lab

lab title

Introduction to AWS
V1.09

Course title

BackSpace Academy
AWS Certified Associate

Table of Contents

Contents

About the Lab

Please note that not all AWS services are supported in all regions. Please use the US-East-1 (North Virginia) region for this lab.

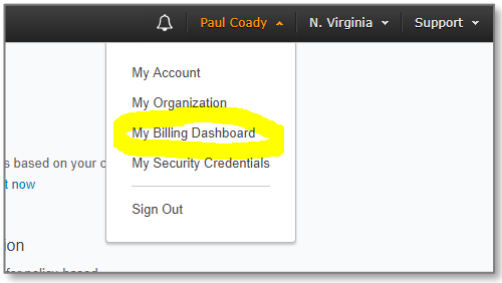
These lab notes are to support the hands on instructional videos of the Introduction to AWS section of the AWS Certified Associate Course.

Please note that AWS services change on a weekly basis and it is extremely important you check the version number on this document to ensure you have the lastest version with any updates or corrections.

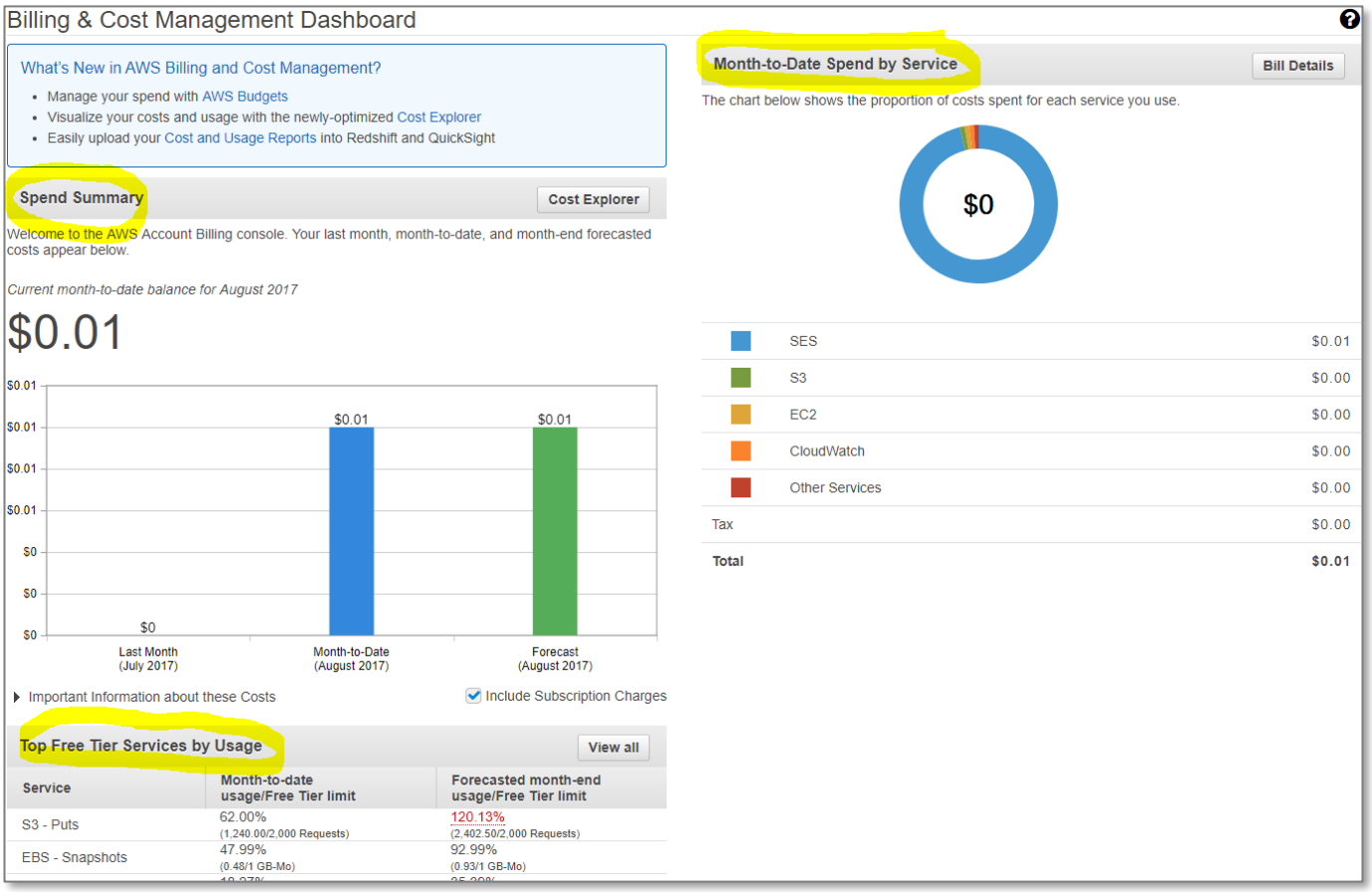
Checking your AWS Usage and Monthly Bill

In this section we will learn how to use the AWS Billing & Cost Management Dashboard to keep track of costs.

From the AWS management console select “My Billing Dashboard” from the account drop down menu.



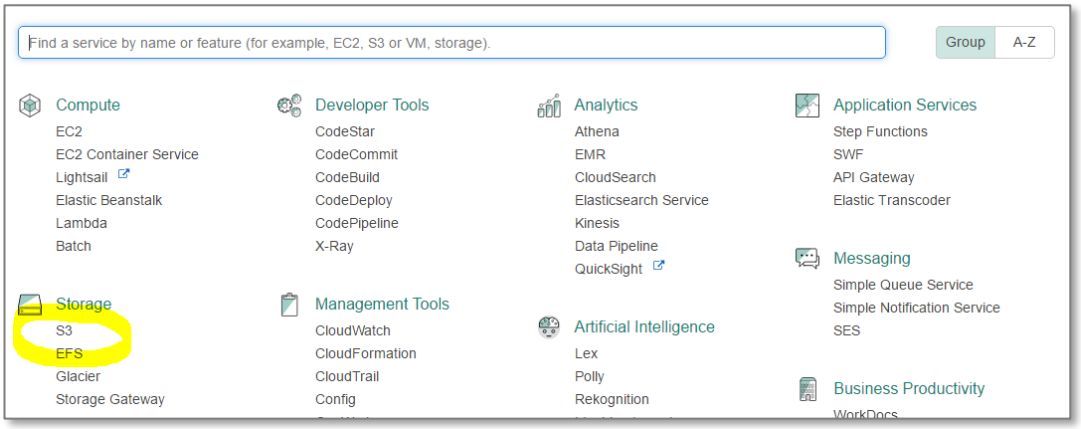
You will now see your total spend summary, spend by service and forecast spend.



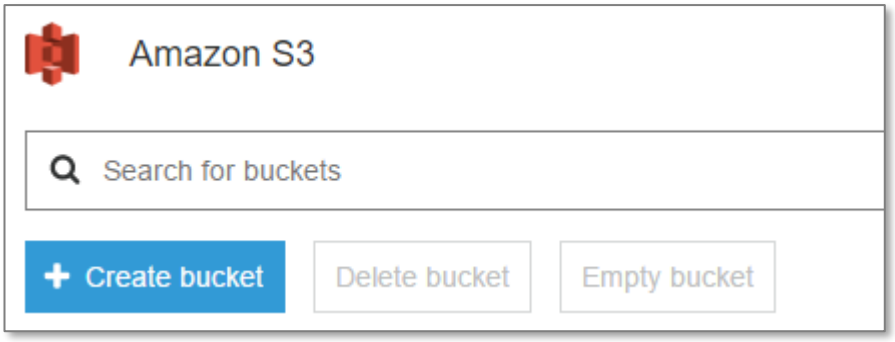
Creating an S3 Bucket and Uploading Files

In this section we will create an S3 bucket, upload files to it and download files from it.

Click on the services menu and select S3.



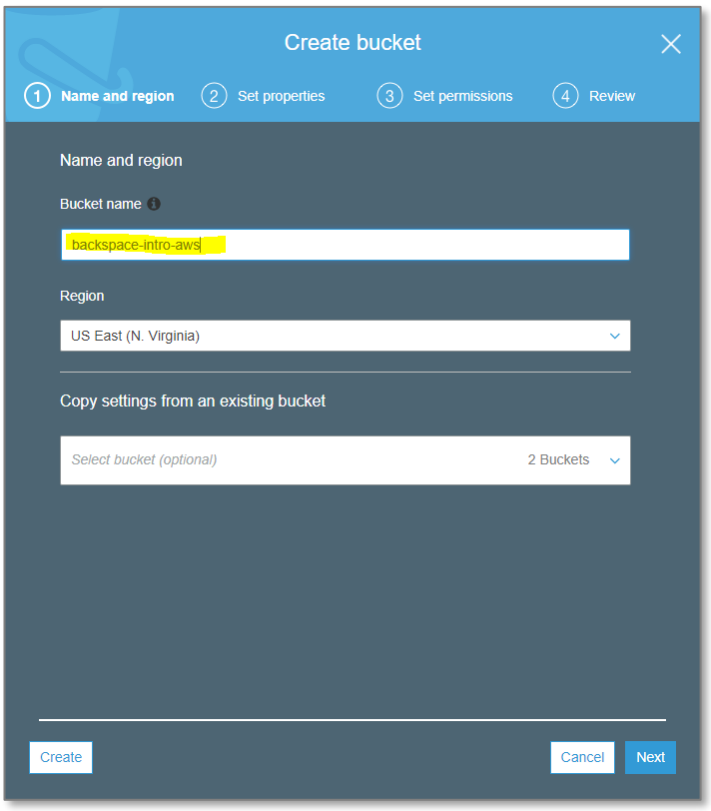
Click on Create Bucket



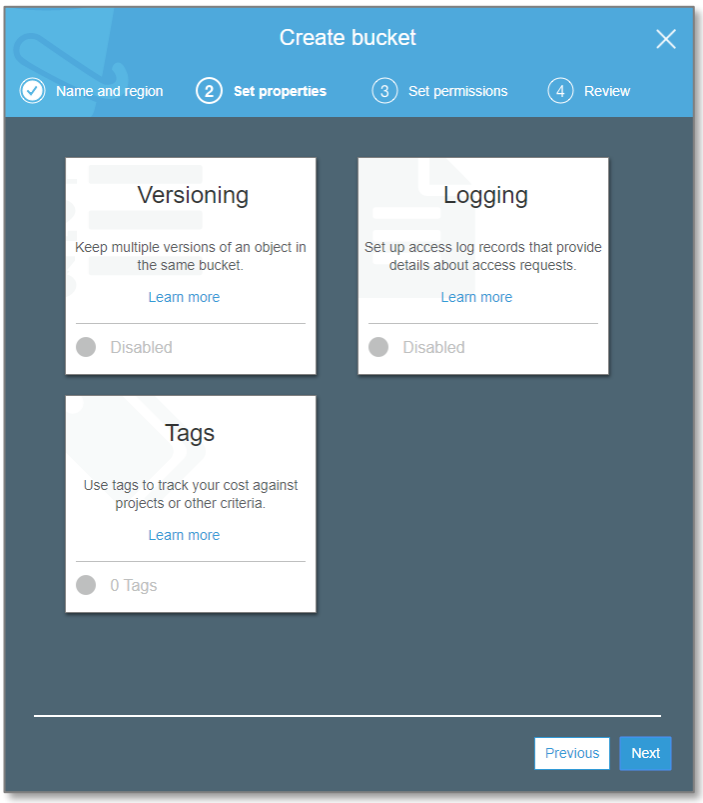
The create bucket dialog box will appear.

Enter a unique name for your bucket (it will need to different from the one below)

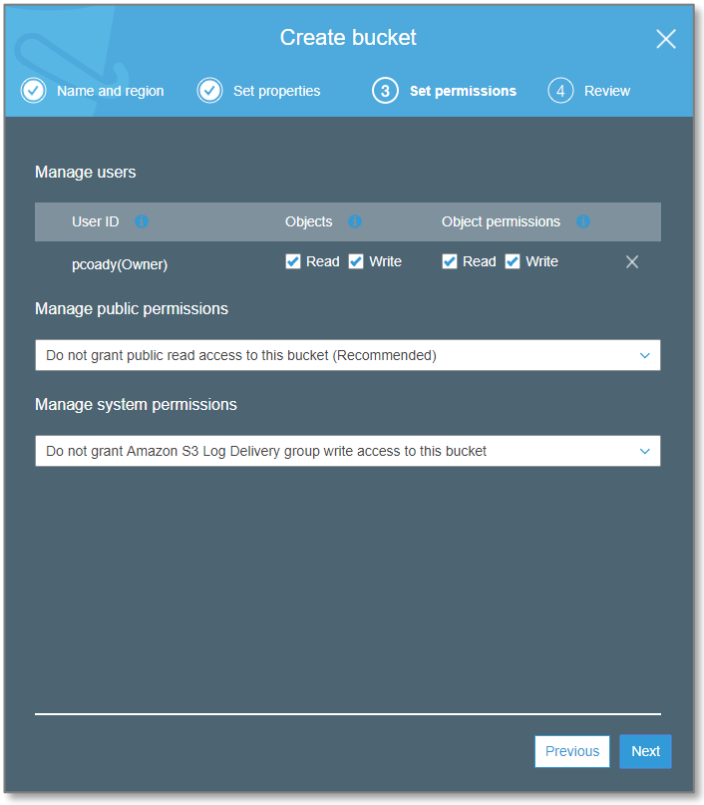
Click “Next”



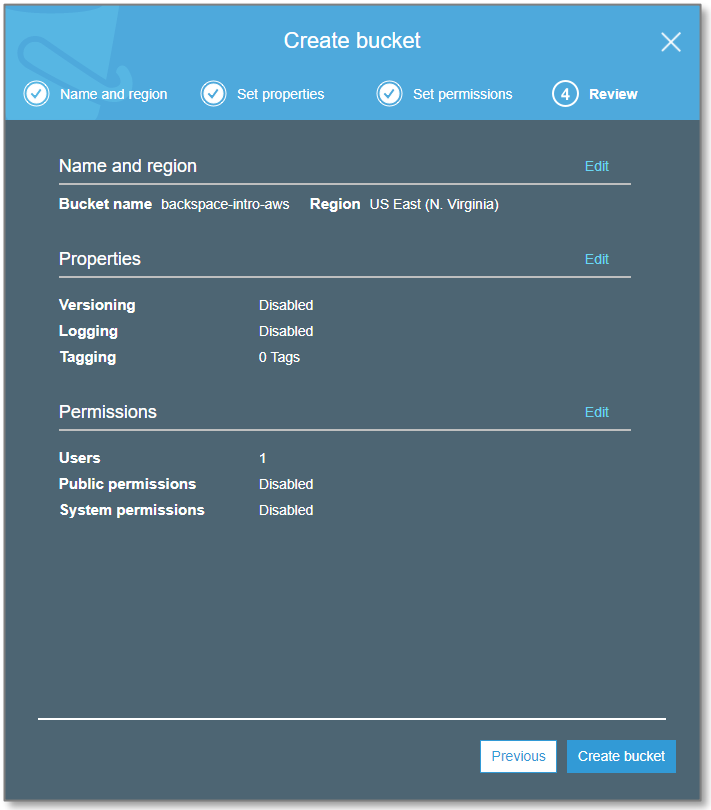
Leave as is and click “Next”



Leave as is and click “Next”

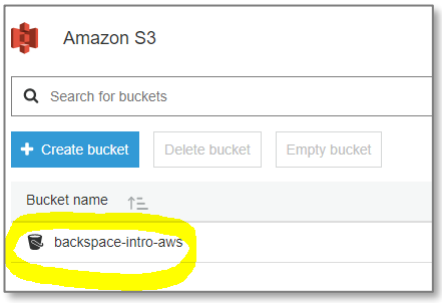


Click “Create Bucket”

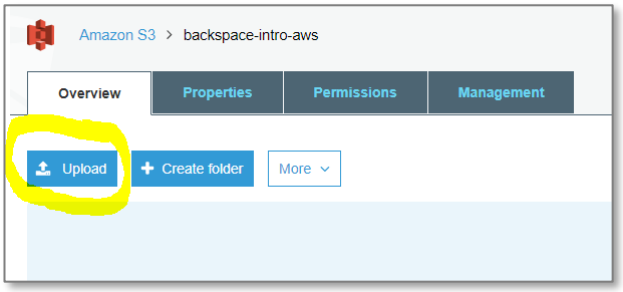


Uploading Files to your Bucket

Click on the link to the bucket

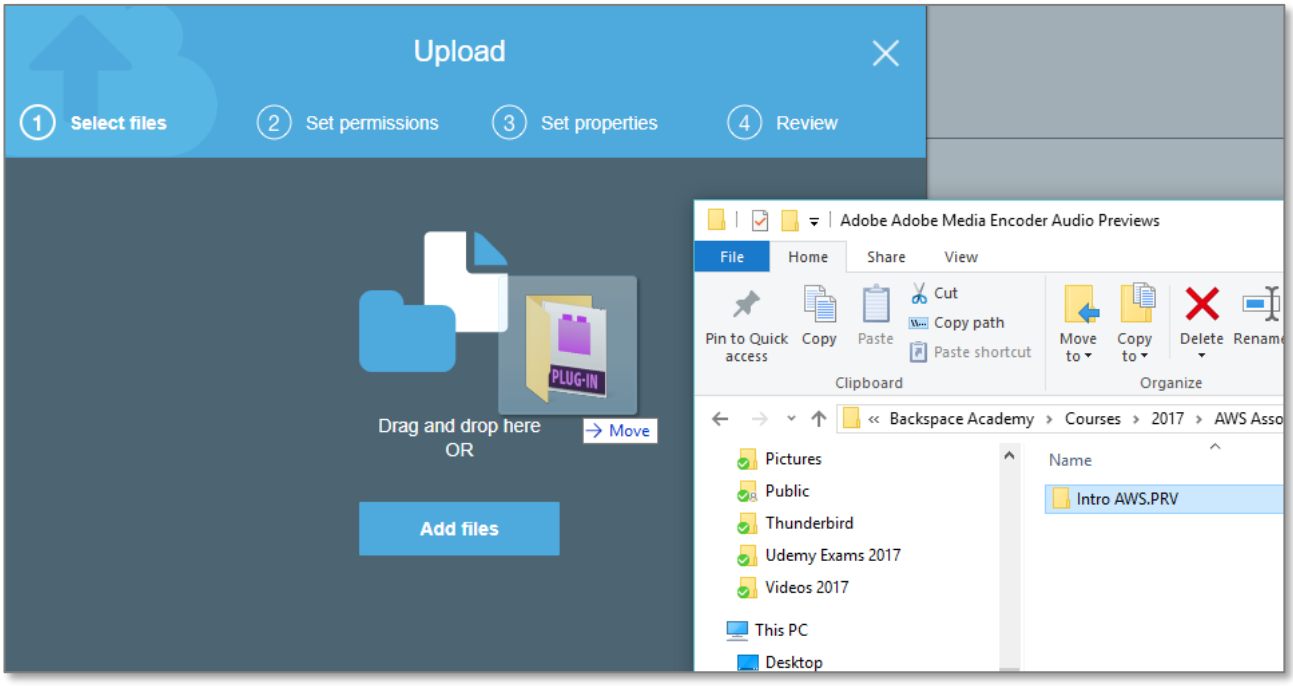


Select “Upload”

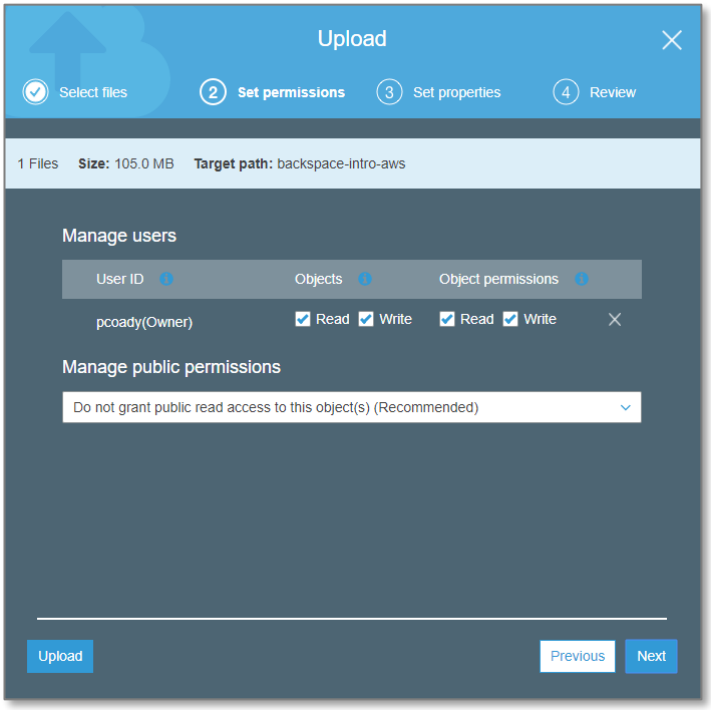


Drag a folder with files onto the form.

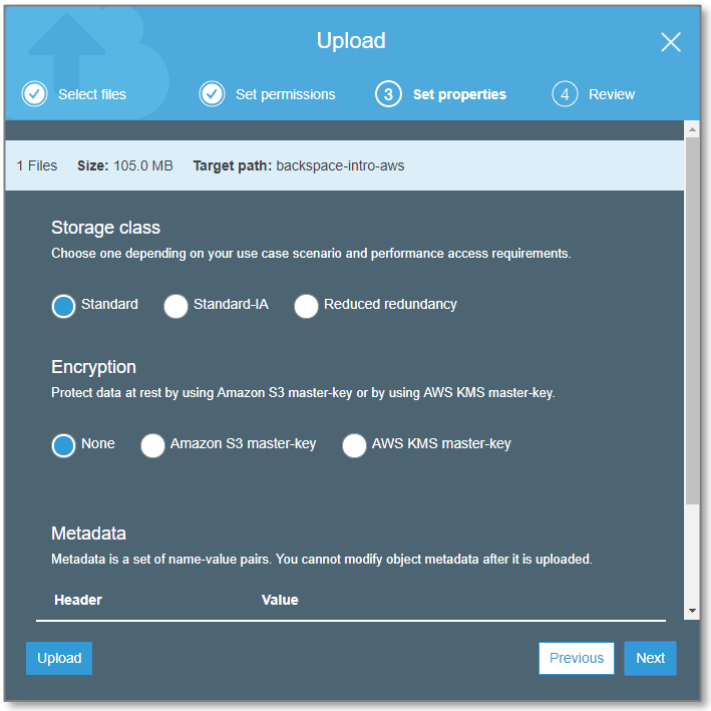
Click Next



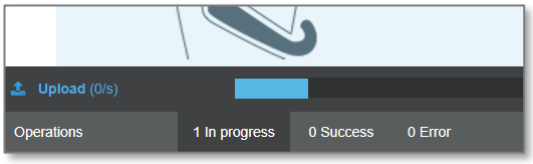
Leave as is and click “Next”



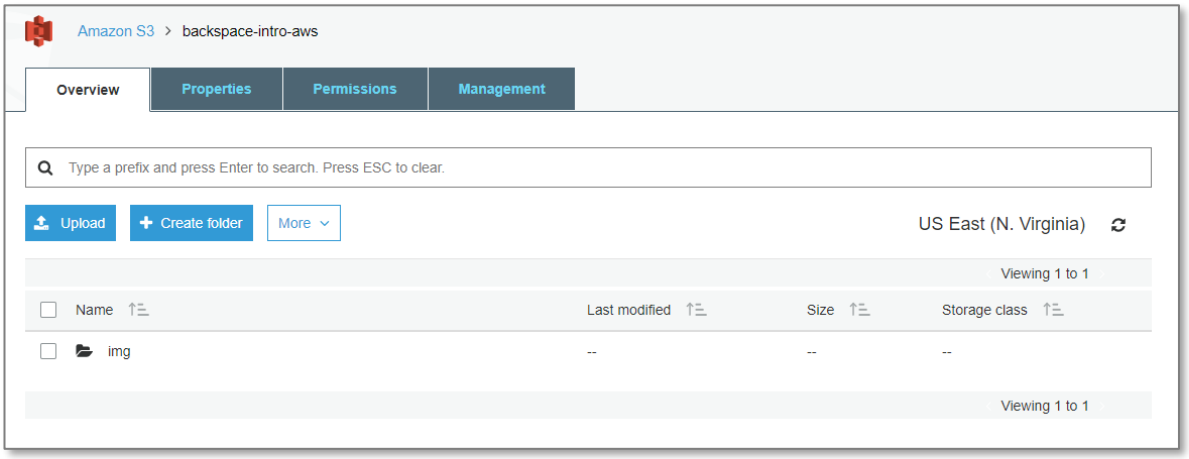
Leave as is and click “Next”



Click “Upload”

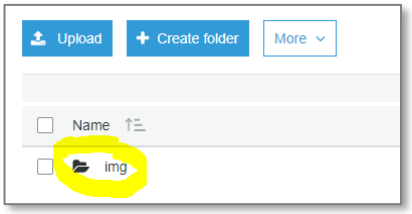


Your upload will eventually complete.

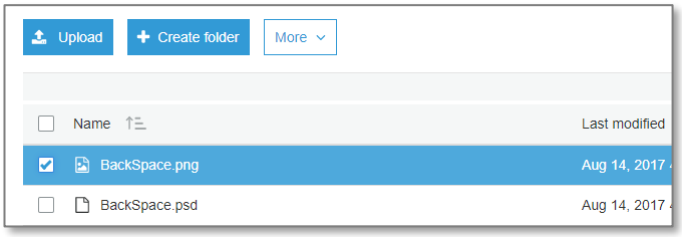


Downloading files from your bucket

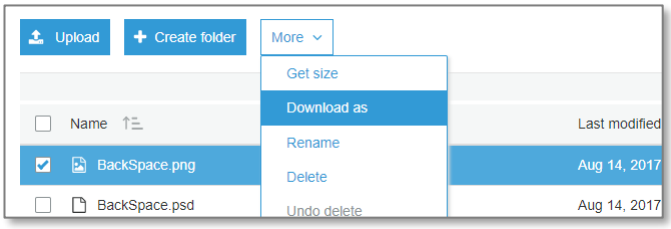
Click the link for your folder



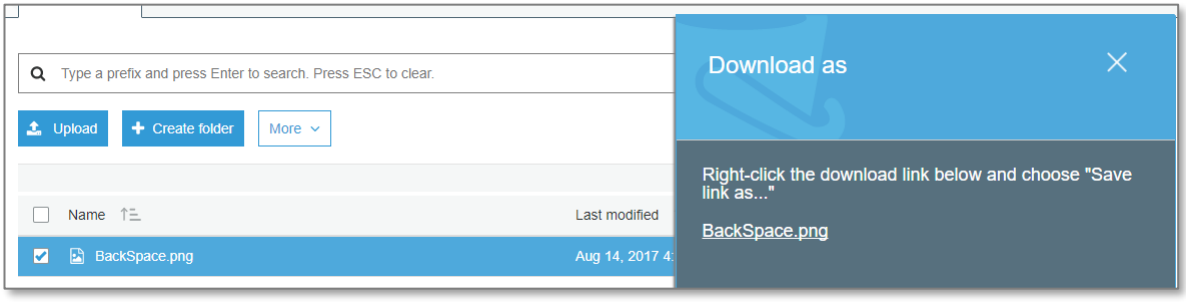
Select a file



Select “More”, “Download As”



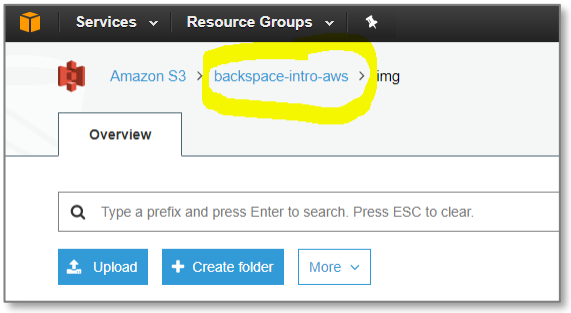
Click the download link to download the file.



Clean Up

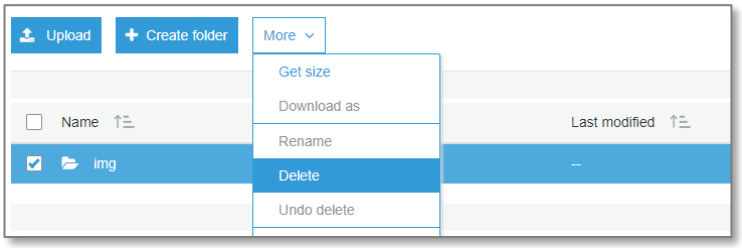
We will now delete the files and bucket so that you will not be billed by AWS.

Go back to your bucket by clicking its link.

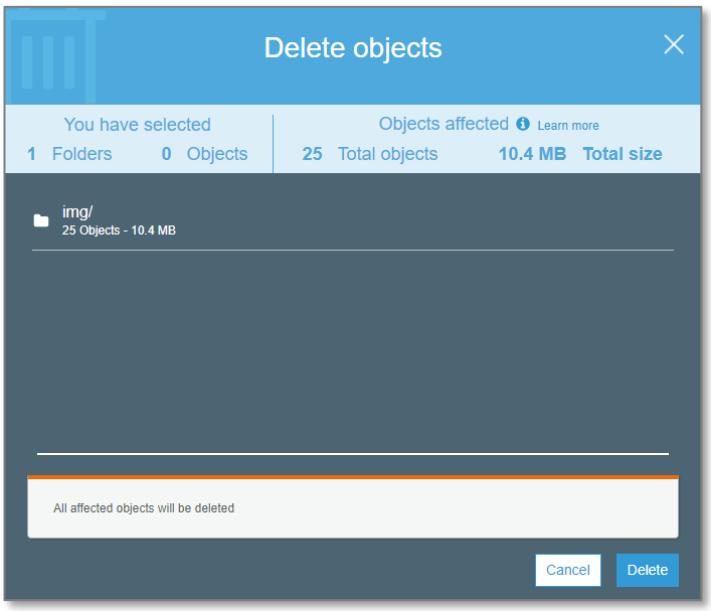


Select the folder

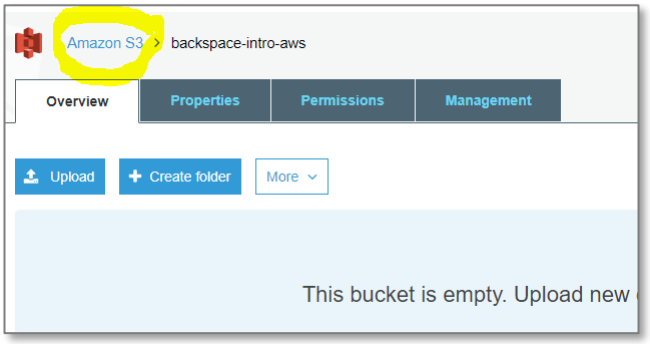
Select “More”, “Delete”



Click “Delete”

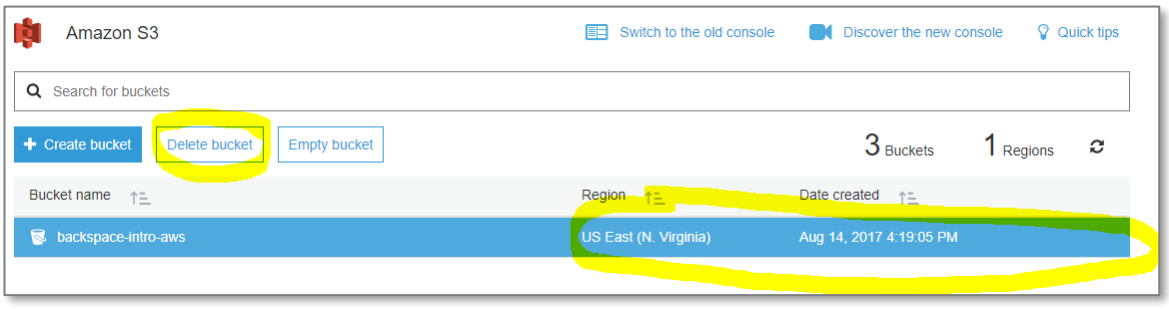


Go back to the S3 dashboard by clicking the link

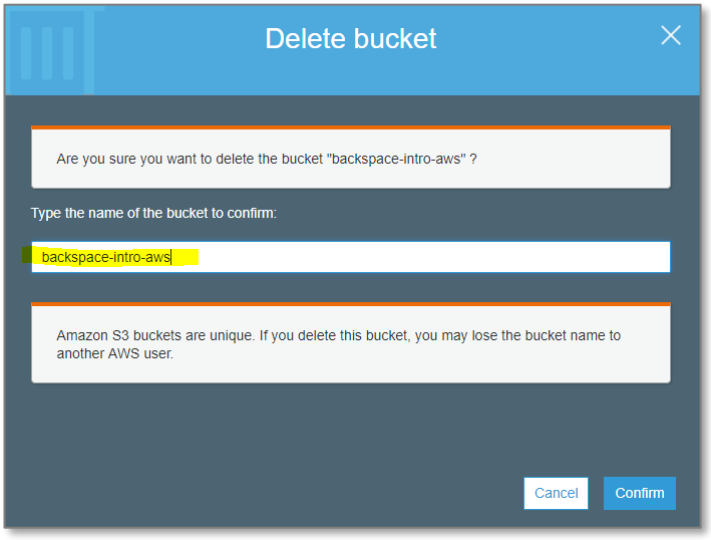


Click on the bucket line but not on the bucket link to select the bucket.

Click “Delete Bucket”



Confirm the name of the bucket to delete



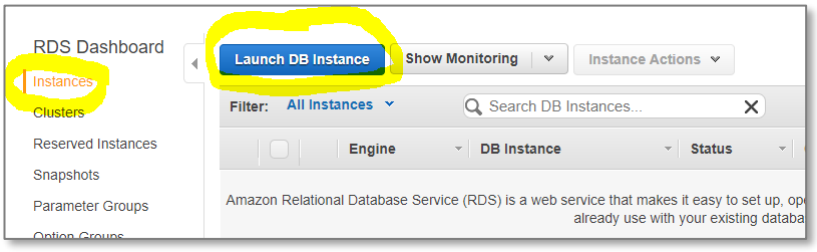
Creating a SQL Database with RDS

In this section, we will use the Relational Database Service to create a database. We will also connect in to the database.

From the AWS console select “RDS” from the Database services.

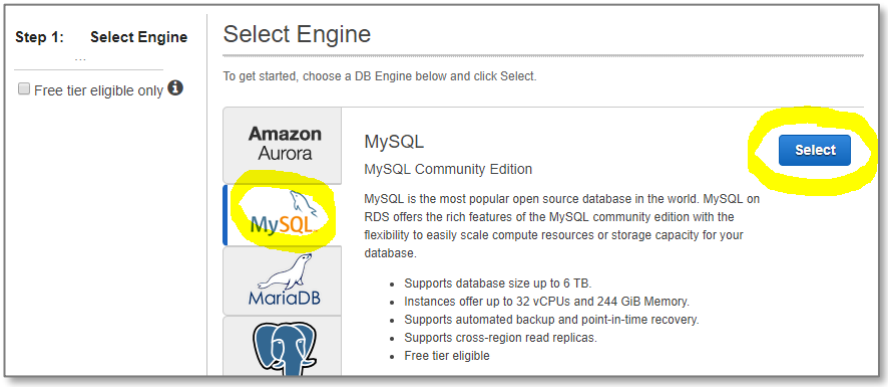
Select “instances”

Select “Launch DB Instance”

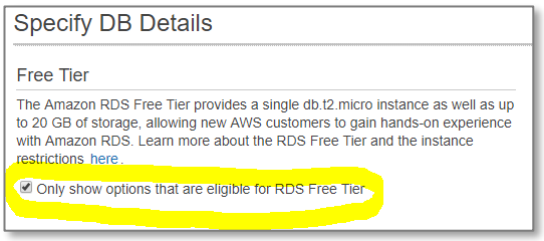


Select “Free tier eligible only”

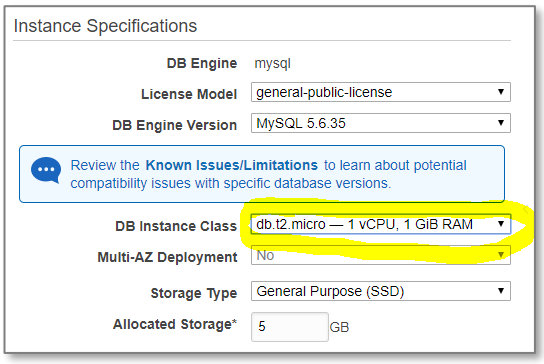
Select the MySQL Community Edition



Make sure “Only show options that are eligible for RDS Free Tier” is selected



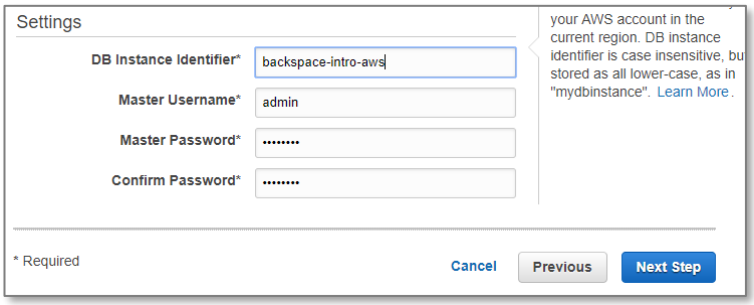
Select db.t2.micro instance class



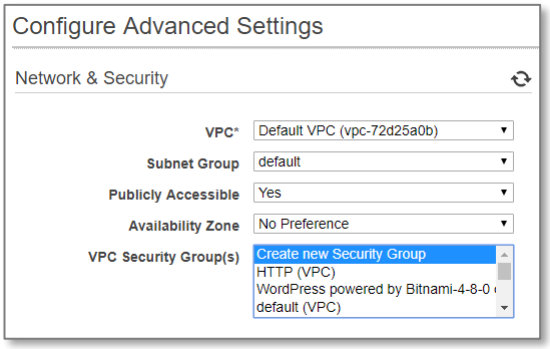
Give your instance a name/identifier.

Fill in a master username and password

Click “Next Step”

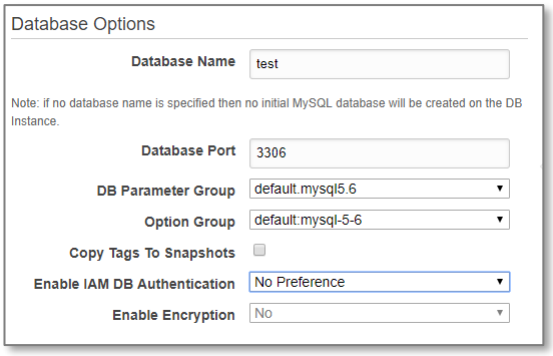


Leave settings for Network and Security as below.



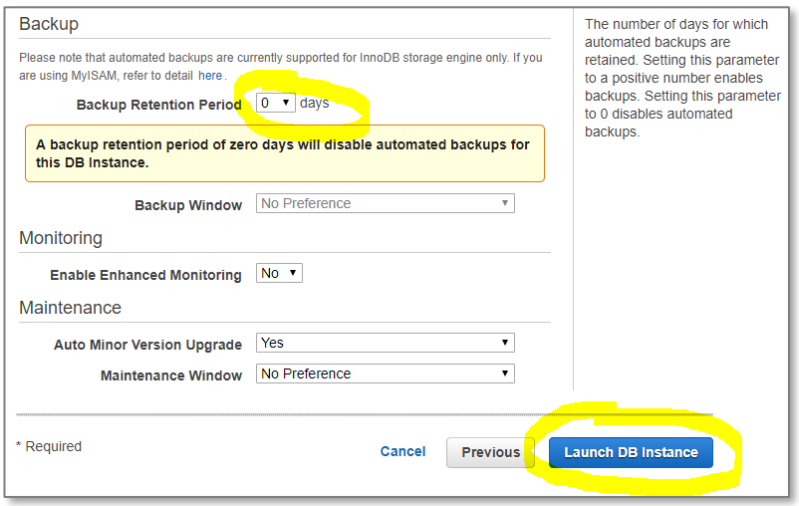
Enter a database name.

Leave other options default as below.

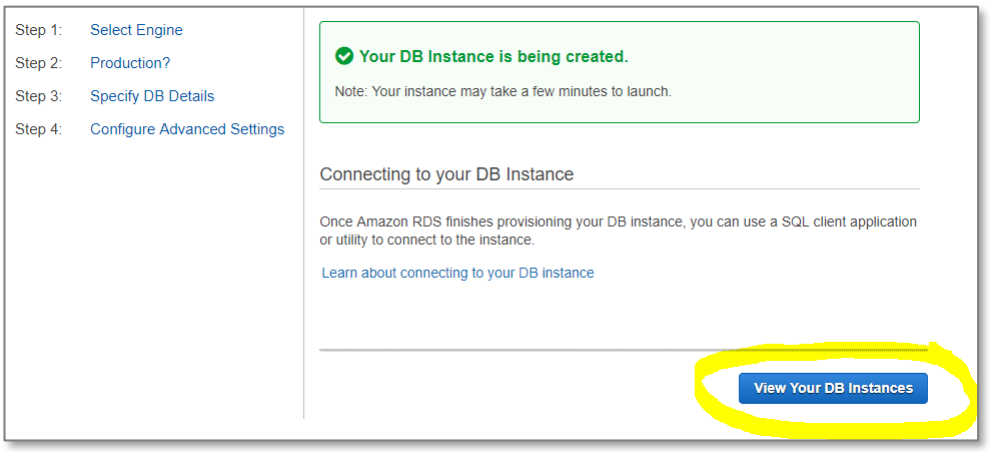


Change “Backup Retention Period” to disable automated backups.

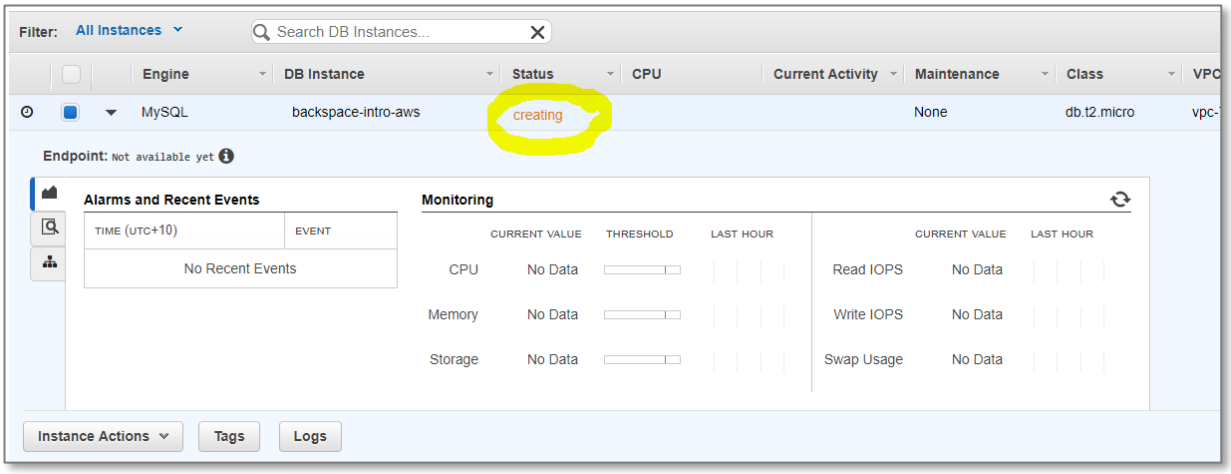
Click “Launch DB Instance”



Click “View your DB Instances



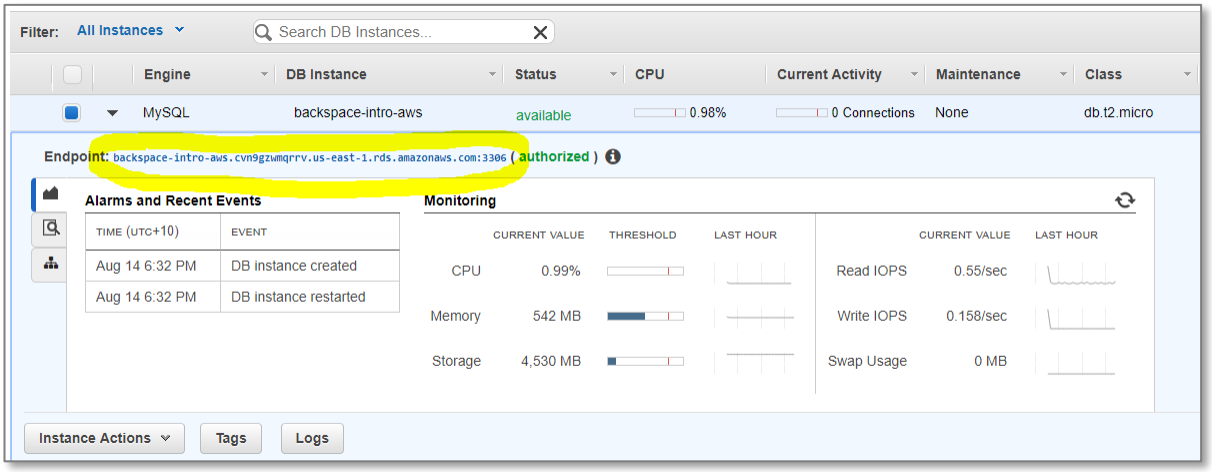
Your instance will show status “creating”.



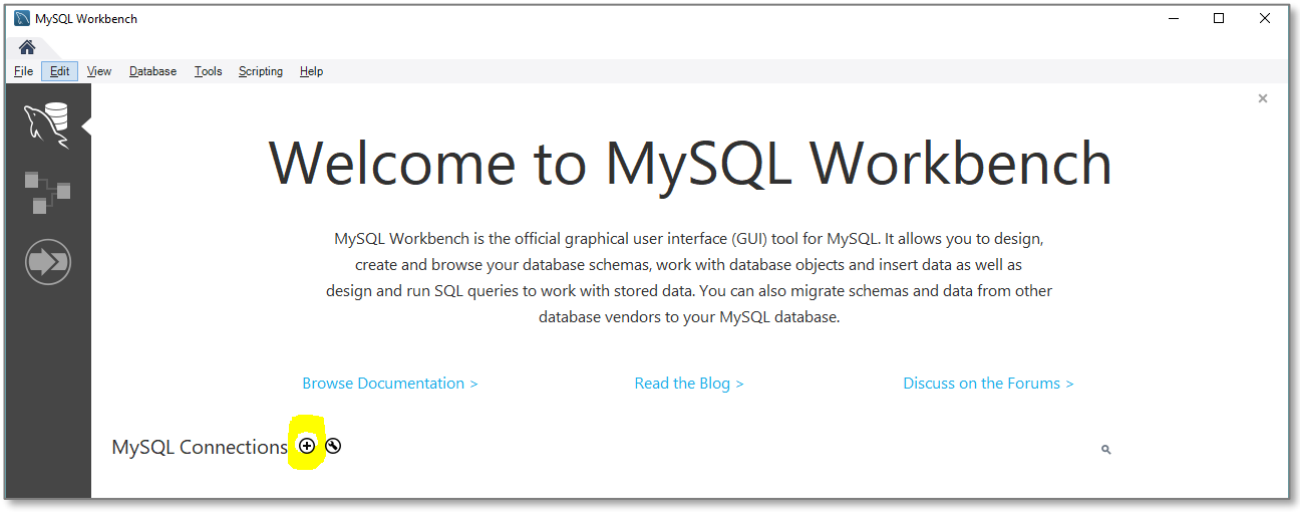
Connecting to your RDS Instance

To connect to your MySQL Database you will need to download and install the MySQL Workbench from https://dev.mysql.com/downloads/workbench/

When your instance status is “available”, copy the database server endpoint



Open the MySQL Workbench application click to add a new connection



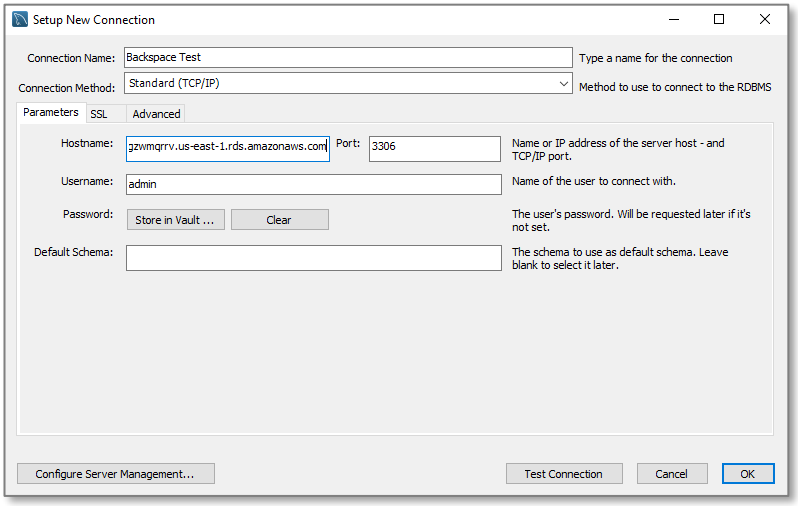
Give the connection a name.

The Hostname will be the RDS server endpoint with the ":3306" removed from the end.

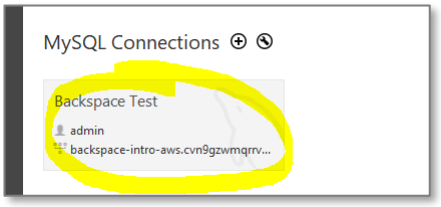
The port will be 3306.

The Username will be the master username we created in RDS (i.e. admin)

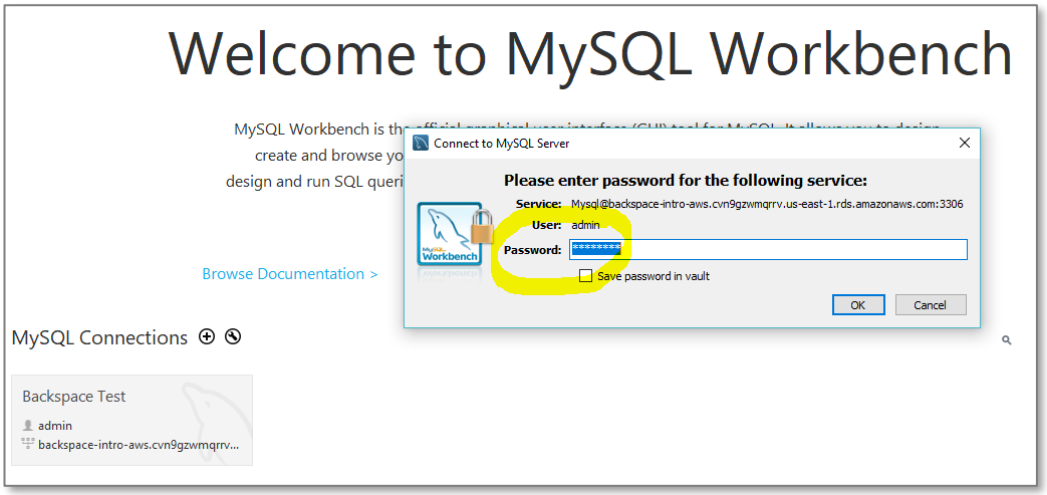
Click OK



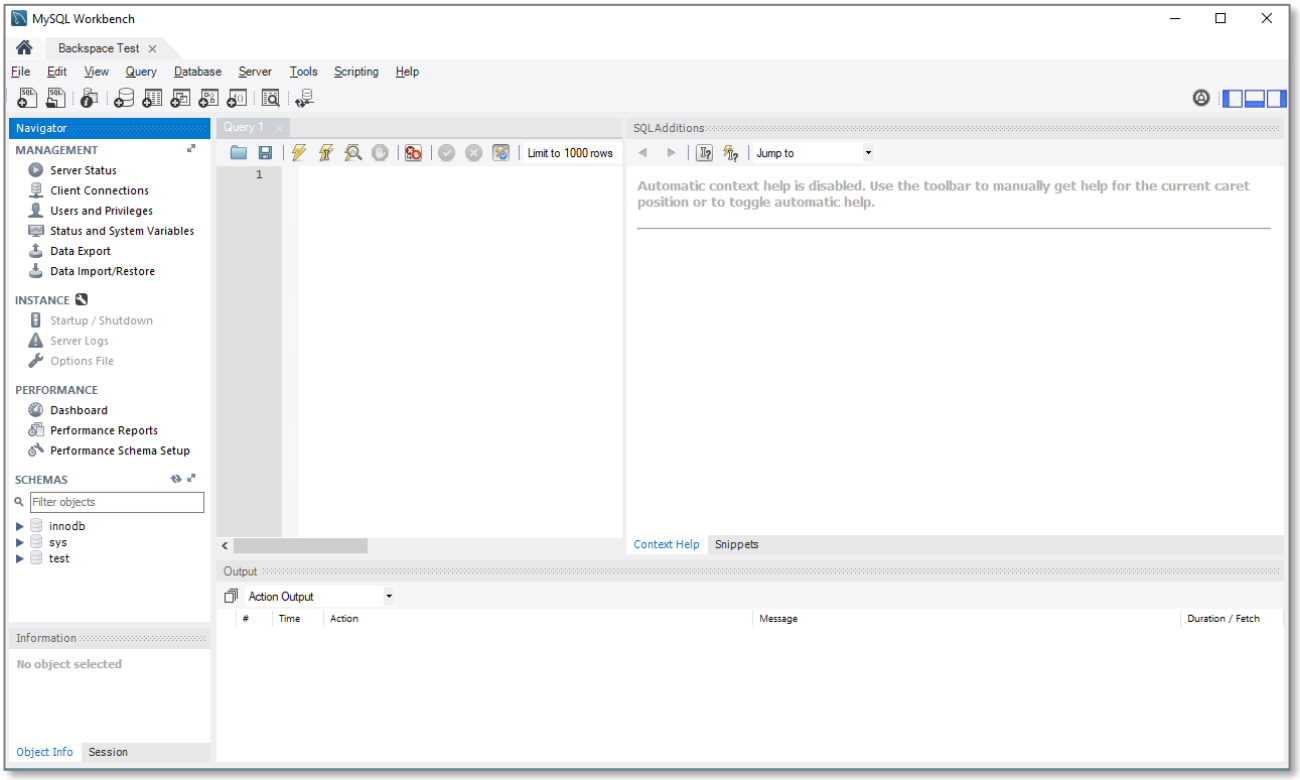
Click on the Connection



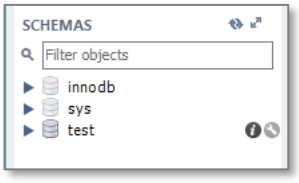
Enter the password you created in RDS for your master username



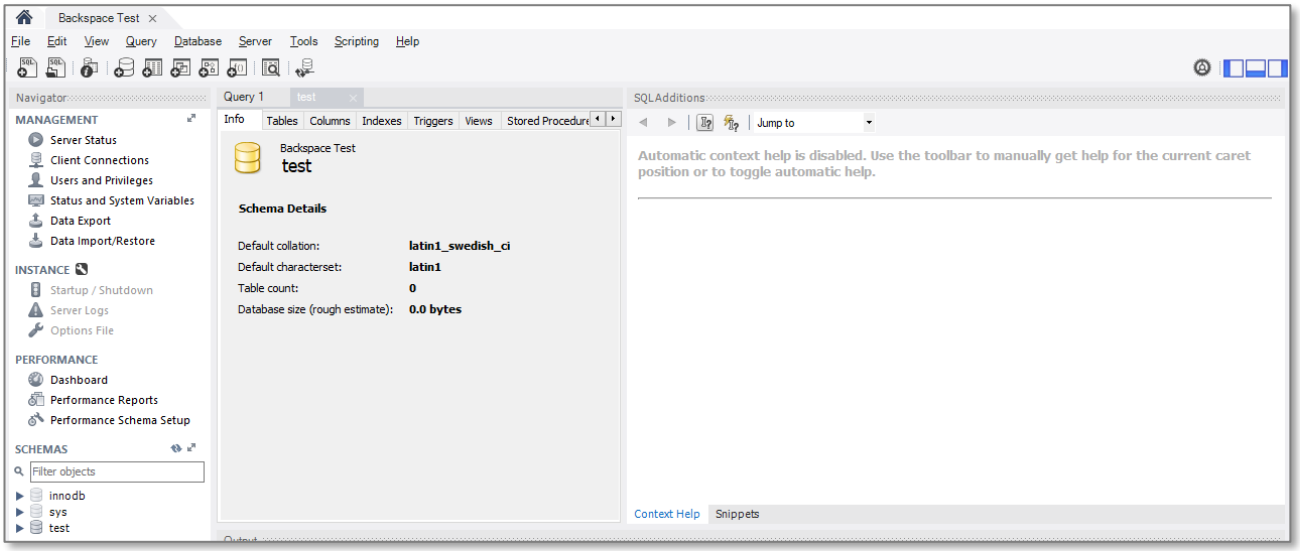
You will soon be connected to your database server



Hover over the “test” database under “SCHEMAS” and click the information icon to get information about the database that was created by us in RDS.



You then get an information screen for the database.

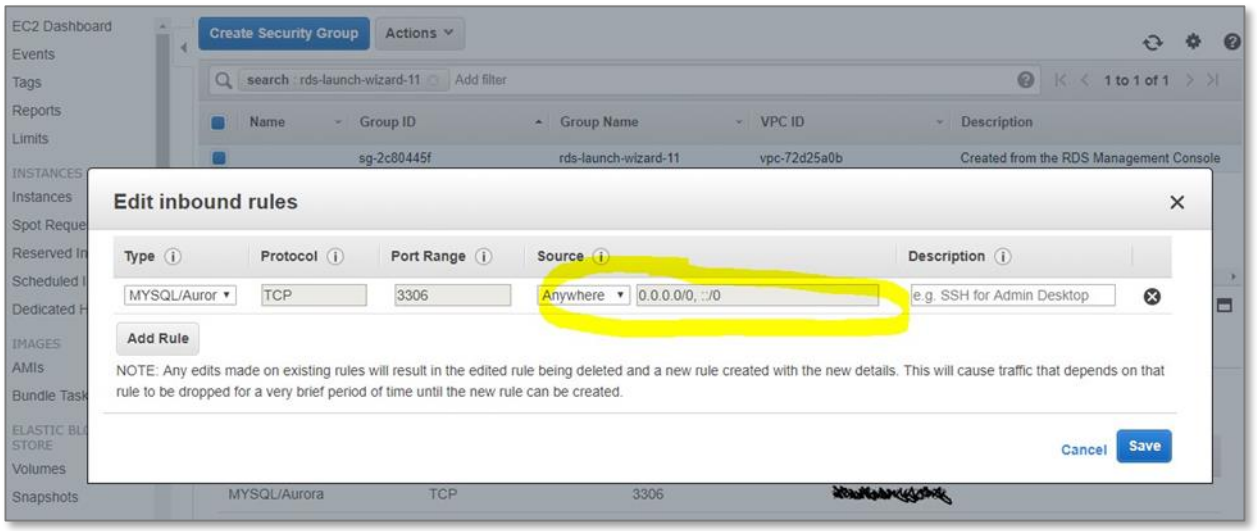


Troubleshooting Connection Issues

If you are getting connection errors then check the following:

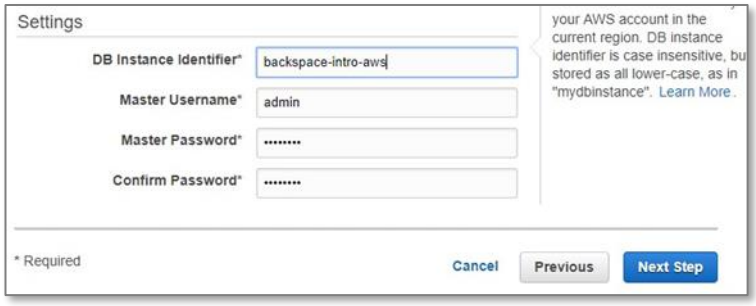
Security Group Inbound Rules

The security group should have an inbound rule for your IP address. If you are using a dynamic IP address or you are connecting from different networks then this will need to be changed to “anywhere” for the lab.



Database Username and Password

The username and password must be the one created when the RDS instance was created.



Hostname

The hostname will be the RDS Instance Connection Endpoint without :3306 on the end.

Connecting to your RDS Instance using the Command Line

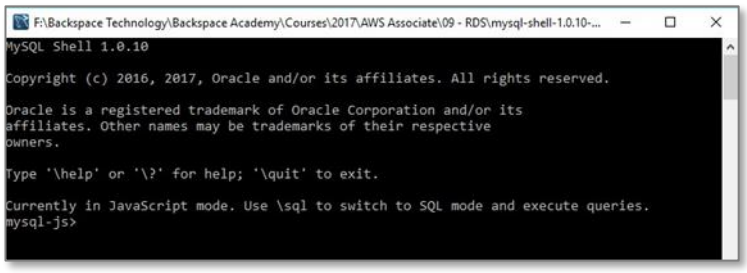
To connect to your MySQL Database using the command line you will need to download and install the MySQL

Shell from

https://dev.mysql.com/downloads/shell/

Download and Unzip the file.

Go to the bin folder and run mysqlsh.exe
This will open the MySQL Shell



Connect your database using the following command (if the username is admin):

\connect admin@your-connection-hostname-goes-here

Enter your password when requested.

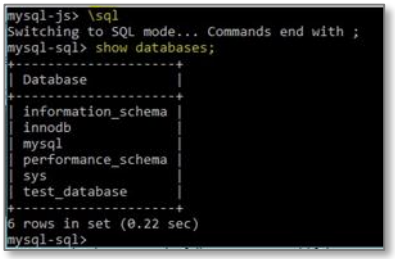
After a while you will be connected to your RDS instance.

Enter SQL mode with the following command:

\sql

Enter the SQL command to list databases (don't forget the ';' on the end):

show databases;



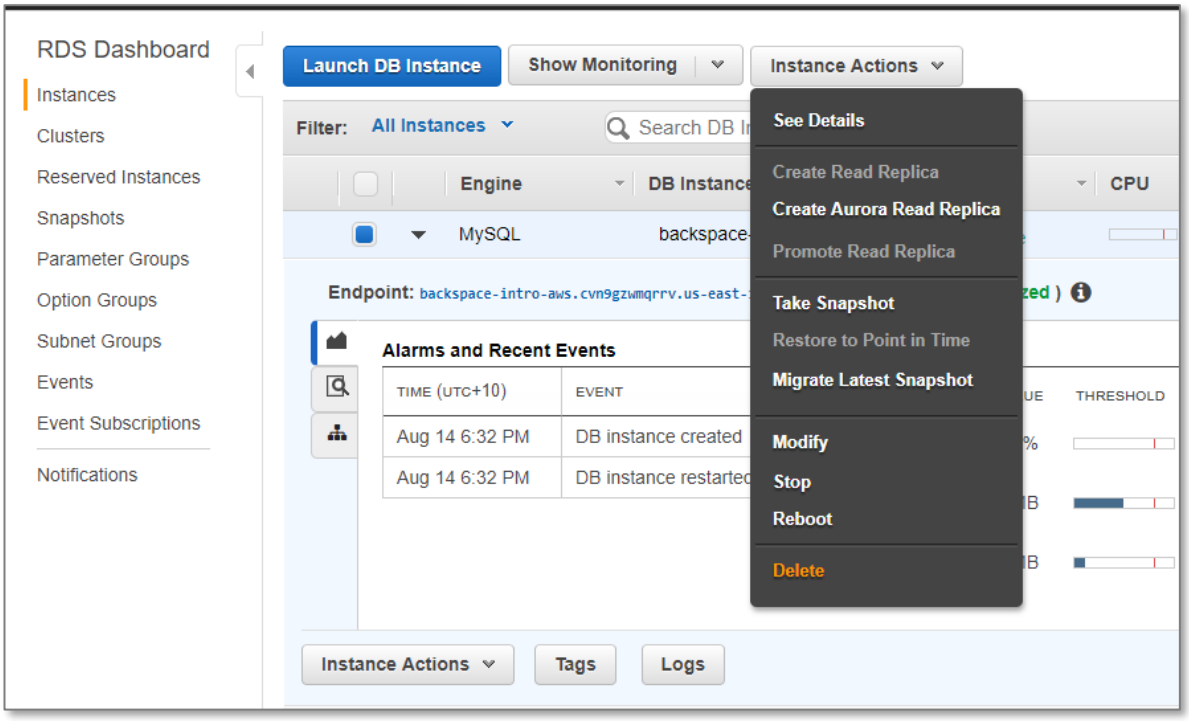
Type \quit to leave the command line

Clean Up

To avoid incurring charges from AWS we will terminate the instance.

Go back to the RDS console.

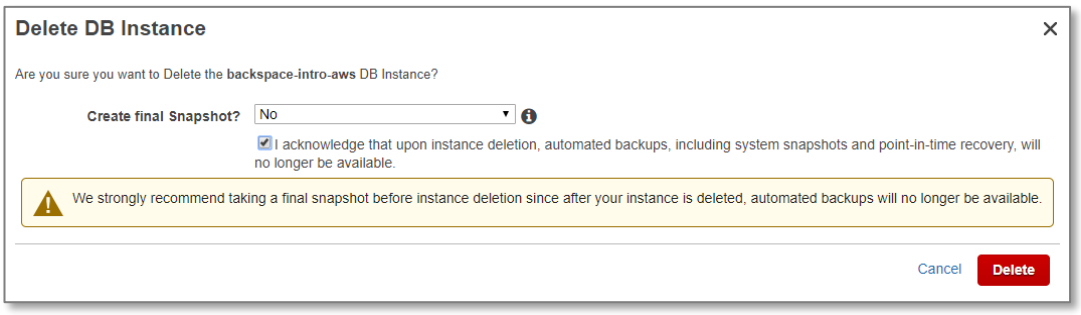
Click “Instance Actions”, “Delete” to terminate the instance



Select “No” for “Create final snapshot”

Check “I acknowledge that upon instance deletion, automated backups, including system snapshots and point-in-time recovery, will no longer be available.”

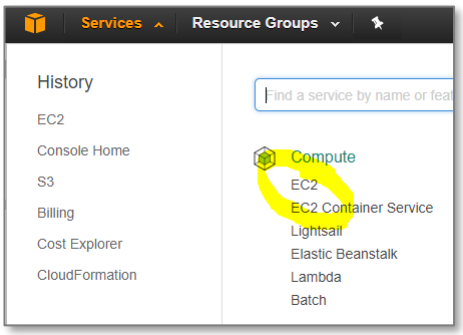
Click “Delete”



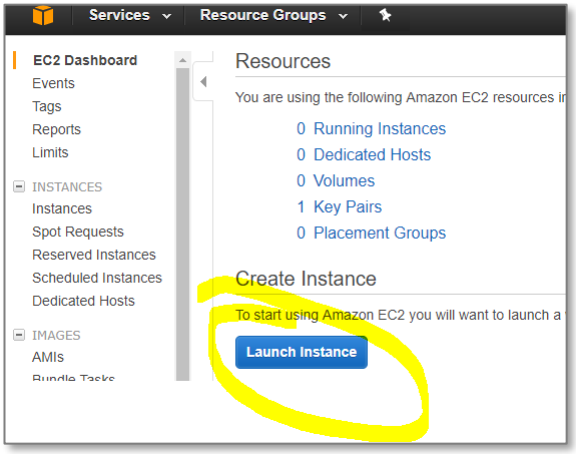
Creating a Web Server with EC2

In this section, we will launch a publicly accessible WordPress application on Amazon EC2.

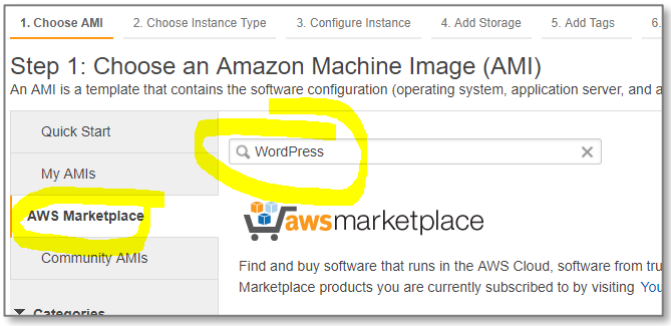
From the AWS console select “EC2” from the Compute services.



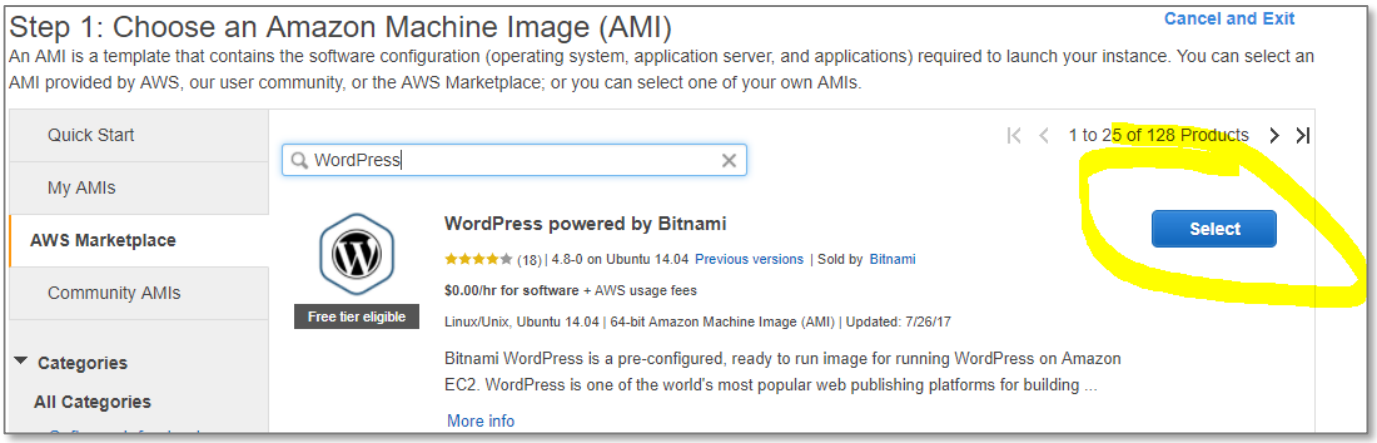
Select “Launch Instance”



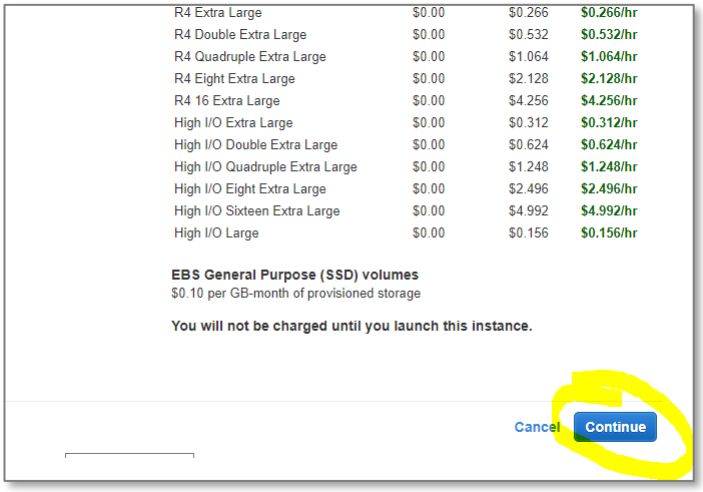
Select the “AWS Marketplace” and search for WordPress



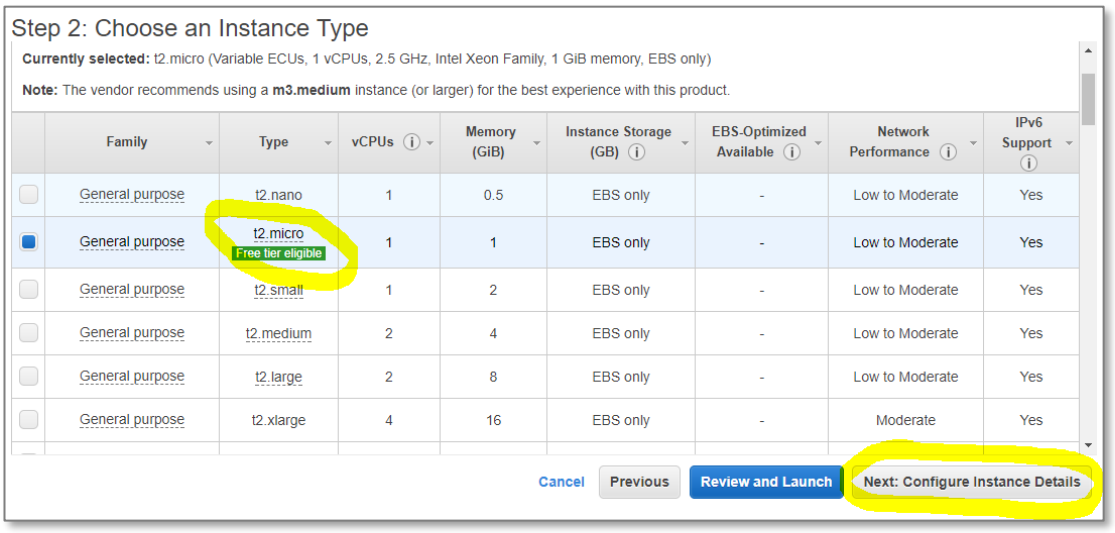
Select the Bitnami AMI



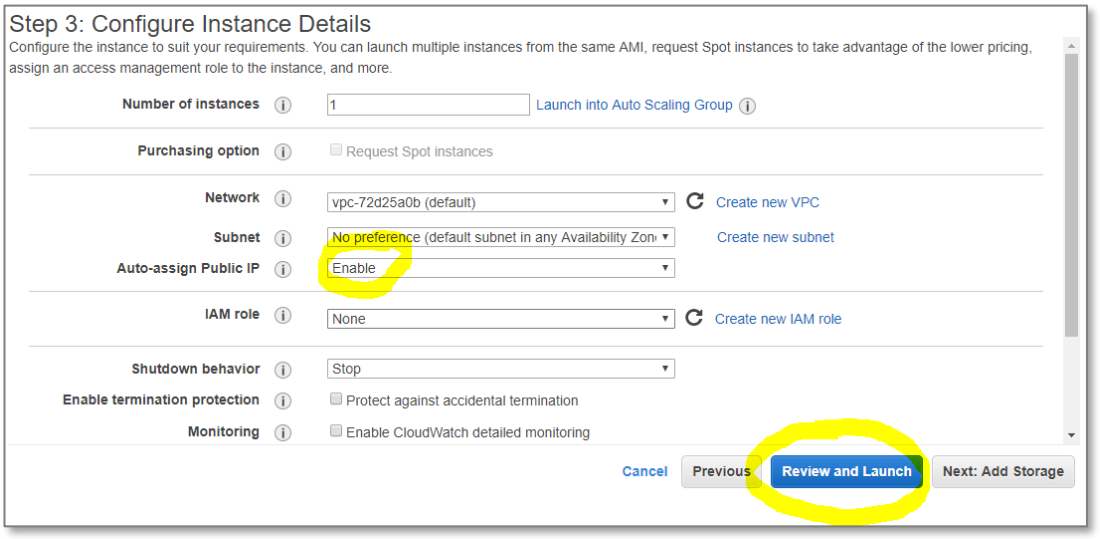
Scroll to the bottom of the page and click “Continue”



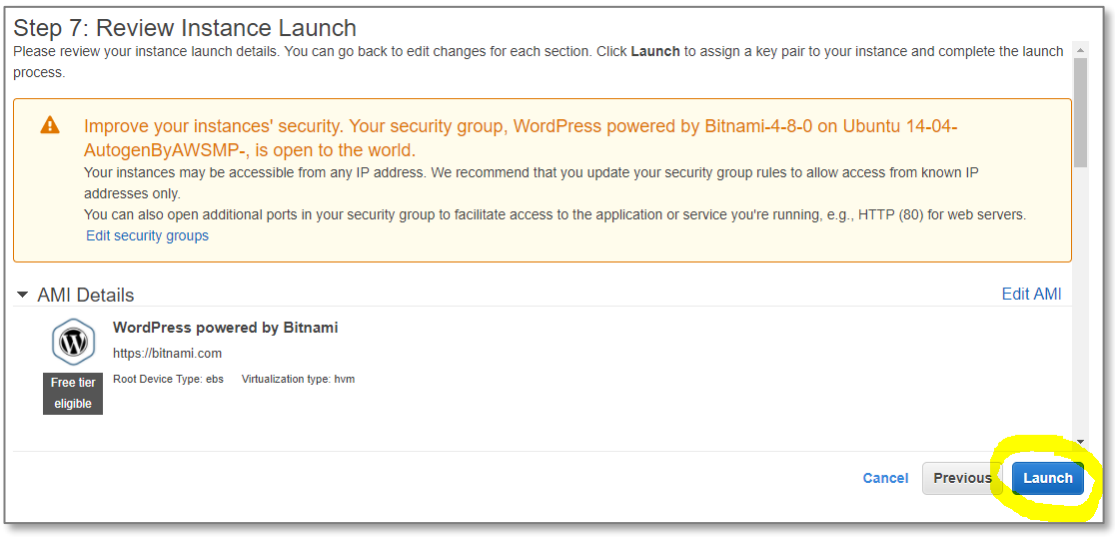
Choose the t2 Micro instance.
Click “Next: Configure Instance Details”



Select enable for “Auto-assign Public IP”
Click “Review and Launch”



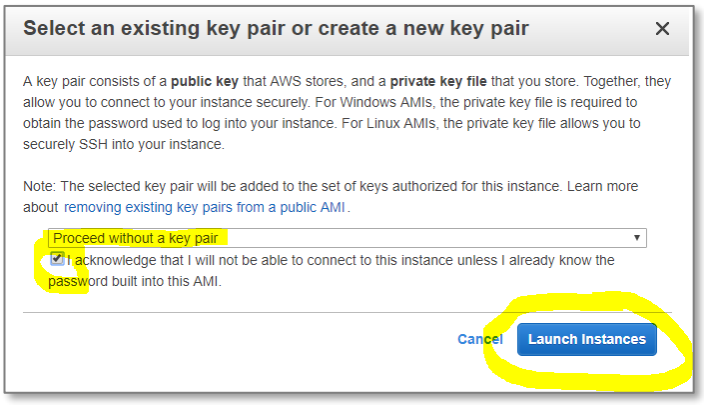
Click “Launch



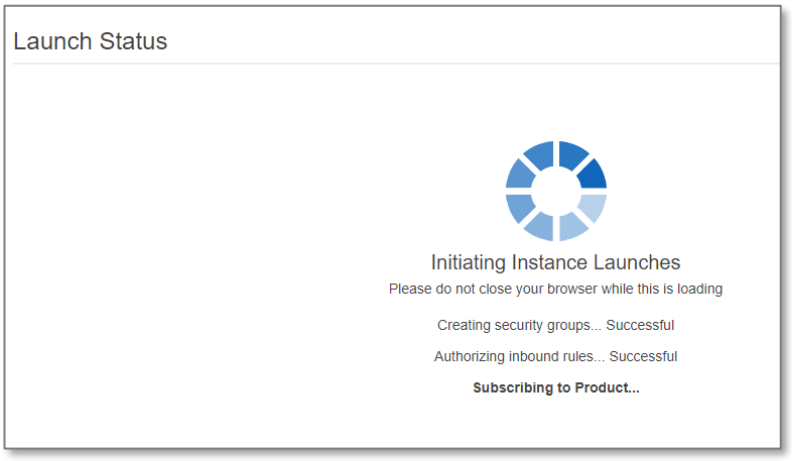
Select “Proceed without a key pair”

Select “I acknowledge that I will not be able to connect to this instance unless I already know the password built into this AMI.”

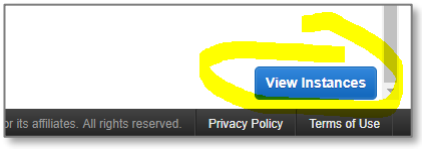
Click “Launch Instances”



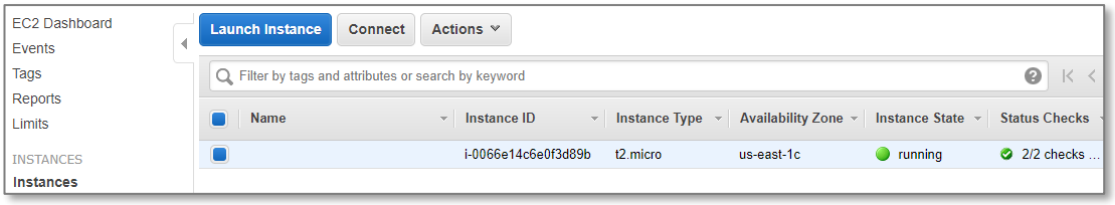
Wait for launch to initiate



When the launch process has started scroll to the bottom of the page and click “View Instances”

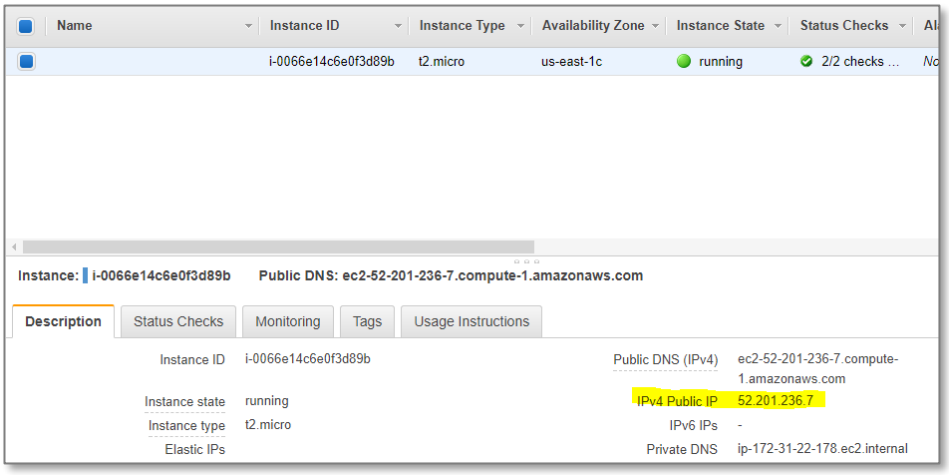


After a few minutes, the status of the instance will change to running.

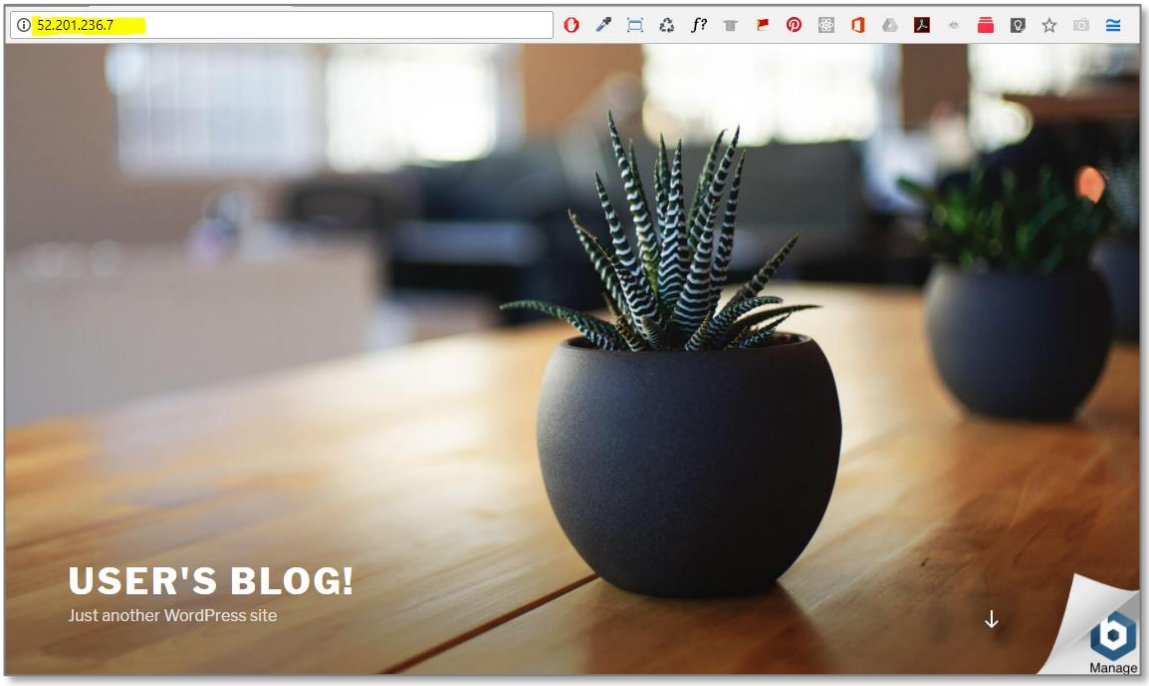


Viewing your web server

Copy the public IP address of your web server.

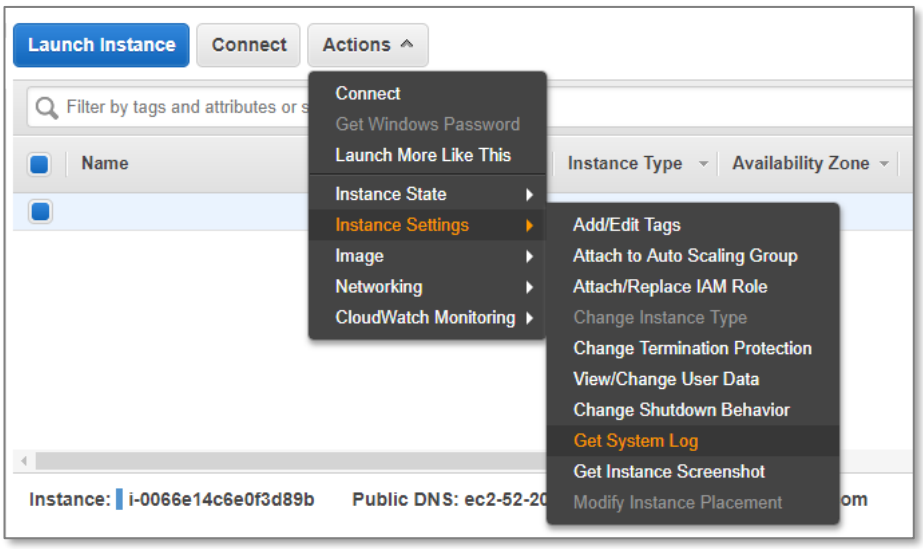


Navigate to the IP address in your browser.

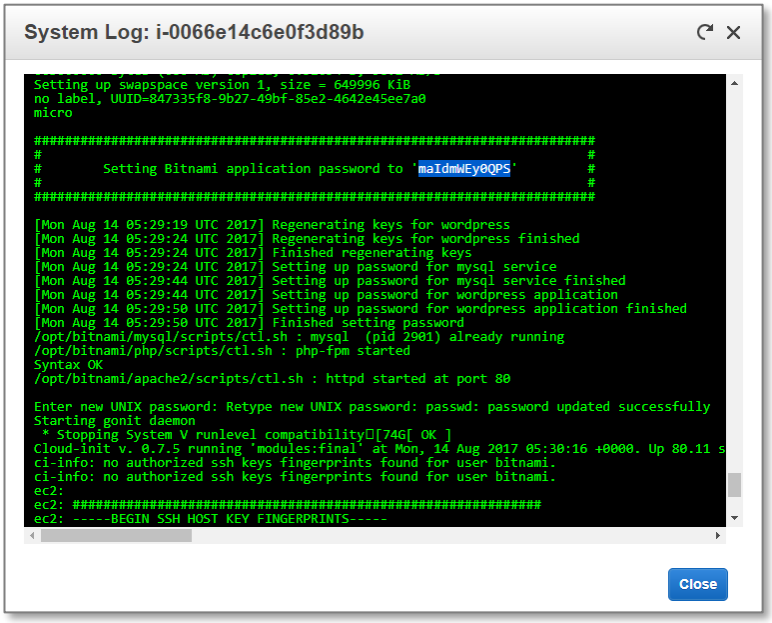


Finding the Username and Password for your WordPress application

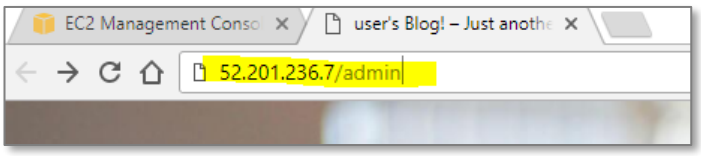
Go back to the EC2 console and select “Instance Settings”, “Get System Log”.



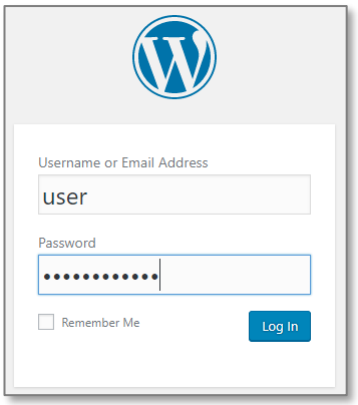
Scroll down until you find the log entry for the application password and copy it.



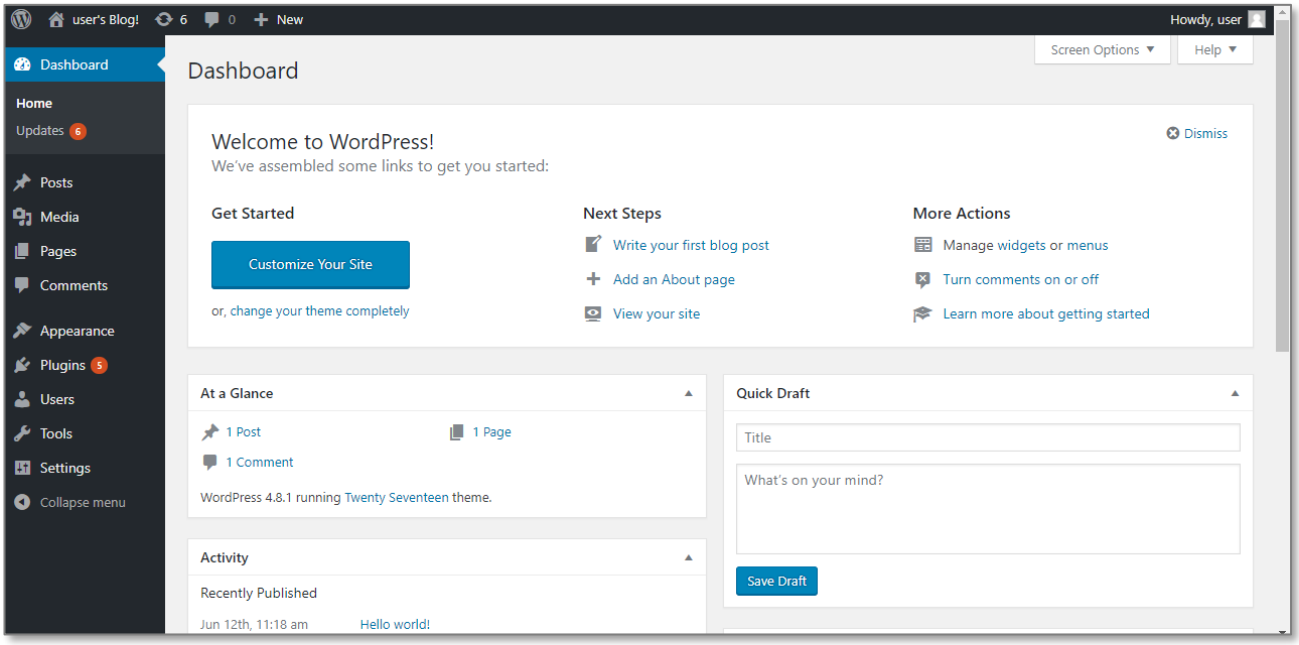
Go to the admin subdirectory of your website in your browser



Enter Username “user” and paste in the password

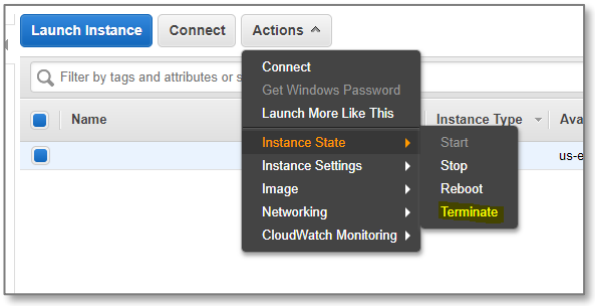


You will now be in the admin section of your WordPress application

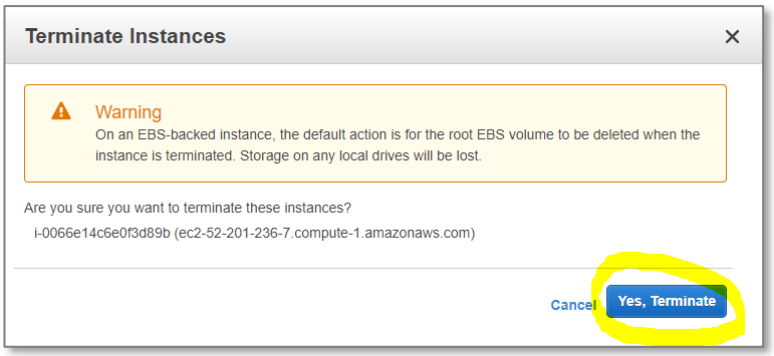


Clean up

Select “Actions”, “Instance State”, “Terminate”.



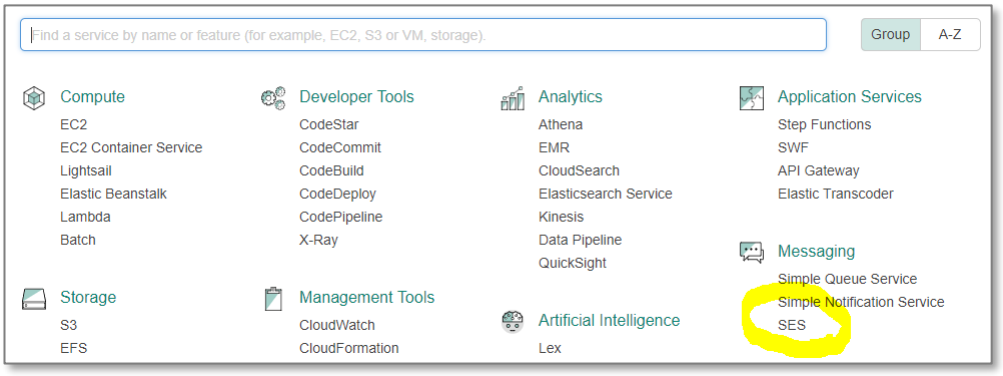
Make sure you terminate the instance so that you are not billed for it any more.



Sending emails with Amazon SES

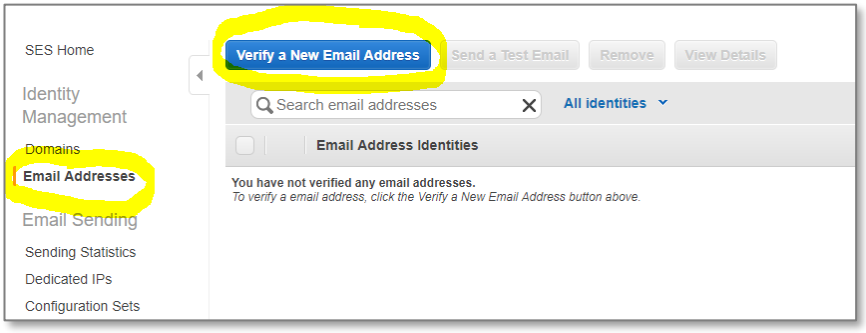
In this section, we will use the Simple Email Service to send an email.

From the AWS console select “SES” from the Messaging services.

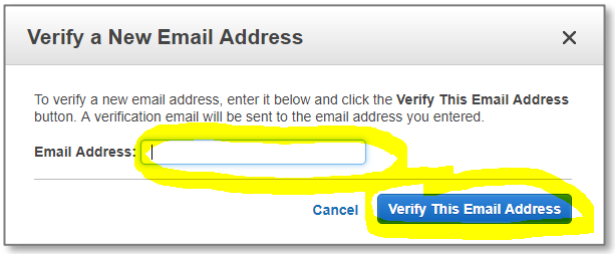


Click on “Email addresses”

Click on “Verify a New Email Address”

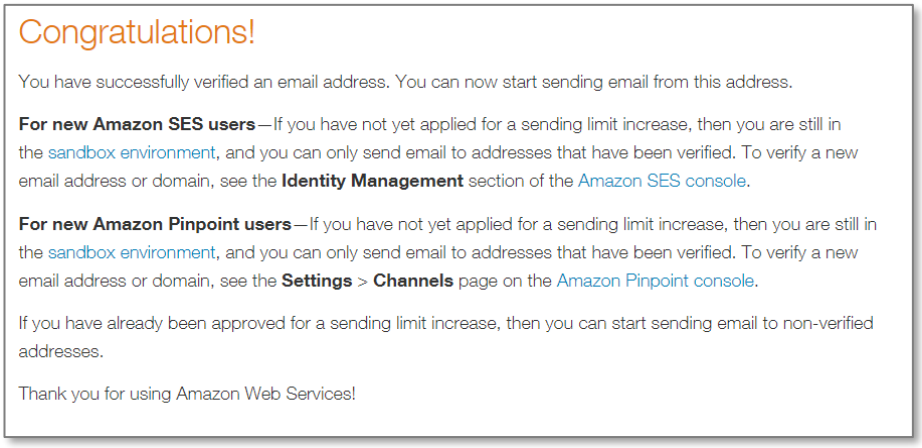


Enter your email address and click “Verify this Email Address”

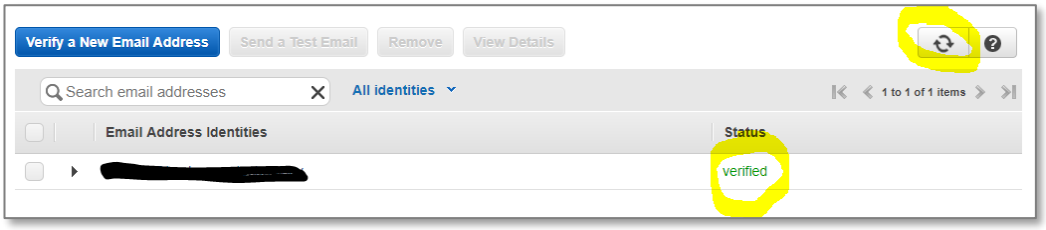


When you receive your verification email click on the supplied link.

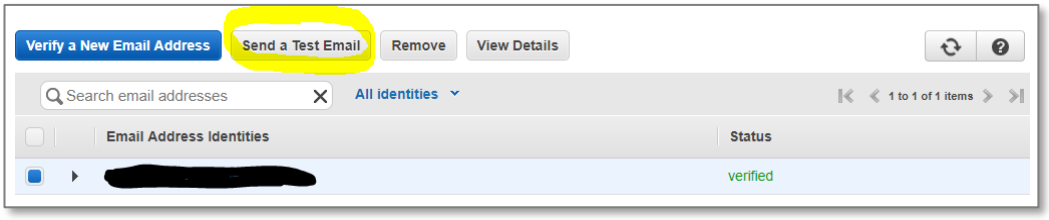
You will then receive a success page



Go back to the SES console page and refresh the information to see the email has been verified

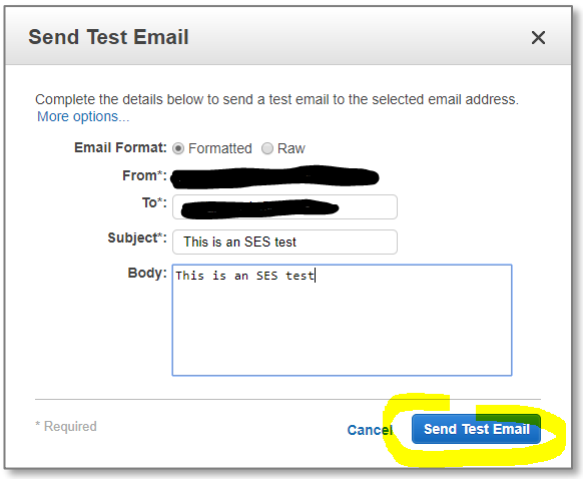


Click on the email address and select “Send a test email”



Enter the same email address for from and to.

Fill out the email information and click “Send test email”



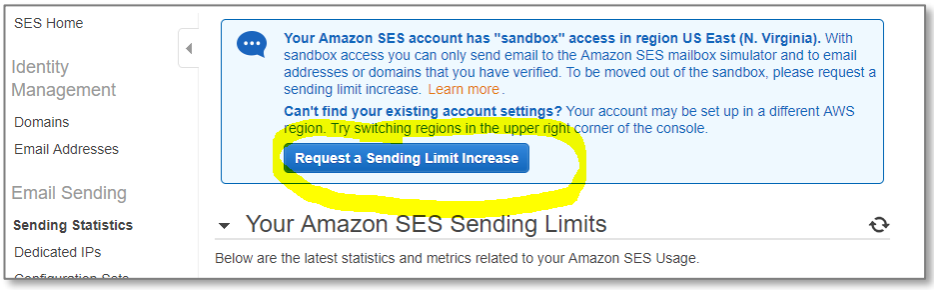
Check your email to see if it worked.

Requesting full access to SES

New accounts only have sandbox access but this can be changed by applying to AWS.

Click on “Sending Statistic”

Click on “Request a Sending Limit Increase”

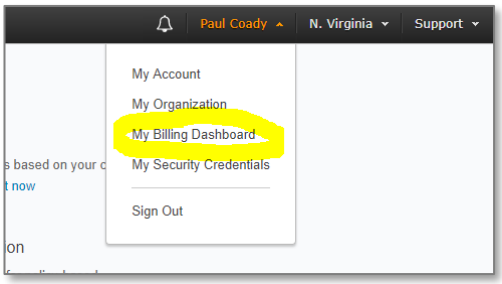


Creating a Billing Alert with CloudWatch and SNS

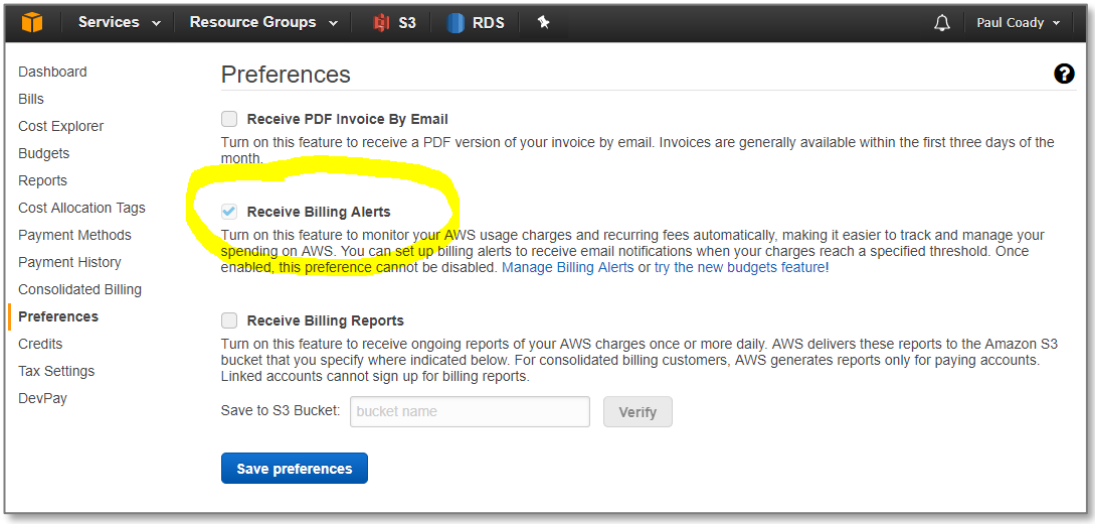
In this section, we will create a CloudWatch billing alert that will send an email through the Simple Notification Service whenever our estimated monthly bill exceeds a certain level.

Enabling Billing Alerts

From the AWS management console select “My Billing Dashboard” from the account drop down menu.

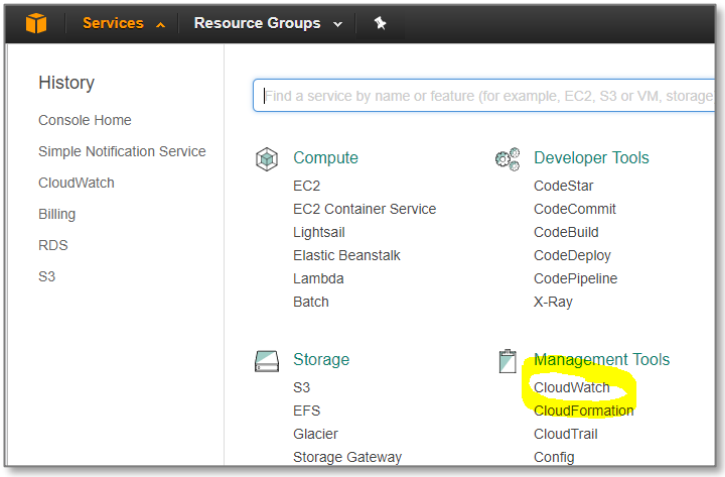


Select “Preferences” and check “Receive Billing Alerts”

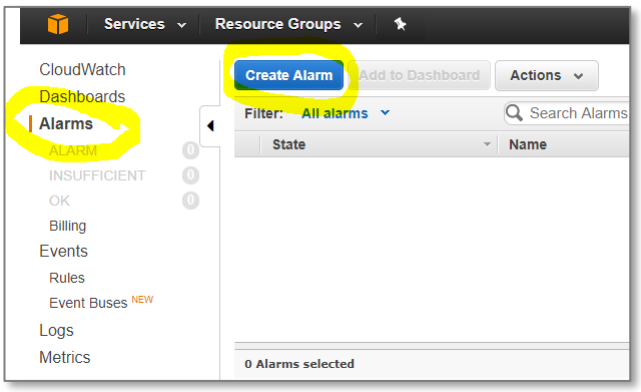


Creating a CloudWatch Alarm

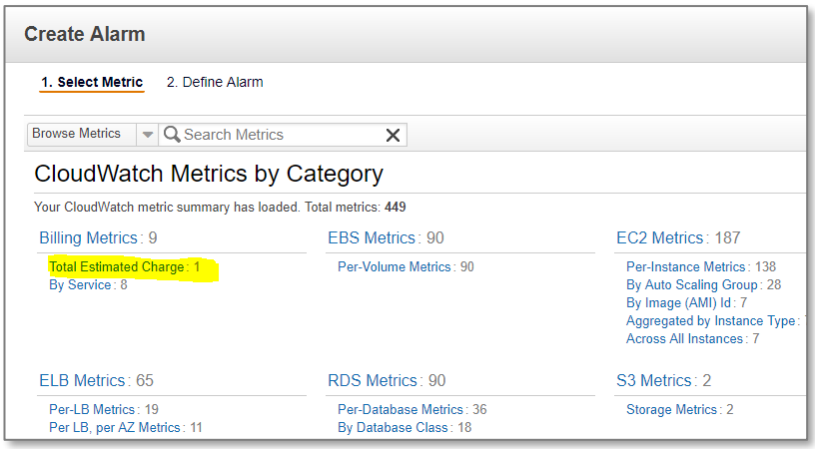
Click the Services menu and select “CloudWatch” from “Management Tools”



Click on “Alarms”, “Create Alarm”

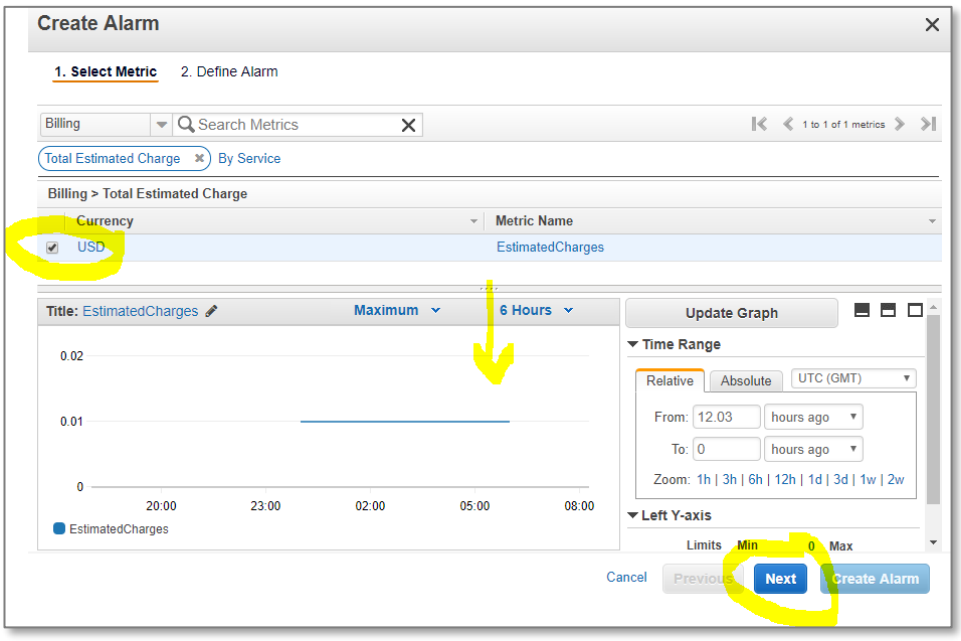


Select “Total Estimated Charge” from the billing metrics.

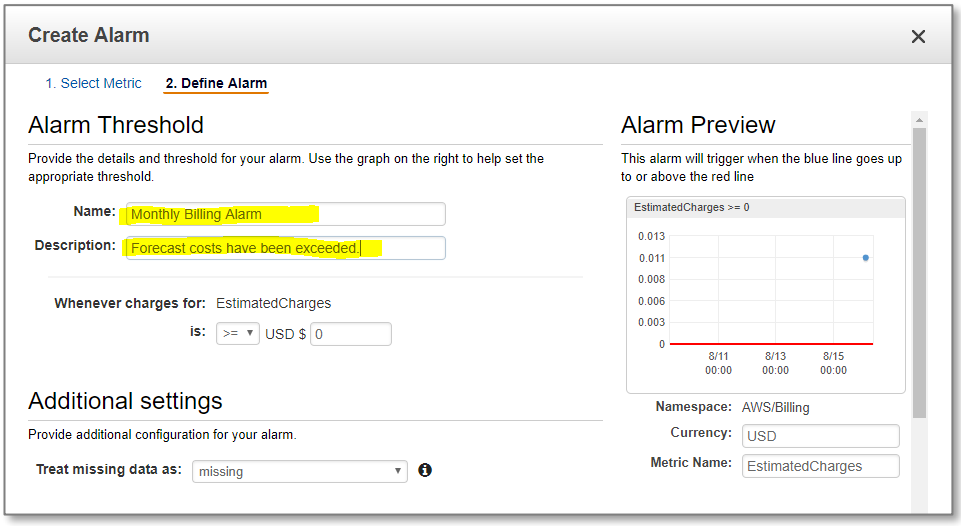


Select EstimatedCharges metric (you may need to drag the divider down to see it)

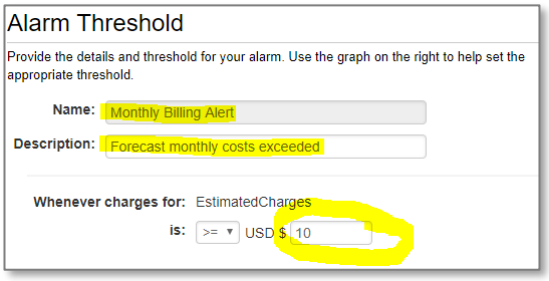
Click “Next”



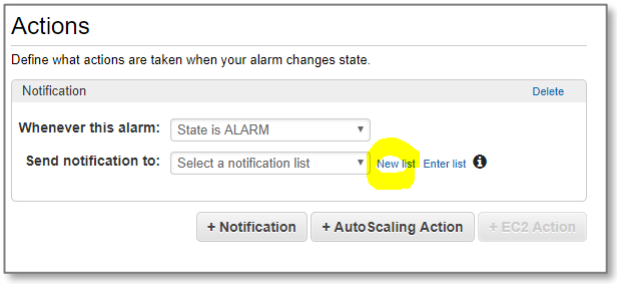
Give the alarm a name and description.



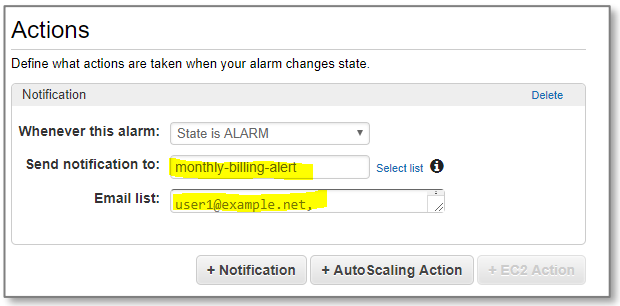
Set the alarm threshold to $10



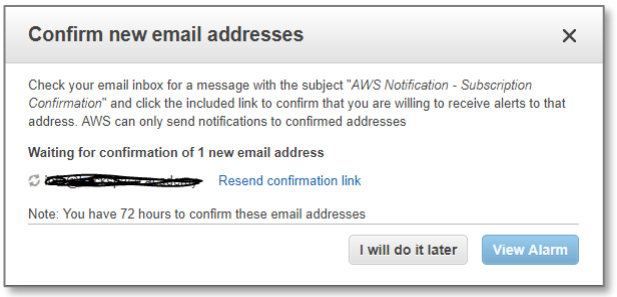
Scroll down to the actions section. Click on “New List”



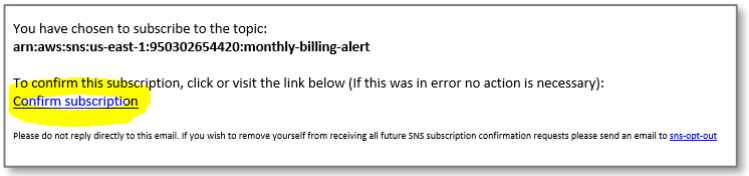
The topic a name “monthly-billing-alert” and put in your email address.



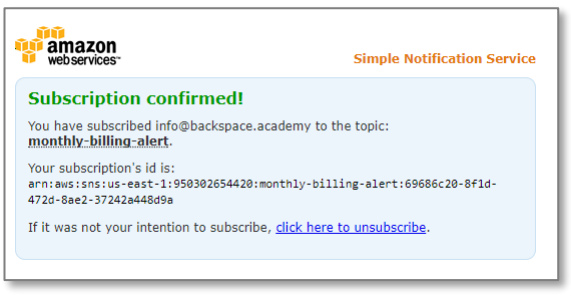
Click Create Alarm.
If you haven’t already confirmed your email and confirmation email will be sent to you.



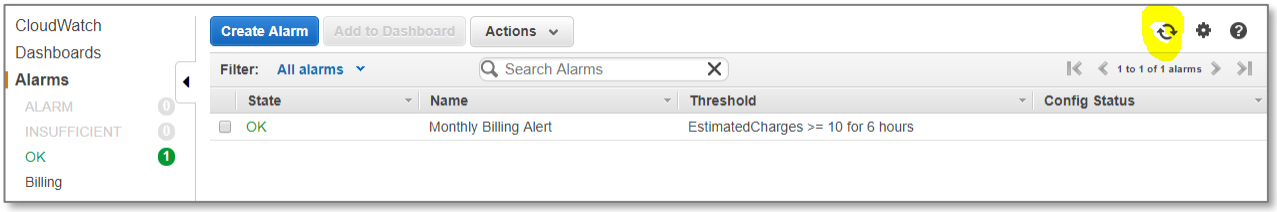
Click on confirm subscription in the email you receive.



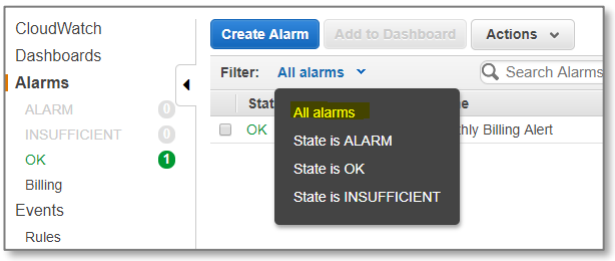
If all goes well you will see this page



Go back to the CloudWatch console and refresh the screen.



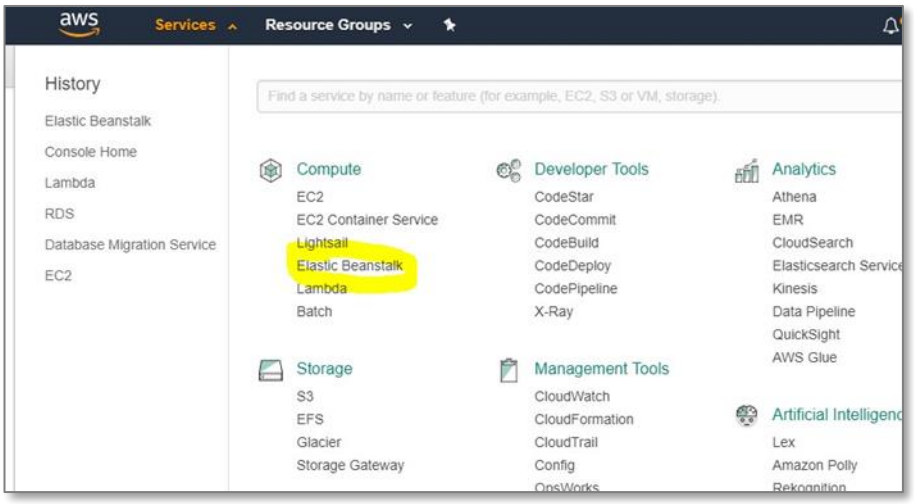
If you can't see your alarm then make sure "All alarms" is selected for the filter.



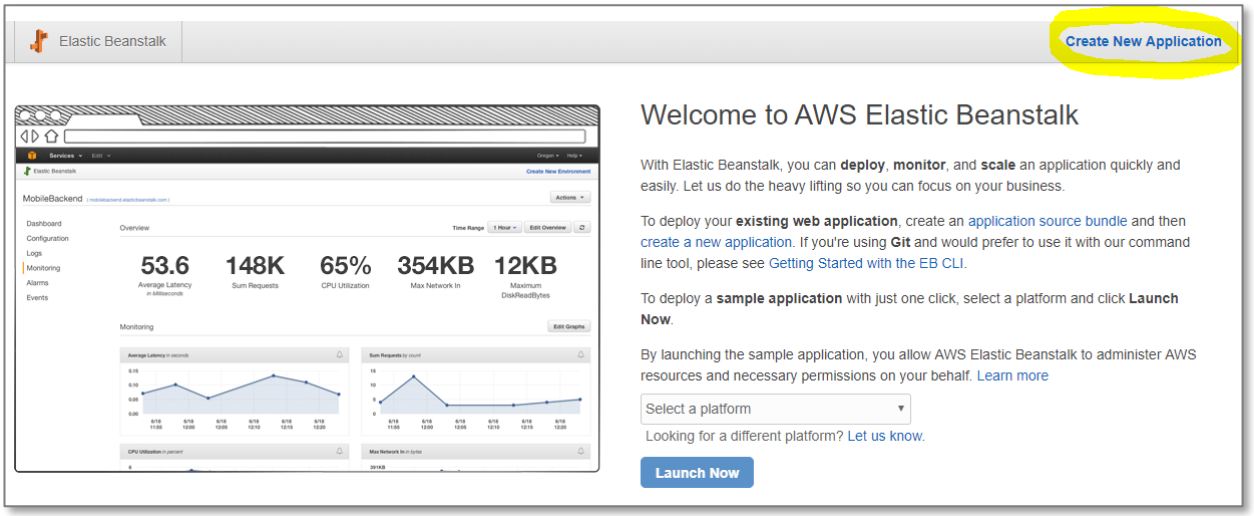
Creating a Highly Available Architecture with Elastic Beanstalk

In this section, we will create a highly available and fault tolerant architecture using the AWS Elastic Beanstalk service.

Click on the services menu and select *Elastic Beanstalk*

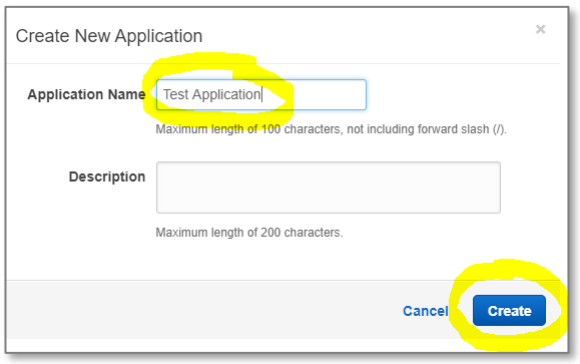


Click “Create New Application”



Give your application a name *Test Application*.

Click “Create”

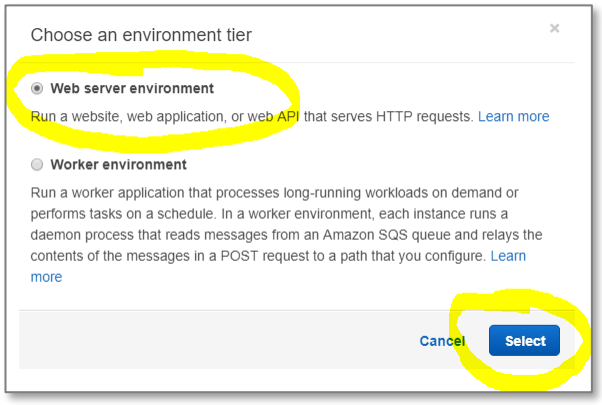


Your application will now be created.

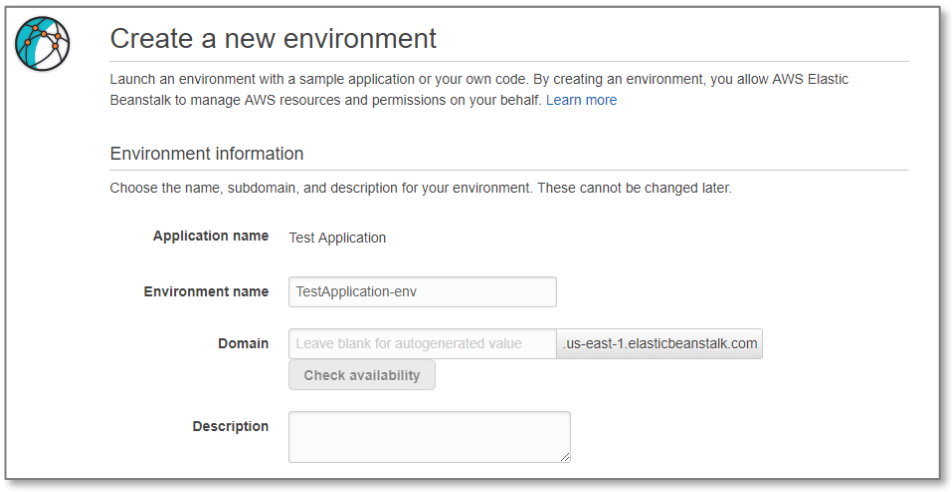
Select “Actions” - “Create Environment”

Select “Web server environment”

Click “Select”



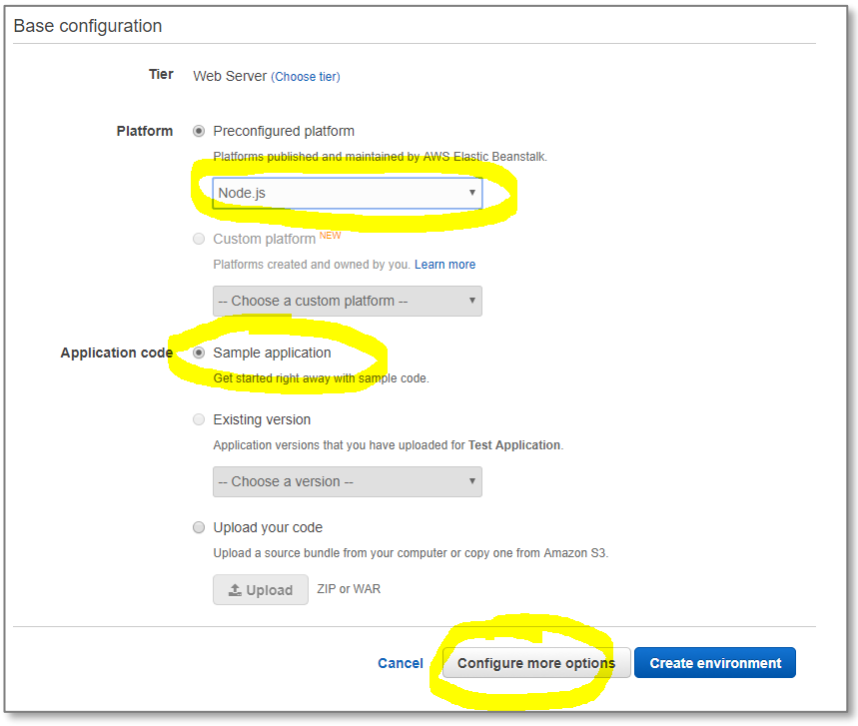
Leave Environment information with default values



Select *Node.Js* as the platform

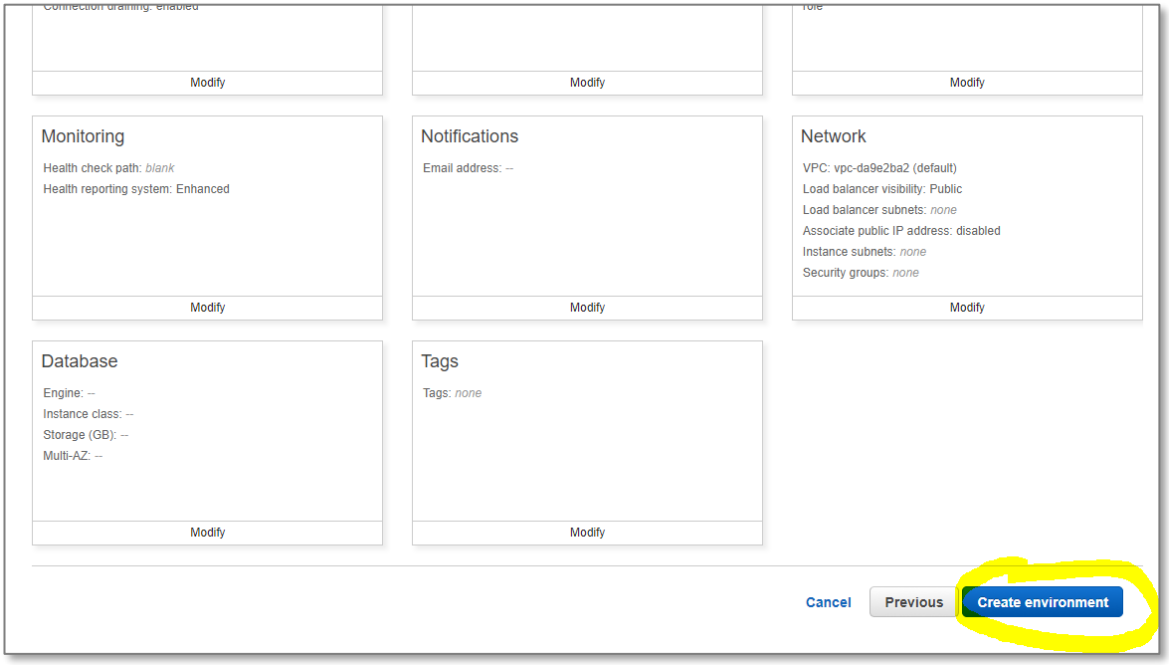
Select *Sample Application* for Application Code

Click *Configure More Options*

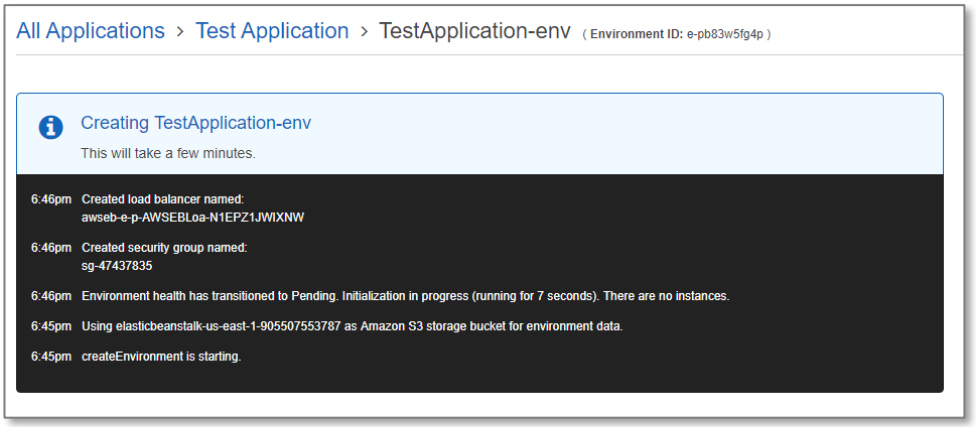


Select *High availability*

Scroll down and click *Create environment*

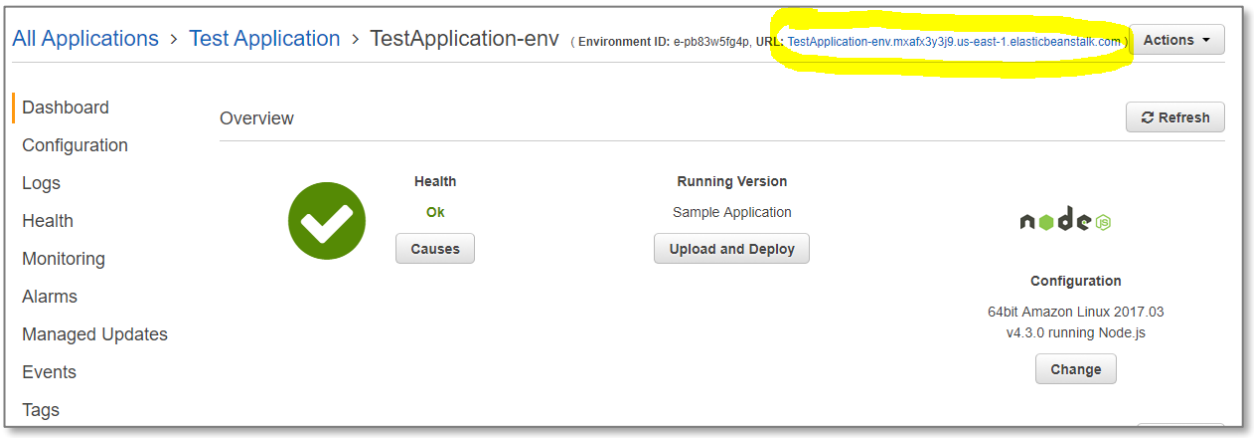


Your environment will start being created

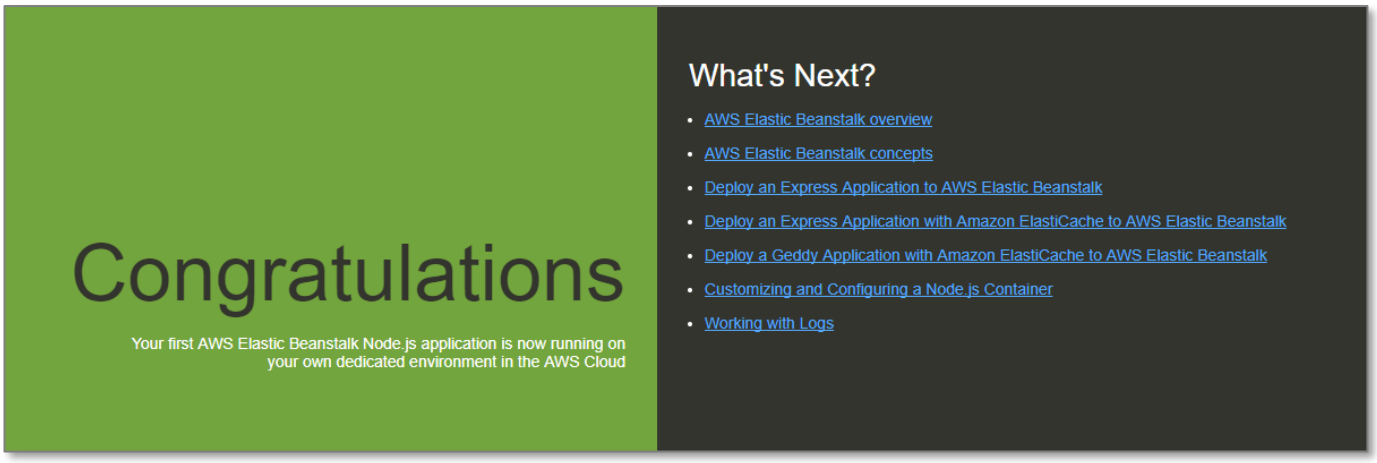


After some time, your environment will be created.

Click on the website url



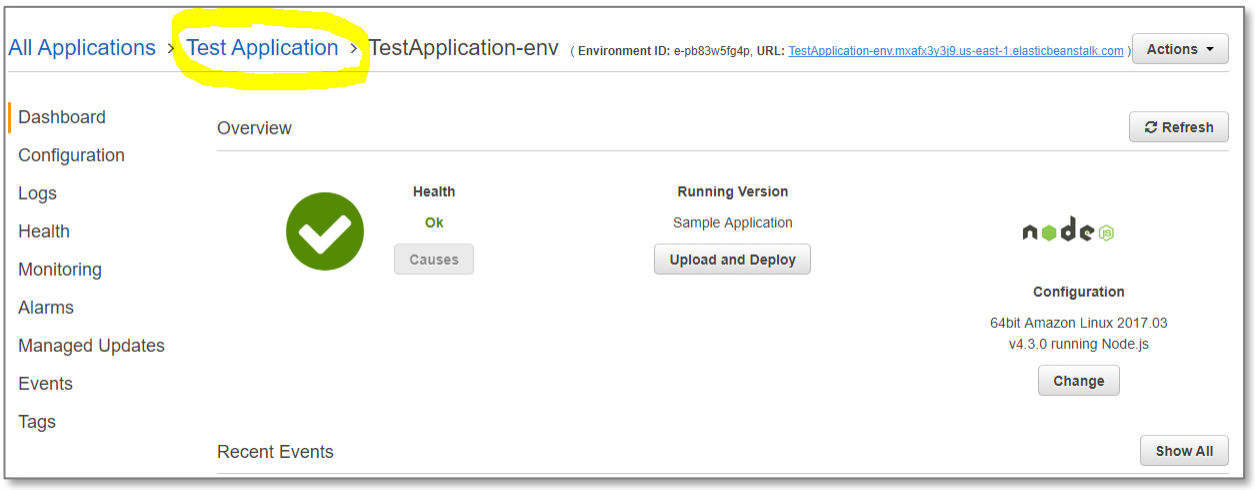
You will now see the Sample Application



Clean Up

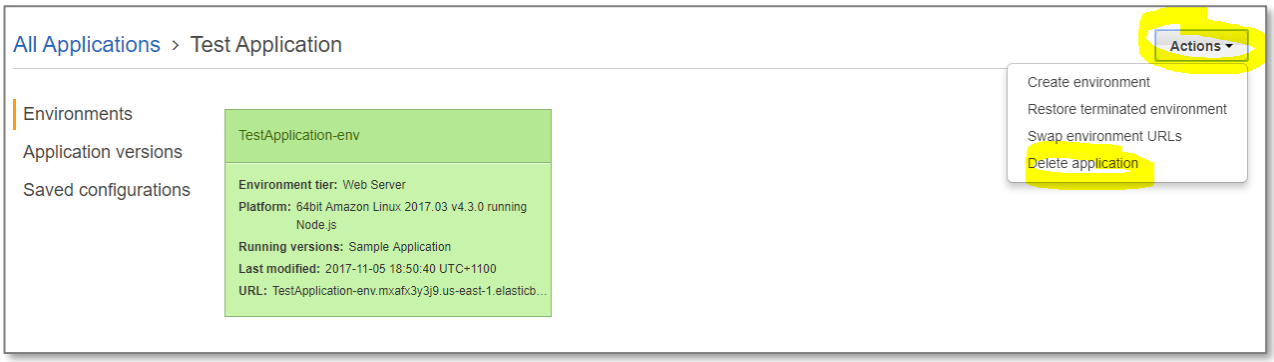
We will now delete the environment so that you will not be billed by AWS.

Navigate back to the Test Application

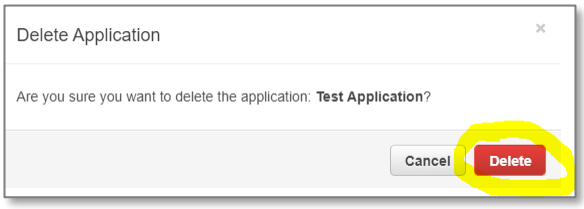


Click Actions

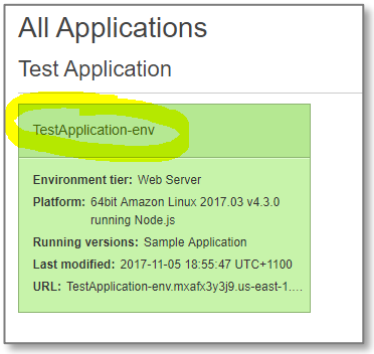
Select Delete Application



Click “Delete”



Click on the environment



You will now see your environment is being terminated.