

Coffeebreak App Guide:

Overview:

Coffeebreak allows for two parties to calculate a meeting point at a Starbucks nearest to the centroid location between the two parties. To calculate the centroid, the app will randomly generate a point within a user specified radius of their current location. This fuzzed location is then provided as input to a MPC calculation that is conducted between the two phones. The communication between the two phones is facilitated via 2 RabbitMQ servers (one of for each phone) over TLS.

Any questions or issues please reach out to Dan Hallenbeck, (571)-297-6561 or dan.hallenbeck@twosixlabs.com.

Installing Coffeebreak:

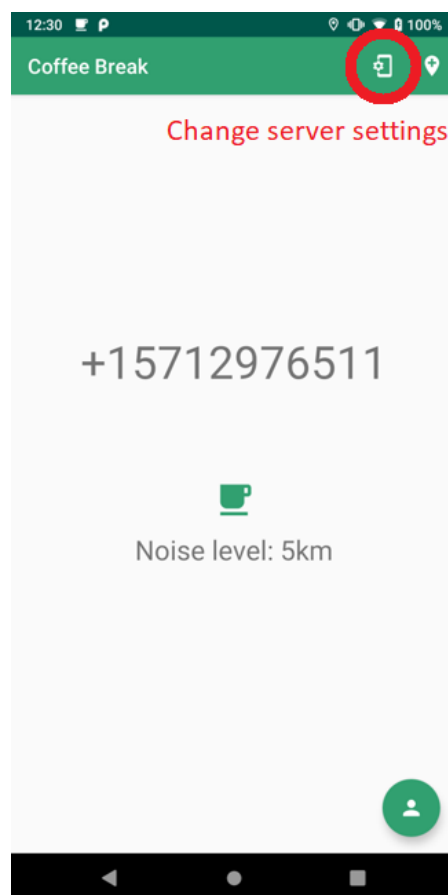
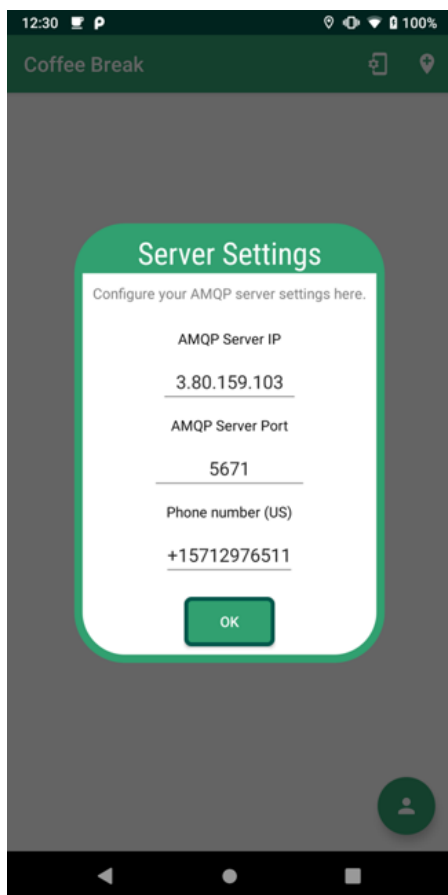
We have included the 'coffeebreak.apk' in this directory. The easiest to install Coffeebreak is via adb by navigating to the directory where 'coffeebreak.apk' is located, plugging the phone into your computer, and running the below command. Note, you must have USB debugging enabled in Developer Options, <https://developer.android.com/studio/debug/dev-options>. If you need to install adb, it may be obtained at the following link <https://developer.android.com/studio/releases/platform-tools>.

```
$ adb install coffeebreak.apk
```

Configure app server settings:

Note: See the “Configure RabbitMQ server settings” section for how to set up the RabbitMQ servers

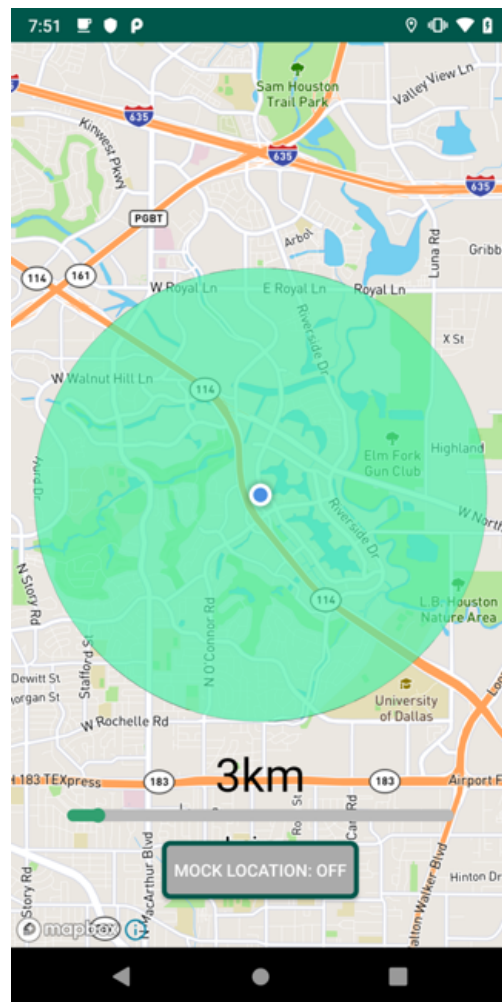
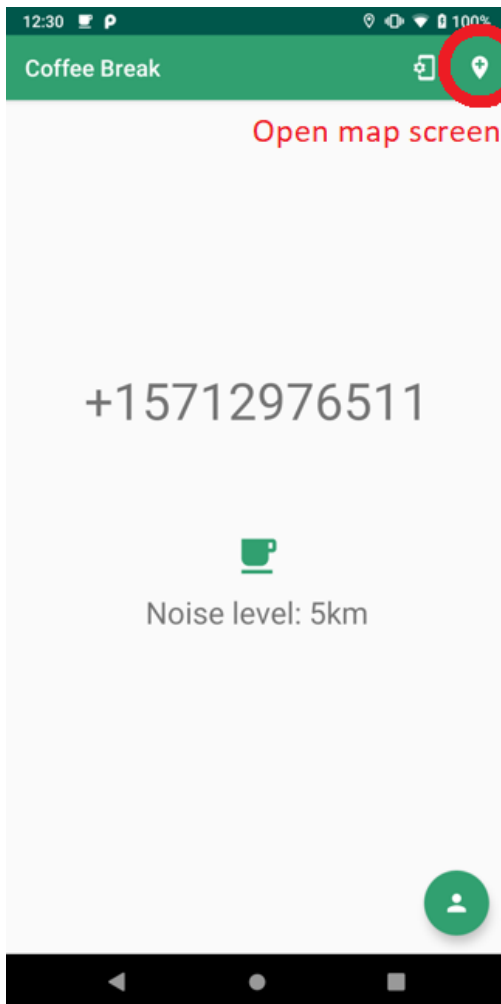
When the app is launched for the first time (or if the server address changes), the Server Settings screen will be automatically opened. You can also change the settings manually from the main app screen by pressing the gear icon in the top right.



- **AMQP Server IP:** The IP address or domain name of the RabbitMQ server to connect to. Each phone should connect to a different server
- **AMQP Server Port:** By default, utilizing the server setup scripts, this should be 5671 (RabbitMQ TLS)
- **Phone number:** This should be automatically filled to your device's phone number. With some SIM cards, it may not auto-populate, and a number may be entered manually.

Adjust noise value:

Pressing the location pin icon in the top right will open a map view where you can view your current location and adjust the amount of noise that will be added to your location when you perform meeting calculations.

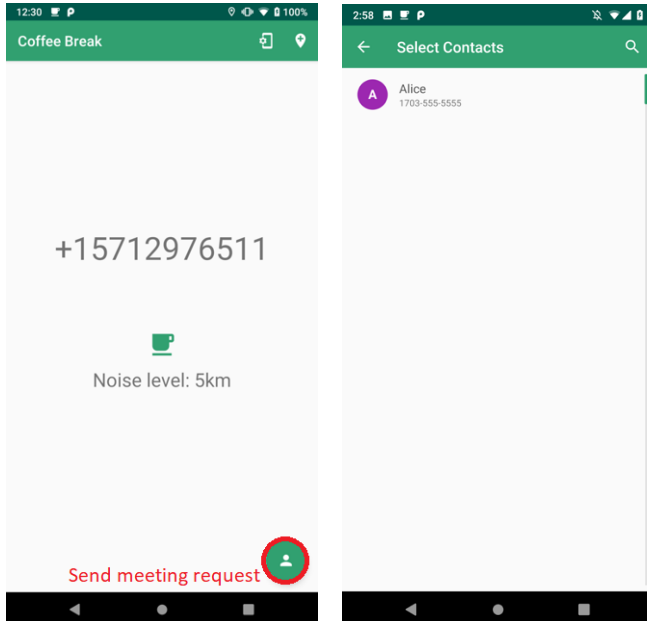


- **Adjust noise:** You can use the slider to adjust your desired noise-level. This is represented visually by the green circle drawn around your current location
- **Mock Location:** By default, the app will use the device's real location for meeting calculations. If you want to use an alternate location, you can press the "Mock Location" button to enable mock location mode. Then, you can press and hold on the map to specify a mock location to use instead of your real location. This feature was added for development purposes (for testing two devices in the same location), and would likely be removed in the final version of the app

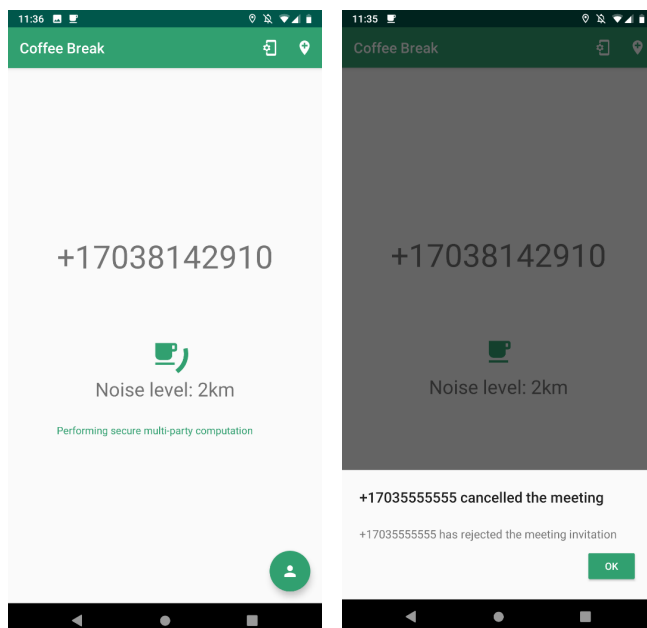
Initiating a meeting request:

Before sending a request, you should make sure that the phone number of the person you want to meet with is saved to your phone's contacts. (Through the normal Android Contacts app)

To send a meeting request, press the contact icon in the bottom right. This will open a screen that displays all the contacts on the device. To send a request, select the desired contact from the list.



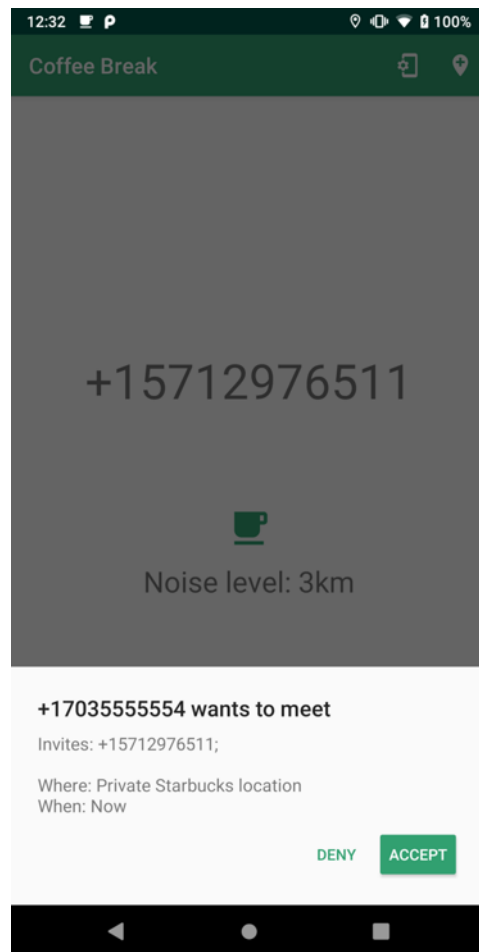
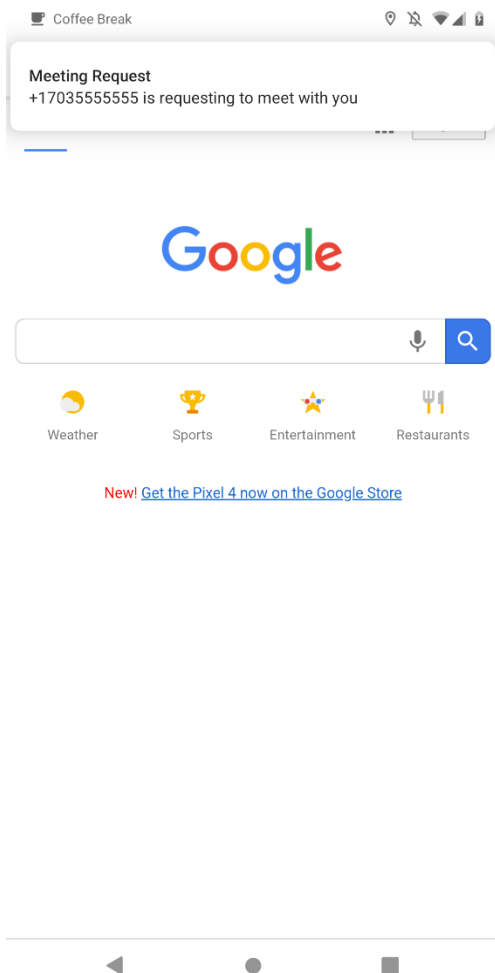
If the receiver accepts your meeting, the main app screen will change to indicate that the computation is occurring. If they reject your meeting, you will see a popup message indicating that the request was rejected.



Receiving meeting requests:

The Coffeebreak service is always running in the background of the device, so you can receive meeting requests even when the Coffeebreak app is closed. ***Note: If the server the receiver was previously connected to is down or has changed IP addresses, the receiver will not get a notification. At this point you need to ensure servers are up and point both phones to the servers***

When you receive a meeting request, you will receive a notification from Coffeebreak. Pressing this notification will open a screen where you have the option to accept or deny the request

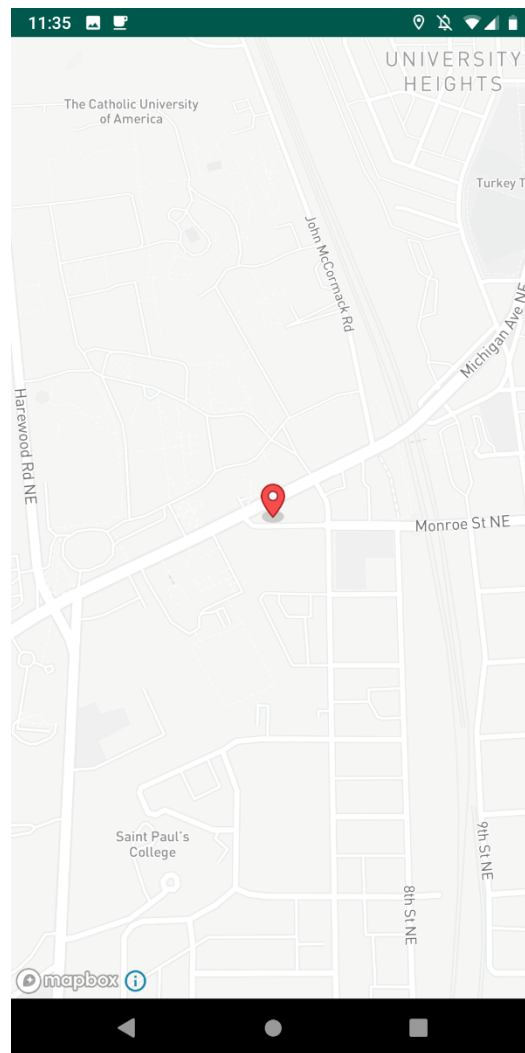
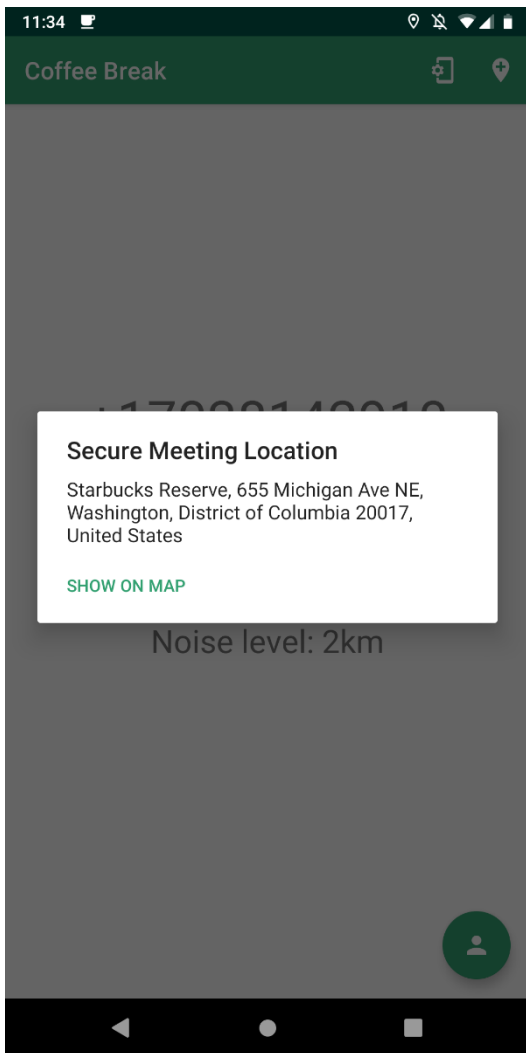


If you accept the meeting, you will see the main screen change to indicate that the computation is occurring

Output of meeting point computation:

When the computation finishes (it should only take a couple of seconds), you will receive a message displaying the meeting location. If you press the “Show on map” button, you will get a map view of the meeting point.

Note: Once you exit this screen by pressing the back button (or if you kill the app), you will no longer be able to view the output of the computation



Configure RabbitMQ server settings:

As mentioned earlier, Coffeebreak requires 2 TLS configured RabbitMQ servers that are reachable via the phones. To help ease experimentation we have provided scripts to help spin up RabbitMQ EC2 instances.

These scripts have been provided inside the 'scripts' directory along with a README.txt file. The README.txt that detail instructions for what is required to spin up RabbitMQ servers on AWS. The scripts are bash scripts and run on Linux and Mac without modification. For Windows, you should utilize git bash, and need to uncomment 'aws.cmd' in the scripts to allow them to run on Windows.