

Deployment of Bitnami Parse Server Stack on Microsoft Azure

Lab Guide

May 2016

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Some examples are for illustration only and are fictitious. No real association is intended or inferred.

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Overview

Parse is a platform that enables users to add a scalable and powerful backend to launch a full-featured app for iOS, Android, JavaScript, Windows, Unity, and more.

The Bitnami Parse Server stack now includes a dashboard that has a similar UI to the original Parse interface. The Parse Dashboard is a web interface that helps developers interact with the Parse Server API in a graphic way. With the dashboard, developers will be even closer to the experience available before migrating from the original Parse Hosting Services.

This lab will show you how to:

- 1) Launch and deploy the Bitnami Parse Server stack within Azure
- 2) Access the Bitnami Parse Dashboard
- 3) Interact with the Parse Dashboard features

Optional: We know that many users may be trying to find a Parse alternative as the Parse service will be shutting down. Therefore, if you already have an existing Parse account, we highly recommend you try out the following in order to:

- 4) Migrate an application from Parse's hosted service
 - a. Migrate Parse DB to Self-Hosted MongoDB
 - b. Setup Local Parse Server

If you'd like to come back and try this, feel free to visit our page here:
https://wiki.bitnami.com/Applications/Bitnami_Parse_Server

Requirements

- 1) Microsoft Azure Subscription

Please note: In order to participate in Exercise 4, you will need the following:

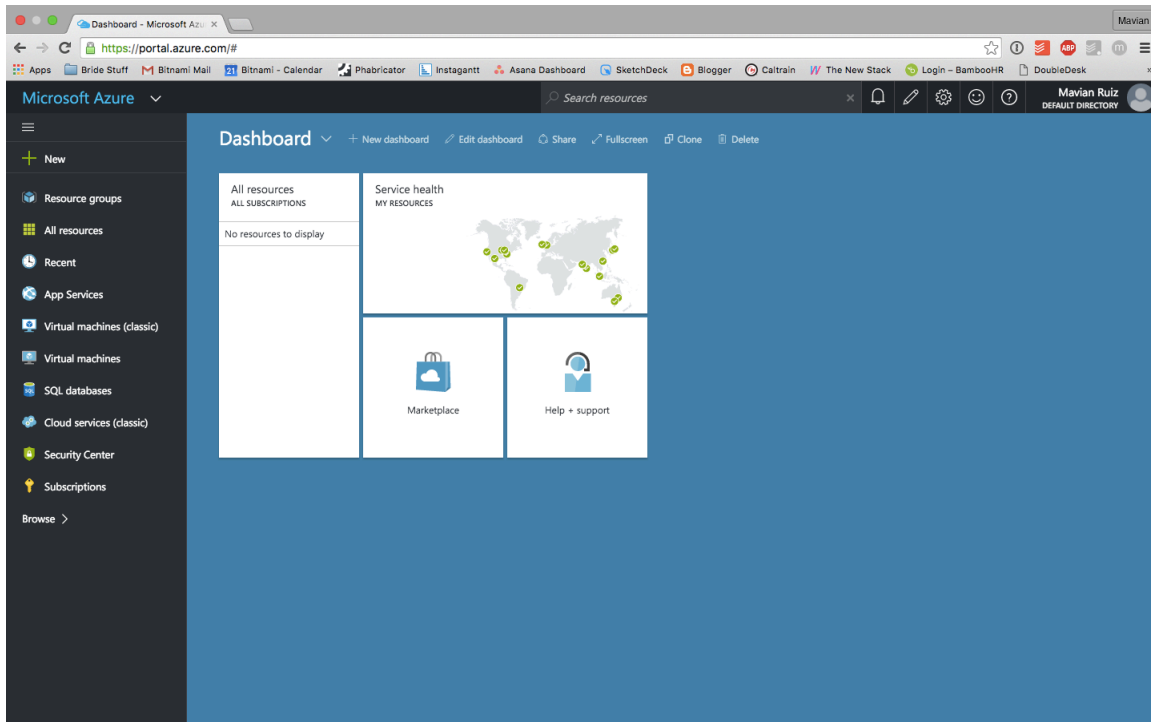
- 2) SSH Client (We used the built-in SSH client within Mac OS Terminal)
- 3) Account within Parse's hosted service

Technical Support

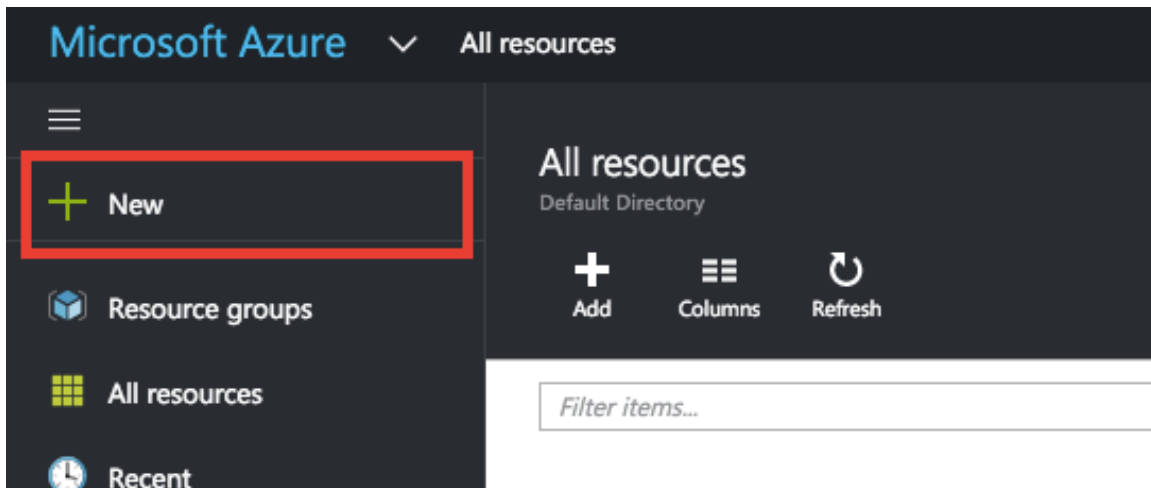
Having trouble with this lab or have a question? Please contact SuperHuman_Help@microsoft.com for technical assistance.

Exercise 1: Create Parse Server in Azure

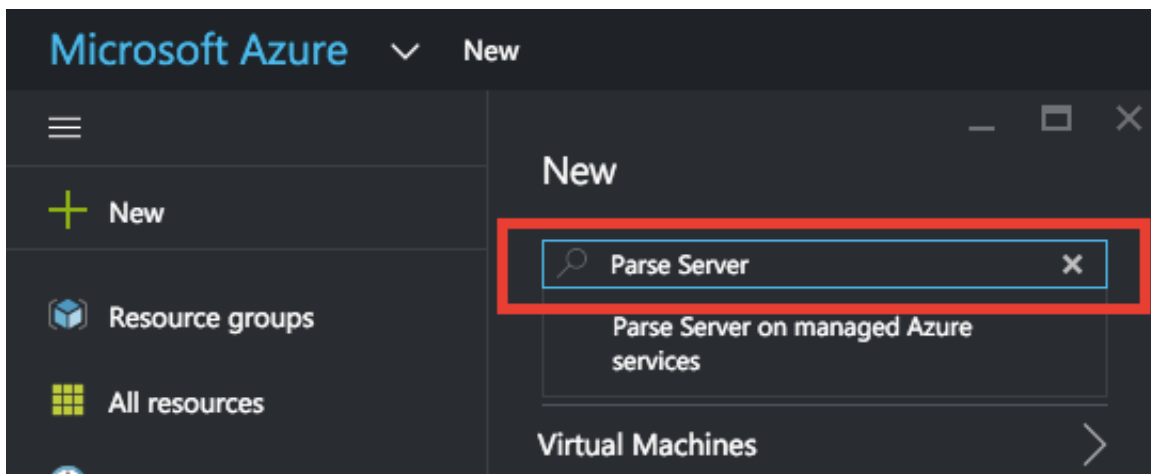
1) Once you have logged into Microsoft Azure, you will be brought to the following screen. This screen is the Azure Preview Portal:



2) To create the Parse Server, you will need to get the application from the Marketplace. First, Click on “+ New” on the left hand menu.






3) Search by typing “Parse Server” within the query field and hit enter (or return) on your keyboard.



4) Select the most recent Bitnami version of Parse Server from the search results.
As this lab was written, this would be Parse Server 2.2.8

Results

NAME	PUBLISHER	CATEGORY
 Parse Server	Bitnami	Virtual Machines
 Parse Server on managed Azure services	Microsoft	Web + Mobile
 Parse Server	Bitnami	Virtual Machines

5) You will be brought to a page where you will now start creating credentials for your Parse Server VM. You will enter a Host Name, User name, Password, etc.

For the purpose of this exercise, we used the following:

- Name: Bitnami
- User name: demouser
- Password: This-is-demo1
- Resource Group: Superhuman
- Location: East US

Then, click "OK".

Create virtual machine

1 Basics

Configure basic settings

2 Size

Choose virtual machine size

3 Settings

Configure optional features

4 Summary

Parse Server

5 Buy

Basics

* Name

Bitnami

* User name

demouser

* Authentication type

Password

SSH public key

* Password

.....

Subscription

Free Trial

* Resource group

Superhuman

Select existing

Location

East US

OK

6) Next, Azure Preview Portal will generate recommended sizing for your VM to select from. In this exercise, we have chosen A1 Standard.

Once you have decided on the size, click "Select".

Please Note: This pricing is for Azure Infrastructure costs, not the cost of Parse Server. Bitnami Parse Server has no licensing costs.

The screenshot shows the 'Create virtual machine' wizard in the Azure portal, specifically the 'Choose a size' step. The left sidebar shows the progress: 1 Basics (Done), 2 Size (Current step), 3 Settings, 4 Summary, and 5 Buy. The main area displays three VM size options: A1 Standard, A2 Standard, and A3 Standard. The A1 Standard size is highlighted with a red box. Below the size selection, there is a 'Select' button, also highlighted with a red box.

Size	Cores	Memory (GB)	Data disks	Max IOPS	Load balancing	Auto scale
A1 Standard	1	1.75	2	2x500	Yes	Yes
A2 Standard	2	3.5	4	4x500	Yes	Yes
A3 Standard	4	7	8	8x500	Yes	Yes

Unable to display pricing

Select

7) Review your VM's settings and click "OK".

Create virtual machine

1 Basics Done ✓

2 Size Done ✓

3 Settings Configure optional features >

4 Summary Parse Server >

5 Buy >

Settings

* Storage account ⓘ
(new) superhuman2914 >

Network

* Virtual network ⓘ
(new) Superhuman >

* Subnet ⓘ
default (10.0.0.0/24) >

* Public IP address ⓘ
(new) Bitnami >

* Network security group ⓘ
(new) Bitnami >

Monitoring

Diagnostics ⓘ

Disabled Enabled

Availability

* Availability set ⓘ
None >

OK

8) A summary with everything you have selected within steps 1-3 will be generated.
Click “OK” to confirm that everything is to your preference.

Create virtual machine

1 Basics Done ✓

2 Size Done ✓

3 Settings Done ✓

4 Summary Parse Server >

5 Buy >

Summary

Validation passed

Basics

Subscription

Free Trial

Resource group

(new) Superhuman

Location

East US

Settings

Computer name

Bitnami

User name

demouser

Size

Standard A1

Disk type

Standard

Storage account

(new) superhuman2914

Virtual network

(new) Superhuman

Subnet

(new) default (10.0.0.0/24)

Public IP address

(new) Bitnami

Network security group

(new) Bitnami

Availability set

None

Diagnostics

Disabled

OK

9) On the next screen, you will be brought to review your purchase details. You will notice that the cost for the use of the Parse Server is \$0.00.

Click “Purchase” to start deploying Parse Server to your VM.

Purchase

Offer details

Parse Server by Bitnami Terms of use and privacy policy Standard A1 by Microsoft Terms of use and privacy policy	0.0000 USD/hr * 0.0600 USD/hr + Pricing for other VM sizes
---	--

* Marketplace Offering: May not be purchased using Microsoft subscription credits or monetary commitment funds and does not participate in discounts. These purchases are billed separately.

+ Azure Resource: May be purchased using Microsoft subscription credits or monetary commitment funds and participates in discounts. Prices presented are retail prices and may not reflect discounts associated with your subscription.

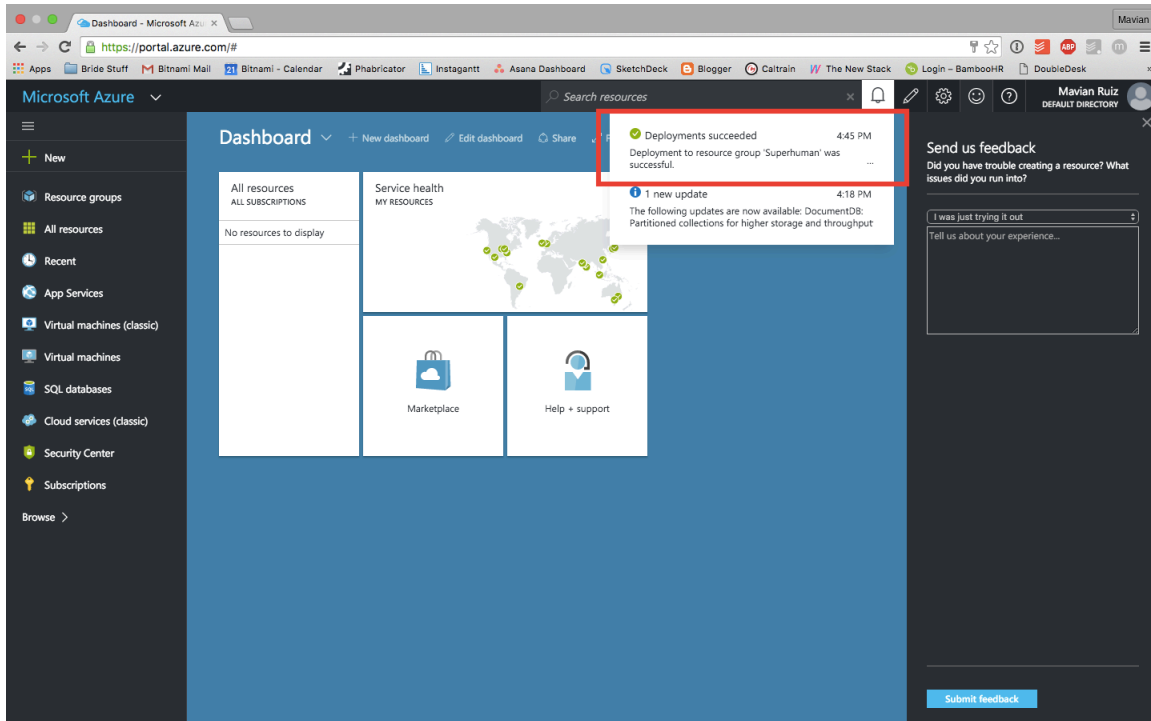
Terms of use

By clicking "Purchase", I (a) agree to the legal terms and privacy statement(s) associated with each Marketplace offering above, (b) authorize Microsoft to charge or bill my current payment method for the fees associated with my use of the offering(s), including applicable taxes, with the same billing frequency as my Azure subscription, until I discontinue use of the offering(s), and (c) agree that Microsoft may share my contact information and transaction details with the seller(s) of the offering(s). Microsoft does not provide rights for third-party products or services. See the [Azure Marketplace Terms](#) for additional terms.

Purchase

10) After clicking purchase, you will be brought to the Azure Preview Portal where you will notice Parse Server being deployed to your VM via notifications.

Once it is built, you will receive notification that your Parse Server deployment has been successful!



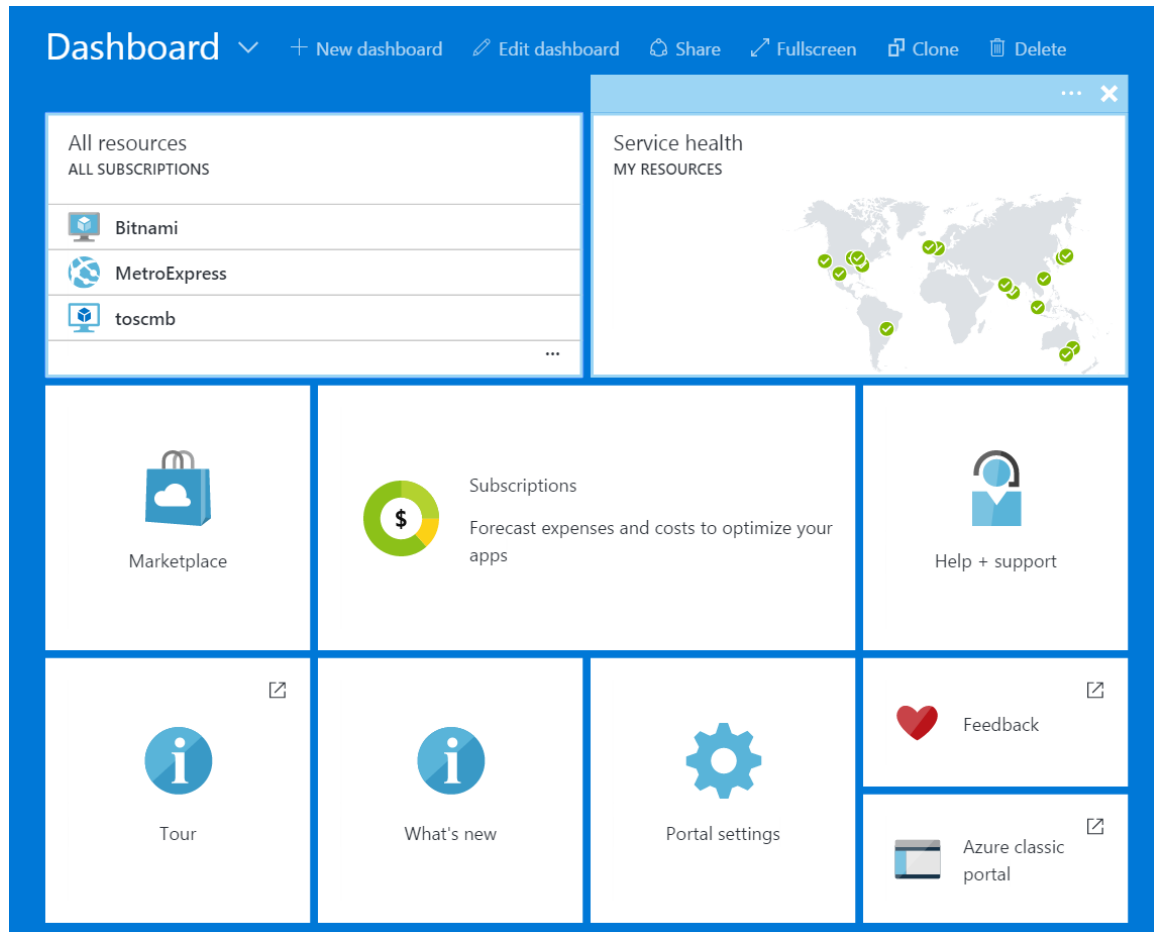
11) Now, you can click "Virtual Machines" in the left-hand menu to note that Parse Server is now running and to view display your VM settings.

The screenshot displays the Azure portal interface for a virtual machine named 'Bitnami'. The left-hand navigation pane lists various Azure services, with 'Virtual machines' highlighted by a red rectangular box. The main content area is divided into two sections: 'Essentials' and 'Monitoring'. The 'Essentials' section provides key information about the VM, including its resource group ('Superhuman'), status ('Running'), location ('East US'), subscription name ('Free Trial'), and public IP address ('13.92.234.189'). A table of properties is shown below, detailing the computer name, operating system, size, and network configuration. The 'Monitoring' section at the bottom features a 'CPU percentage' tile, indicating the current CPU usage of the VM.

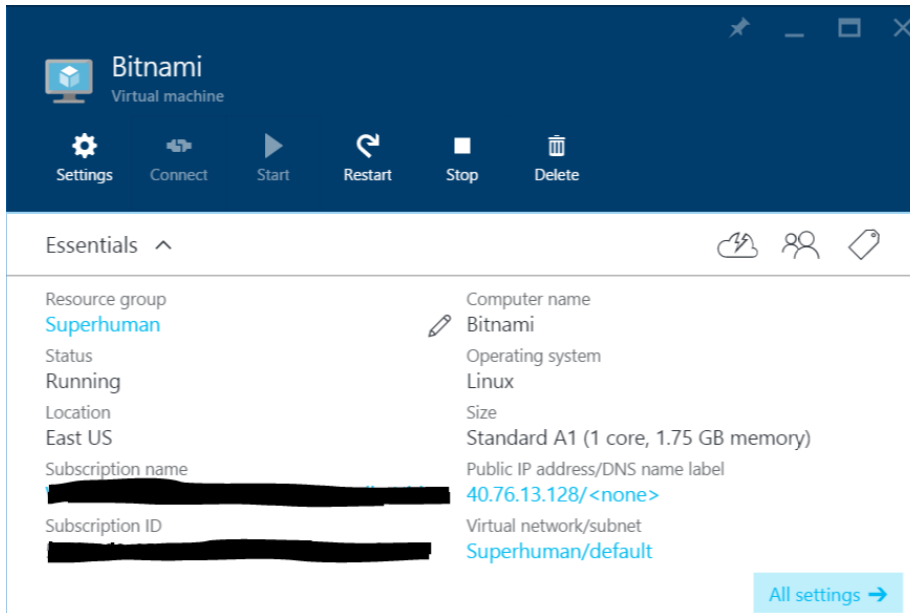
Property	Value
Resource group	Superhuman
Status	Running
Location	East US
Subscription name	Free Trial
Subscription ID	[REDACTED]
Computer name	Bitnami
Operating system	Linux
Size	Standard A1 (1 core, 1.75 GB memory)
Public IP address/DNS name label	13.92.234.189/<none>
Virtual network/subnet	Superhuman/default

Exercise 2: How to Access Your Parse Dashboard

1. Go to the Azure portal (<http://portal.azure.com/>) dashboard. The newly created VM and Web Apps are shown as tiles on the main page.



2. Locate and click the resource that was assigned in Exercise 1. For our resource, we will be clicking "Bitnami".
3. This will load the Parse Three details page. When the page opens, locate the Public IP address information.

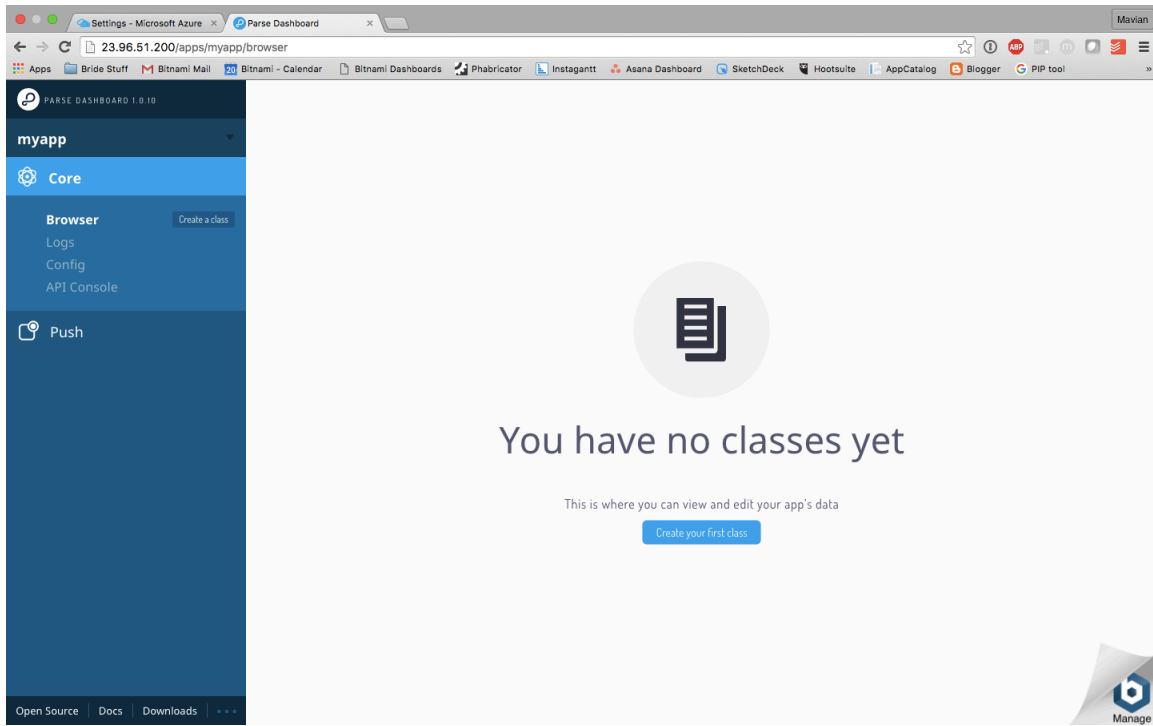


4. Copy and Paste your given IP address in a new browser window/tab. Press Enter.

- a. Note: It may take about 5 minutes to load your dashboard this first instance. However, anytime you access your dashboard afterwards, it will load immediately.

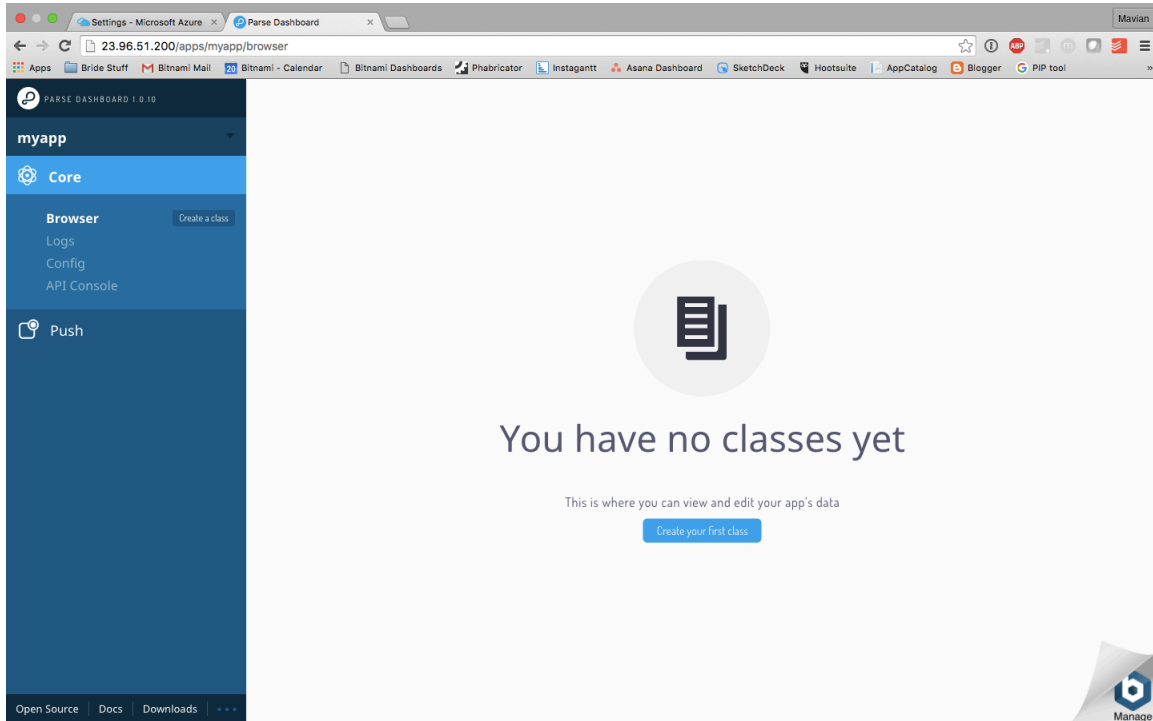


5. You have now accessed your private Parse server and its' dashboard. Now, you can also reap the benefits of Parse and it's great UI.

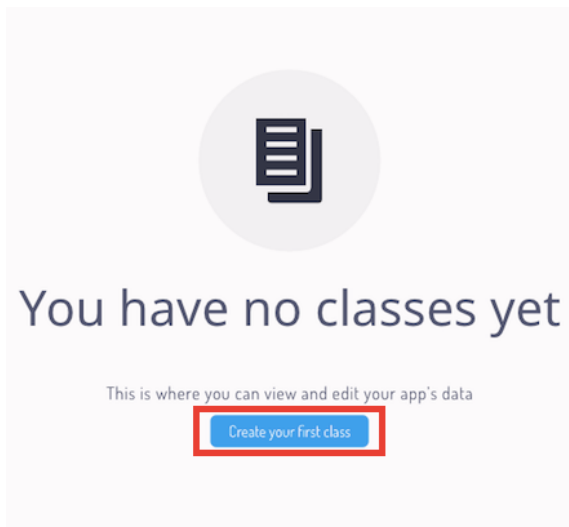


Exercise 3: Interacting with the Parse Dashboard UI

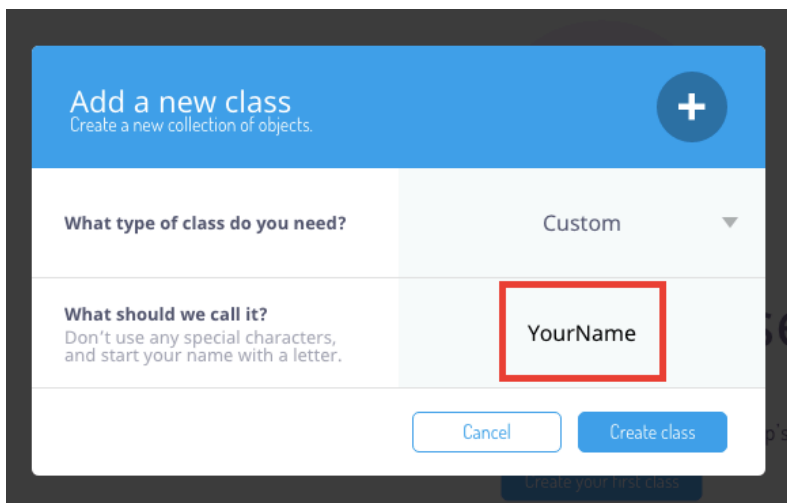
1. Once you've accessed your Parse Dashboard, you will see the following screen.



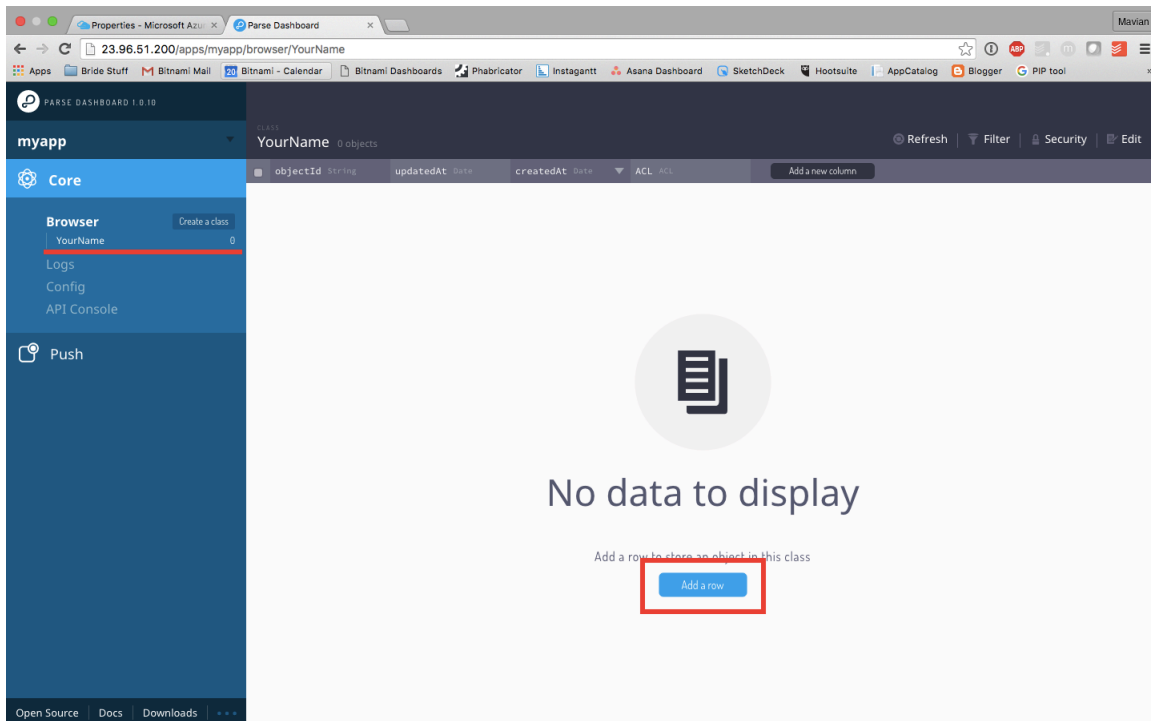
2. Click "Create your first class."



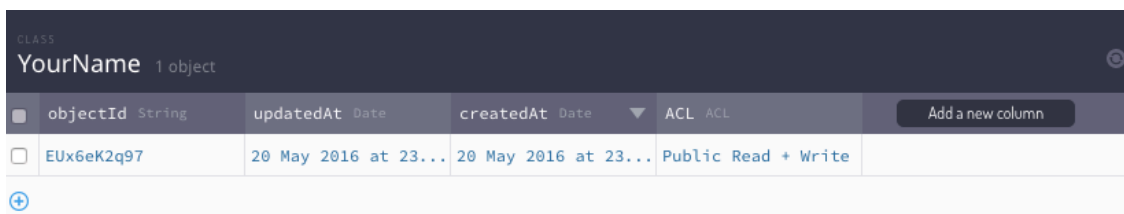
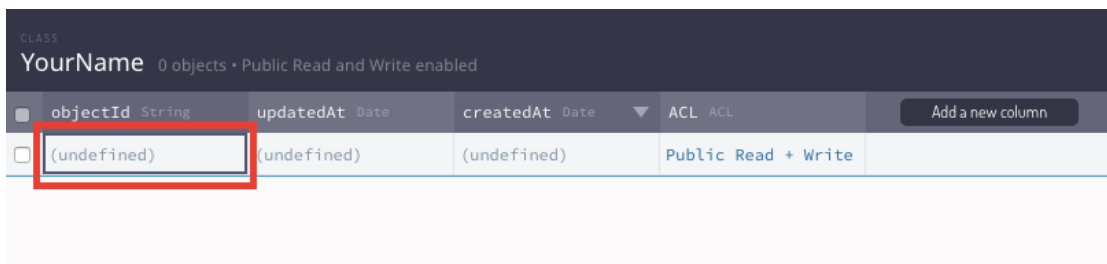
3. Within the module, name your first class under your first name.



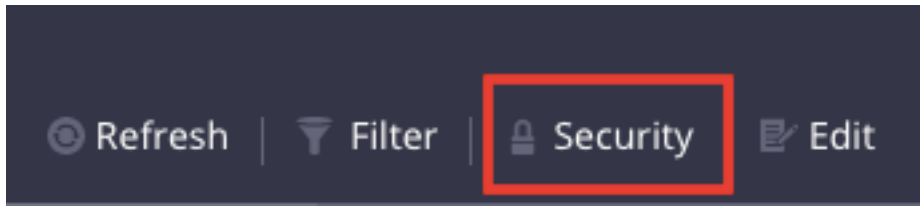
4. You will now notice that a class with your name has been created within the left hand column, and this class is now being displayed as your main page.
Click "Add a Row" in order for us to begin storing objects within this class.



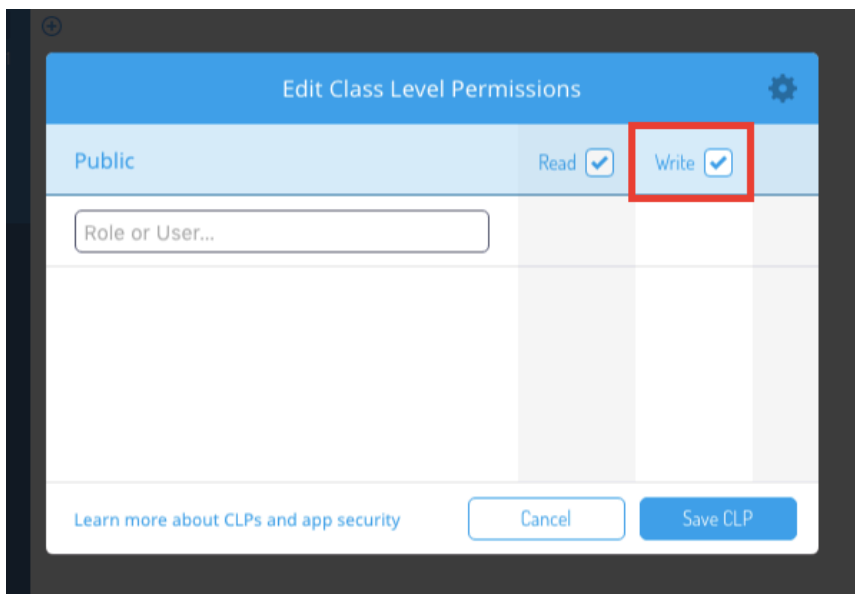
5. This will have added an “undefined” row to your class. In order to give this row some definition, double click the “(undefined)” column under “objectId”. Once you click outside of the cell, the row will be populated with data.



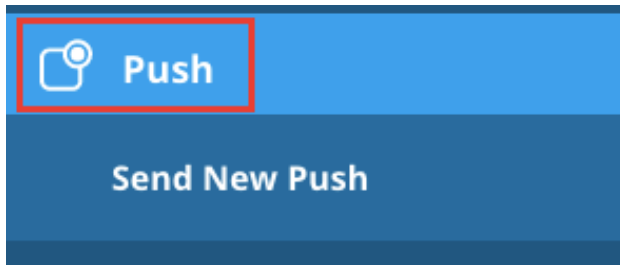
- Now that you have a class and an object within it, we will ensure that you have a secure app. Click “Security” in the top right corner.



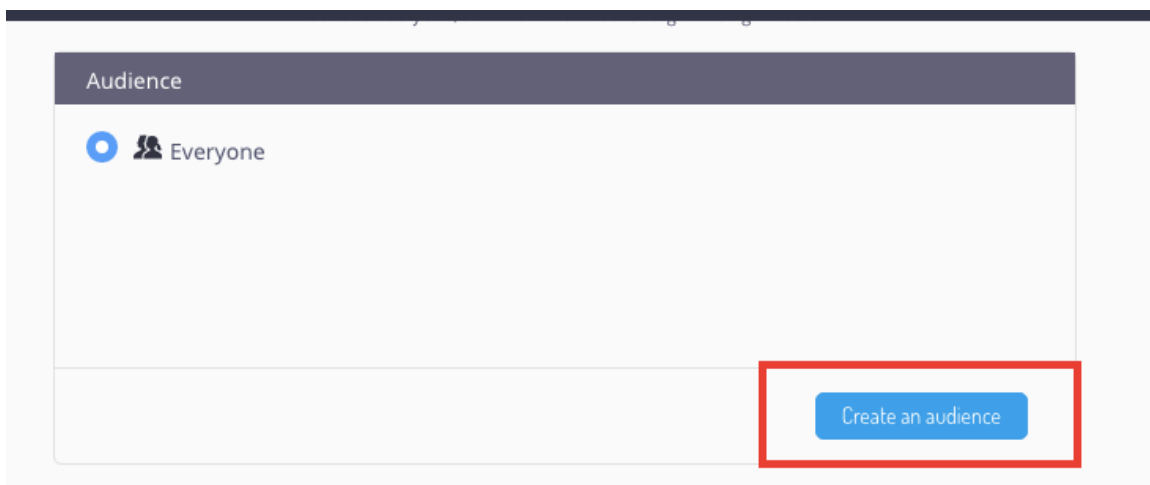
- We will be editing the CLP for this class. Currently, your app is automatically set so that *any user* of the app can see and change every object in your class. Since you most likely don't want any user to be able to delete your app, uncheck the box next to “Write” to disable any public writes. Then click the ‘Save CLP’ button to save your change.



- Next, we will explore what it may be like to send out a push notification. Click “Push” in the left hand menu.



9. Create an audience to which you would like your push notification be delivered.



10. Choose which platforms you'd like your notification to be sent through. Click "Use this audience" to save your changes.

Audience

Create a new audience

Which platforms should be included?

Win8 or Windows Phone

Add a condition

Android

Win8

Windows Phone

Embedded

What type of message are you

11. You will see your new segment created under your Audience list.

Choose your recipients.

Send to everyone, or use an audience to target the right users.

Audience

Everyone

New Segment
Win8, Windows Phone, [Edit audience](#)

Create an audience

12. Create the text that you would like your push notification to message your users.

Write your message

The best campaigns use short and direct messaging.

What type of message are you sending? Text ☒ JSON

What would you like to say?

Want to be Super Human? Find out how!

Increment the app badge?

No ☐ Yes ☒

13. Check within your preview that everything looks good!

Preview

Double check that everything looks good!

AUDIENCE

Sending to: New Segment

MESSAGE

Message: Want to be Super Human? Find out how!

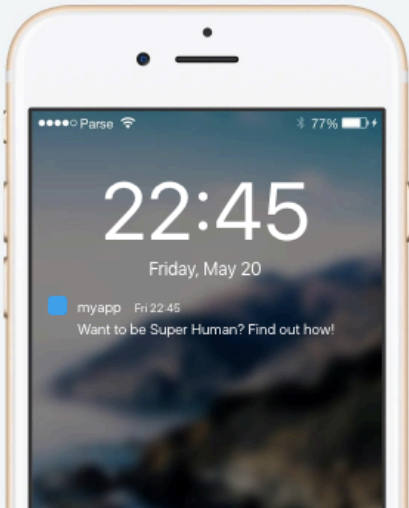
DELIVERY

Time: Immediately

Time Zone: GMT

Expiration: Never

iOS
Android
OS X
Windows



14. Click “Send.” This will send and save your message to your users.



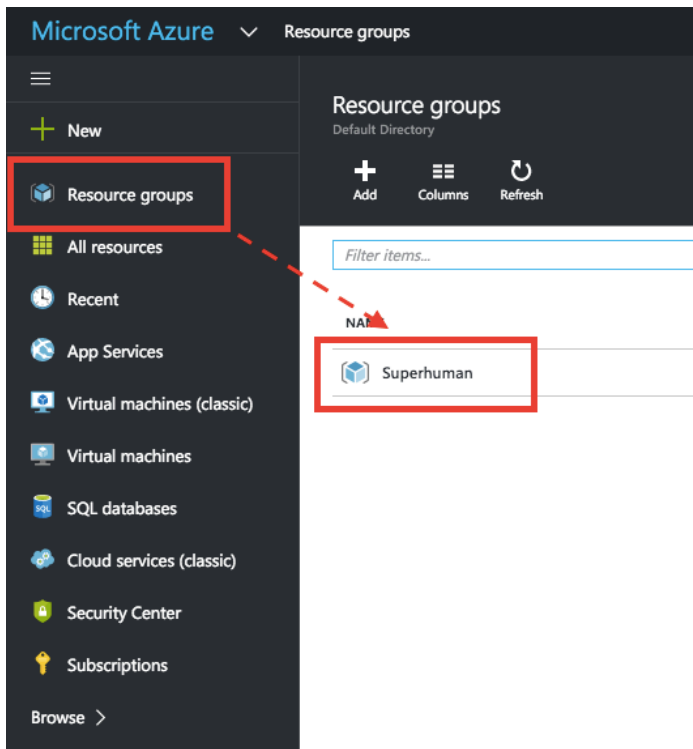
OPTIONAL- Exercise 4: How to Migrate an Application from Parse's Hosted Service

If you have an existing Parse account, please feel free to complete this Optional Exercise. If you do NOT have an existing Parse account, your lab is complete. Proceed to the "Validate your Lab" section.

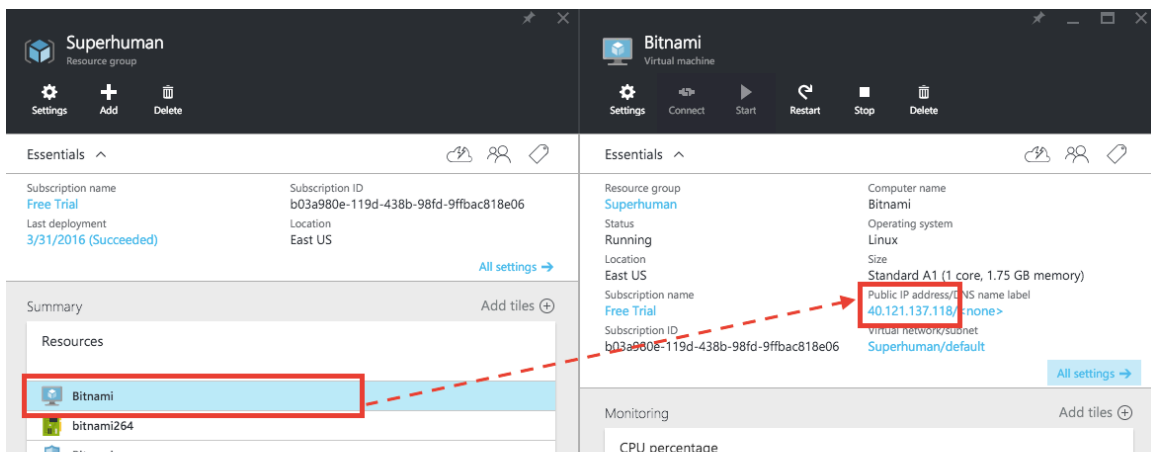
Exercise 4.1: Migrate Parse DB to Self-Hosted Mongo DB

1) Once you have confirmed that the Parse Server has been created and is now running, you will need to use a ssh client tool of your preference to establish a connection to the Parse Server. For this lab, we will use the ssh client built into Mac OSX, Terminal.

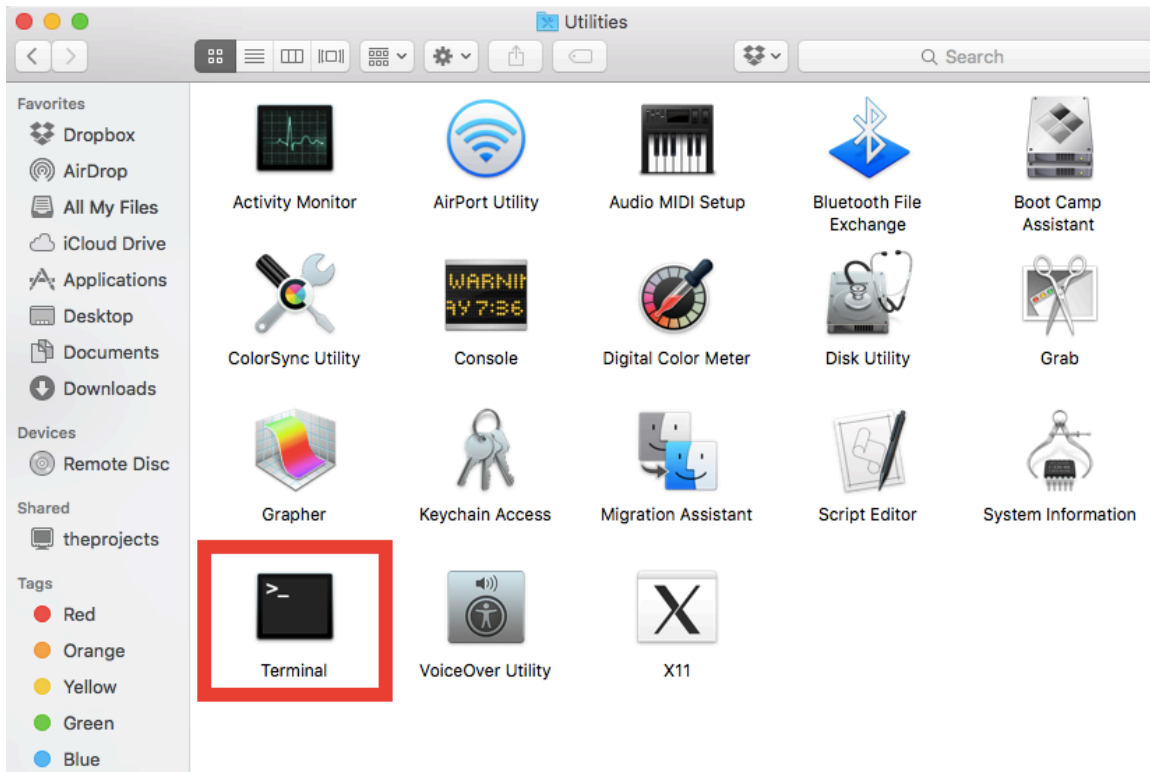
Click "Resource Groups" and then 'Superhuman'



2) Once 'Resource Groups' loads click the computer service icon and note the Public IP address listed within 'Essentials'. **Note: You will be referencing this IP address for the remainder of this exercise.**



3) Open Terminal by opening 'Finder' -> Applications -> Utilities and Double Clicking "Terminal".



On the Terminal window, you will use ssh in order to connect to the Parse Server by typing

■ `ssh demouser@IPADDRESS`

`ssh demouser@40.121.137.118`

4) Authenticate IP address for the Parse Server. This only happens one time.

Confirm my typing “yes.”

```
The authenticity of host '40.121.137.118 (40.121.137.118)' can't be established.  
ECDSA key fingerprint is SHA256:Mmkkt+PbPfiS9E1XD620p19jUiY0Z1bbbKWJeLiTX6w.  
Are you sure you want to continue connecting (yes/no)? yes
```

5) You will then need to enter the password we had originally created to confirm the credentials. (*Password: This-is-demo1*)

Once you have entered your password, this screen will appear.

```
Welcome to Ubuntu 14.04.4 LTS (GNU/Linux 3.13.0-79-generic x86_64)

      _ _ _ _ _
     /   /   /
    /___/___/_\
   /___/___/_\
  /___/___/_\
 /___/___/_\
/___/___/_\

*** Welcome to the Bitnami Parse Server 2.1.3-0 ***
*** Bitnami Wiki: https://wiki.bitnami.com/ ***
*** Bitnami Forums: https://community.bitnami.com/ ***
```

6) Now that you are connected to the Parse server. You will change the `bind_ip` in order to migrate your application data from an *external location*. In order to do so, you will need to find the correct MongoDB file to configure. Enter the following commands:

- which mongo
- ls /opt/bitnami/mongodb
- sudo vi /opt/bitnami/mongodb/mongodb.conf

7) Once the commands have been entered, search the file to change the bind_ip.

```
bind_ip = 0.0.0.0
port = 27017
```

8) Now that this property has been changed, restart the server with the following command.

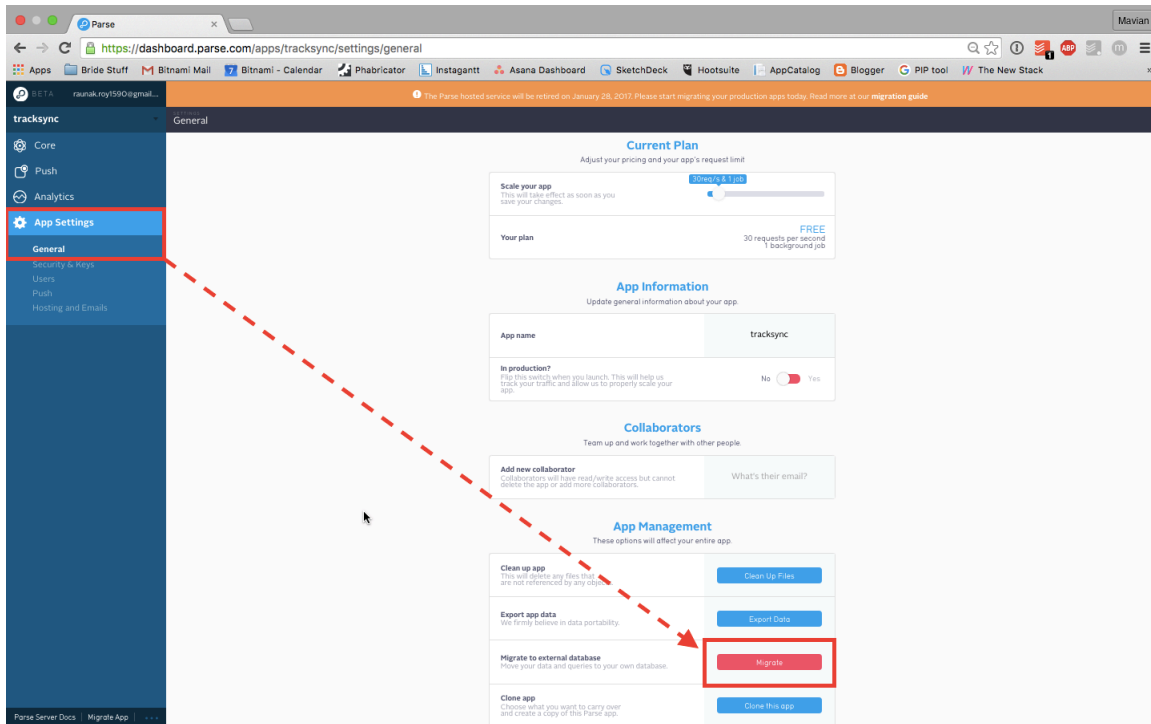
- `sudo /opt/bitnami/ctlscript.sh restart mongod`

9) You will now need to create your own database and database user to migrate.

The USER specified in the connection string must have administrative privileges to the MongoDB instance, as the migration tool will set some parameters automatically during the process. The (We used DATABASE: test USER: testuser PWD: password)

```
[> use test
switched to db test
[> db.createUser({user: "testuser", pwd: "password", roles: [ "readWrite", "dbAdmin" ]})
Successfully added user: { "user" : "testuser", "roles" : [ "readWrite", "dbAdmin" ] }
>
```

10) Next, Use Parse's database migration tool to transfer your data. Log in to the Parse website and navigate to the App Settings -> General page. Click the Migrate button in the App Management-> Migrate



11) Once you have clicked 'Migrate,' enter the connection string for the MongoDB database server in the form using the format below.

Migrate app

Begin migrating data to your own database

Your database connection string.
This database must be prepared to handle all of your app's queries and data. Read [our migration guide](#) to learn how to create a database.

`mongodb://USER:PWD@IPADDRESS:PORT/DATABASE-NAME`

Cancel


Begin the migration

Replace the USERNAME, PASSWORD, SERVER-NAME, SERVER-PORT and DATABASE-NAME with the values that you had created for your database.

The PORT for MongoDB is 27017, as referred to in step 7.

Migrate app

Begin migrating data to your own database.



Your database connection string.
This database must be prepared to handle all of your app's queries and data. Read [our migration guide](#) to learn how to create a database.

`mongodb://testuser:password@40.121.137.118:27017/test`

Cancel

Begin the migration

12) If your data has migrated successfully, you should see the screen below:

CURRENT PROGRESS(62D0wWGs7N)

<p>Copy Snapshot ✓</p> <p>Migrating existing data.</p>	<p>Sync ✓</p> <p>Migrating any new data post snapshot.</p>	<p>Verify</p> <p>Preview your new database.</p>
<p>Rows Migrated: 42 Classes Migrated: 5 Speed: 7 rows/s ETA: less than a minute</p>		

Your MongoDB instance at `mongodb://testuser:*****@40.121.137.118:27017/test` is now in sync. Browse through the data to make sure your data looks correct.

During this phase, your app continues to read and write to the Parse hosted database. When you are satisfied, you can finalize your migration and all reads and writes will now go to your MongoDB instance.

Stop the migration

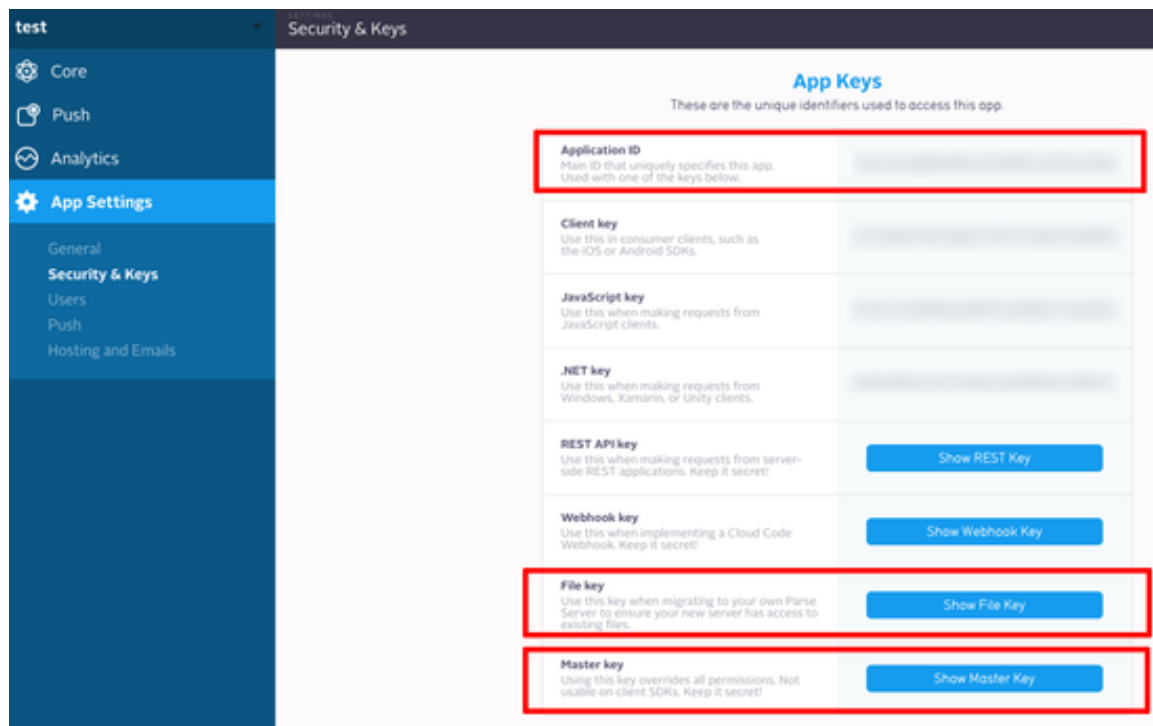
Finalize

End of Exercise 4.1

Exercise 4.2: Set Up Local Parse Server:

The next step is to configure your application to use the Bitnami Parse Server Stack instead of the hosted Parse service. Follow the steps below:

- 1) Log in to the Parse website and navigate to the *App Settings* -> *Security & Keys* page. Note the values of the *Application ID*, *File Key* and **Master Key** settings.



- 2) Open the server.js file by typing the following commands:

```
■ sudo nano server.js
```

- 3) Edit the `/parse/htdocs/server.js` file and insert the credentials from the previous steps, as shown below:

```
// Specify the connection string for your mongodb database
// and the location to your Parse cloud code
var api = new ParseServer({
  databaseURI: 'mongodb://root:bitnami@127.0.0.1:27017/admin',
  cloud: './cloud/main.js',
  appId: 'myappid',
  masterKey: 'mymasterkey',
  fileKey: 'myfilekey',
  serverURL: 'http://100.108.94.60:80/parse'
});
```

Restart the Parse server:

- `sudo /opt/bitnami/ctlscript.sh restart parse`

```
[bitnami@bitnami:~/apps/parse/htdocs$ sudo /opt/bitnami/ctlscript.sh restart parse
info: Forever stopped process:
  uid  command  script  forever pid  id  logfile  uptime
[0] z0H2 /opt/bitnami/nodejs/bin/.node.bin server.js 3202 3209 /opt/bitnami/apps/parse/.forever/z0H2.log 0:0:15:26.199
/opt/bitnami/apps/parse/scripts/ctl.sh : parse stopped
warn: --minUptime not set. Defaulting to: 1000ms
warn: --spinSleepTime not set. Your script will exit if it does not stay up for at least 1000ms
info: Forever processing file: server.js
/opt/bitnami/apps/parse/scripts/ctl.sh : Parse started
```

End of Exercise 4.2

Congratulations! Your application should now be able to connect to the Bitnami Parse Server Stack!

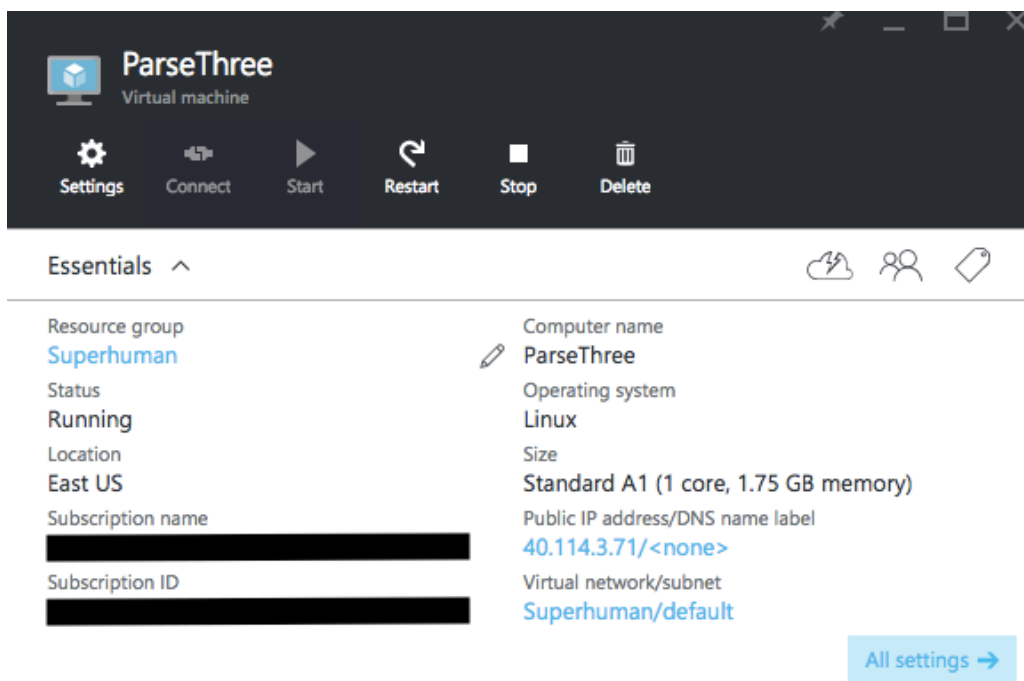
Validate Lab Completion:

Now that you have stood up your Bitnami Parse Server and its' dashboard, there are many things that you can do in order to make your blog more unique. If you have more questions, feel free to check out our Bitnami Wiki page for answers:

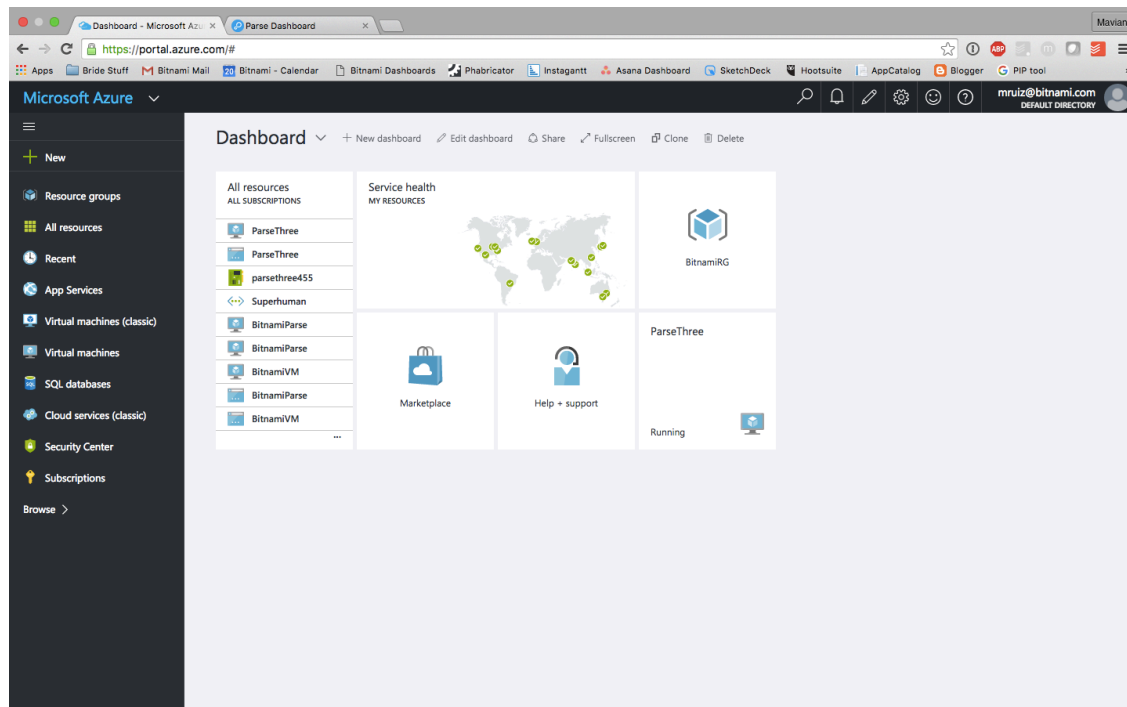
https://wiki.bitnami.com/Applications/Bitnami_Parse_Server

In order to submit your Bitnami Parse Super Human lab for completion, please send screenshots of the following:

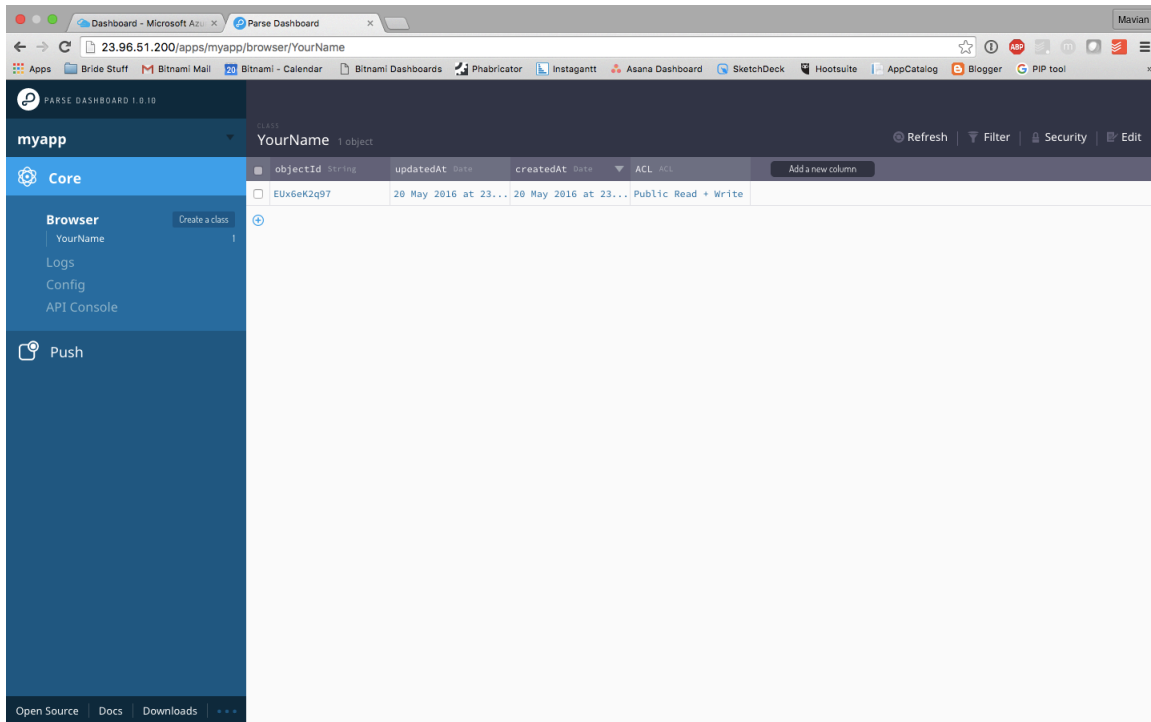
- 1) Your VM Essentials page within your Azure Portal



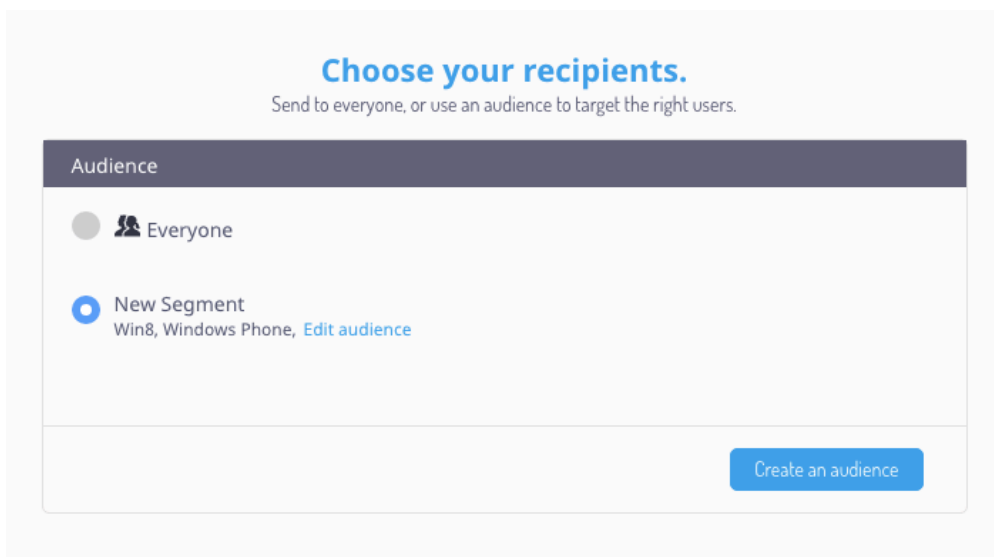
2) Your Bitnami Parse VM Pinned to your dashboard



3) Your Parse Dashboard, including your URL bar



4) Your new audience segment



5) Your Push Notification preview

Preview

Double check that everything looks good!

<p>AUDIENCE</p> <p>Sending to: New Segment</p>		<p>iOS Android OS X Windows</p>
<p>MESSAGE</p> <p>Message: Want to be Super Human? Find out how!</p>		
<p>DELIVERY</p> <p>Time: Immediately</p> <p>Time Zone: GMT</p> <p>Expiration: Never</p>		