

Android + Firebase



Paola García
Chefly



Sobre mi

Paola Garcia

[@gGarciaPaola](#)

Ingeniera en Telemática / UC3M

- > Desarrolladora (Android, Node.js)
- > CEO y Cofundadora de [Chefly](#)
- > Women Welcome Lead en Campus Madrid
- > Women Tech Makers and Technovation mentor



¿Por qué estamos hoy aquí?



<https://github.com/olapaola/chatRealAndroidFirebase>



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Parent guide

Chat Real Navidad con Firebase

Paola García Education

PEGI 3

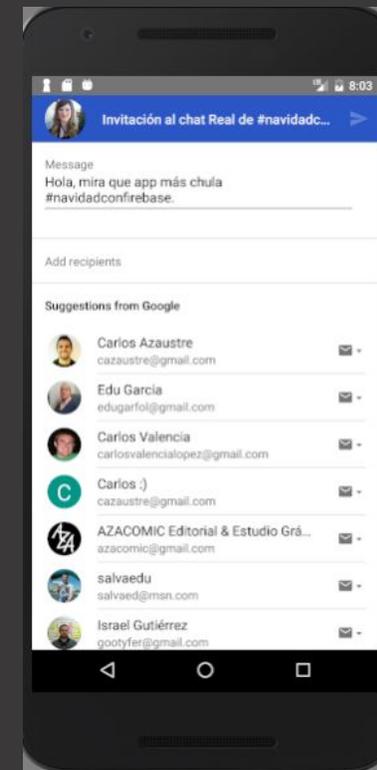
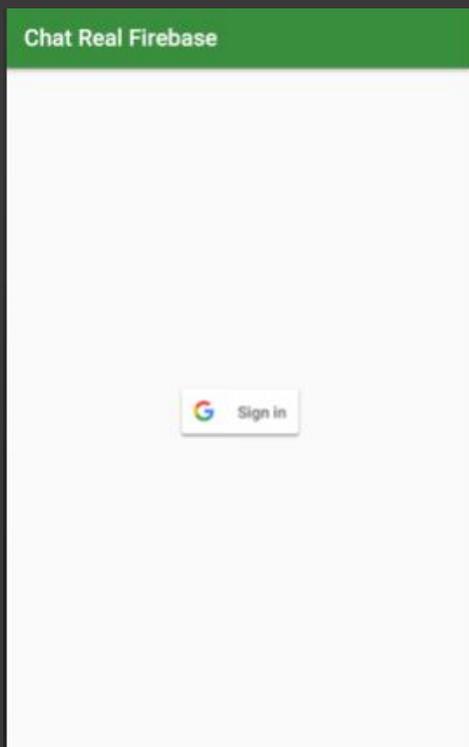
This app is compatible with all of your devices.

Add to wishlist

Install



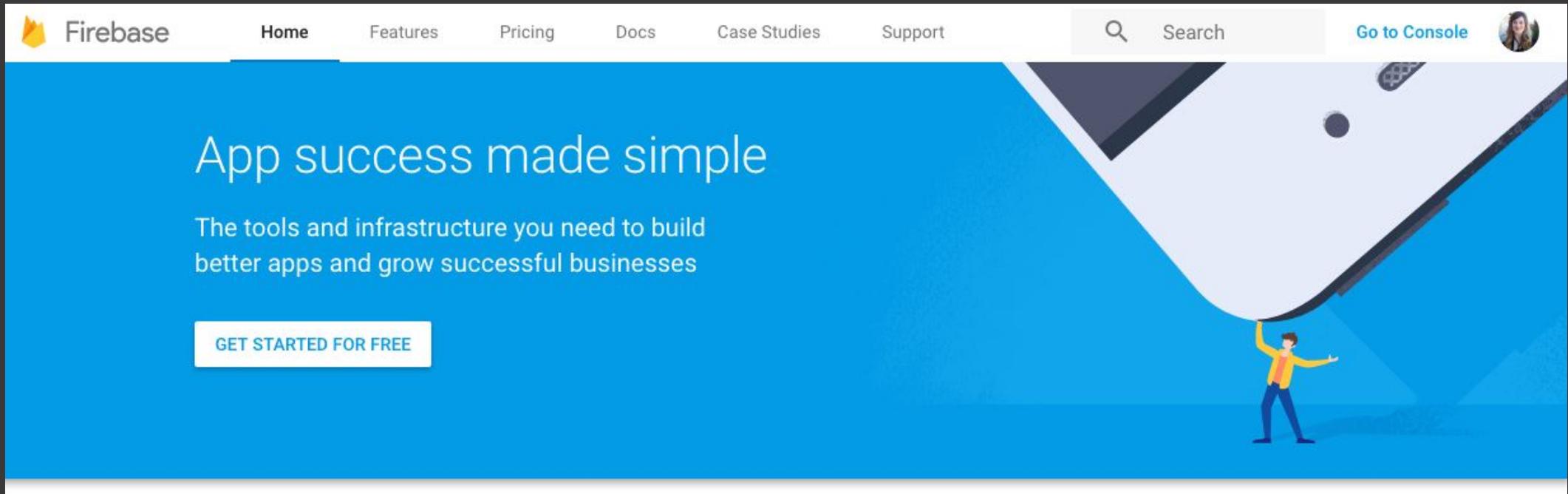
App Android Navidad Con Firebase



<https://play.google.com/store/apps/details?id=com.paolagarcia.navidadconfirebase.chatreal&hl=es>
419



¿Qué es Firebase?



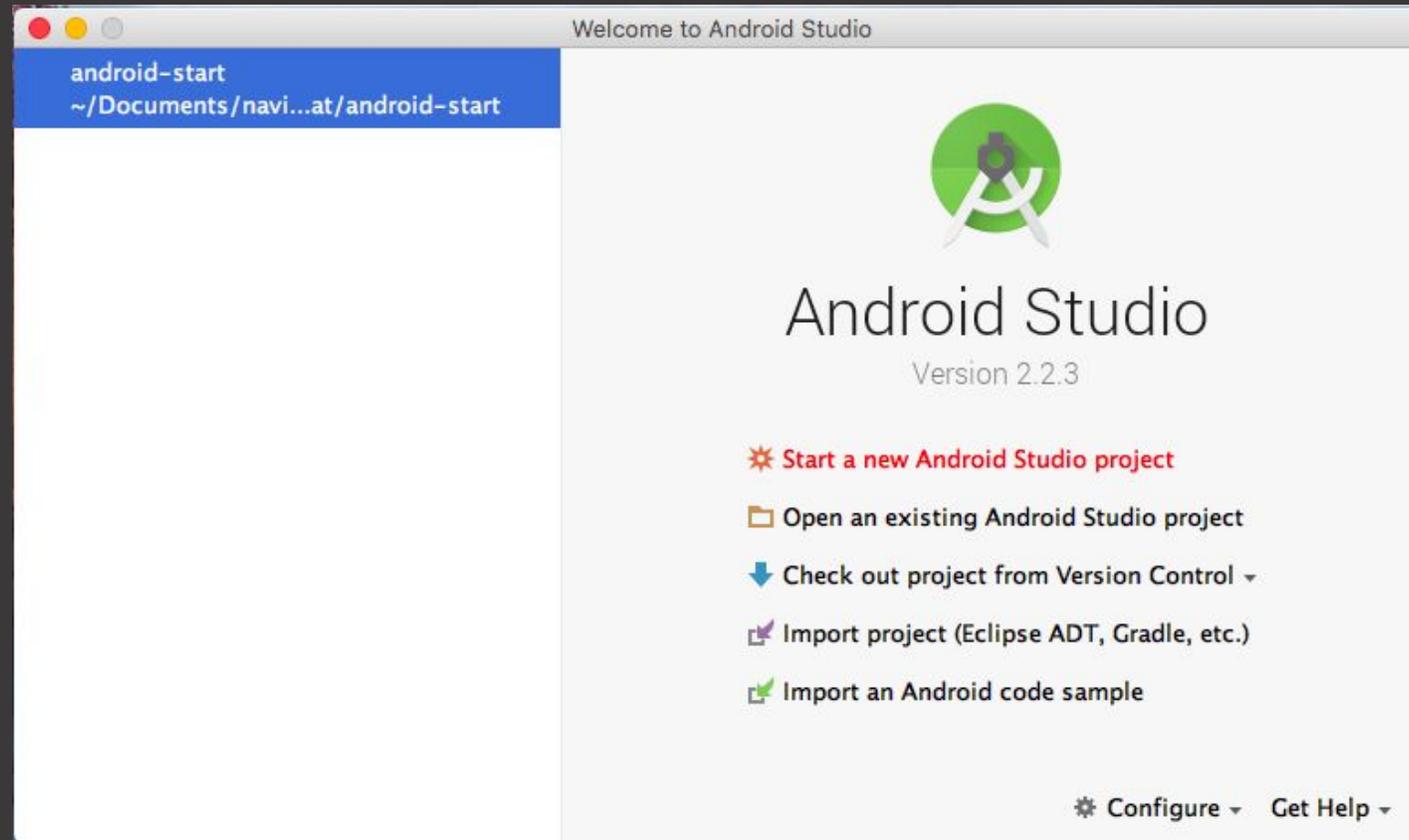
firebase.google.com



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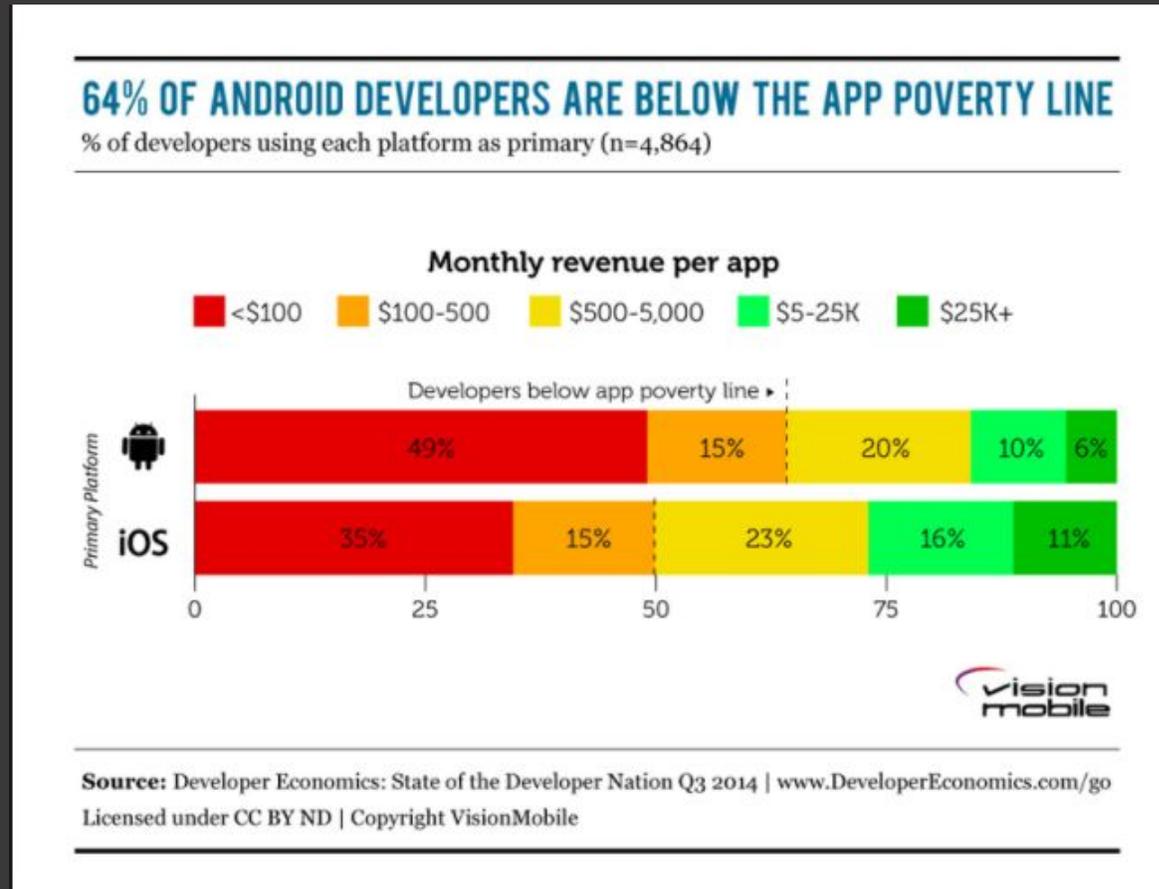
Aplicación Android Básica



<https://github.com/olapaola/Women-Tech-Makers-4-Marzo-Campus-Madrid>



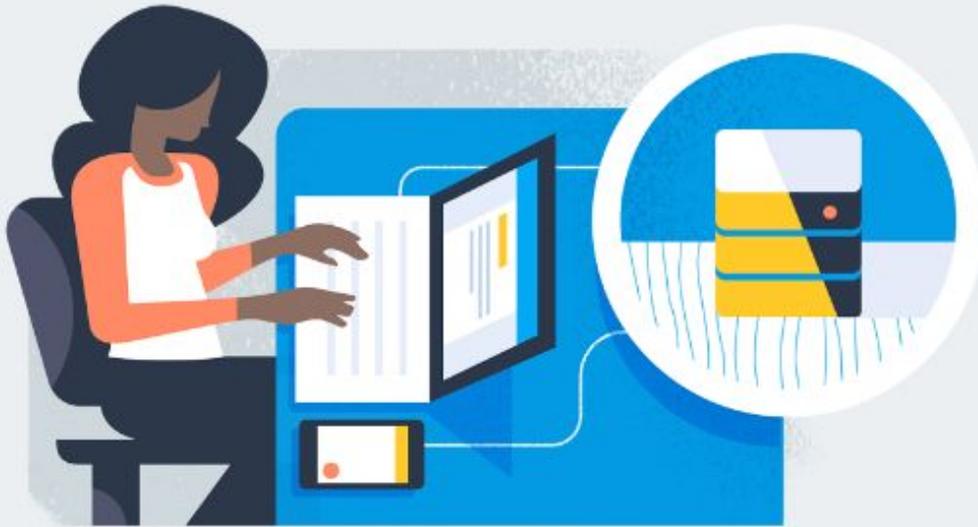
¿Porqué Firebase + Android?



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Firebase



Forget about infrastructure

Implementing Firebase is quick and easy. With intuitive APIs packaged into a single SDK, you can focus on solving your customers' problems and not waste time building complex infrastructure.

[VIEW DOCS](#)

firebase.google.com



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Firebase

```
SWIFT  OBJECTIVE-C  JAVA  JS  C++  UNITY
FIRAuth.auth()?.addAuthStateDidChangeListener({ (auth, user) {
  if (user) {
    var email = user.email
    // ...
  }
})
FIRAuth.auth()?.signInWithEmail(email,
                                password: password,
                                completion: { (_, error) in

  if (error) {
    // ...
  }
})
```

Work across platforms

Deliver cross-platform apps with APIs packaged into single SDKs for iOS, Android, JavaScript, C++, and Unity. Expand to a different platform without modifying your infrastructure.

-  [Try iOS tutorial](#)
-  [Try Android tutorial](#)
-  [Try Web tutorial](#)

firebase.google.com



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¿Como integrar Firebase en Android?

Firebase console



Android Studio

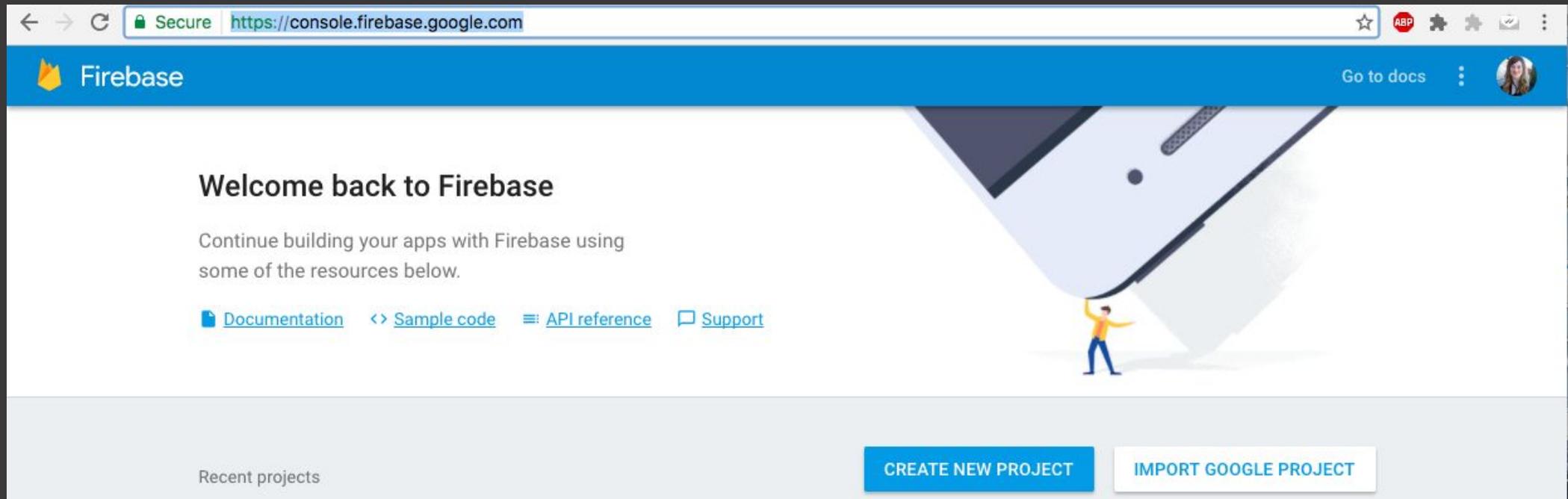
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Firebase Console



<https://console.firebase.google.com/>



¿Como integrar Firebase en Android?

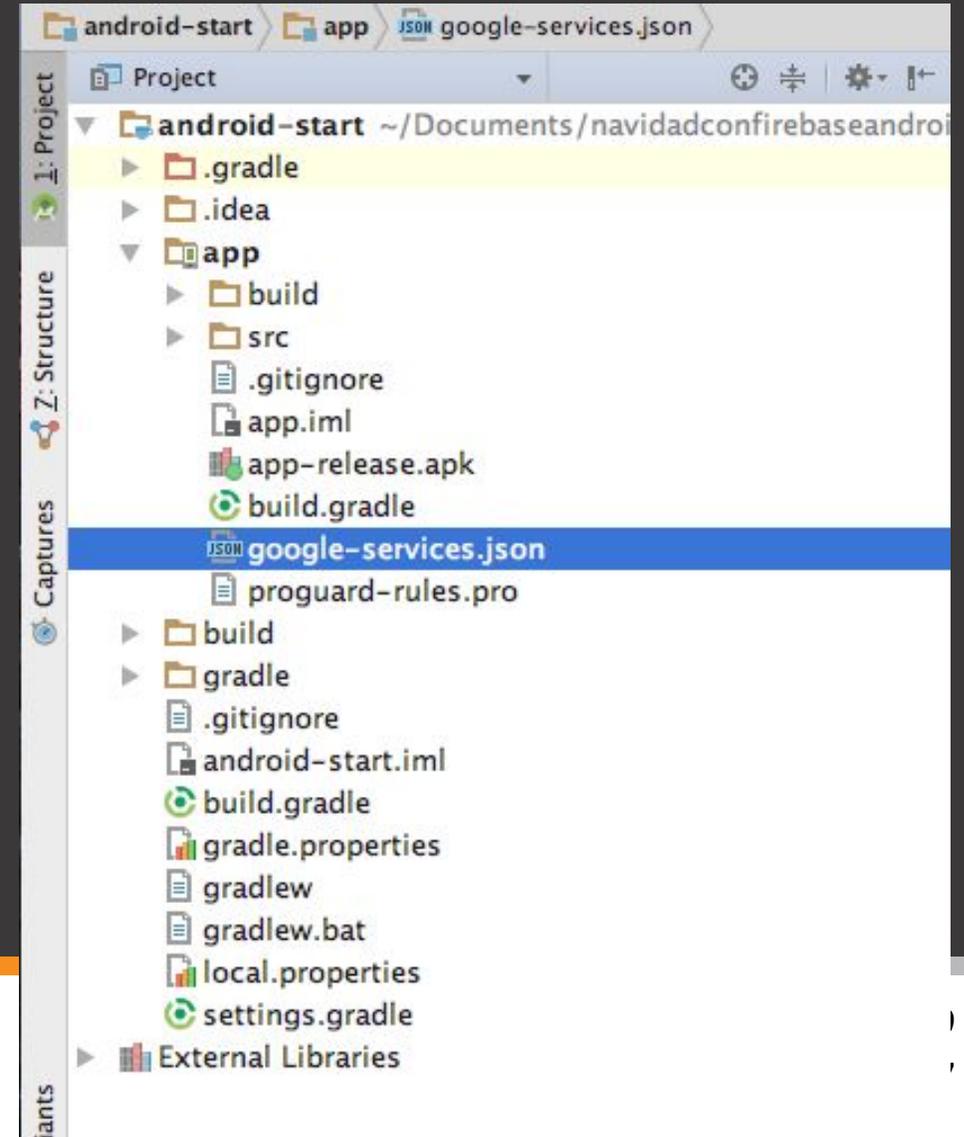
Firebase console | Android Studio

config file (google-services.json)
build.gradle(dependencies)

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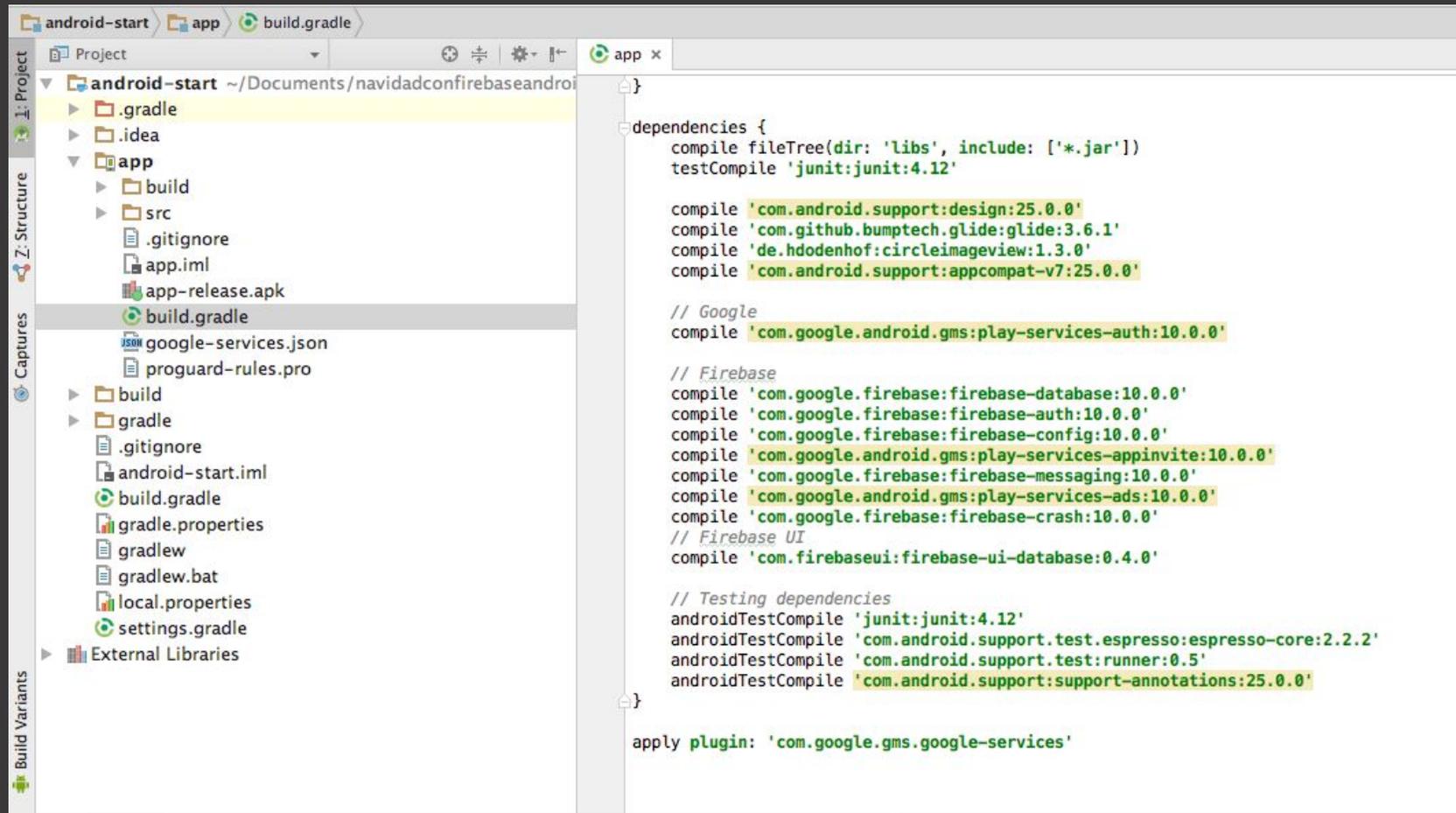


google-services.json



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build.gradle. Firebase dependencies



```
dependencies {
    compile fileTree(dir: 'libs', include: ['*.jar'])
    testCompile 'junit:junit:4.12'

    compile 'com.android.support:design:25.0.0'
    compile 'com.github.bumptech.glide:glide:3.6.1'
    compile 'de.hdodenhof:circleimageview:1.3.0'
    compile 'com.android.support:appcompat-v7:25.0.0'

    // Google
    compile 'com.google.android.gms:play-services-auth:10.0.0'

    // Firebase
    compile 'com.google.firebase:firebase-database:10.0.0'
    compile 'com.google.firebase:firebase-auth:10.0.0'
    compile 'com.google.firebase:firebase-config:10.0.0'
    compile 'com.google.android.gms:play-services-appinvite:10.0.0'
    compile 'com.google.firebase:firebase-messaging:10.0.0'
    compile 'com.google.android.gms:play-services-ads:10.0.0'
    compile 'com.google.firebase:firebase-crash:10.0.0'
    // Firebase UI
    compile 'com.firebaseui:firebase-ui-database:0.4.0'

    // Testing dependencies
    androidTestCompile 'junit:junit:4.12'
    androidTestCompile 'com.android.support.test.espresso:espresso-core:2.2.2'
    androidTestCompile 'com.android.support.test:runner:0.5'
    androidTestCompile 'com.android.support:support-annotations:25.0.0'
}

apply plugin: 'com.google.gms.google-services'
```

git clone <https://github.com/firebase/friendlychat>



Social Login Android + (Firebase)

1) Google APIs for Android: Google Sign-In

“¿Esta cuenta de Google que el usuario mete es válida Google?”

2) Authenticate with Firebase with this Google Account.

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Google Sign-In

```
private void signIn() {  
    Intent signInIntent = Auth.GoogleSignInApi.getSignInIntent(mGoogleApiClient);  
    startActivityForResult(signInIntent, RC_SIGN_IN);  
}
```

<https://developers.google.com/android/guides/http-auth>



Authenticate with Firebase.

```
AuthCredential credential = GoogleAuthProvider.getCredential(acct.getIdToken(), null);  
mFirebaseAuth.signInWithCredential(credential)
```

<https://developers.google.com/android/guides/http-auth>



Authenticate with Firebase. Config

1. Configure Authentication Apis. Firebase Console
2. Firebase RealTime Database Rules. Firebase Console
3. SHA Certificate Key: google-services.json

<https://developers.google.com/android/guides/http-auth>



Chat tiempo real en Android

1) Sockets + server

Comunico los mensajes del cliente al servidor y los distribuyo mediante un canal establecido al resto de usuarios.

2) Muestro los mensajes que recibo en el cliente

3) Envio mis mensajes al server



Chat tiempo real en Android con Firebase

- 1) Firebase gestiona la comunicación a los cliente autenticados (Solo cliente Android + Firebase)
- 2) Solo me preocupo de leer los mensajes de la BD Tiempo Real de Firebase y mostrarlos en el cliente
- 3) Y escribir mis mensajes en la BD Tiempo Real de Firebase



Cómo usar la BD Tiempo Real de Firebase en Android

1) Initialize Firebase Database

```
mFirebaseDatabaseReference = FirebaseDatabase.getInstance().getReference();
```

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Cómo usar la BD Tiempo Real de Firebase en Android

2) Add a listener to handle changes made to the data

```
//Getting BotMessages from Firebase Database
botReference = mFirebaseDatabaseReference.child("bot");

botReference.addValueEventListener(new ValueEventListener() {
    @Override
    public void onDataChange(DataSnapshot dataSnapshot) {
        if (dataSnapshot.exists()) {

            for (DataSnapshot snapshotBot: dataSnapshot.getChildren()) {
                botList.add(new BotMessage(snapshotBot.getKey(), snapshotBot.getValue().toString()));
            }
        }
    }
    @Override
    public void onCancelled(DatabaseError databaseError) {
        // Getting Bot failed, log a message
        Log.w(TAG, "loadBot:onCancelled", databaseError.toException());
    }
});
```

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Cómo usar la BD Tiempo Real de Firebase en Android

2) Read Data: getValue() | Firebase UI : FirebaseRecyclerAdapter

```
mFirebaseAdapter = new FirebaseRecyclerAdapter<FriendlyMessage,  
    MessageViewHolder>(  
    FriendlyMessage.class,  
    R.layout.item_message,  
    MessageViewHolder.class,  
    mFirebaseDatabaseReference.child(MESSAGES_CHILD+"/"+mFirebaseUser.getUid())) {
```

<https://firebase.google.com/docs/database/android/start/>



Cómo usar la BD Tiempo Real de Firebase en Android

2) Escribir datos

```
mSendButton.setOnClickListener((view) -> {  
    // Send messages on click.  
    FriendlyMessage friendlyMessage = new  
        FriendlyMessage(mMessageEditText.getText().toString(),  
        mUsername,  
        mPhotoUrl);  
    userMessagesReference.push().setValue(friendlyMessage);  
})
```

<https://firebase.google.com/docs/database/android/start/>



Cómo publicar app Android + Firebase



+

SHA-1 “Release KEY” en Firebase Console

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Cómo obtener SHA-1 de mis claves generadas por Android Studio

To get the release certificate fingerprint:

```
keytool -exportcert -list -v \  
-alias <your-key-name> -keystore <path-to-production-keystore>
```

To get the debug certificate fingerprint:

MAC/LINUX

WINDOWS

```
keytool -exportcert -list -v \  
-alias androiddebugkey -keystore ~/.android/debug.keystore
```

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



Firebase Test Lab

“Test in the lab not on your users”

<https://firebase.google.com/features/>



Firebase Test Lab

The screenshot shows the Firebase Test Lab interface. The top navigation bar includes the Firebase logo, the text 'react-firebase-chat', and a 'Go to docs' link with a user profile icon. A left sidebar lists various services: Overview, Analytics, Authentication, Database, Storage, Hosting, Test Lab (highlighted), Crash Reporting, Notifications, Remote Config, Dynamic Links, and Spark (Free \$0/month). The main content area is titled 'Test Lab' and 'Run a test'. It features a 'Choose test type' dialog with two options: 'Robo test' (selected) and 'Instrumentation test'. The Robo test description states it automatically explores the app on a wide array of devices to find defects and report crashes, without requiring manual test writing. The Instrumentation test description states it runs Espresso, Robotium, or UIAutomator 2.0 tests on a wide array of devices. An information box below the Robo test option notes its compatibility with the Android UI framework and provides a 'LEARN MORE' link. A 'CONTINUE' button is located at the bottom right of the dialog.

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Firebase Test Lab

1 Select app ————— 2 Select dimensions

Select the devices, API levels, orientations, and locales you want to run your test on. You must select at least one of each dimension.

i You have a daily quota of 5 physical and 10 virtual device test executions that is refreshed at (12AM PST)

UPGRADE

Physical devices

Nexus 7 (2013) ASUS

19 21

Nexus 9 HTC

21

LG G4 LG

22

HTC One (M8) HTC

19

LG G3 LG

19

Nexus 4 LG

19 22

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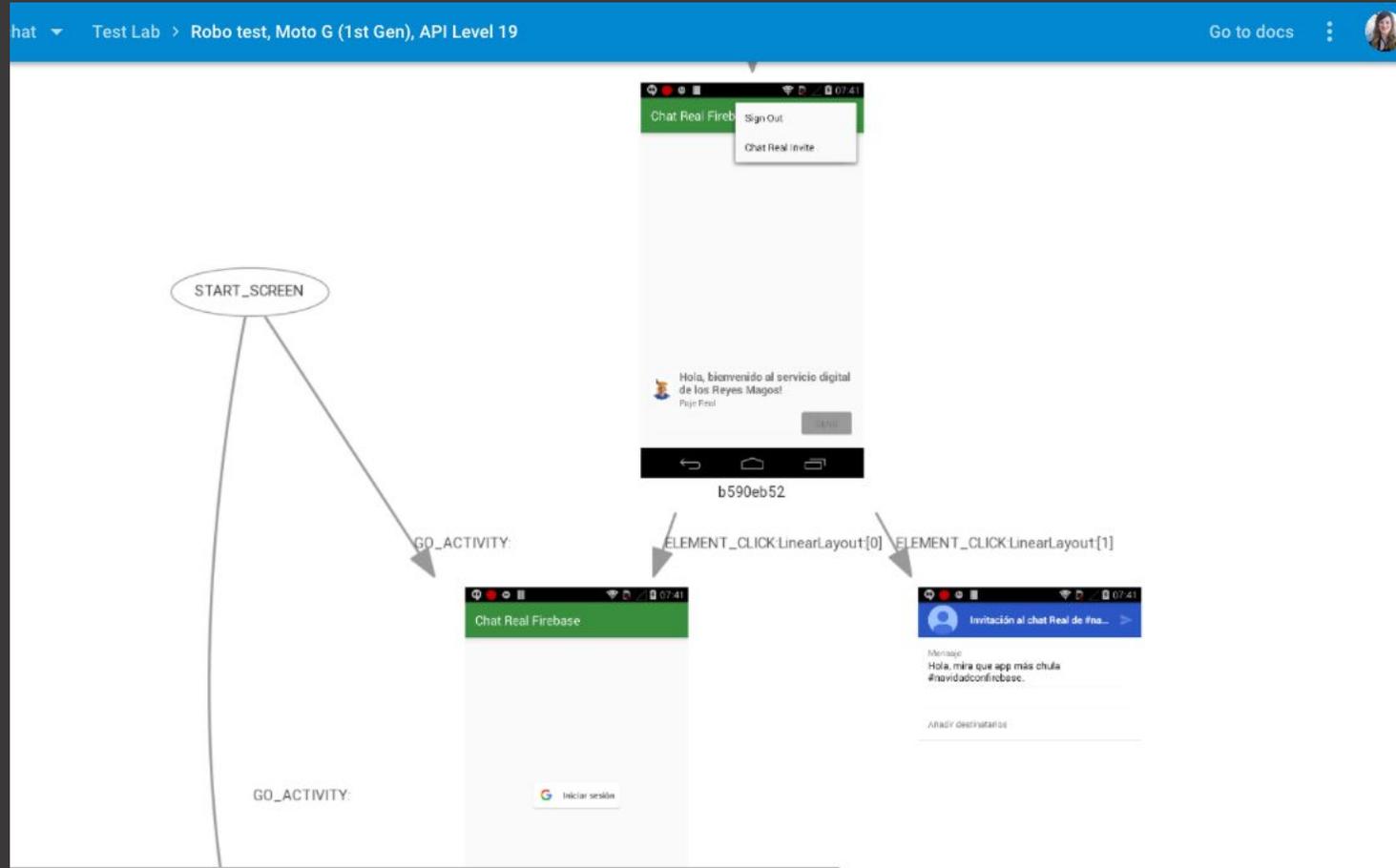
Firebase Test Lab

The screenshot displays the Firebase Test Lab interface for a test run. At the top, it shows the test name "Robo test, Moto G (1st Gen), API Level 19" and a status of "Passed" with a green checkmark. The test duration is "3 min 40 sec" and it was run on a device with "Spanish, Spain" locale and "Portrait" orientation. A "VIEW SOURCE FILES" button is visible in the top right. Below the status bar, there are four tabs: "LOGS", "SCREENSHOTS", "ACTIVITY MAP", and "VIDEOS". The "SCREENSHOTS" tab is active, showing four sequential screenshots of the application. The first screenshot shows a chat invitation screen with a message: "Hola, mira que app más chula #navidadconfirebase." The second screenshot shows a keyboard over an "Añadir destinatarios" field. The third screenshot shows a login screen with a "Iniciar sesión" button. The fourth screenshot shows a welcome screen with a "Sign Out" button and a "Chat Real Invite" button. The screenshots are labeled with IDs: "5db5393c.png", "646a4012.png", "77dd2723.png", and "b590eb52.png".

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Firebase Test Lab

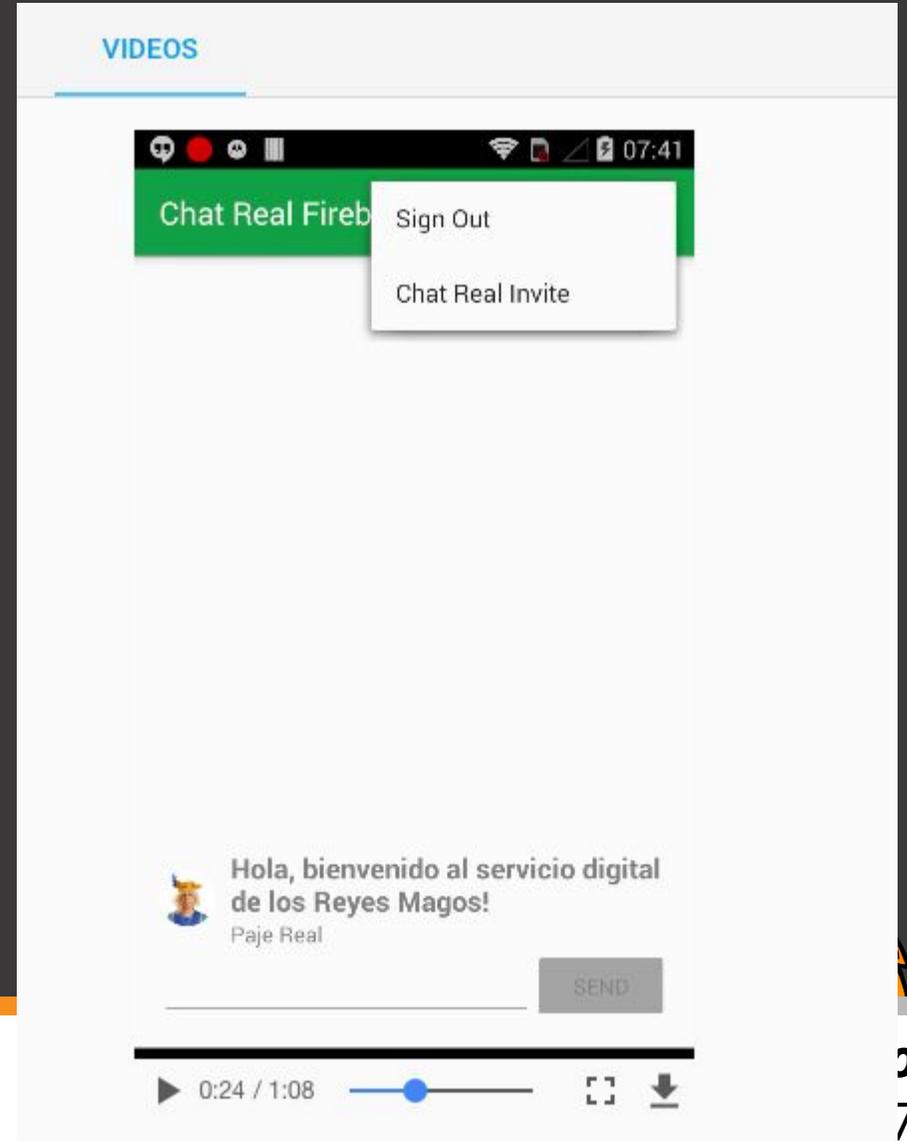


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Firestore Test Lab

<https://console.firebase.google.com>



Firestore used multiplatform

Gestiona tus usuarios multiplataforma

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Firestore used multiplatform

The image displays a multi-platform development environment. On the left, the Firebase console is open in a browser, showing the Realtime Database structure for a project named 'react-firebase-chat'. The database path is `react-firebase-chat-74da6 > messages > PBmGBxEG0cRZkDkGnOsZGhCEZ-KZHlm7K0EdVx1QnYFQ3`. The data for this path is:

```
{
  avatar: "https://lh6.googleusercontent.com/-X8WR2E...",
  displayName: "Paola Garcia",
  text: "hoaaa"
}
```

In the center, an Android emulator shows a mobile app titled 'Chat Real Firebase'. The chat history includes:

- Paola Garcia: "Eres un valiente! Te mereces un regalo especial!"
- Paje Real: "hoaaa"
- Paola Garcia: "Estupendo. Quiero saber más de ti. ¿Que lenguaje, librería o framework usas ahora o quieres aprender? ¿Android, Polymer, Angular, React...?"
- Paje Real: "Hola, yo uso Polymer"
- Paola Garcia: "Hola :) Dime, ¿que hiciste durante el año pasado para mejorar tus habilidades como desarrollador?"
- Paje Real: "Hola"
- Paola Garcia: "Hola, bienvenido al servicio digital de los Reyes Magos. Dime, ¿que hiciste durante el año pasado para ser un mejor desarrollador?"
- Paje Real: "Eres un valiente! Te mereces un ng-regalo especial!"

On the right, a web browser shows the 'Chat Real' interface. The chat history is identical to the emulator, with the user 'Paola Garcia' and a 'LOGOUT' button. At the bottom right, there is an 'ENVIAR' button.

navidadconfirebase.es

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¿Firebase es gratis?

	SPARK Free Generous limits for hobbyists	FLAME \$25 per month Predictable pricing for growing apps	BLAZE Pay as you go Commodity pricing for apps at scale
Included Free Analytics, App Indexing, Authentication, Cloud Messaging, Crash Reporting, Dynamic Links, Invites, Notifications & Remote Config	✓	✓	✓
Realtime Database			
Simultaneous connections	100	Unlimited ¹	Unlimited ¹
GB stored	1 GB	2.5 GB	\$5/GB
GB downloaded	10 GB/month	20 GB/month	\$1/GB
Automated backups	✗	✗	✓
Storage			
GB stored	5 GB	50 GB	\$0.026/GB ²
GB downloaded	1 GB/day	50 GB/month	\$0.12/GB ²
Upload operations	20,000/day	100,000/day	\$0.10/thousand ²
Download operations	50,000/day	250,000/day	\$0.01/thousand ²

<https://firebase.google.com/pricing/>



Cómo dar los siguientes pasos

[Youtube Paola Garcia](#)

[Udacity. Firebase in a weekend:Android](#)

[Codelab Google Developer Firebase & Android](#)

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Firebase Docs

Firebase by platform



For iOS

[Get Started Guide](#)

[Code Lab](#)

[API Reference](#)

[Samples](#)



For Android

[Get Started Guide](#)

[Code Lab](#)

[API Reference](#)

[Samples](#)



For Web

[Get Started Guide](#)

[Code Lab](#)

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<https://firebase.google.com/docs/>



Firestore Docs

Gracias!!!!

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