

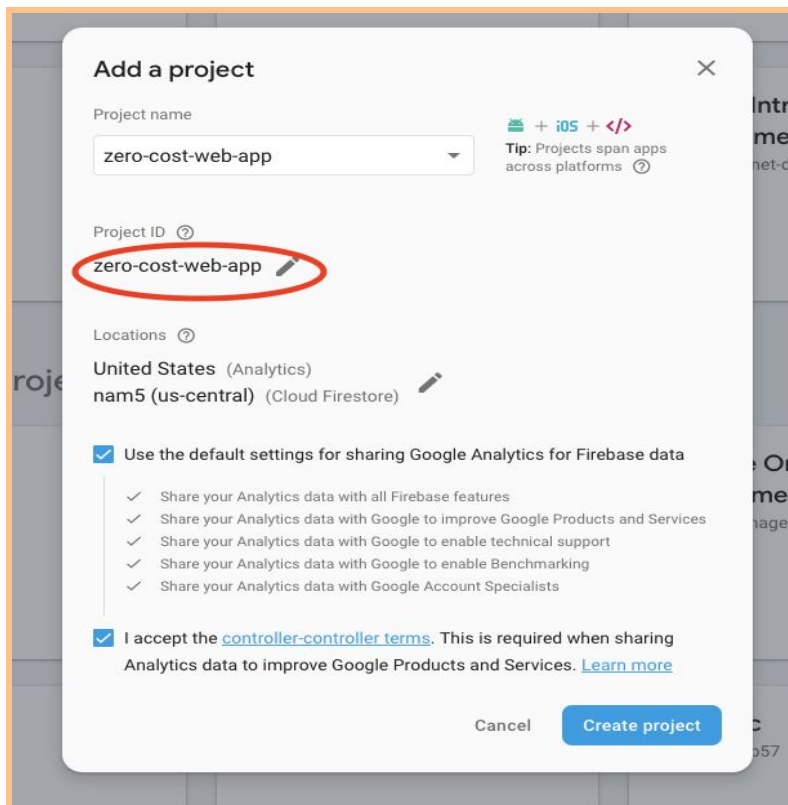
# Zero Cost Web Apps - Part 1

## Goals

1. Create a single page application
2. Add SSR (Server Side Rendering)
3. Cache as much as possible to minimize roundtrips
4. Part 2
  - a. Add Service Worker
  - b. Transform into a PWA (Progressive Web App)

## Prerequisites

1. Go to <https://console.firebase.google.com>
2. Create a firebase project called zero-cost-web-app
3. Note down project ID



**Add a project**

Project name  
zero-cost-web-app

Tip: Projects span apps across platforms

Project ID  
zero-cost-web-app

Locations  
United States (Analytics)  
nam5 (us-central) (Cloud Firestore)

☒ Use the default settings for sharing Google Analytics for Firebase data

- ✓ Share your Analytics data with all Firebase features
- ✓ Share your Analytics data with Google to improve Google Products and Services
- ✓ Share your Analytics data with Google to enable technical support
- ✓ Share your Analytics data with Google to enable Benchmarking
- ✓ Share your Analytics data with Google Account Specialists

☒ I accept the [controller-controller terms](#). This is required when sharing Analytics data to improve Google Products and Services. [Learn more](#)

Cancel Create project

# Global

```
> npm install -g ember-cli  
> npm install -g firebase-tools
```

## Build App

1. Setup a new ember app
2. Update package.json with extra scripts

```
> ember new zero-cost-web-app  
> cd zero-cost-web-app  
> ember install ember-cli-fastboot  
> ember install ember-fetch  
  
# Add scripts needed to build firebase / ember files  
> curl  
https://gist.githubusercontent.com/devotox/94e56ee31adff980d148506f2368a0d1  
/raw/7de88b9b4dbb448e3c3103d993af594196800a1f/package.json -o package.json  
  
# Add fastboot host whitelist to environment config  
> curl  
https://gist.githubusercontent.com/devotox/94e56ee31adff980d148506f2368a0d1  
/raw/23de6376bb2f6bb5d839d93796c105f52dee4ab0/config%2520%257C%2520environm  
ent.js -o config/environment.js  
  
# Add option to include welcome page in production  
> curl  
https://gist.githubusercontent.com/devotox/94e56ee31adff980d148506f2368a0d1  
/raw/63e94551c6cc6dda827b4dd1cd83d37b5d9ffd2b/ember-cli-build.js -o  
ember-cli-build.js
```

## Firebase

1. Setup a Firebase project

```
> firebase login  
> firebase init
```

## 2. Follow prompts to setup new project

```
• You are initializing in an existing Firebase project directory

? Which Firebase CLI features do you want to set up for this folder? Press Space to select features, then Enter to confirm your choices.
  Database: Deploy Firebase Realtime Database Rules
  Firestore: Deploy rules and create indexes for Firestore
  Functions: Configure and deploy Cloud Functions
  Hosting: Configure and deploy Firebase Hosting sites
  Storage: Deploy Cloud Storage security rules
```

- Use space-bar to select each of the choices
- Press enter to choose each default answer

## 1. Update firebase.json with SSR and cache rules

```
# Add config for SSR and caching
> curl
https://gist.githubusercontent.com/devotox/94e56ee31adff980d148506f2368a0d1
/raw/d3a7fd29af85fcc25c3fedff1d2729058d4154f9/firebase.json -o
firebase.json

# Remove index file that may have been created on firebase init
> rm -rf public/index.html
```

# Firebase Functions

## 1. Setup Firebase Functions

```
> cd functions/
> npm install fastboot
> npm install fetch
> npm install ember-fetch

# Update index file to have SSR cloud function exported
> curl
https://gist.githubusercontent.com/devotox/94e56ee31adff980d148506f2368a0d1
/raw/e446fd671489a5bafb86373c3ccef7da8d4d3b20/functions%2520%257C%2520index
.js -o index.js

# Go to root
> cd ..
```

# Start Application

```
> npm run build:firebase
> firebase serve

# Launches app in default browser
> open http://localhost:5000
```

## Deploy

```
> npm run deploy:firebase
```

Go to URL provided

```
== Deploying to 'zero-cost-web-app'...

i  deploying database, storage, functions, hosting
i  database: checking rules syntax...
✓ database: rules syntax for database zero-cost-web-app is valid
i  storage: checking storage.rules for compilation errors...
✓ storage: rules file storage.rules compiled successfully
i  functions: ensuring necessary APIs are enabled...
✓ functions: all necessary APIs are enabled
i  storage: uploading rules storage.rules...
i  functions: preparing functions directory for uploading...
i  functions: packaged functions (395 KB) for uploading
✓ functions: functions folder uploaded successfully
i  hosting[zero-cost-web-app]: beginning deploy...
i  hosting[zero-cost-web-app]: found 10 files in dist
✓ hosting[zero-cost-web-app]: file upload complete
i  database: releasing rules...
✓ database: rules for database zero-cost-web-app released successfully
✓ storage: released rules storage.rules to firebase.storage/zero-cost-web-app.appspot.com
i  functions: updating Node.js 10 (Beta) function SSR(us-central1)...
✓ functions[SSR(us-central1)]: Successful update operation.
i  hosting[zero-cost-web-app]: finalizing version...
✓ hosting[zero-cost-web-app]: version finalized
i  hosting[zero-cost-web-app]: releasing new version...
✓ hosting[zero-cost-web-app]: release complete

✓ Deploy complete!

Please note that it can take up to 30 seconds for your updated functions to propagate.
Project Console: https://console.firebase.google.com/project/zero-cost-web-app/overview
Hosting URL: https://zero-cost-web-app.firebaseio.com
```

## Note

- Open the developer tools and click on the network tab
- Find ``localhost``
- You should notice that the full html is rendered for the page without the need for javascript to be executed.
- You should also notice that after the first hit most of the assets should now be retrieved from ``memory cache``

### General

**Request URL:** https://zero-cost-web-app.firebaseio.com/assets/vendor-fd02c5eaa0ef599863c6cfa3e871dc89.js

**Request Method:** GET

**Status Code:** 200 (from memory cache)

**Remote Address:** 151.101.1.195:443

**Referrer Policy:** no-referrer-when-downgrade

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## Further Reading

- [Firebase](#)
- [Ember](#)
- [Ember CLI](#)
- [Ember Fastboot](#)

## Links

- [Finished Product](#)
- [Github Repo](#)
- [Github Gists](#)