

Mobile Application Development

Produced
by

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Android & Firebase

Part 4

Firebase Integration





Agenda

- ❑ Firebase history
- ❑ The all new Firebase
- ❑ Real-time database
- ❑ Authentication
- ❑ Storage
- ❑ Remote config
- ❑ Hosting
- ❑ Crash reporting
- ❑ Test lab
- ❑ Firebase cloud messaging
- ❑ Dynamic links
- ❑ App indexing
- ❑ Analytics
- ❑ CoffeeMate Highlights & Demos along the way...



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- ❑ Firebase history
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- ❑ **Hosting**
- ❑ Crash reporting
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Hosting

The new VPS in town...



Firebase Hosting

- ❑ Firebase hosting provides a fast and secure static hosting for your web app.
- ❑ It is a production grade web content hosting.
- ❑ No need to look for any other VPS solution
- ❑ Hosting gives a subdomain of “firebaseapp.com”
- ❑ You can also get a custom domain.
- ❑ Install firebase CLI and deploy in a matter of seconds.
- ❑ Also suited for progressive web apps



Deploy Your Site In Seconds

- ❑ Install npm.
 - ❑ Install firebase CLI
 - `npm install -g firebase-tools`
 - ❑ Initialize your app
 - `firebase init`
 - ❑ Set root folder and put your static content there.
 - ❑ Deploy
 - `firebase deploy`



Firebase Hosting



Quick DEMO...



S W R E

console.firebaseio.google.com/project/coffeematefbi/hosting

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CoffeeMateFBI – Hosting – Firebase console

Firebase CoffeeMateFBI Overview Go to docs :

Analytics

DEVELOP

Authentication

Database

Storage

Hosting

Functions

Test Lab

Crash Reporting

Performance

GROW

Notifications

Remote Config

Dynamic Links

Spark Free \$0/month UPGRADE

DASHBOARD USAGE

HOSTING

Deploy web and mobile web apps in seconds using a secure global content delivery network

Learn more View the docs

GET STARTED

A screenshot of the Firebase Hosting dashboard. On the left, a sidebar lists various services: Analytics, Authentication, Database, Storage, Hosting (which is highlighted with a red box), Functions, Test Lab, Crash Reporting, Performance, Notifications, Remote Config, and Dynamic Links. Below this is a plan summary for 'Spark' with a 'Free \$0/month' price and a 'UPGRADE' button. The main content area has tabs for 'DASHBOARD' and 'USAGE'. A large central box features an illustration of Earth with a signal tower and the text: 'Deploy web and mobile web apps in seconds using a secure global content delivery network'. It includes links to 'Learn more' and 'View the docs', and a prominent blue 'GET STARTED' button.



S W R E

console.firebaseio.google.com/project/coffeematefbi/hosting

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CoffeeMateFBI – Hosting – Firebase console

Firebase CoffeeMateFBI ▾

Overview Hosting DASHBOARD USAGE

Analytics

DEVELOP

Authentication

Database

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Performance

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Notifications

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Dynamic Links

Spark Free \$0/month UPGRADE

Set up hosting

1 Install 2 Deploy

To host your site, you need to install Firebase command line tools using npm ([Node.js](#)).

Install Firebase tools: `$ npm install -g firebase-tools`

Doesn't work? You may need to [change npm permissions](#).

If you've previously installed Firebase command line tools, run the install command again to make sure that you have the latest version.

CANCEL CONTINUE



S W R E

console.firebaseio.google.com/project/coffeematefbi/hosting

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CoffeeMateFBI – Hosting – Firebase console

Firebase CoffeeMateFBI Overview Hosting Analytics DASHBOARD USAGE ?

DEVELOP Authentication Database Storage Hosting Functions Test Lab Crash Reporting Performance GROW Notifications Remote Config Dynamic Links

Spark Free \$0/month UPGRADE

Set up hosting

1 Install 2 Deploy

Open a terminal window and navigate to or create a directory for your site

Sign in to Google: `$ firebase login`

Initiate your project: `$ firebase init`

Add your static files to your deploy directory (the default is public)

Deploy your website: `$ firebase deploy`

FINISH

A screenshot of the Firebase Hosting setup dialog box. It shows two steps: 'Install' and 'Deploy'. Step 1 'Install' includes instructions to sign in to Google and run the command \$ firebase login. Step 2 'Deploy' includes instructions to initiate the project with \$ firebase init, add static files to the deploy directory, and deploy the website with \$ firebase deploy. A large blue 'FINISH' button is at the bottom right.



S W R E

console.firebaseio.google.com/project/coffeematefbi/hosting/main

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CoffeeMateFBI – Hosting – Firebase console

Firebase CoffeeMateFBI Overview Go to docs :

Analytics

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Test Lab

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Dynamic Links

Spark Free \$0/month UPGRADE

HOSTING

Domain

coffeematefbi.firebaseioapp.com Default CONNECT DOMAIN

Deployment history

Waiting for your first deploy INSTRUCTIONS

The screenshot shows the Firebase Hosting dashboard for the project "CoffeeMateFBI". The left sidebar lists various Firebase services: Analytics, Authentication, Database, Storage, Hosting (which is selected and highlighted in blue), Functions, Test Lab, Crash Reporting, Performance, Notifications, Remote Config, and Dynamic Links. The main content area is titled "HOSTING" and contains sections for "Domain" and "Deployment history". In the "Domain" section, there is a table with one row showing the domain "coffeematefbi.firebaseioapp.com" as "Default". A large red box highlights this row. To the right of the table is a blue "CONNECT DOMAIN" button. Below the table is a message "Waiting for your first deploy" with a blue "INSTRUCTIONS" button. At the bottom of the sidebar, it says "Spark Free \$0/month" and has an "UPGRADE" button.

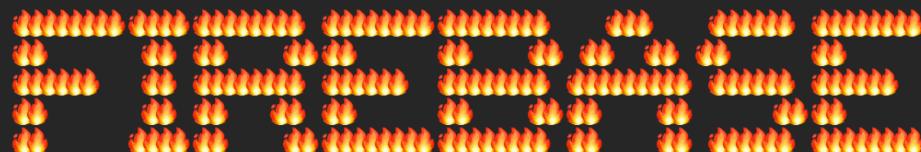


```
ict — node /usr/local/bin/firebase init — 180x40

contributors.txt credits topic01-overview-and-tools topic04-google-services
course.md public-site topic02-ui-design topic05-firebase
courseurl topic00-profile topic03-networking topic06-future-trends

[davesmbp:msc-mad ddrohan$ cd ..
[davesmbp:github ddrohan$ ls
  android-apps-development.png intro.to.android.jpeg
  ddrohan.github.io labs.png
  ds.png mad-2016
  header.png mad.png
  ict mad1.png
[davesmbp:github ddrohan$ cd ict
[davesmbp:ict ddrohan$ ls
  public-site
[davesmbp:ict ddrohan$ ls
  public
[davesmbp:ict ddrohan$ firebase login
  Already logged in as daveydrohan@gmail.com
[davesmbp:ict ddrohan$ firebase init
```

Update available: 3.12.0 (current: 3.9.1)
Run `npm install -g firebase-tools` to update.



You're about to initialize a Firebase project in this directory:

`/Users/ddrohan/Library/Mobile Documents/com~apple~CloudDocs/_wit/github/ict`

? Which Firebase CLI features do you want to setup for this folder? Press Space to select features, then Enter to confirm your choices.

- Database: Deploy Firebase Realtime Database Rules
- Functions: Configure and deploy Cloud Functions
- Hosting: Configure and deploy Firebase Hosting sites



FIREBASE

You're about to initialize a Firebase project in this directory:

```
/Users/ddrohan/Library/Mobile Documents/com~apple~CloudDocs/_wit/github/ict
```

? Which Firebase CLI features do you want to setup for this folder? Press Space to select features, then Enter to confirm your choices. Hosting: Configure and deploy Firebase Hosting sites

Project Setup

First, let's associate this project directory with a Firebase project. You can create multiple project aliases by running `firebase use --add`, but for now we'll just set up a default project.

? Select a default Firebase project for this directory: CoffeeMateFBI (coffeematefbi)

Hosting Setup

Your `public` directory is the folder (relative to your project directory) that will contain Hosting assets to be uploaded with `firebase deploy`. If you have a build process for your assets, use your build's output directory.

```
? What do you want to use as your public directory? public
? Configure as a single-page app (rewrite all urls to /index.html)? No
✓ Wrote public/404.html
? File public/index.html already exists. Overwrite? No
i Skipping write of public/index.html

i Writing configuration info to firebase.json...
i Writing project information to .firebaserc...

✓ Firebase initialization complete!
```

```
davesmbp:ict ddrohan$
```

```
ict — node /usr/local/bin/firebase deploy — 180x40
You're about to initialize a Firebase project in this directory:
/Users/ddrohan/Library/Mobile Documents/com~apple~CloudDocs/_wit/github/ict
? Which Firebase CLI features do you want to setup for this folder? Press Space to select features, then Enter to confirm your choices. Hosting: Configure and deploy Firebase Hosting sites
== Project Setup

First, let's associate this project directory with a Firebase project.
You can create multiple project aliases by running firebase use --add,
but for now we'll just set up a default project.

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== Hosting Setup

Your public directory is the folder (relative to your project directory) that
will contain Hosting assets to be uploaded with firebase deploy. If you
have a build process for your assets, use your build's output directory.

[?] What do you want to use as your public directory? public
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✓ Wrote public/404.html
[?] File public/index.html already exists. Overwrite? No
i Skipping write of public/index.html

i Writing configuration info to firebase.json...
i Writing project information to .firebaserc...

✓ Firebase initialization complete!
davesmbp:ict ddऽrohan$ firebase deploy

== Deploying to 'coffeematefbi'...
i deploying hosting
i hosting: preparing public directory for upload...
```

ict — bash — 180x40

? Select a default Firebase project for this directory: CoffeeMateFBI (coffeematefbi)

— Hosting Setup

Your **public** directory is the folder (relative to your project directory) that will contain Hosting assets to be uploaded with **firebase deploy**. If you have a build process for your assets, use your build's output directory.

[?] What do you want to use as your **public** directory? **public**
[?] Configure as a single-page app (rewrite all urls to /index.html)? **No**
✓ Wrote **public/404.html**
[?] File **public/index.html** already exists. Overwrite? **No**
i Skipping write of **public/index.html**

i Writing configuration info to **firebase.json**...
i Writing project information to **.firebaserc**...

✓ Firebase initialization complete!
[davesmbp:ict ddrohan\$ firebase deploy

— Deploying to 'coffeematefbi'...

i deploying **hosting**
i **hosting**: preparing **public** directory for upload...

Error: An unexpected error has occurred.
[davesmbp:ict ddrohan\$ firebase deploy

— Deploying to 'coffeematefbi'...

i deploying **hosting**
i **hosting**: preparing **public** directory for upload...
✓ **hosting**: 313 files uploaded successfully
i starting release process (may take several minutes)...

✓ Deploy complete!

Project Console: <https://console.firebaseio.google.com/project/coffeematefbi/overview>
Hosting URL: <https://coffeematefbi.firebaseio.com>
[davesmbp:ict ddrohan\$

S R T E

console.firebaseio.google.com/project/coffeematefbi/hosting/main

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CoffeeMateFBI – Hosting – Firebase console https://coffeematefbi.firebaseioapp.com +

Firebase

CoffeeMateFBI

Overview

Analytics

DEVELOP

- Authentication
- Database
- Storage
- Hosting**
- Functions
- Test Lab
- Crash Reporting
- Performance

GROW

- Notifications
- Remote Config
- Dynamic Links

EARN

- AdMob

Spark
Free \$0/month **UPGRADE**

Hosting

DASHBOARD

USAGE

Domain

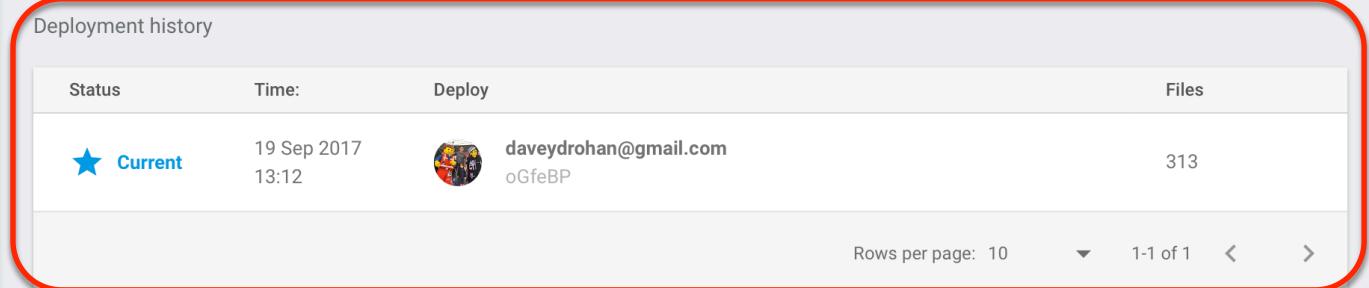
CONNECT DOMAIN

Domain	Type	Status
coffeematefbi.firebaseioapp.com		Default

Deployment history

Status	Time:	Deploy	Files
Current	19 Sep 2017 13:12	daveydrohan@gmail.com oGfeBP	313

Rows per page: 10 ▾ 1-1 of 1 < >



coffeematefbi.firebaseio.com

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Mobile Application Development

Module Home

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Module Overview & Background



Here you'll find a brief talk about myself, my background and what this Module will cover in the different sections.

1: Android Overview & Tools



Android introduced a new user interface language to the world, one that is gradually evolving in flexibility and expressiveness. The first application we will build exhibits a range of new concepts you may not have come across before. Here we tour this app in detail, exploring each of the artifacts we have composed, and attempt to get a sense of how they fit together to form a running app.

2: UI Design & App Structure



Here we discuss app design in general, the frameworks available to the app developer and the different approaches that can be followed in the design and development of a mobile app. We begin with some of the more common widgets and complete the material with some of the more advanced UI artifacts used in the design of android apps, focusing on the android UI guidelines for effective navigation.

3: Multithreading & Networking



In this section we take a brief look at persistence within an Android app (via SQLite) but focus mainly on how the Android OS implements multithreading and deals with running tasks in the background. We also investigate the different approaches available to the developer for making http calls and API requests.





S R T E CoffeeMateFBI – Hosting – Firebase console https://coffeematefbi.firebaseioapp.com https://www.jumpyjosh.com

Firebase CoffeeMateFBI Overview Go to docs ?

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EARN

AdMob

Spark Free \$0/month **UPGRADE**

HOSTING DASHBOARD USAGE

Domain

Domain	Type	Status
coffeematefbi.firebaseioapp.com	Default	
jumpyjosh.com ↳ www.jumpyjosh.com	Redirect	Connected
www.jumpyjosh.com	Custom	Connected

CONNECT DOMAIN

Deployment history

Status	Time:	Deploy	Files
★ Current	19 Sep 2017 13:12	daveydrohan@gmail.com oGfeBP	313

Rows per page: 10 1-1 of 1 < >



www.jumpyjosh.com

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Mobile Application Development

Module Home

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4: Google Services

5: Firebase

6: Future Trends



Pricing

Products	Spark Plan Generous limits for hobbyists Free	Flame Plan Fixed pricing for growing apps \$25/month	Blaze Plan Calculate pricing for apps at scale Pay as you go
Free Products Authentication (except Phone Auth), Analytics, App Indexing, Dynamic Links, Invites, Remote Config, Cloud Messaging (FCM), Performance Monitoring, and Crash Reporting.	Included	Included Free	Included Free
Hosting GB stored GB transferred Custom domain & SSL	1 GB 10 GB/month 	10 GB 50 GB/month 	\$0.026/GB \$0.15/GB



Thanks!



A black and white cartoon illustration of a hand with three fingers pointing towards a smiling sun. The sun has a face with two dots for eyes and a wide smile. It is surrounded by small clouds. The drawing is done in a simple, hand-drawn style.



Some important points though....

- ❑ Do not think RDBMS, think JSON. How data should be structured is very important.
- ❑ Firebase has a recycler view, that integrates with real time database smoothly without any listeners.
- ❑ Test lab which is available in paid plan (Blaze), is an amazing feature for testing your app on different real and virtual devices.
- ❑ Set developer mode to true when testing remote config.



References & Links

- ❑ [Presentation by Kaushal Dhruw & Shakti Moyal 2016](#)
- ❑ <https://firebase.google.com>
- ❑ Demo app available at <https://goo.gl/WBP5fR>



Questions?