

Advanced Deployment



Last updated 3 hours ago

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Introduction



This article is based upon [this guide](#) and the following method is only applicable to deployment on Heroku.

Prerequisites



First you will need to create a Heroku account, install `git` and `heroku-cli`. Heroku provides an installation package that does this for you. Please follow the following guides on how to do so:

[Signup for Heroku](#)

[Download and install Heroku CLI](#)

[Download and install git](#)

Instructions to deploy QMethod App to Heroku



Open a new command line window (or terminal) and `cd` into a directory to temporarily hold the files for your QMethod app. Then run

```
git clone -b https://github.com/CITS3200GroupD/QMethod.git
```

```
1 cd <path/to/your/directory>
2 git clone -b master https://github.com/CITS3200GroupD/QMethod.git
3 Cloning into 'QMethod'...
4 remote: Counting objects: 2302, done.
5 remote: Compressing objects: 100% (427/427), done.
6 remote: Total 2302 (delta 324), reused 177 (delta 32), pack-reused 1828
7 Receiving objects: 100% (2302/2302), 2.11 MiB | 1.19 MiB/s, done.
8 Resolving deltas: 100% (890/890), done.
9 Checking out files: 100% (76/76), done.
```



Now `cd QMethod` into the newly created QMethod folder for the next step.

```
1 path/to/dir> cd QMethod
2 path/to/dir/QMethod>
```



Setting up Heroku CLI

If you have not already, [sign up for a heroku account](#) and [install the heroku CLI](#). Then, in the same command line interface window you are already in, enter `heroku --version` to verify that you have `heroku-cli` installed.

```
1 heroku --version
2 heroku/7.0.0 (darwin-x64) node-v8.0.0
```



Next, enter `heroku login` and you will be prompted for your heroku account details.

```
1 heroku login
2 Enter your Heroku credentials.
3 Email: adam@example.com
4 Password (typing will be hidden):
5 Authentication successful.
```



Now ensuring that your terminal window is open in the same path as the directory holding the QMethod source files, run `heroku create <APP NAME> .` (Replace APP NAME with the desired name of your application (will appera in url)).

You can use `git remote -v` to verify that this has been completed successfully.

```
1 heroku create qmethod-testlapp
2 Creating app... done, ● thawing-inlet-61413
3 https://thawing-inlet-61413.herokuapp.com/ | https://git.heroku.com/qmethod-t
4 git remote -v
5 heroku https://git.heroku.com/qmethod-testlapp.git (fetch)
6 heroku https://git.heroku.com/qmethod-testlapp.git (push)
```

We are now almost done with the setup for Heroku, and all we have to do is call `git push heroku deploy-test:master` to setup the front-end application. *ALPHA: This command is different for the release version.

If you do so you notice that the application will install and load as expected at first glance, however this will result in an error as we have yet to configure the remote mongoDB Database.

Thus before we push the files to Heroku we should create a remote database and link this to our heroku application.

Setting up your database

We will be hosting the data from our survey on a seperate remote host. This can be done either through MongoDB Atlas or mLab.

Mongo Atlas

First, go to [MongoDB Atlas](#) and sign up for a free account. MongoDB Atlas is a Database as a Service provider that provides encrypted remote mongoDB instances, which we will use to store the survey recipient data, with free and paid tiers of service. MongoDB Atlas clusters make use of the General Purpose SSD (gp2) EBS volumes, with [AES-256 encryption](#).. All communication to and from the server is also encrypted from MOTM attacks through the use of TLS/SSL socket security.

NO credit card required

Email Address

First Name

Last Name

Password

- ✓ 8 characters minimum
- ✓ One number
- ✓ One letter
- ✓ One special character




☒ I agree to the [terms of service](#).

Get started free

Already have an account? [Sign in](#).
















Creating a new account

Next, select your server provider. It is recommended that you select the free AWS service tier (M0) with 512MB of storage. (This is in fact approximately enough for at least ~250,000 survey responses and thus should be sufficient even for live deployment.)



Create a free tier cluster by selecting a region with **FREE TIER AVAILABLE** and choosing the **M0** cluster tier below.

★ recommended region ⓘ

NORTH AMERICA	EUROPE	AUSTRALIA
 N. Virginia (us-east-1) ★ FREE TIER AVAILABLE	 Ireland (eu-west-1) ★	 Sydney (ap-southeast-2) ★
 Ohio (us-east-2) ★	 London (eu-west-2) ★	ASIA
 N. California (us-west-1)	 Paris (eu-west-3) ★	 Tokyo (ap-northeast-1) ★
 Oregon (us-west-2) ★	 Frankfurt (eu-central-1) ★ FREE TIER AVAILABLE	 Seoul (ap-northeast-2)
 Montreal (ca-central-1)	SOUTH AMERICA	 Singapore (ap-southeast-1) ★ FREE TIER AVAILABLE
	 Sao Paulo (sa-east-1)	 Mumbai (ap-south-1) FREE TIER AVAILABLE

Configure clusters across multiple regions (M10 and up) ☐ NO
Better withstand data center outages and optimize for reads in selected service areas.

Cluster Tier M0 (Shared RAM, 512 MB Storage) > Encrypted

Additional Settings MongoDB 3.6, No Backup >

Cluster Name QMethod >

One time only: once your cluster is created, you won't be able to change its name.






QMethod

Cluster names can only contain ASCII letters, numbers, and hyphens.

Select Server Provider

Now, after your cluster has finished initialising, go to the Security > MongoDB Users Tab and add a new user.

CONTEXT
Project 0

PROJECT
 Clusters
 Stitch Apps
 Alerts ⓘ
 Backup
 Users & Teams

Clusters > PROJECT 0

Overview **Security**

MongoDB Users IP Whitelist Peering Enterprise Security

+ ADD NEW USER

User Name ↕	Authentication Method ↕	MongoDB Roles
-------------	-------------------------	---------------

Add a new user

remember and copy down this password and save it for later, as you will need this information later.



Add New User

SCRAM Authentication

SCRAM is MongoDB's default authentication method.

e.g. new-user_31

[SHOW](#)[Autogenerate Secure Password](#)

User Privileges

[Atlas admin](#)[Read and write to any database](#)[Only read any database](#)[Show Advanced Options](#)☐ Save as temporary user[Cancel](#)[Add User](#)

Select "Read/Write to database"

CONTEXT

[Project 0](#)

PROJECT

[Clusters](#)[Stitch Apps](#)[Alerts](#)[Backup](#)[Users & Teams](#)[Settings](#)[Docs](#)[Support](#)

We are deploying your changes (current action: configuring MongoDB)

PROJECT 0

Clusters

[Build a New Cluster](#)[Overview](#)[Security](#)[MongoDB Users](#)[IP Whitelist](#)[Peering](#)[Enterprise Security](#)[+ ADD NEW USER](#)

User Name	Authentication Method	MongoDB Roles	Actions
admin	SCRAM	readWriteAnyDatabase@admin	EDIT DELETE

Add a new user

Now go to the Security > IP Whitelist tab, and add a new IP Address.





 Stitch Apps

MongoDB Users

IP Whitelist

Peering

Enterprise Security

 Alerts  Backup Users & Teams

IP Address

Comment


Status

Add IP to IP Whitelist

You will want to repeat this process twice, as you will need to allow access firstly from your own IP address, as well as any IP address (for now). This is because the free version of the Heroku application uses a dynamic IP address which changes from time to time, whilst paid tiers of Heroku allow for a fixed static IP, which we can later add to the whitelist (whilst removing the 0.0.0.0/10 entry) for better security later on.

Add Whitelist Entry

Add a whitelist entry using either CIDR notation or a single IP address. [Learn more.](#)



Whitelist Entry:

0.0.0.0/0

Comment:

Optional comment describing this entry

☐ Save as temporary whitelist

Cancel

Confirm

Add New IP

- Alerts
- Backup
- Users & Teams
- Settings
- Docs
- Support

MongoDB Users

IP Whitelist

Peering

Enterprise Security

[+ ADD IP ADDRESS](#)

You will only be able to connect to your cluster from the following list of IP Addresses:

IP Address	Comment	Status	Actions
██████████ (includes your current IP address)		Inactive	EDIT DELETE
0.0.0.0/0 (includes your current IP address)		Inactive	EDIT DELETE

Check IP Address List

At this point, if you wish to connect to a desktop client for viewing your remote database data directly (not through the QMethod application, you may install MongoDB Compass and follow the [MongoDB Compass Install](#) guide.

Now, go back to the Clusters > Overview page and click connect.

Project 0

PROJECT

- Clusters
- Stitch Apps
- Alerts
- Backup
- Users & Teams
- Settings
- Docs
- Support

Clusters

OverviewSecurity

Find a cluster...

SANDBOX

QMethod

Version 3.6.7

METRICSCONNECT...

INSTANCE SIZE

MO

REGION

AWS / Singapore (ap-southeast-1)

TYPE

Replica Set - 3 nodes

LINKED STITCH APP

None Linked - [Link Application](#)

Operations R: 0 W: 0

100.0/s

Last 6 Hours

Connections 0

100 max

Last 6 Hours

Go back to browser to generate connection string

1 Check the IP Whitelist

You will only be able to connect to your cluster from the following list of IP addresses

60.225.45.108/32 (includes your current IP address)

● Active

0.0.0.0/0 (includes your current IP address)

● Active

+ ADD ENTRY

2 Choose a connection method:

Connect with the Mongo Shell

Mongo Shell with TLS/SSL support is required



Connect Your Application

Get a connection string and view driver connection examples



Connect with MongoDB Compass

Download Compass to explore, visualize, and manipulate your data



See methods to add data and diagnostics in the [Command Line Tools](#) shortcut from within your cluster.

Close

Select "Connect to App"

We will now need to generate the string for our application's mongoDB driver.

1 Copy a connection string:

[See documentation on how to check the version of your driver](#)

I am using driver 3.6 or later

I am using driver 3.4 or earlier

Copy the SRV address:

```
mongodb+srv://admin:<PASSWORD>@qmethod-bf5ut.mongodb.net/test?
retryWrites=true
```

 COPY

Note: If using the node.js driver make sure you specify the name of your database after making your connection ([example](#)), otherwise your collections will all appear in a database called "test". Alternatively you can replace "test" in the connection string with a different default database name.

2 Replace **PASSWORD with the password for the *admin* user**

Replace **PASSWORD** with the password for the *admin* user. Please note that any special characters in your password (% , @ , and :) will need to be URL encoded.

[View your list of users or reset a password](#)

3 View driver connection examples

Failed connections can result from old versions of drivers. Check your driver version and view connection examples for your platform:



[View all MongoDB Driver Connection Examples](#)

Close

Copy driver string

Copy this string to your clipboard. We will now be going back to our Heroku CLI terminal window and inputting this to link our database to our heroku application.

Back to Heroku

Now that our database has been fully setup, including a compass client for monitoring and viewing raw database data, we can now link our application to the mongoDB database.

```
heroku config:set MONGODB_URI=mongodb://<link you copied from above>
```

Now that the database has been linked, we can run `git push heroku master` . This will push the files to Heroku and deploy the application at the given URL. Open the URL in your browser.

Custom Domain Names



<https://devcenter.heroku.com/articles/custom-domains>

By default, a Heroku app is available at its Heroku domain, which has the form [name of app].herokuapp.com. For example, an app named serene-example-4269 is hosted at serene-example-4269.herokuapp.com.

To make your app available at a non-Heroku domain (for example, www.yourcustomdomain.com), you add a custom domain to it.

You can add custom domains to any Heroku app for free (however the domain name itself will have to be paid for). For security purposes, you must verify your Heroku account to add domains to apps.

Heroku does not provide a domain registration service (for registering a custom domain name) or a DNS provider service (for hosting the DNS servers that point your custom domain name to your app).

Exporting Raw JSON data from Database



Compass allows you to export and import raw database information as a json. This may be useful to store data on your local machine instead of a remote instance.