BITBYBIT

Atbash

Technical Installations Manual

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Introduction

Atbash makes use of a front-end and back-end in order to function. The front-end is built using Flutter and the dart language. It sends requests to the back-end for communication functionalities between devices. The local storage used is SQLite provided by mobile devices. Android studio is used alongside its emulators.

In order for Atbash to function properly on the front-end, the following technologies need to be installed:

- Flutter/Dart
- Android Studio

The back-end is written in Javascript. We make use of Amazon's Web Services for all the back-ends functionality. Atbash makes use of Amazon's LAMBDA functions for the main functionality of the program, it uses Dynamo DB for temporary storage of messages and storage of users, S3 buckets for transferring of larger media files, an API gateway to route the front-ends requests to their appropriate LAMBDA functions and the cloud formation in order to build and deploy Atbash into a single application. These are all installed via Amazon's Serverless Application Model's Command Line Interface(SAM CLI).

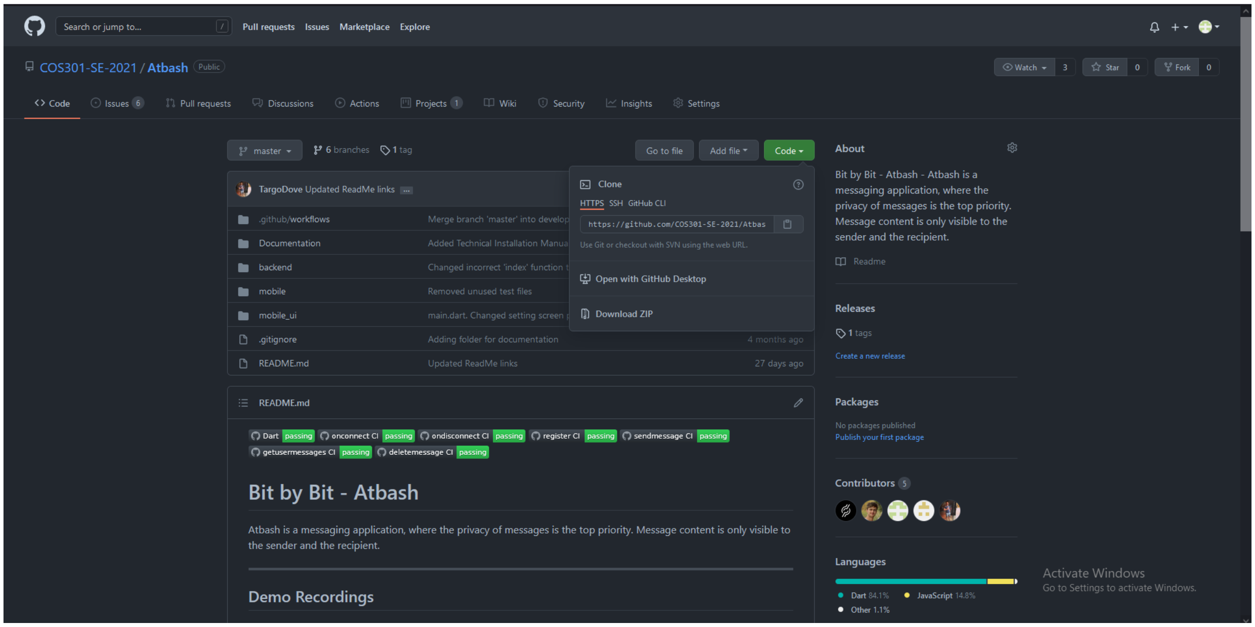
In order for Atbash to function properly on the back-end, all the above technologies need to be installed via the SAM CLI as well as those listed below.

- SAM CLI
- npm
- NodeJS

Atbash github repository

Atbash's github repository contains all the documentation and source code for the application. It also has descriptions on how the application was developed and by who. It can be found here: Atbash

Cloning the github repository



TargoDove Updated ReadMe links

.github/workflows	Merge branch 'master' into develop	
Documentation	Added Technical Installation Manua	
backend	Changed incorrect 'index' function t	
mobile	Removed unused test files	
mobile_ui	main.dart. Changed setting screen p	
.gitignore	Adding folder for documentation	4 months ago
README.md	Updated ReadMe links	27 days ago

```
https://github.com/COS301-SE-2021/Atbas
```

Use Git or checkout with SVN using the web URL.

About

Bit by Bit - Atbash - Atbash is a messaging application, where the privacy of messages is the top priority. Message content is only visible to the sender and the recipient.

Releases

1 tags

Create a new release

Packages

No packages published
Publish your first package

Languages

Dart 84.1% JavaScript 14.8% Other 1.1%

Bit by Bit - Atbash

Atbash is a messaging application, where the privacy of messages is the top priority. Message content is only visible to the sender and the recipient.

Demo Recordings

In order to clone the Atbash repository:

- Go to the Atbash github repository page
- Click on the green code button
- Select which way you would like to clone the repo
- Follow the provided steps in order to clone Atbash

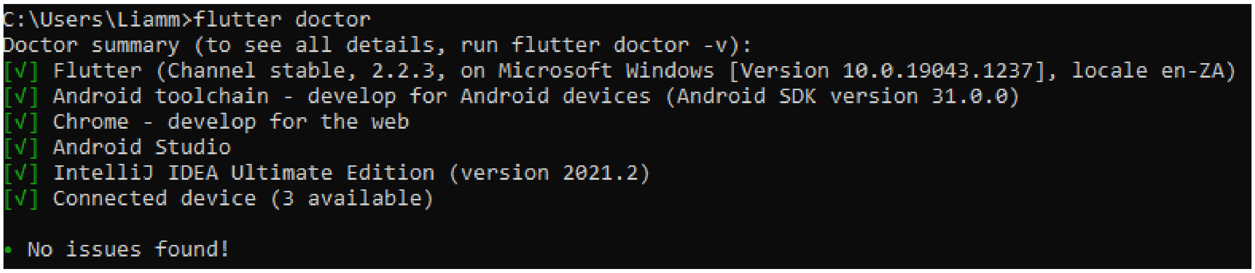
Prerequisites

Atbash requires the installation of certain technologies in order to function. These prerequisites are split into the front and back-end.

Front-End

Flutter

- Flutter requires an editor to run in. Android studio is recommended for this. For instructions on how to install Android studio the following link is provided: [Android Studio Install]()
- Once an editor has been installed the flutter SDK needs to be installed. Instructions on how to install the flutter SDK is provided: [Flutter Install]()
- Run “Flutter Doctor” to see if there are any problems with the installation.

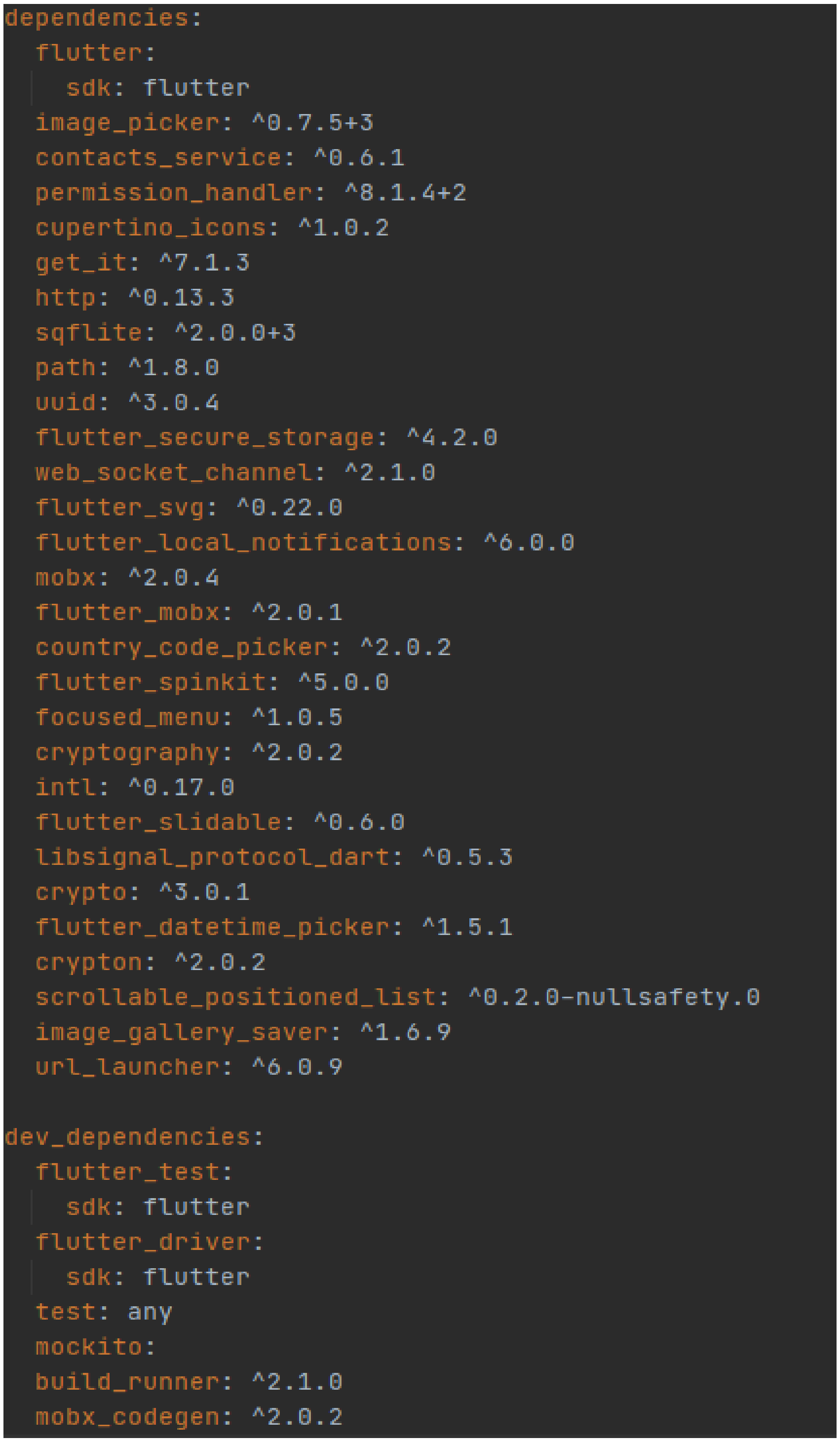


```
C:\Users\Liamm>flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[√] Flutter (Channel stable, 2.2.3, on Microsoft Windows [Version 10.0.19043.1237], locale en-ZA)
[√] Android toolchain - develop for Android devices (Android SDK version 31.0.0)
[√] Chrome - develop for the web
[√] Android Studio
[√] IntelliJ IDEA Ultimate Edition (version 2021.2)
[√] Connected device (3 available)

• No issues found!
```

- The DART SDK is installed alongside Flutter.

Flutter Dependencies:



```
dependencies:
  flutter:
    sdk: flutter
  image_picker: ^0.7.5+3
  contacts_service: ^0.6.1
  permission_handler: ^8.1.4+2
  cupertino_icons: ^1.0.2
  get_it: ^7.1.3
  http: ^0.13.3
  sqflite: ^2.0.0+3
  path: ^1.8.0
  uuid: ^3.0.4
  flutter_secure_storage: ^4.2.0
  web_socket_channel: ^2.1.0
  flutter_svg: ^0.22.0
  flutter_local_notifications: ^6.0.0
  mobx: ^2.0.4
  flutter_mobx: ^2.0.1
  country_code_picker: ^2.0.2
  flutter_spinkit: ^5.0.0
  focused_menu: ^1.0.5
  cryptography: ^2.0.2
  intl: ^0.17.0
  flutter_slidable: ^0.6.0
  libsignal_protocol_dart: ^0.5.3
  crypto: ^3.0.1
  flutter_datetime_picker: ^1.5.1
  crypton: ^2.0.2
  scrollable_positioned_list: ^0.2.0-nullsafety.0
  image_gallery_saver: ^1.6.9
  url_launcher: ^6.0.9

dev_dependencies:
  flutter_test:
    sdk: flutter
  flutter_driver:
    sdk: flutter
  test: any
  mockito:
  build_runner: ^2.1.0
  mobx_codegen: ^2.0.2
```

All dependencies need to be installed separately by downloading them from their respective pub dev pages: PubDev

Android Emulator

In order for Atbash to run an android emulator is required. Android Studio provides this functionality. SQlLite is installed automatically on all android devices and so further installation is not required.

Back-End

SAM CLI

The back-end is all automatically set up via the SAM CLI.

- To install the SAM CLI you will need an authorised AWS account.
- Next, follow the steps highlighted here: Install SAM CLI
- Run “sam --version” to see if it has been installed correctly

NodeJS and npm

In order to install NodeJS and npm:

- Follow the steps outlined here: NodeJS and npm installation
- Run “node -v” and “npm -v” to see if installation was successful.

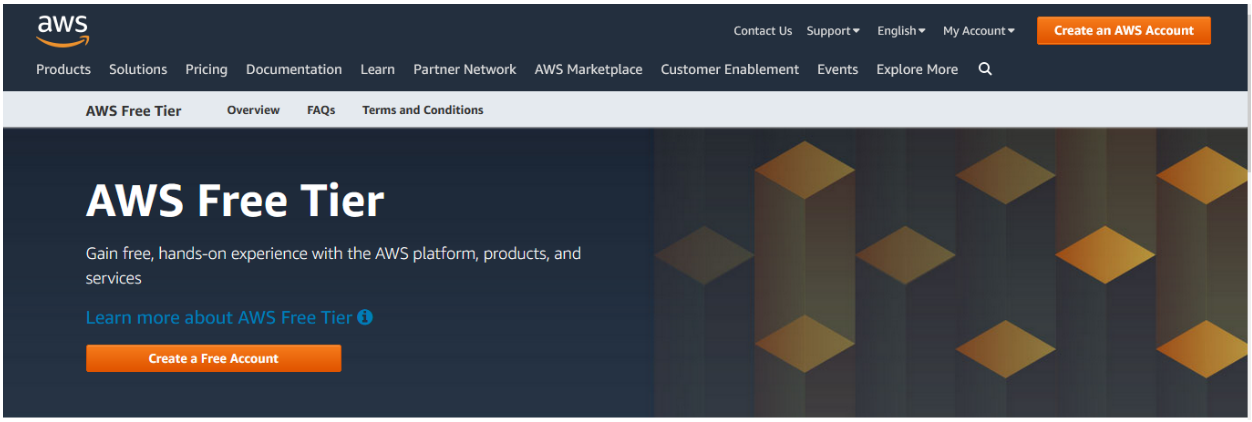
Installation

Front-End Installation

- In order to install the front end the github repository needs to be cloned.
- All dependencies need to be installed alongside the application.
- With flutter installed, the front-end should work out of the box.

Back-End Installation

1. Create and AWS account



AWS Free Tier

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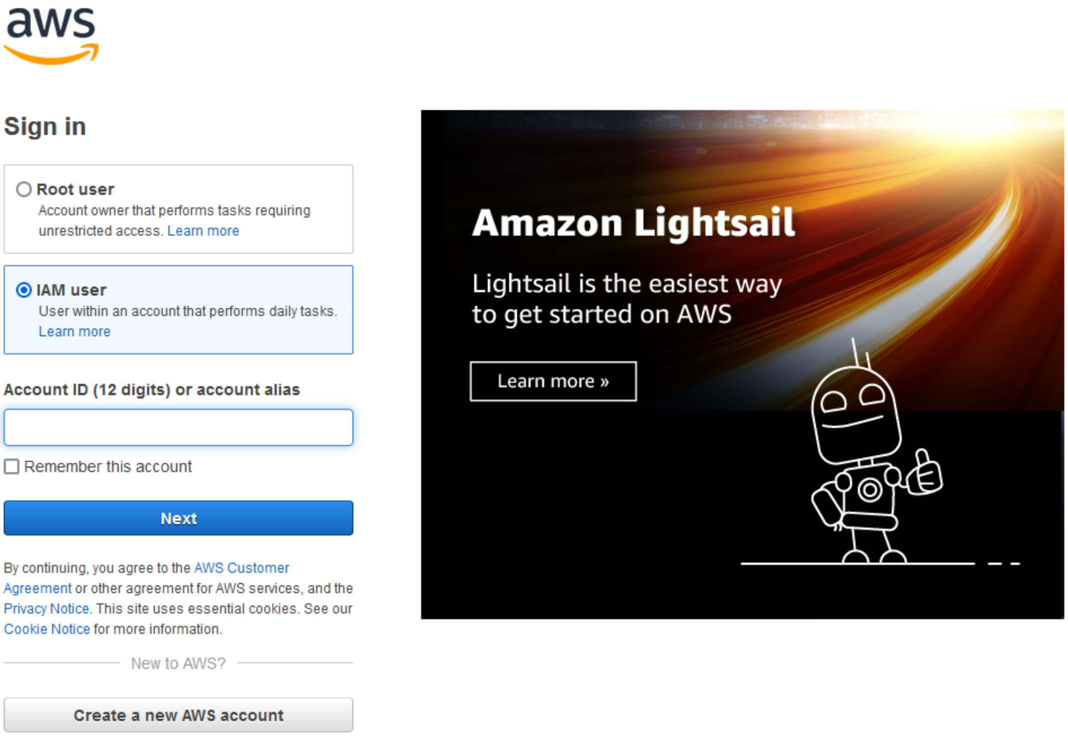
2. Sign in



Sign in

○ Root user
Account owner that performs tasks requiring unrestricted access. Learn more

● IAM user
User within an account that performs daily tasks. Learn more

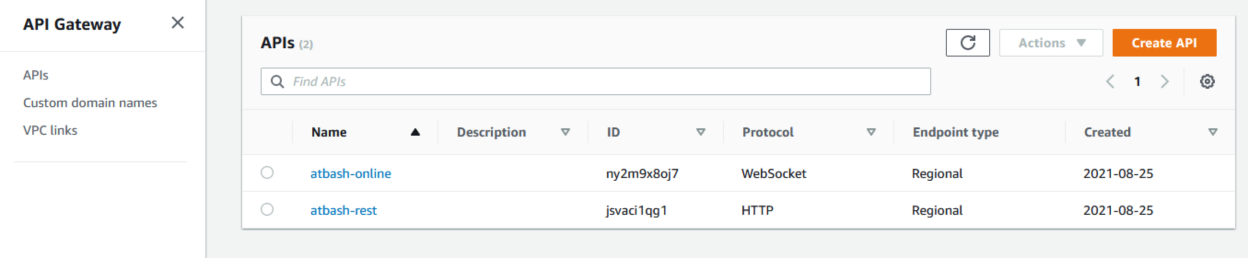
Account ID (12 digits) or account alias

□ Remember this account

By continuing, you agree to the AWS Customer Agreement or other agreement for AWS services, and the Privacy Notice. This site uses essential cookies. See our Cookie Notice for more information.

Lightsail is the easiest way to get started on AWS

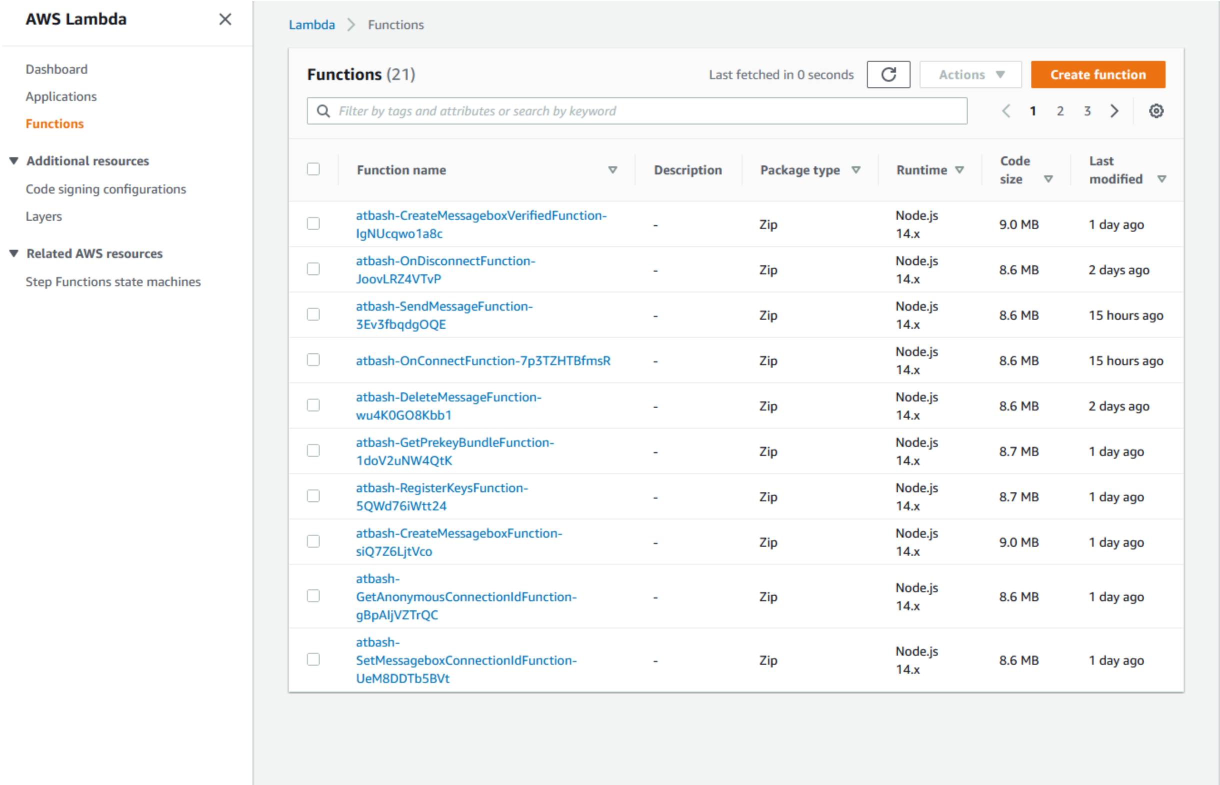
3. Enable API Gateway



APIs (2)

	Name	Description	ID	Protocol	Endpoint type	Created
○	atbash-online		ny2m9x8oj7	WebSocket	Regional	2021-08-25
○	atbash-rest		jsvaci1qg1	HTTP	Regional	2021-08-25

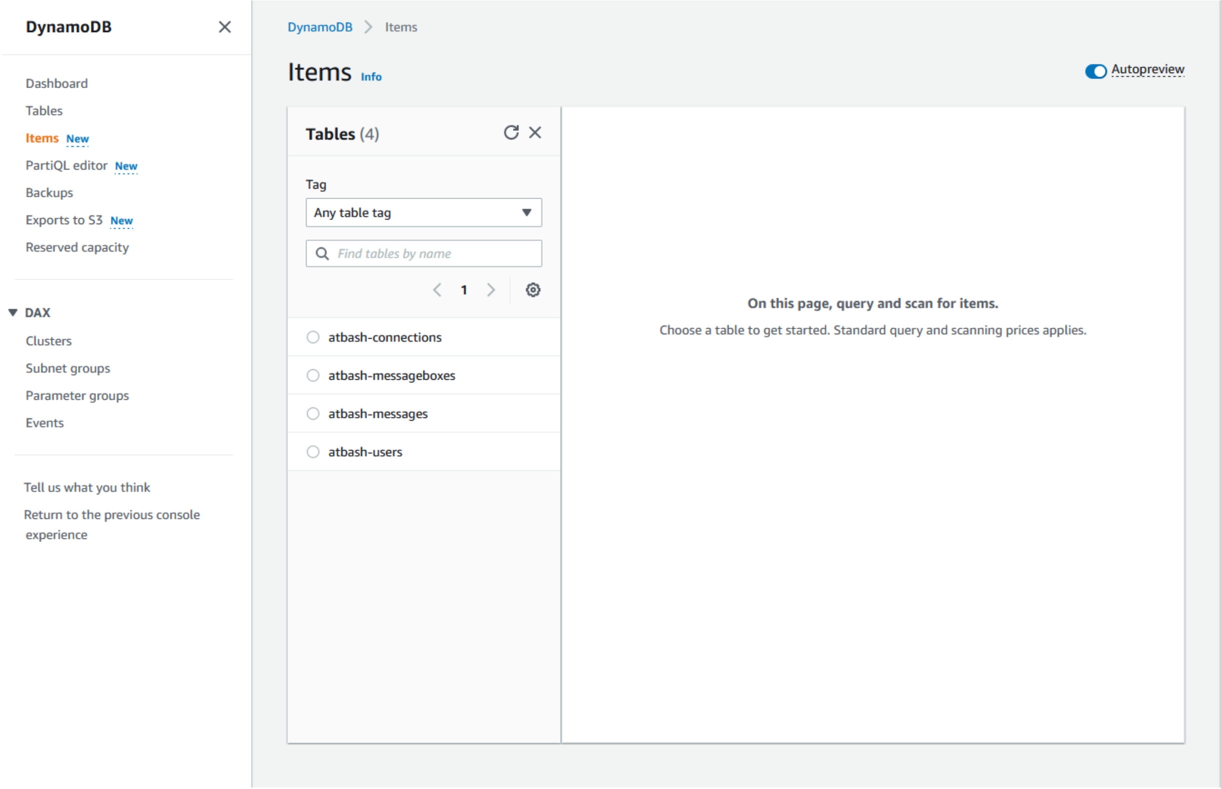
4. Enable Lambda.



Functions (21)

□	Function name	Description	Package type	Runtime	Code size	Last modified
□	atbash-CreateMessageboxVerifiedFunction-IgNUcqwo1a8c	-	Zip	Node.js 14.x	9.0 MB	1 day ago
□	atbash-OnDisconnectFunction-JoovLRZ4VTvP	-	Zip	Node.js 14.x	8.6 MB	2 days ago
□	atbash-SendMessageFunction-3Ev3fbqdgOQE	-	Zip	Node.js 14.x	8.6 MB	15 hours ago
□	atbash-OnConnectFunction-7p3TZHTBfmsR	-	Zip	Node.js 14.x	8.6 MB	15 hours ago
□	atbash-DeleteMessageFunction-wu4K0GO8Kbb1	-	Zip	Node.js 14.x	8.6 MB	2 days ago
□	atbash-GetPrekeyBundleFunction-1doV2uNW4QtK	-	Zip	Node.js 14.x	8.7 MB	1 day ago
□	atbash-RegisterKeysFunction-5QWd76iWtt24	-	Zip	Node.js 14.x	8.7 MB	1 day ago
□	atbash-CreateMessageboxFunction-siQ7Z6LjtVco	-	Zip	Node.js 14.x	9.0 MB	1 day ago
□	atbash-GetAnonymousConnectionIdFunction-gBpAIjVZTrQC	-	Zip	Node.js 14.x	8.6 MB	1 day ago
□	atbash-SetMessageboxConnectionIdFunction-UeM8DDTb5BVt	-	Zip	Node.js 14.x	8.6 MB	1 day ago

5. Enable Dynamo DB and setup the table information:



Tables (4)

○ atbash-connections

○ atbash-messageboxes

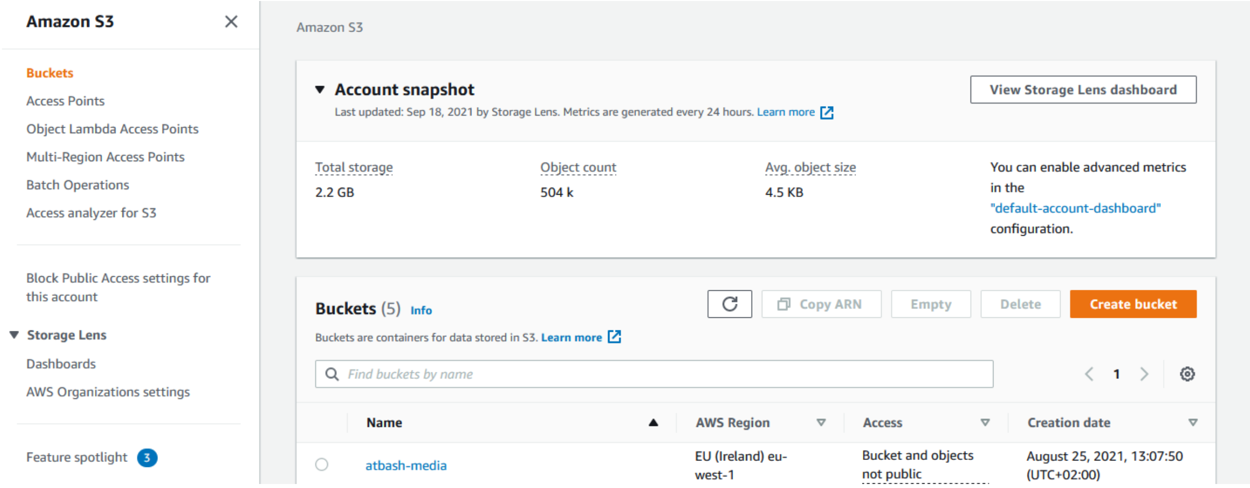
○ atbash-messages

○ atbash-users

On this page, query and scan for items.

Choose a table to get started. Standard query and scanning prices applies.

6. S3 bucket



Account snapshot

Last updated: Sep 18, 2021 by Storage Lens. Metrics are generated every 24 hours. Learn more

Total storage	Object count	Avg. object size
2.2 GB	504 k	4.5 KB

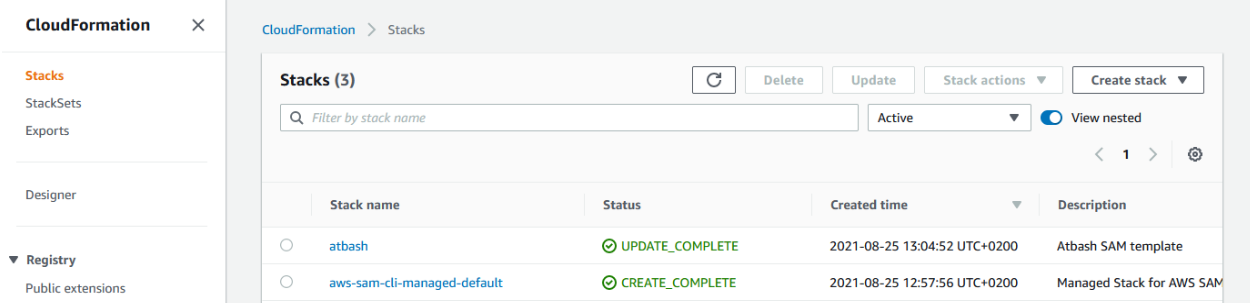
You can enable advanced metrics in the "default-account-dashboard" configuration.

Buckets (5) Info

Buckets are containers for data stored in S3. Learn more

	Name	AWS Region	Access	Creation date
○	atbash-media	EU (Ireland) eu-west-1	Bucket and objects not public	August 25, 2021, 13:07:50 (UTC+02:00)

7. Enable the cloud formation



Stacks (3)

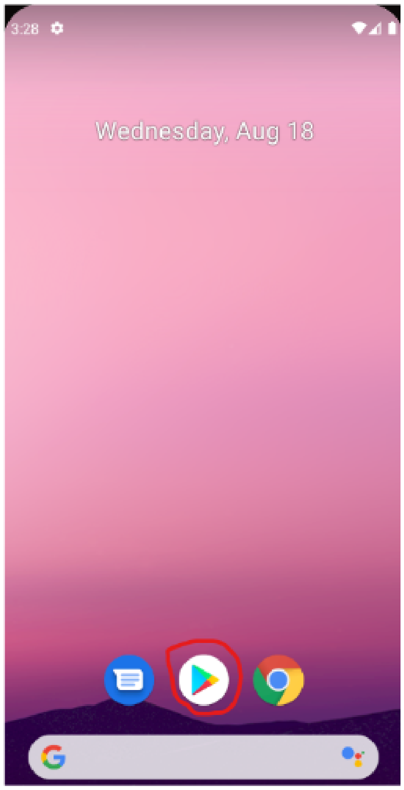
	Stack name	Status	Created time	Description
○	atbash	UPDATE_COMPLETE	2021-08-25 13:04:52 UTC+0200	Atbash SAM template
○	aws-sam-cli-managed-default	CREATE_COMPLETE	2021-08-25 12:57:56 UTC+0200	Managed Stack for AWS SAM

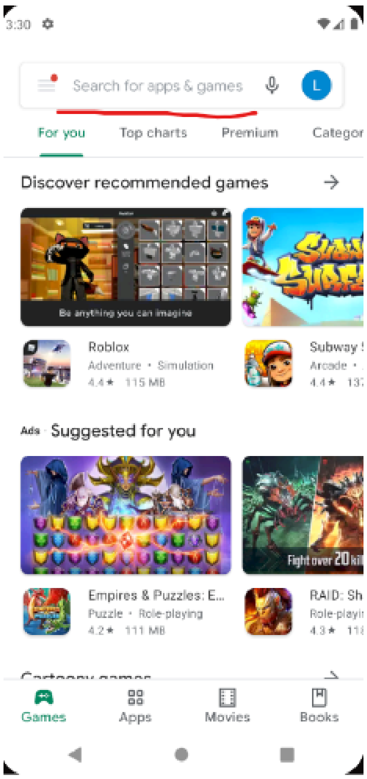
Once all functionalities have been enabled, the backend can be deployed easily.

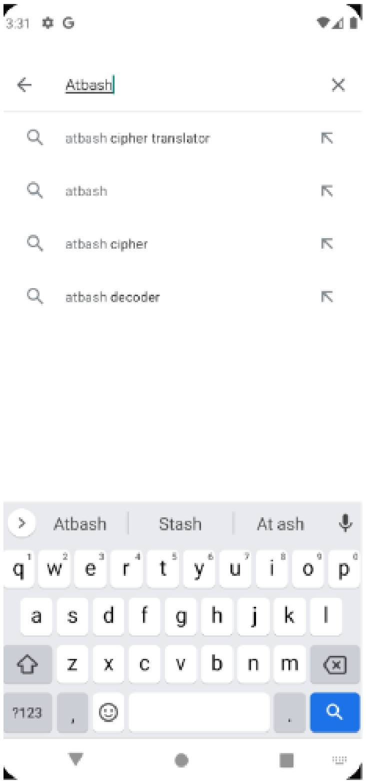
Deployment/Running

Running

In order to run the application it needs to be installed on your mobile device of choice. From there you simply have to run the application.







Testing

Tests are automatically done via github actions. However, if one would like to run them manually:

Front-end: Run “Flutter test” in the root of the application.
Back-end: Run “npm test” on each directory for each test.

Deployment

The application’s backend is running on Amazon’s web servers with the front-end being run on the appropriate mobile device.

Deploying the backend:
- Clone the repository
- Navigate to the ‘backend’ directory
- Run ‘sam build’. This will build all the lambda functions
- Run ‘sam deploy --guided’. This will initiate the deployment process
- When prompted, enter names of tables, keys, indexes, etc.
- Once the change set has been created, confirm that you want to deploy

The user manual for Atbash provides instructions on how to install and run most features of the application as well as the technological requirements of the hardware and software required to run it. It provides an intuitive way to use the application with images.

User manual:

https://github.com/COS301-SE-2021/Atbash/blob/master/Documentation/Demo4/Atbash_User_Manual.pdf