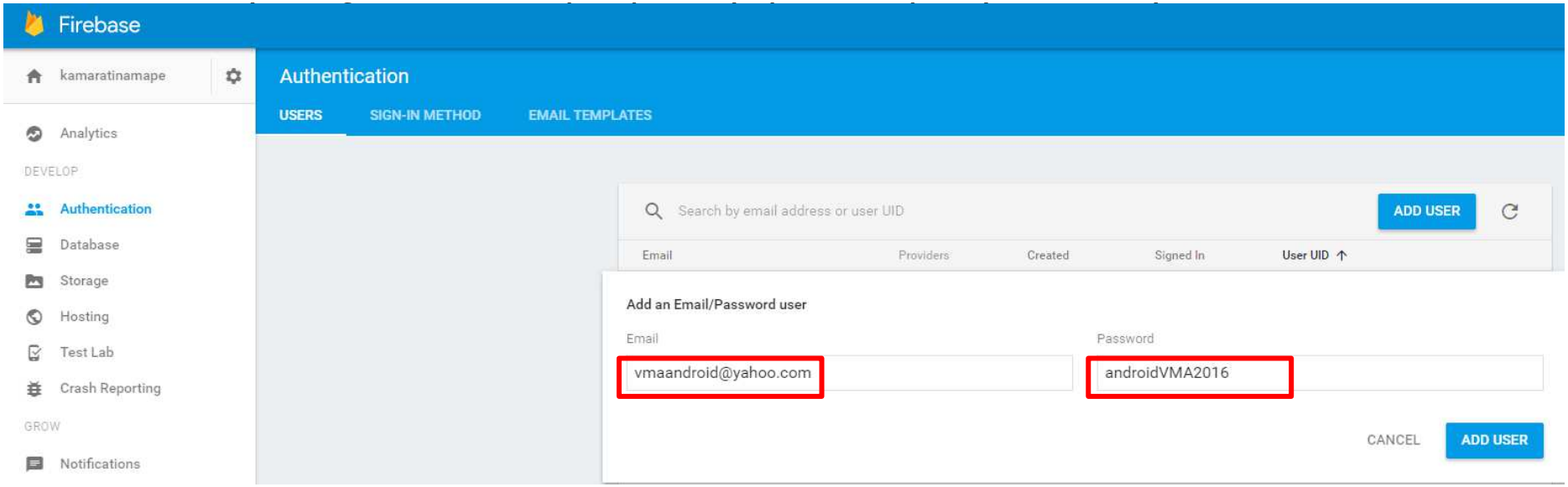
Ponúka služby/servisy:

- Authentification – FB/Git/Google/Twitter/FirebaseEmail
- Realtime database – non sql store & syncronize database
- File storage – secure upload & download files
- Test lab for Android – rôzne virtuálne zariadenia
- Cloud messaging – push notifikácie pomocou
  Google Cloud Messaging/Firebase Cloud Messaging
- Crash reporting
- Analytics
- ...



Firebase Console

https://console.firebase.google.com/project/kamaratinamape/database/data

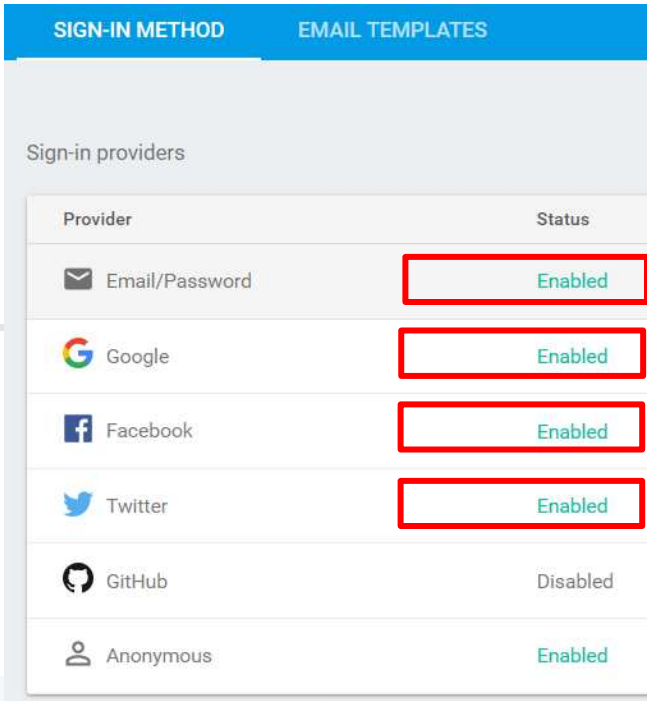


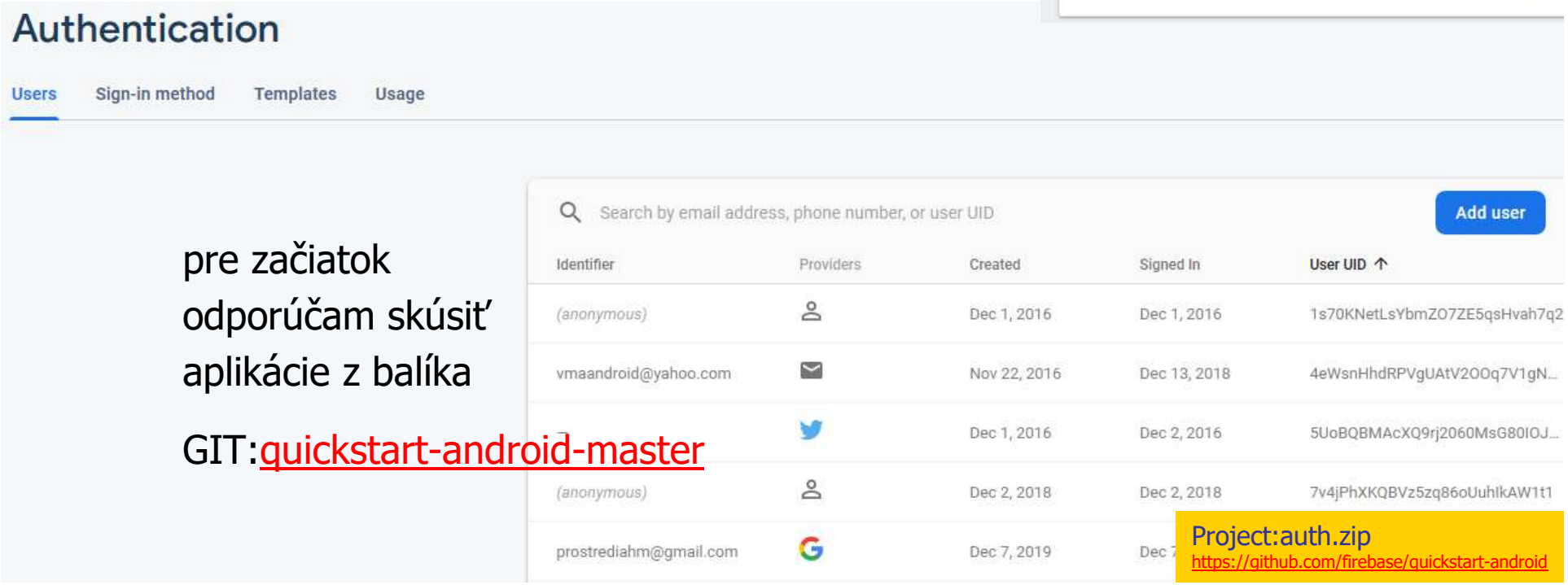
- ukážky sú robené pomocou tohoto účtu
- login a password vidíte v obrázku

Autentifikácia

Sign-in metódy:

- vlastná autentifikácia cez email/password
  - možete definovať viacero email-účtov
- cez FB/Google/Twitter/GitHub API



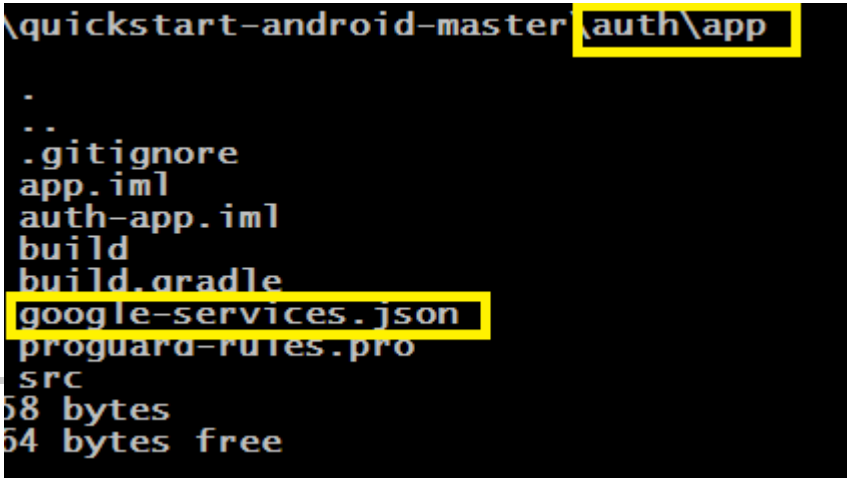


pre začiatok odporúčam skúsiť aplikácie z balíka

GIT:quickstart-android-master

Project:auth.zip
https://github.com/firebase/quickstart-android

google-services .json

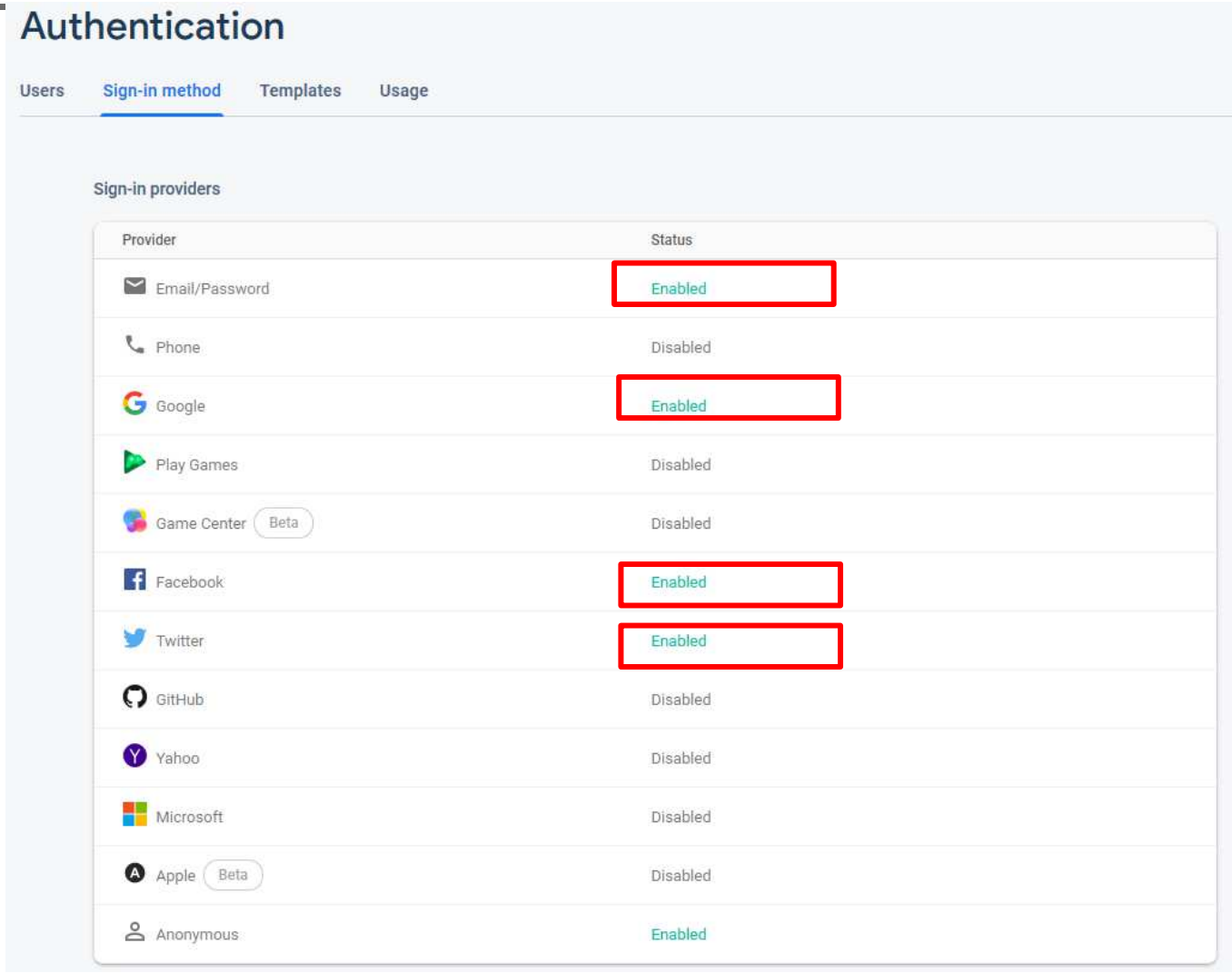



```
{"project_info": {
    "project_number": "539843735083",
    "firebase_url": "https://kamaratinamape.firebaseio.com",
    "project_id": "kamaratinamape",
    "storage_bucket": "kamaratinamape.appspot.com"
  },
  "client": [
    {"client_info": {
        "mobilesdk_app_id": "1:539843735083:android:e4c17d2977753b25",
        "android_client_info": {"package_name": "sk.uniba.fmph.dai.borovan.fbdemo"
        }
      },
      "oauth_client": [{
          "client_id": "539843735083-e4n6dg61g1npk7uka8ebf2rhcmg4t7v1.apps.googleusercontent.com",
          "client_type": 3
        }
      ],
      "api_key": [ { "current_key": "AIzaSyCbfmtnNkbnhjlqanA051uSfQl1_PTjPa8“ } ],
      "services": {
        "analytics_service": {"status": 1 },
        "appinvite_service": {"status": 1,"other_platform_oauth_client": [] },
        "ads_service": { "status": 2 }
      }
    }
  ],
  "configuration_version": "1"
}
```

Project:FBDemo

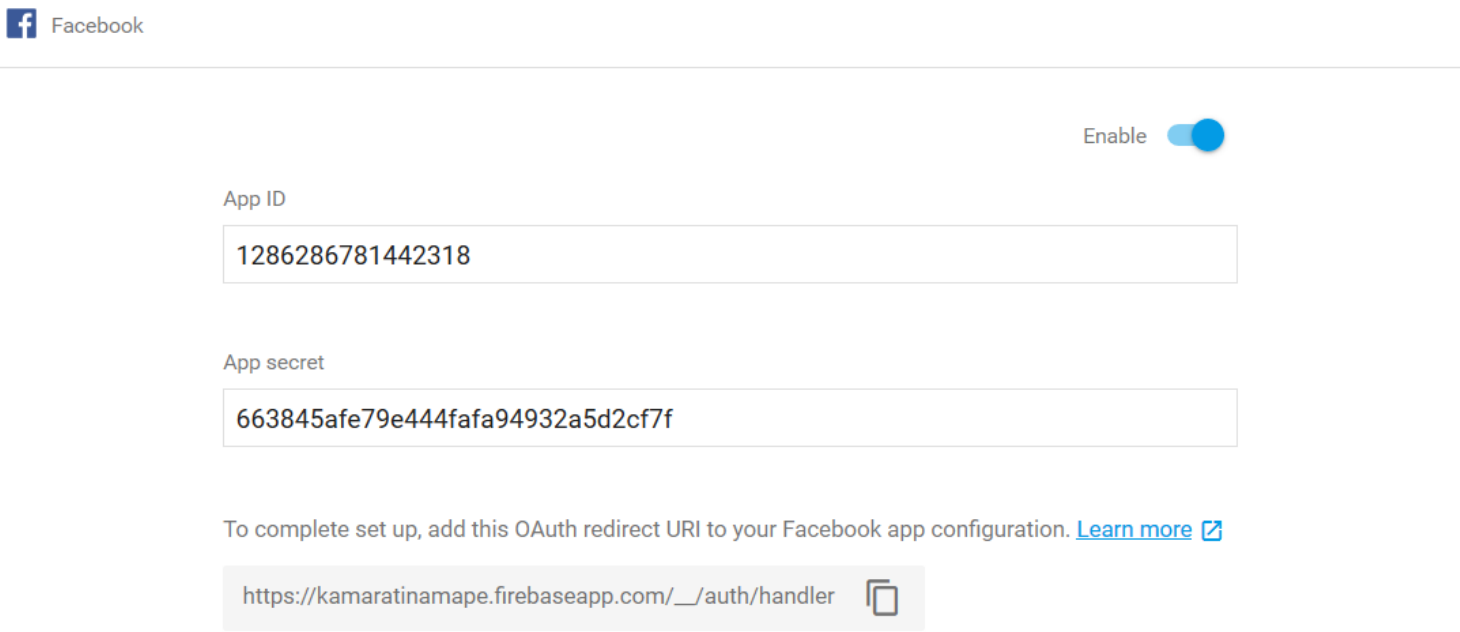
Sign-in methods

https://console.firebase.google.com/project/kamaratinamape/authentication/providers



Autentifikácia cez FB

https://firebase.google.com/docs/auth/android/facebook-login



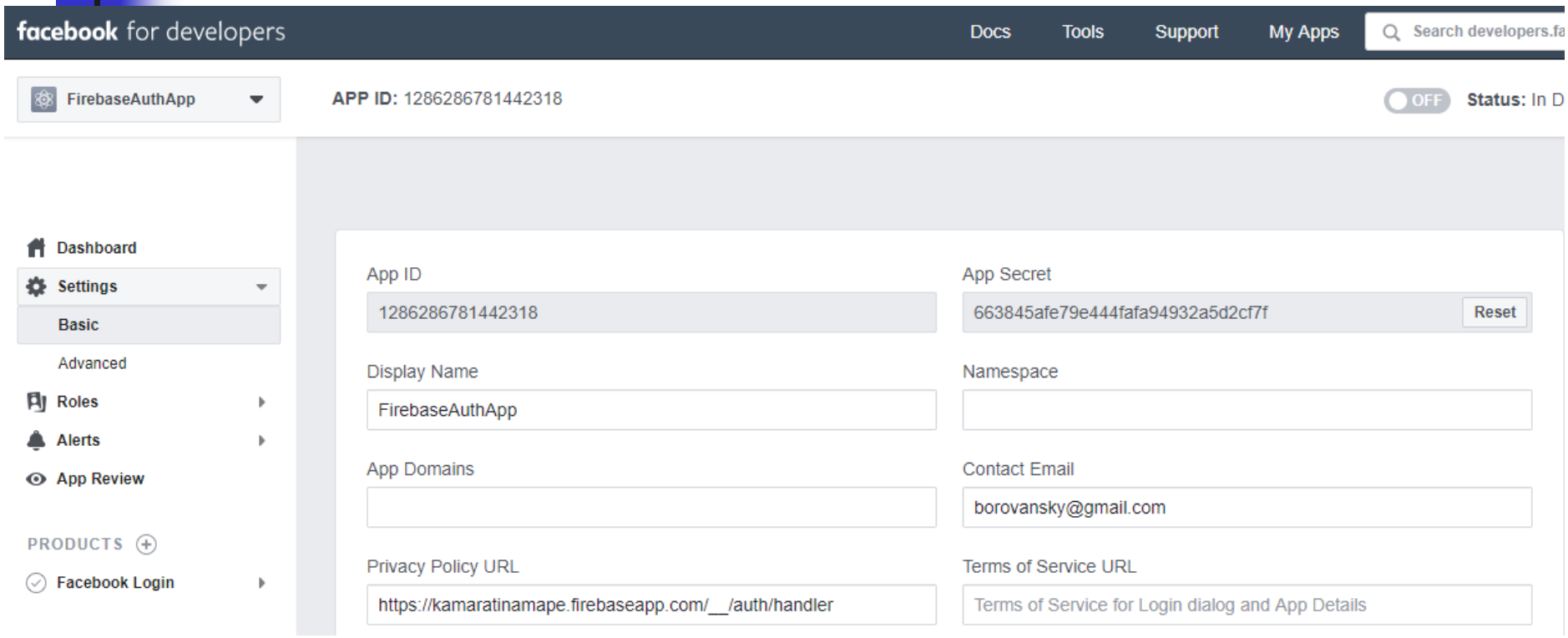
Autentifikácia cez FB/Twitter/GitHub API:

- predpokladá, že registrujete aplikáciu na FB/Twitter/Git developerskej konzole napr. https://developers.facebook.com/apps/1286286781442318/settings/basic/
- kde dostanete nejakú analógiu APP ID/Secret key
- tie zapíšete do Firebase API vašej Firebase appky
- Firebase vám vygeneruje **google-services.json**, ktorý zakompilujete do .apk

Project:auth.zip
https://github.com/firebase/quickstart-android

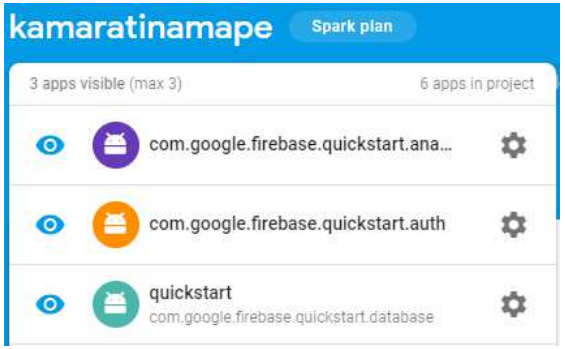
Facebook for developers

(dev konzola od FB)

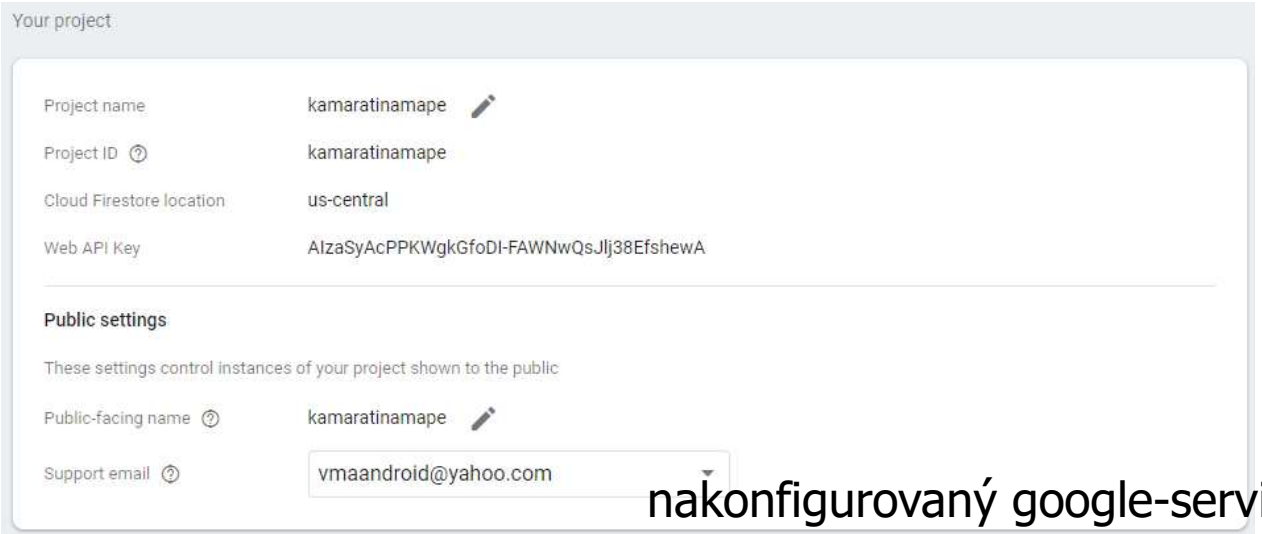


https://developers.facebook.com/apps/1286286781442318/settings/basic/

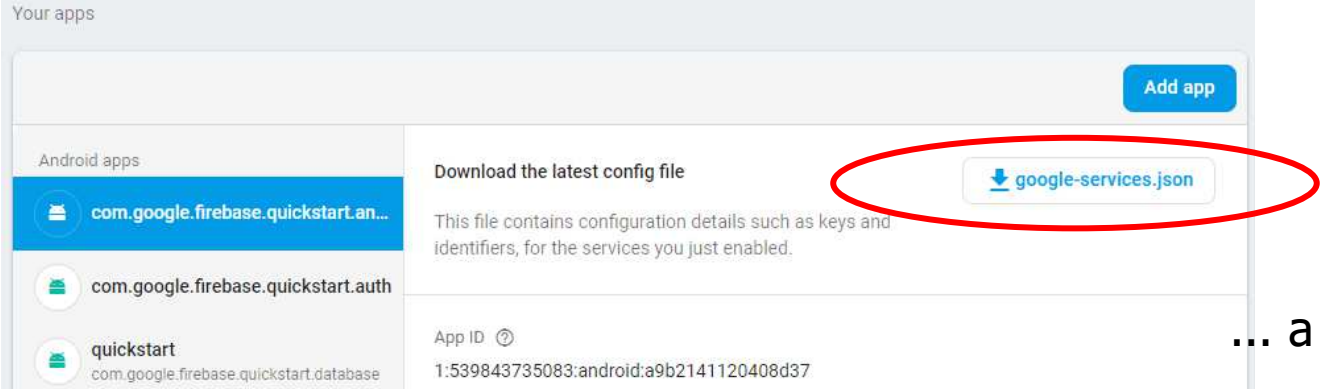
Registrovanie appky



v project settings registrujete aplikáciu



nakonfigurovaný google-services.json stiahnete a nakopírujete do vášho projektu, do ...app/



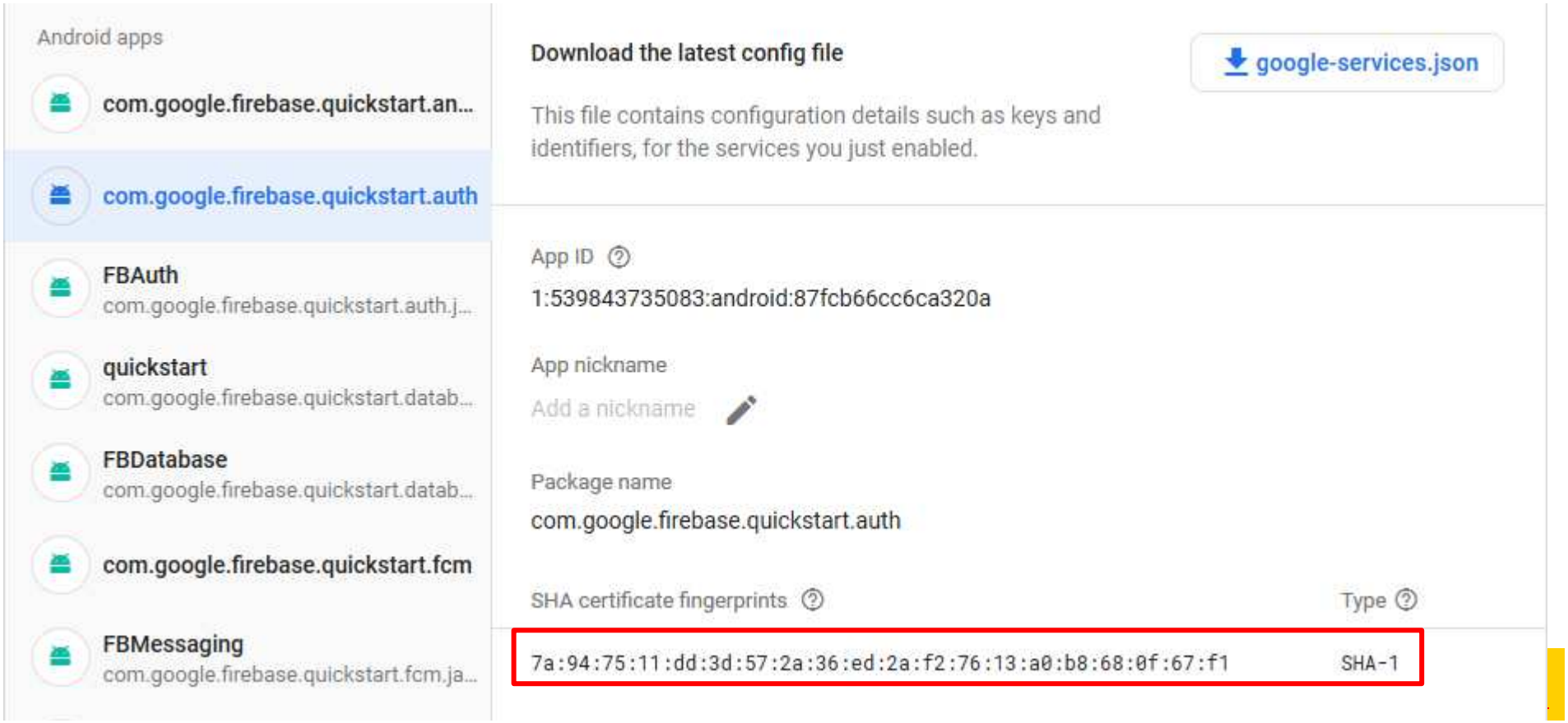
... a skompilujete

Autentifikácia cez Google

https://developers.google.com/android/guides/client-auth

Musíte do Firebase projektu/aplikácie vložiť svoj SHA1 kľúč (viac minule)

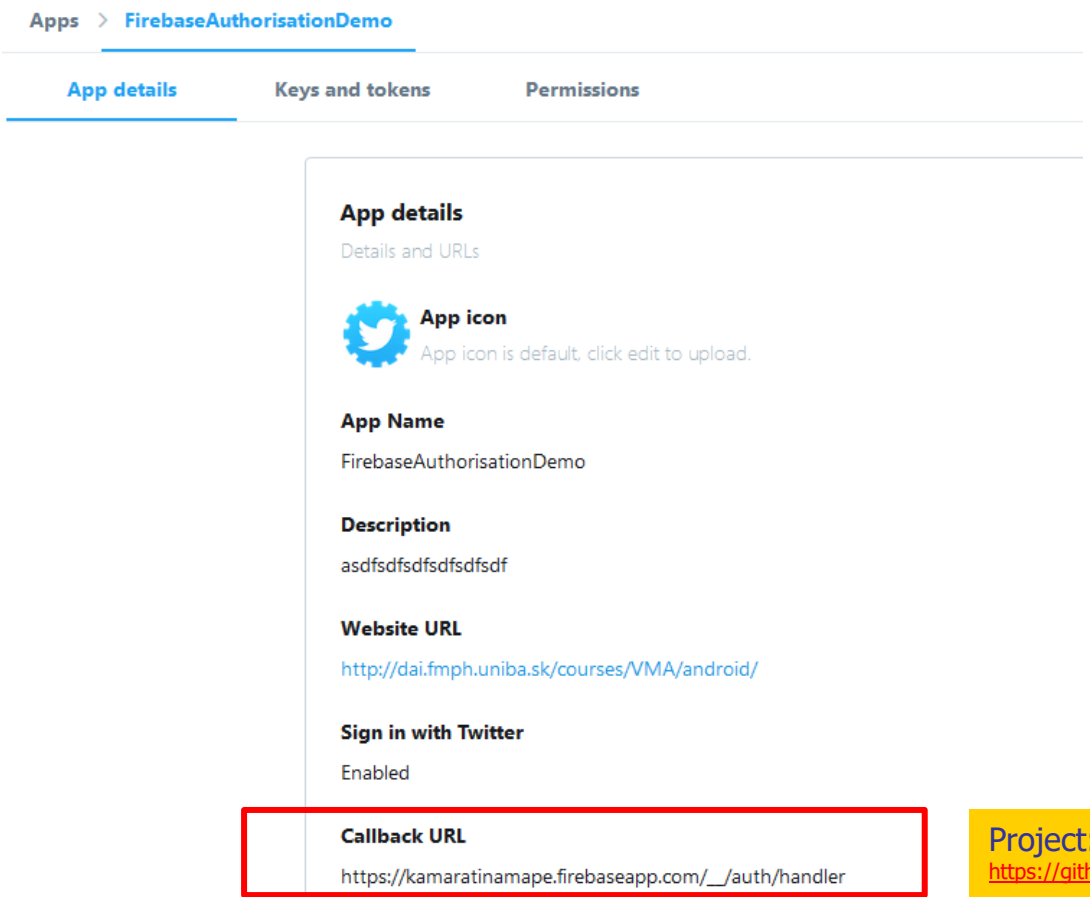
Google sign-in is automatically configured on your connected iOS and web apps. To set up Google sign-in for your Android apps, you need to add the SHA1 fingerprint for each app Project Settings.



Autentifikácia cez Twitter

https://firebase.google.com/docs/auth/android/twitter-login
https://developer.twitter.com/en/apps/13160641

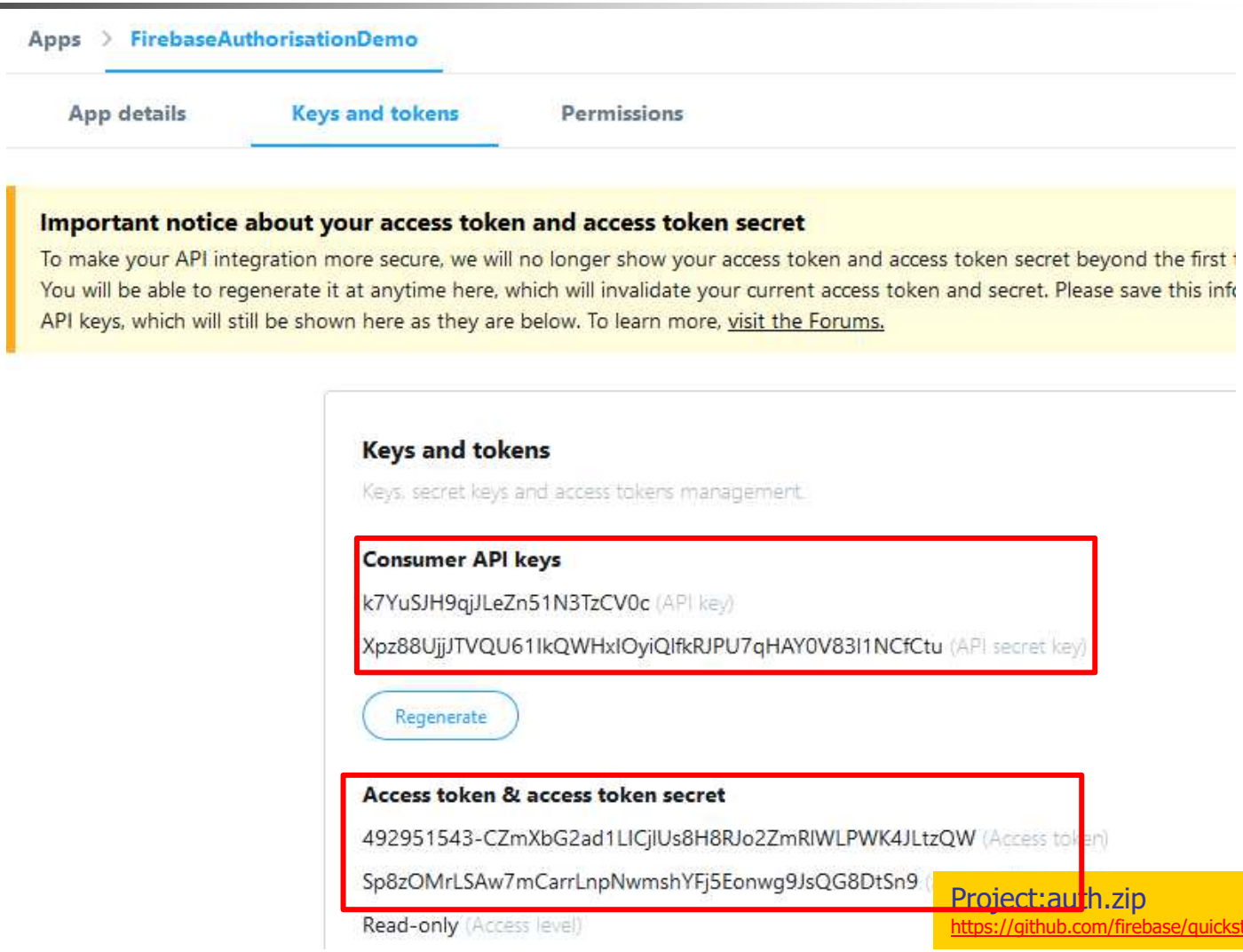
Na Twitter developerskej konzole musíte registrovať applikáciu, a získať e Consumer API keys a Access token, ten prezradíte Firebase Console



Project:auth.zip
https://github.com/firebase/quickstart-android

Autentifikácia cez Twitter

https://developer.twitter.com/en/apps/13160641

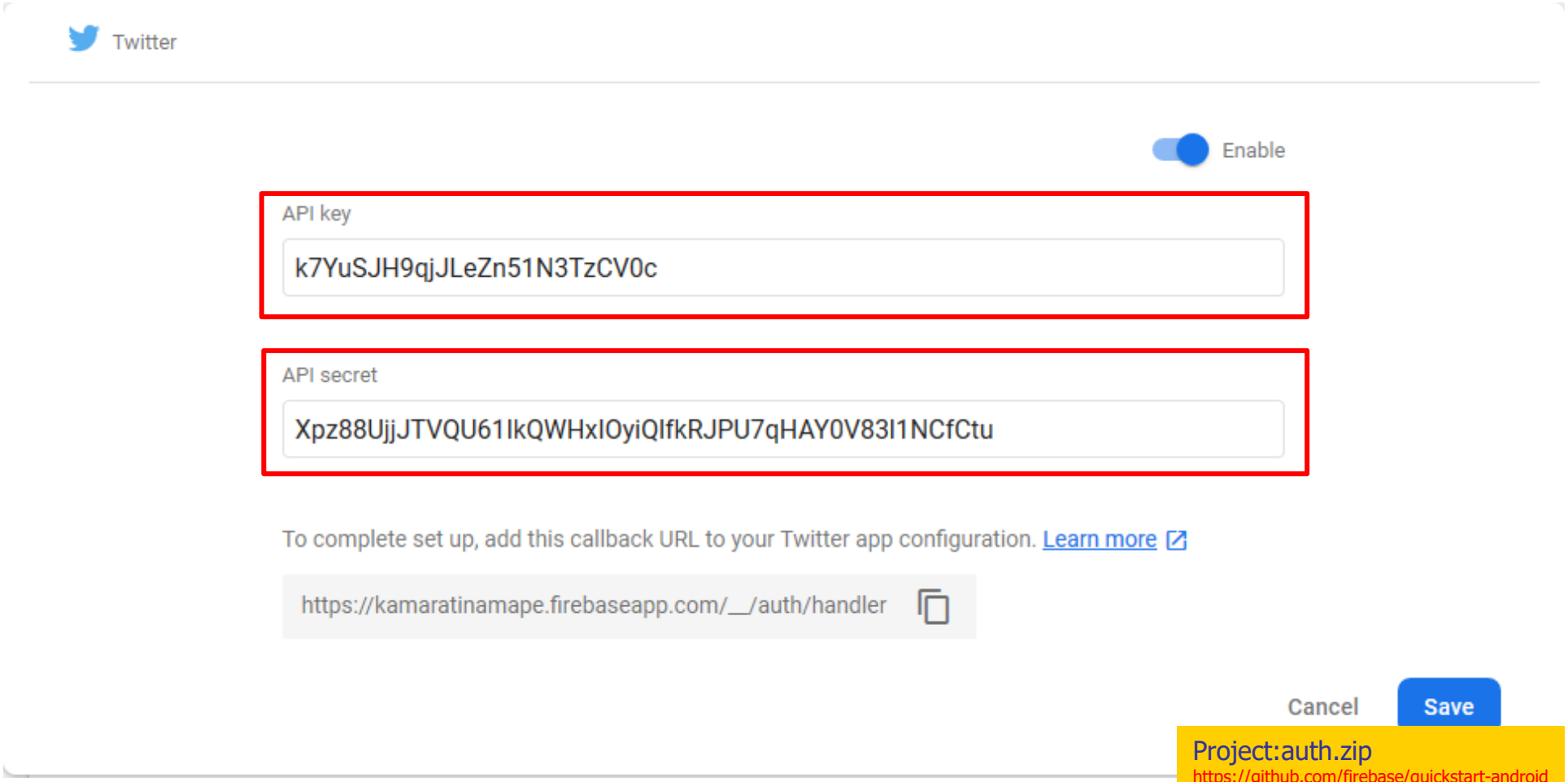


Project:auth.zip
https://github.com/firebase/quickstart-android

Autentifikácia cez Twitter

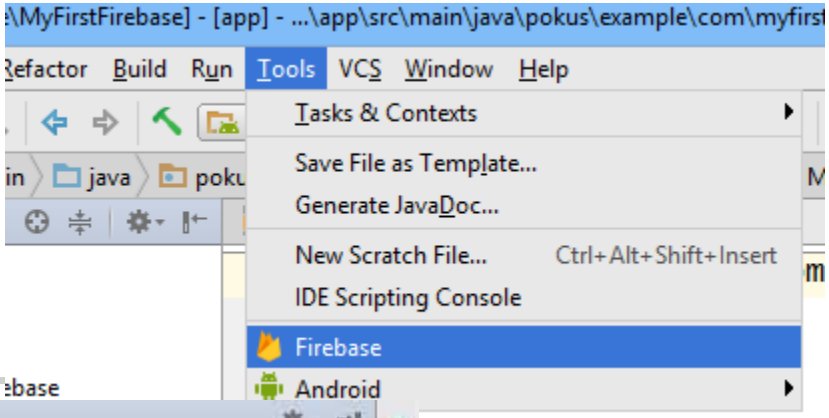
https://developer.twitter.com/en/apps/13160641

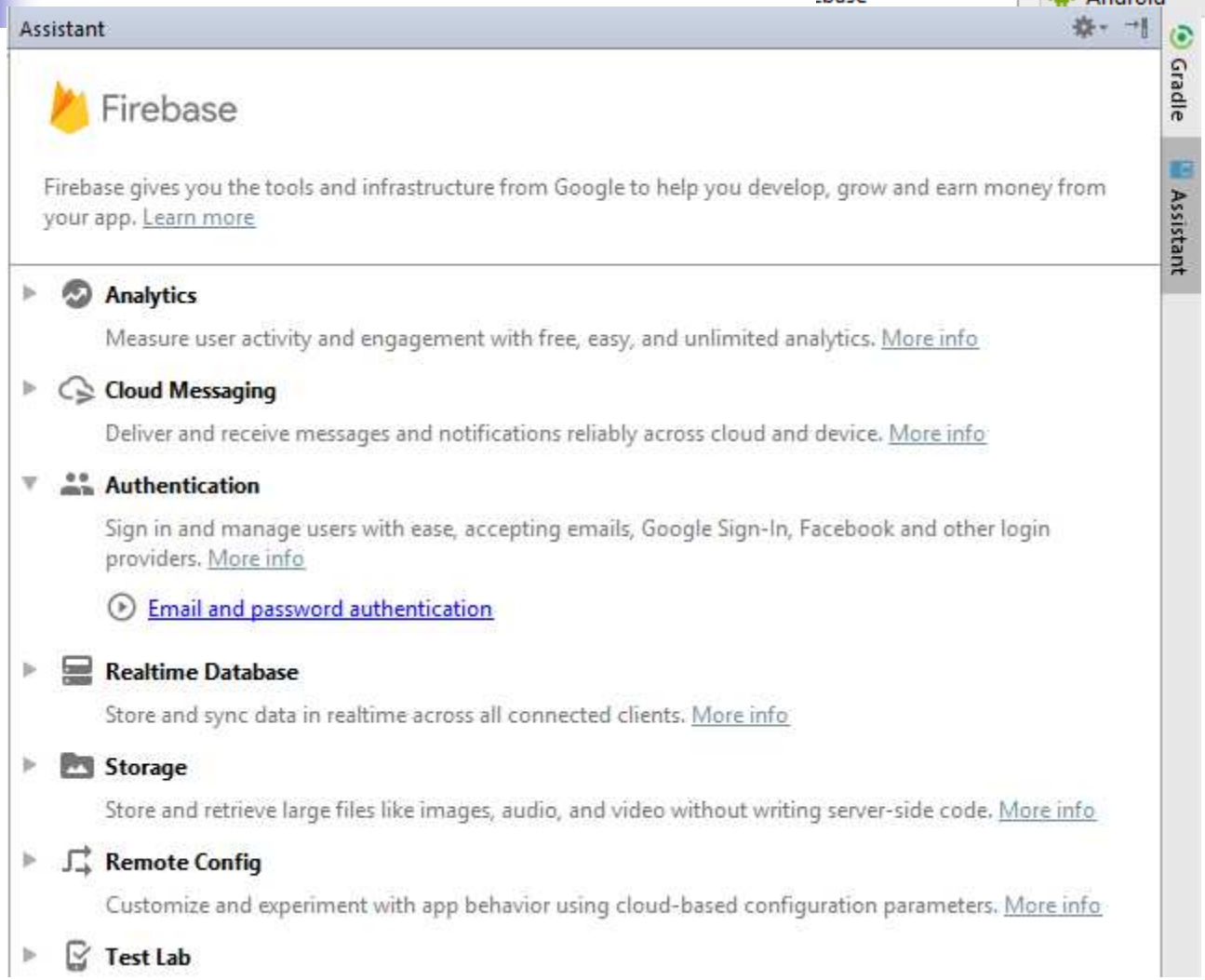
API KEY a SECRET treba vložiť do Firebase Console pre Twitter Authentification



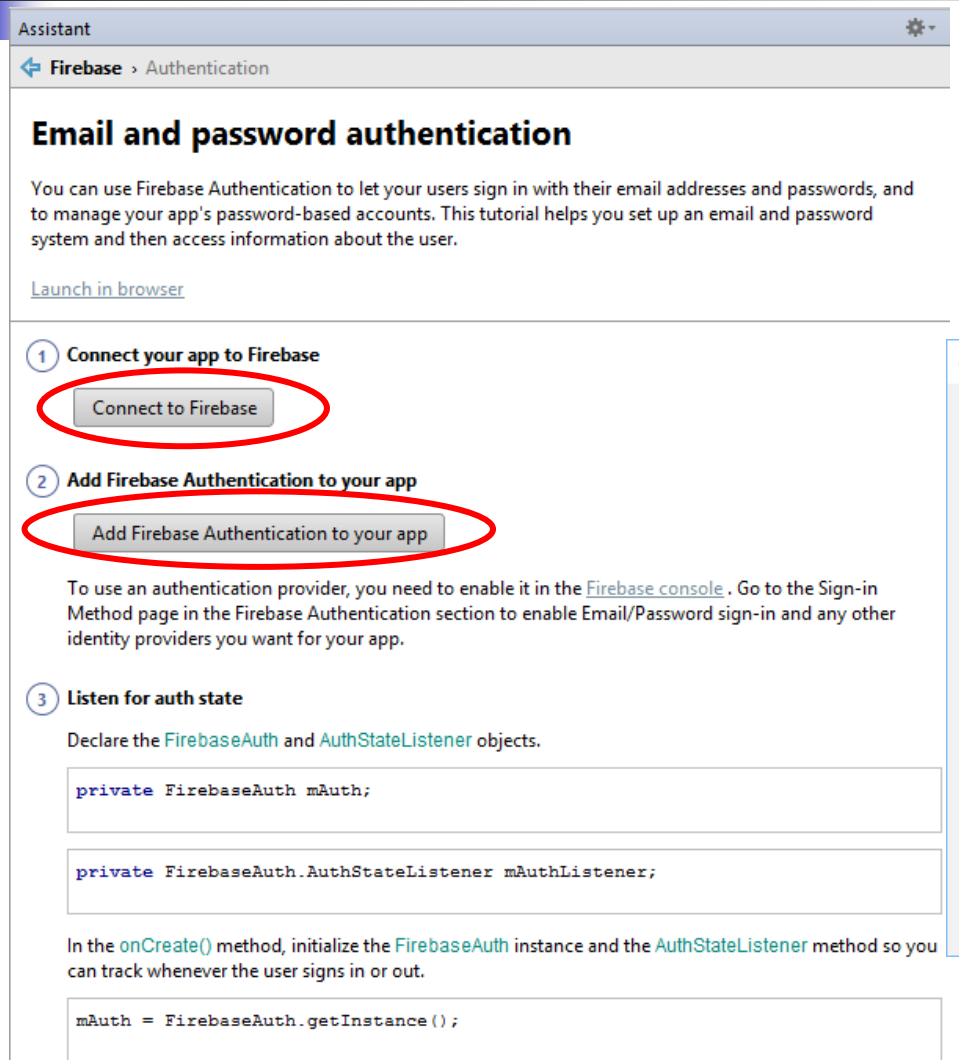
Project:auth.zip
https://github.com/firebase/quickstart-android

Firebase v AS

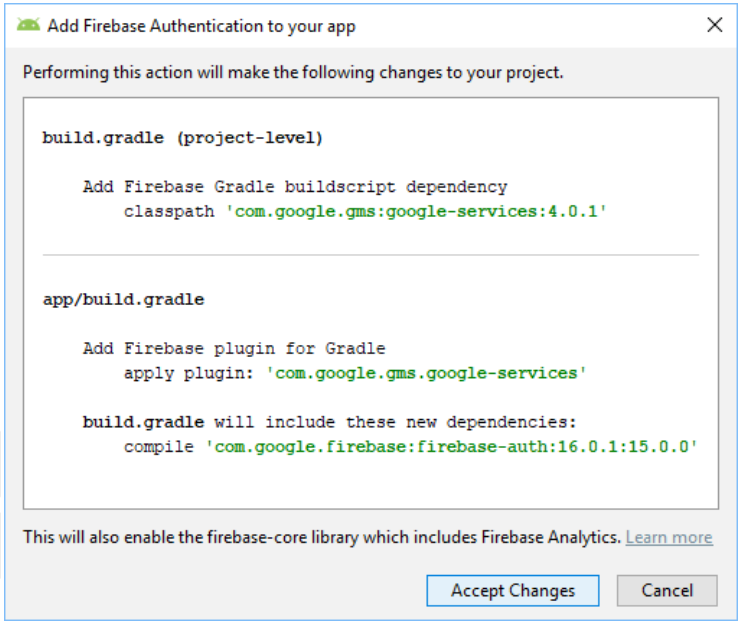




Autentifikačný kit v AS

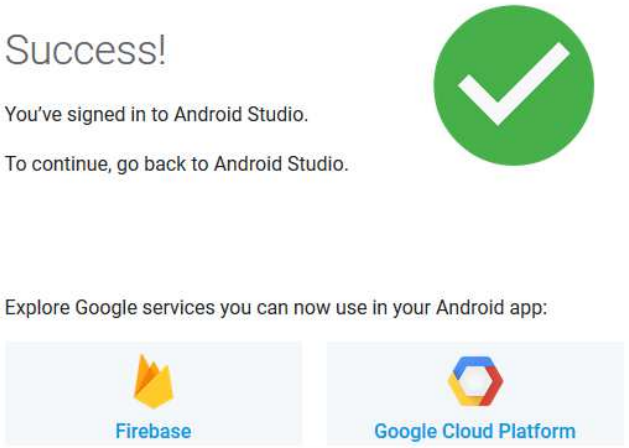


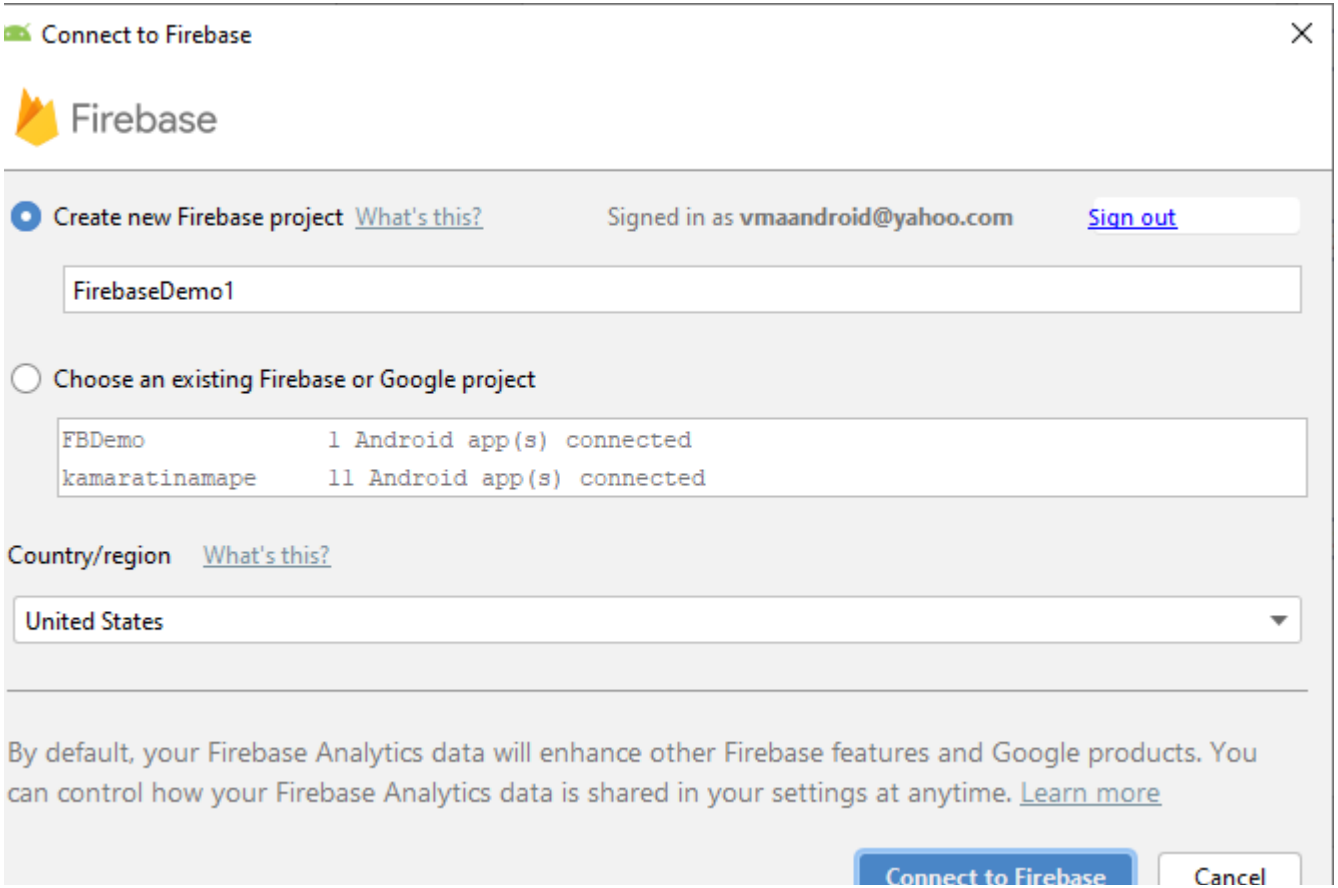
Ponúka vám to step-by-step návod na vytvorenie rôznych typov Firebase aplikácií



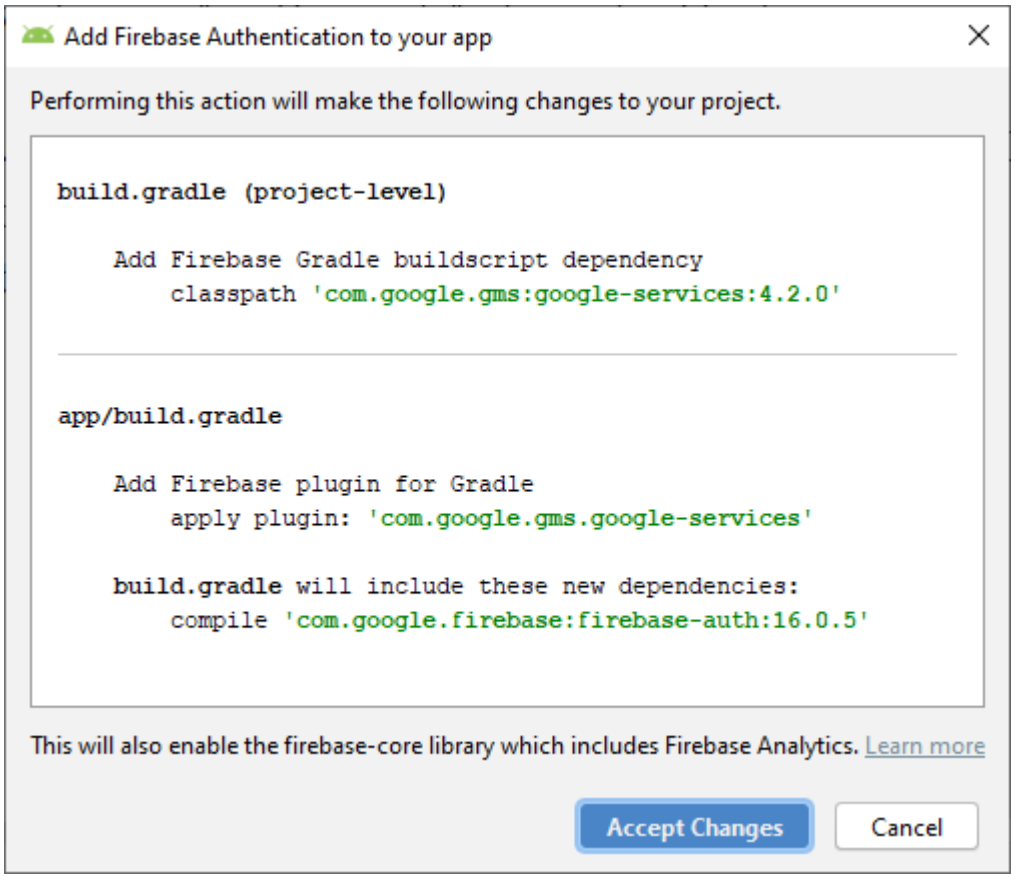
Project:FBDemo

1) Connect your app to Firebase





2) Add Firebase Auth to your app



Firebase Email Authentification

sign-up new user

```
mAuth.createUserWithEmailAndPassword(email, password)
  .addOnCompleteListener(this, object:
     OnCompleteListener<AuthResult> {
        override fun onComplete(task: Task<AuthResult>) {
            if (task.isSuccessful()) { // Sign in success, update
               Log.d(TAG, "createUserWithEmail:success")
               val user = mAuth.currentUser
            } else { // If sign in fails,
               Log.w(TAG, "createUserWithEmail:failure",
                     task.getException())
            }
        }
    })
```

Project:FirebaseDemo1

Firebase Email Authentification

sign-in an existing user

```
mAuth.signInWithEmailAndPassword(email, password)
    .addOnCompleteListener(this) { task ->
        if (task.isSuccessful) { // Sign in success
            Log.d(TAG, "signInWithEmail:success")
            val user = mAuth.currentUser
        } else { // If sign in fails
            Log.w(TAG, "signInWithEmail:failure", task.exception)
        }
}
```

Project:FirebaseDemo1

Firebase Email Authentification

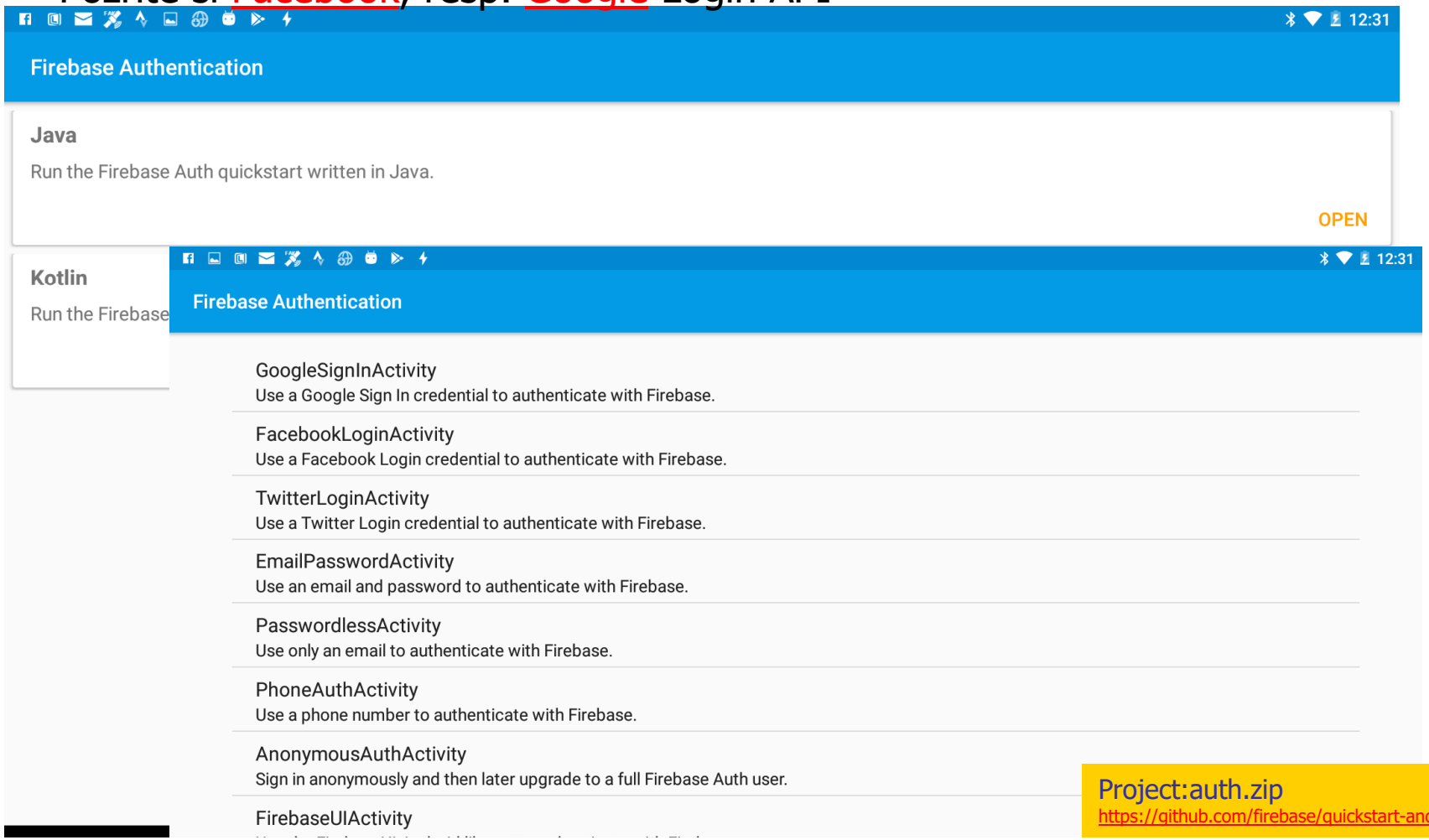
get user info

```
val user = FirebaseAuth.getInstance().currentUser
if (user != null) { // Name, email address, and profile photo Url
    val name = user.displayName
    val email = user.email
    val photoUrl: Uri? = user.photoUrl
    val emailVerified = user.isEmailVerified
    val uid = user.uid
    infoTV.setText("$name, $email, $uid")
}
```

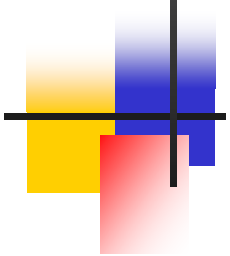
Project:FirebaseDemo1

Iná autentifikácia

Pozrite si Facebook, resp. Google Login API



Project:auth.zip
https://github.com/firebase/quickstart-android



Realtime Database

(nosql databáza)

Rules

- Default, no access, only FB console

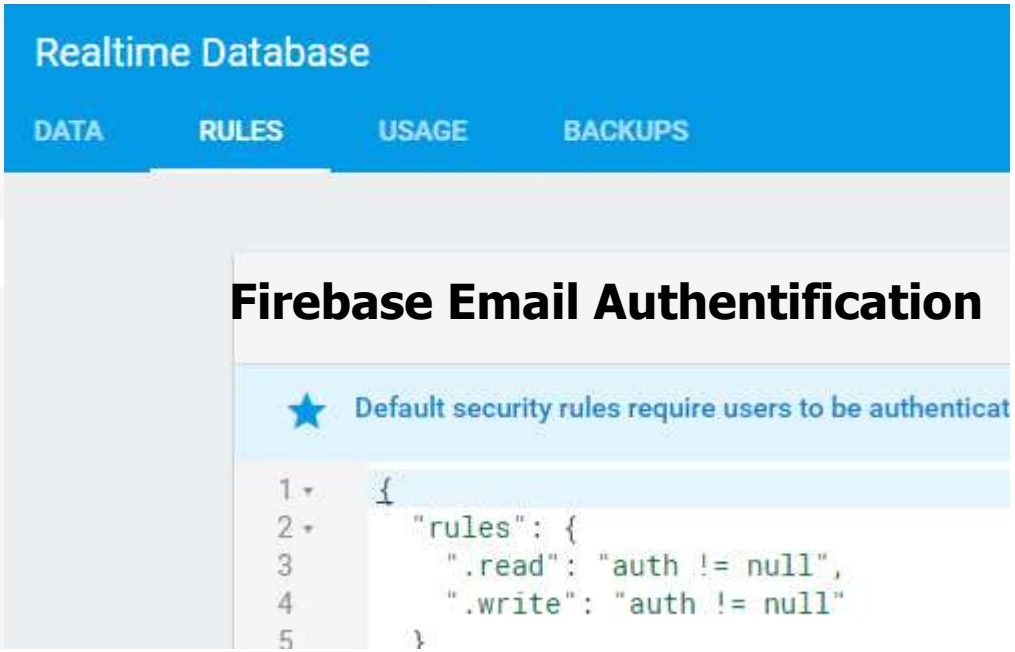
```
// These rules don't allow anyone read or write access to your database
{
  "rules": {
    ".read": false,
    ".write": false
  }
}
```

- Public, anyone can...

```
// These rules give anyone, even people who are not users of your app,
// read and write access to your database
{
  "rules": {
    ".read": true,
    ".write": true
  }
}
```

- FB/Goo/Git Authentified only...

```
{
  "rules": {
    "users": {
      "$uid": {
        ".read": "$uid === auth.uid",
        ".write": "$uid === auth.uid"
      }
    }
  }
}
```



Realtime Database

(zápis)

```
databaseReference = FirebaseDatabase
        .getInstance()
        .getReference();
databaseReference.child("pikatchus")
    .setValue(new Pokemon(name, address, lati, longi));
```

object

```
if (globalState == null)
    globalState = new HashMap<>();
globalState.put(name, status);
databaseReference.child("statuses").setValue(globalState);
```

kolekcia

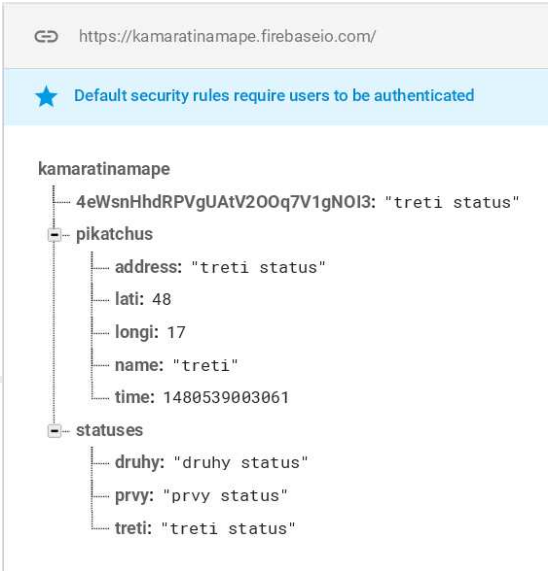
```
FirebaseUser user = firebaseAuth.getCurrentUser();
if (user != null) { // ak je user nalogovaný
   databaseReference.child(user.getUid()).setValue(status)
}
```

uid

Project:FirebaseDemo.zip

Realtime Database

(čítanie)



po zápise

```
databaseReference.addValueEventListener(
    new ValueEventListener() {
      @Override
      public void onDataChange(DataSnapshot dataSnapshot) {
        for (DataSnapshot child:dataSnapshot.getChildren()){
          Object o = child.getValue();
          String str = "changed " + child.getKey() +" is: ";
          if (o instanceof String) {
              str +=  (String)o;
          } else {
              globalState = (HashMap<String, String>)o ;
              str += globalState;
          }
          Log.d(TAG, str);
          editTextMemo.append(str + "\n");
        }
      }
```

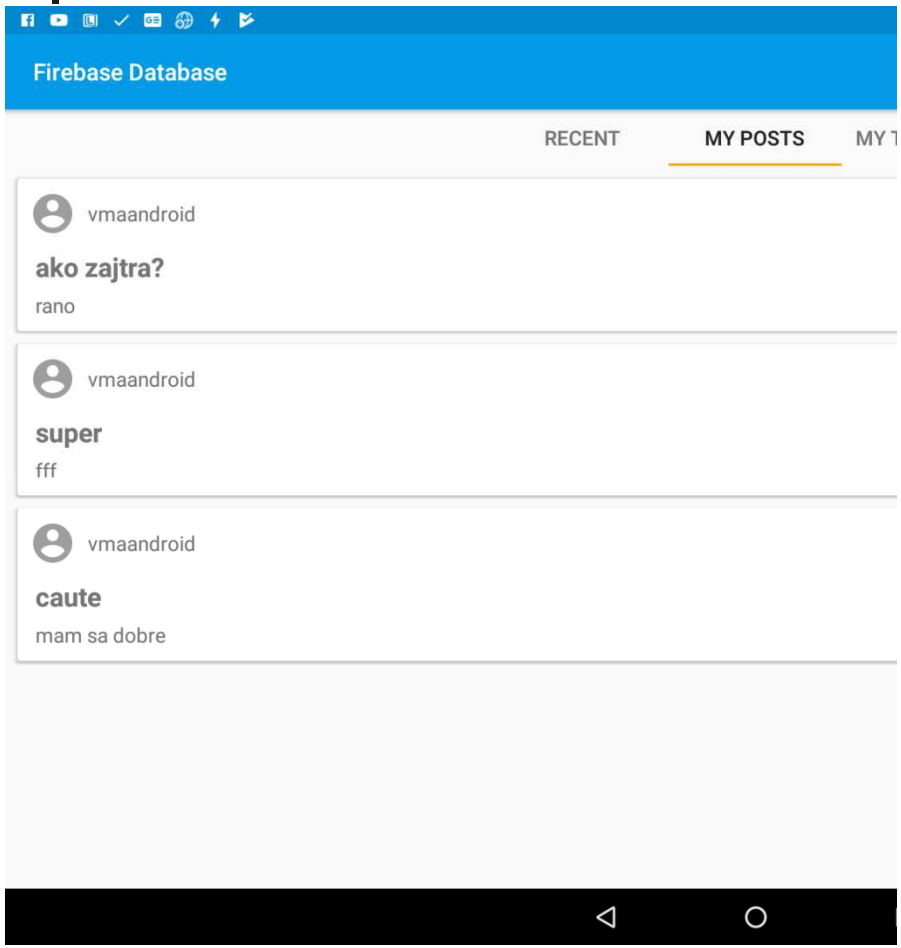
String

kolekcia

Project:FirebaseDemo.zip

Firebase Database

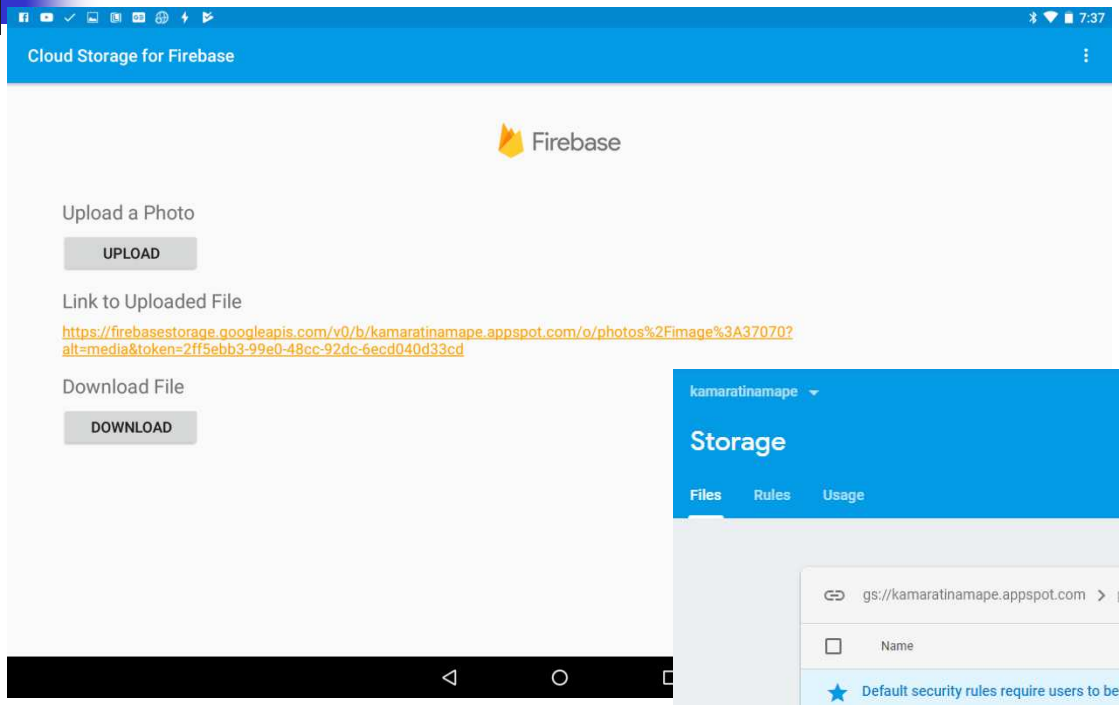
(vyskúšajte si)

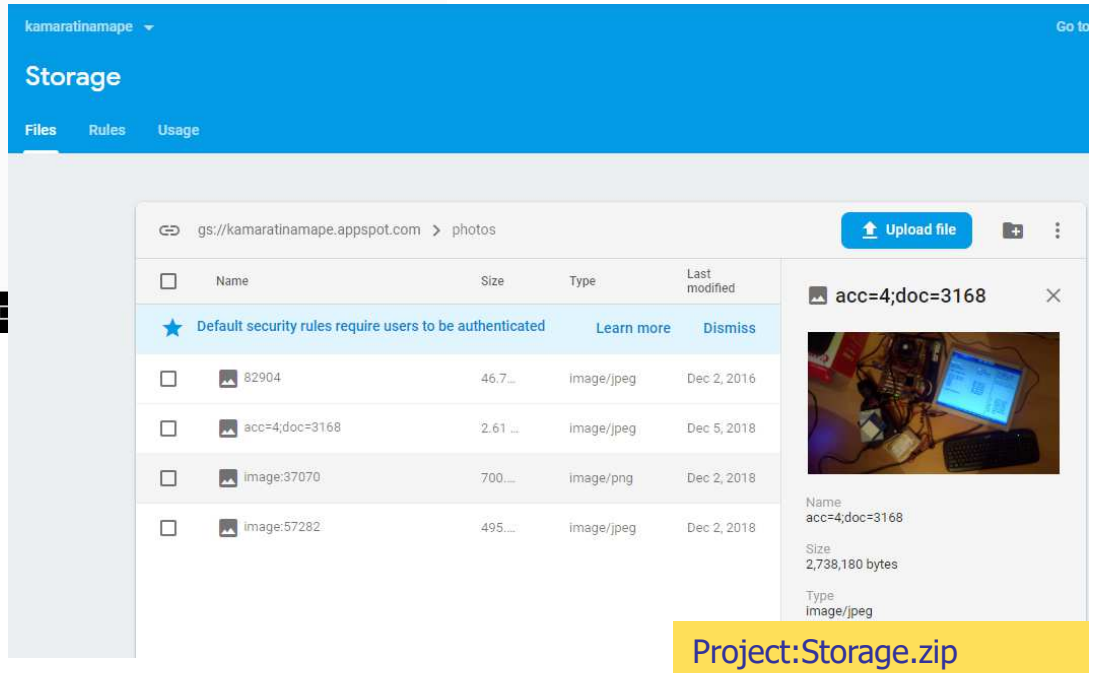


Project:Database.zip

Firebase Storage

(vyskúšajte si)





Project:Storage.zip

Firebase Cloud Messaging

(vyskúšajte si)

- Firebase Messaging – push notifikácie
- cross-platform (iOS, Android, …)
- payload of up to 4kB to client app.

- Notification messages – when app is in the **background**

```
{"message":{
   "token":" chLzRZ59Svk:APA91bGEy41ulMs3qQnThxYL6VWJAOu61pIHWkGTUEHQe4rWlyWL9yutLHxiwmgYdstis7T54I68yKhwZj95TnKXjUynd4rt2oLQ1gPAaIa249g2-h4MKSg7Xkgie8uCVPx8sbB_itLr",
   "notification":{
     "title":"Notification Test",
     "body":"test"
} } }
```

- Data messages – key/value pairs received in a callback function.

```
{"message":{
   "token":" chLzRZ59Svk:APA91bGEy41ulMs3qQnThxYL6VWJAOu61pIHWkGTUEHQe4rWlyWL9yutLHxiwmgYdstis7T54I68yKhwZj95TnKXjUynd4rt2oLQ1gPAaIa249g2-h4MKSg7Xkgie8uCVPx8sbB_itLr",
   "data":{
     "Nick" : "Peter",
     "body" : "teacher",
     "Room" : "I-18"
} } }
```

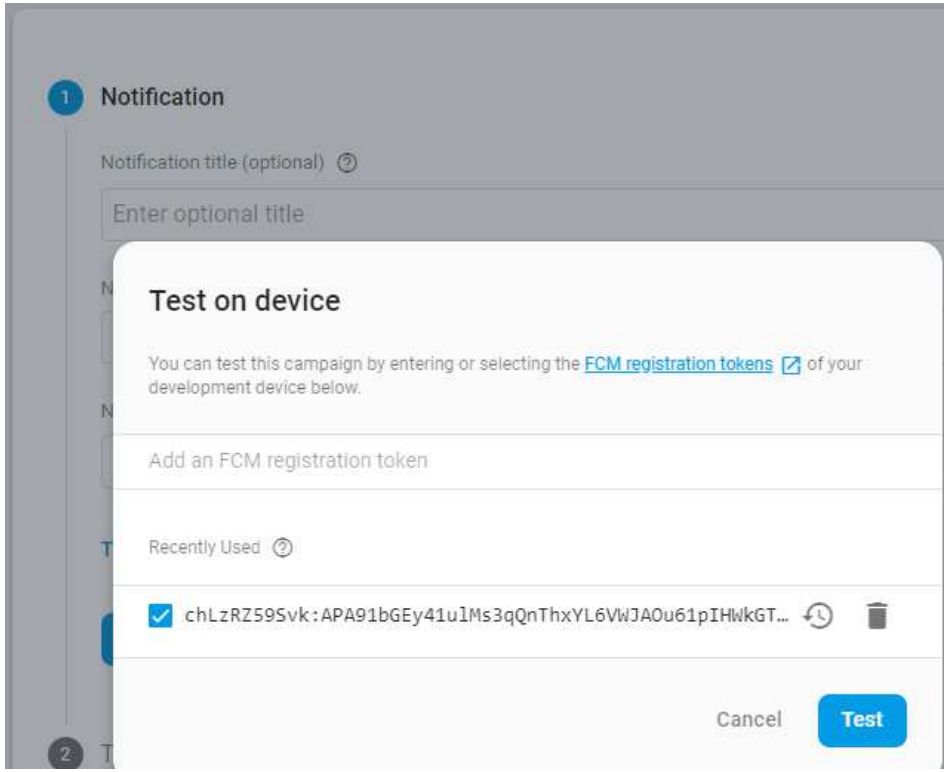
Project:Messaging.zip

Firebase Cloud Messaging

(vyskúšajte si)

- Device Token
- InstanceID Token:

  chLzRZ59Svk:APA91bGEy41ulMs3qQnThxYL6VWJAOu61pIHWkGTUEHQe4rWlyWL9yutLHxiwmgYdstis7T54I68yKhwZj95TnKXjUynd4rt2oLQ1gPAaIa249g2-h4MKSg7Xkgie8uCVPx8sbB_itLr
- Sending a test message from Firebase Console (app is in background!)



Project:Messaging.zip