

Mobile Application Development

Produced
by

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Waterford Institute of Technology
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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...



Agenda

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



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...



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

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CoffeeMateFBI – Hosting – Firebase console

Firestore

Analytics

Hosting

Go to docs

Overview

Hosting

DASHBOARD USAGE

Analytics

DEVELOP

Authentication

Database

Storage

Hosting

Functions

Test Lab

Crash Reporting

Performance

GROW

Notifications

Remote Config

Dynamic Links

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

[Learn more](#) [View the docs](#)

GET STARTED



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

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CoffeeMateFBI – Hosting – Firebase console

Overview Hosting DASHBOARD USAGE

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

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Overview Hosting DASHBOARD USAGE

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

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

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CoffeeMateFBI - Hosting - Firebase console

Firestore Analytics Cloud Storage Cloud Firestore Cloud Functions Cloud Messaging Cloud Scheduler Cloud Run Cloud Storage Cloud SQL Database Cloud Firestore Cloud Functions Cloud Messaging Cloud Scheduler Cloud Run Cloud Storage Cloud SQL Database

Overview Hosting Analytics Authentication Database Storage Hosting Functions Test Lab Crash Reporting Performance Notifications Remote Config Dynamic Links

Spark Free \$0/month UPGRADE

Hosting

DASHBOARD USAGE

Domain

CONNECT DOMAIN

Domain	Type	Status
coffeematefbi.firebaseio.com	Default	

Deployment history

Status	Time:	Deploy	Files
Waiting for your first deploy			

INSTRUCTIONS



```
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  mad2.png  mobile-app-dev-2016  wit-data-structures
ddrohan.github.io             labs.png               mad3.png  mobile-app-dev-2017  wit-mad-1
ds.png                         mad-2016              mad4.png  mobile-app-dev-edel.zip  wit-wad
header.png                    mad.png               mad5.png
ict                            mad1.png              mobile-app-dev-1.jpg  wad.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
```



```

  _____
 /_ _ _ _ _ \
/_ _ _ _ _ \
/_ _ _ _ _ \
/_ _ _ _ _ \
/_ _ _ _ _ \

```

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.

? 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...
```



? 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.firebase.google.com/project/coffeematefbi/overview>

Hosting URL: <https://coffeematefbi.firebaseio.com>

davesmbp:ict ddrohan\$



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

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Firestore CoffeeMateFBI

Go to docs

Overview **Hosting** ?


DASHBOARD USAGE

Domain

CONNECT DOMAIN

Domain	Type	Status
coffeematefbi.firebaseio.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

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coffeematefbi.firebaseio.com

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Mobile Application Development

Module Home

David Drohan (ddrohan@wit.ie), Eamonn de Leastar (edeleastar@tssg.wit.ie) & John Fitzgerald (johnjfitzgerald@outlook.com). [Creative Commons License](#)

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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.



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

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CoffeeMateFBI - Hosting - Firebase console https://coffeematefbi.firebaseio.com https://www.jumpyjosh.com

Firebase

CoffeeMateFBI

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- GROW
 - Notifications
 - Remote Config
 - Dynamic Links
- EARN
 - AdMob

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

Hosting

DASHBOARD USAGE

Domain

CONNECT DOMAIN

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

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



Mobile Application Development



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4: Google Services

5: Firebase

6: Future Trends



Pricing

	Spark Plan Generous limits for hobbyists	Flame Plan Fixed pricing for growing apps	Blaze Plan Calculate pricing for apps at scale
Products	Free	\$25/month	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 simple black-and-white line drawing of a cartoon character with a round face, a wide smile, and a hand raised in a gesture of appreciation. The character has a few strands of hair on top and a small copyright symbol (©) next to its head.



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?