

University of Pretoria
Software Engineering - COS 301

Amazon Dash User Manual

Contrapositives
May 2019

Authors:

Brendan Bath	u16023359
Musa Mathe	u15048030
Jessica da Silva	u16045816
Natasha Draper	u16081758
Himal Rama	u16050607

Contents

1	Amazon Dash Overview	1
2	System Configuration	2
2.1	Installation	3
3	Getting started	3
3.1	Account Management	3
4	Using the System	5
4.1	Deployment Picture	5
4.2	Dashboard	5
4.3	Cost Exploration Tool	7
4.4	Alarms	8
4.5	Server Creation	11
4.6	Button to launch instance from Command Shell	13
5	Troubleshooting	14
6		15

1 Amazon Dash Overview

Amazon Web Services provide on demand cloud computing services to all types of users, from individual people to companies. These services work on a pay-as-you-go basis; users pay for which servers and services they choose to use, and are able to discontinue a service at any point. The services provided are hosted and run in different regions around the world.

The Amazon Web Services Dashboard displays all the services that users are utilising, even if the service is not running at the time. Users can add or remove services at any time. However, the AWS dashboard is cluttered and difficult to navigate. This may pose a challenge to novice cloud-hosting users who may not know what services are best for what they need, and may not deploy services in the best manner which minimises the costs and maximises throughput. Another issue which the client may encounter is tracking down an existing service and the client can also be unsure of which region a particular service is deployed at.

The main objectives of Amazon Dash is to provides a view of all services currently running on the user's AWS account, and to allow the user to record metrics which will be used to ensure that the user is within their budget and to ensure that user's servers are always running optimally without overspending on bulky servers which are barely doing any work. They are also able to use a calculator to determine an estimated cost for the services, as in how much the services will cost per month.

2 System Configuration

The restful API, the persistence layer (the Mongo database), and the user interface can be hosted separately or on the same server. The system can then be accessed by a computer with either a restful client or a JavaScript enabled web browser.

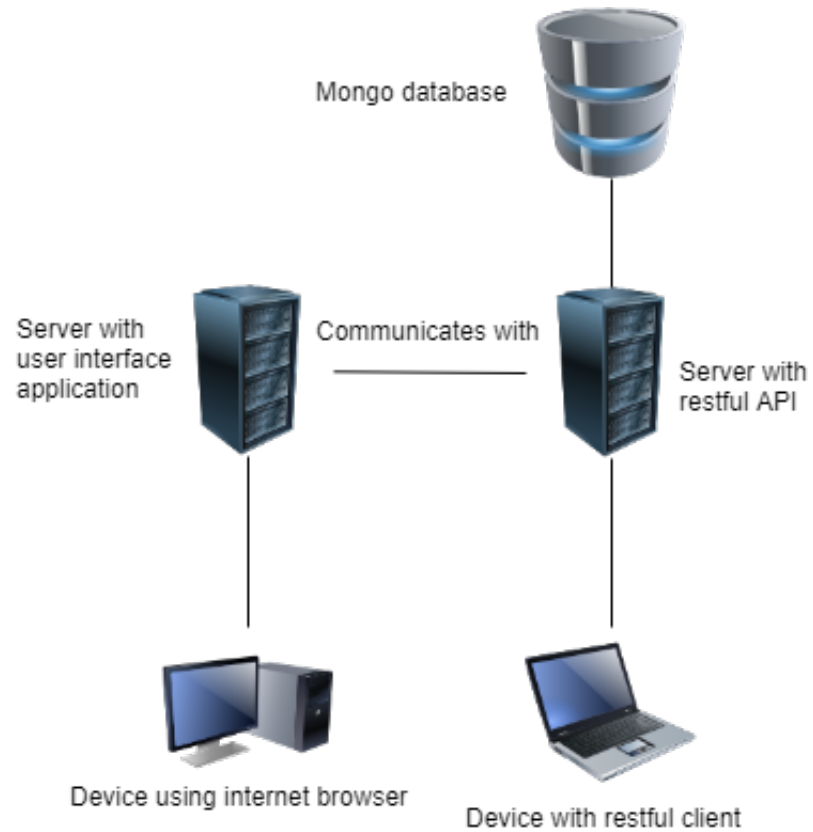


Figure 1: Amazon Dash System Configuration

2.1 Installation

Amazon Dash is a website, thus the software cannot be installed. The website can be found at: <https://amazon-dash.herokuapp.com/>

3 Getting started

3.1 Account Management

Should the user not have an AWS account, the user must first register an account. The user must create a username or userID, password, and provide an access key and secret key. The user can also use Google authentication to register an account as well.

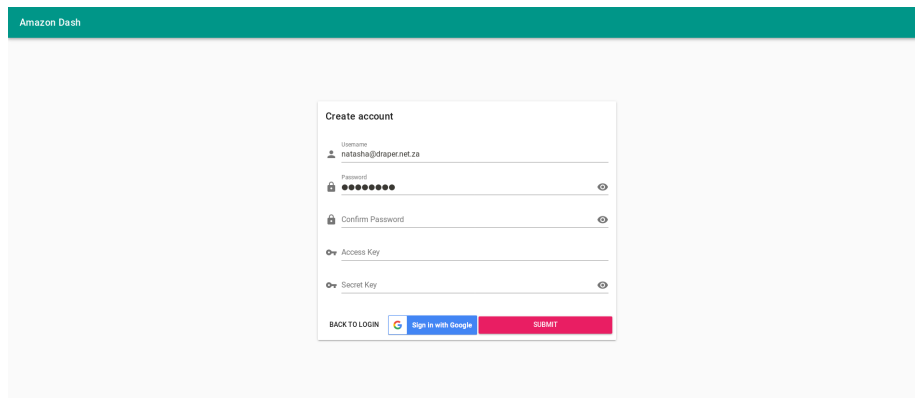
The image shows a web browser window with a teal header bar labeled "Amazon Dash". The main content area is light gray and contains a white "Create account" form. The form has five input fields: "Username" (containing "natasha@draper.net.za"), "Password" (masked with dots), "Confirm Password", "Access Key", and "Secret Key". Each field has a small icon to its right. At the bottom of the form are three buttons: "BACK TO LOGIN" (blue), "Sign in with Google" (blue with the Google logo), and "SUBMIT" (red).

Figure 2: Register

After creating the account or if the user already has an account, the user can log onto the website by providing their userID and password on the login page.

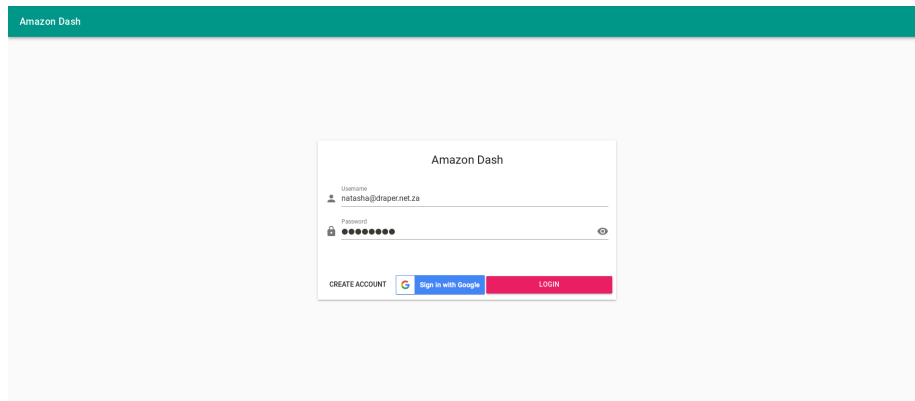


Figure 3: Login

After logging in, the user will be greeted with a screen that shows all the instances that the user has. The user can stop, start, or restart these instances. Navigating to the nav-bar at the top of the screen, the user can navigate to different pages, as well as logout.



Figure 4: Nav-Bar

4 Using the System

4.1 Deployment Picture

4.2 Dashboard

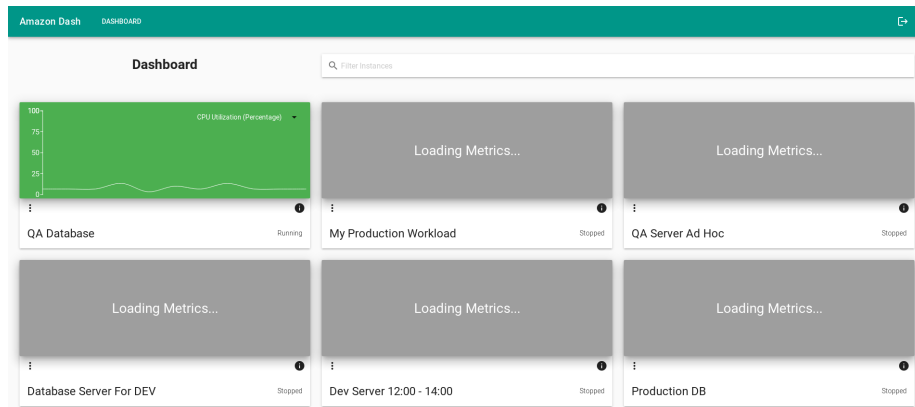


Figure 5: Dashboard

The dashboard shows all the instances that the user has, unless the user has no instances.

Each instance is colour coded to indicate the status of the server. If the colour is:

- Green, the instance is running normally.
- Orange, the instance is shutting down or starting up.
- Red, the instance has encountered an error
- Grey, the instance is offline.

To stop, start, or restart an instance, click the 3 little dots that appear under an instance to select what you wish to do with an instance.

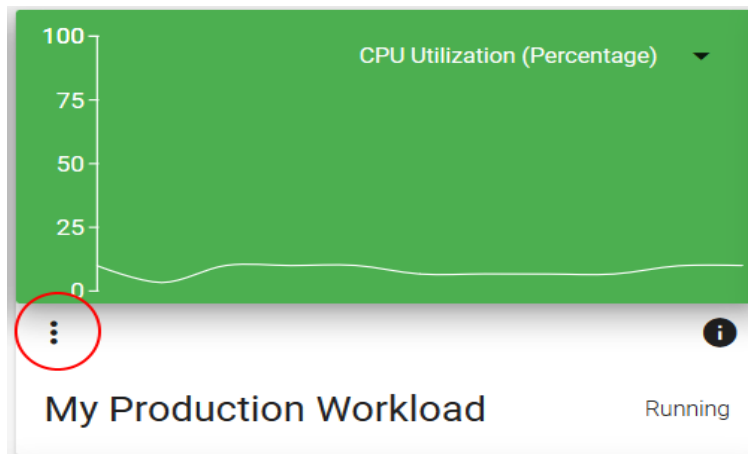


Figure 6: Stop/Start/Restart

Each instance can display various metrics in the form of graphs. To choose which metric you wish to view, click on the drop down arrow in the top right corner of the instance.

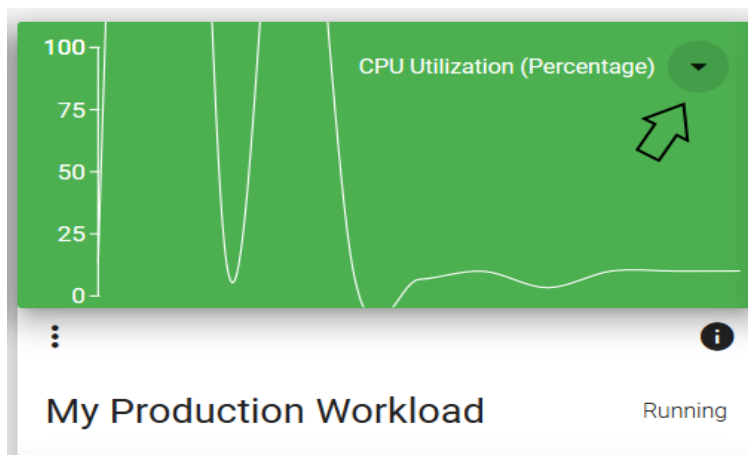


Figure 7: Selecting Metric to Display

Clicking on the information icon (the small i) at the bottom right of an instance takes you to a new page which shows all the metrics for that instance.

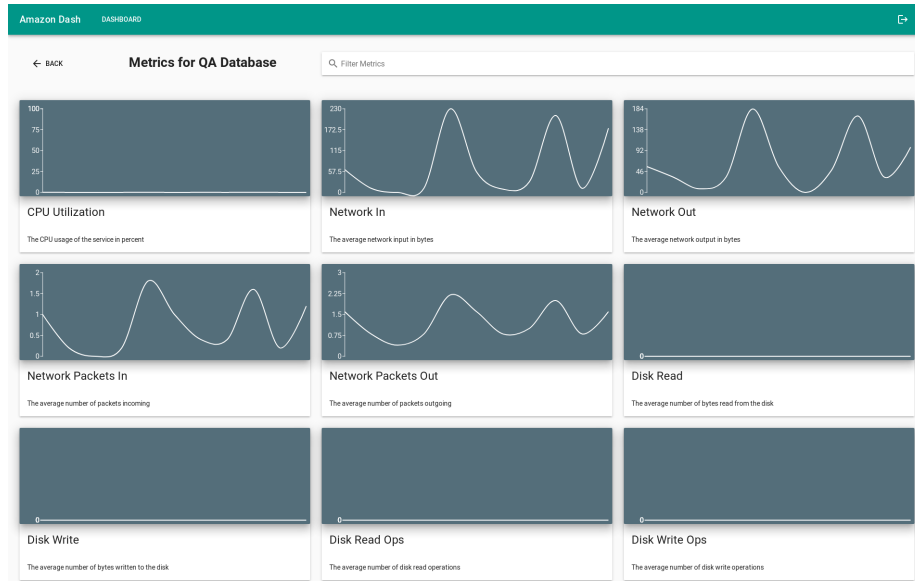


Figure 8: Metrics Page for an Instance

At the top in the middle of the screen, if the user is having trouble finding a particular instance among the list of instances, they can filter the search by typing in keywords related to the instance.

They can also filter searches on the metrics page.

If the user wishes to go back to the Dashboard page, they can either click on "Dashboard" in the nav-bar or click the back button in the top left corner of the screen.

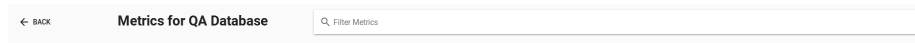


Figure 9: Search bar and Back button

4.3 Cost Exploration Tool

4.4 Alarms

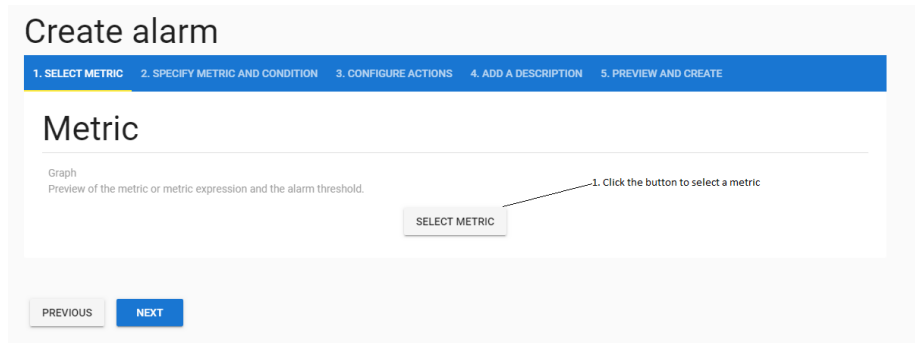


Figure 10: Select a metric

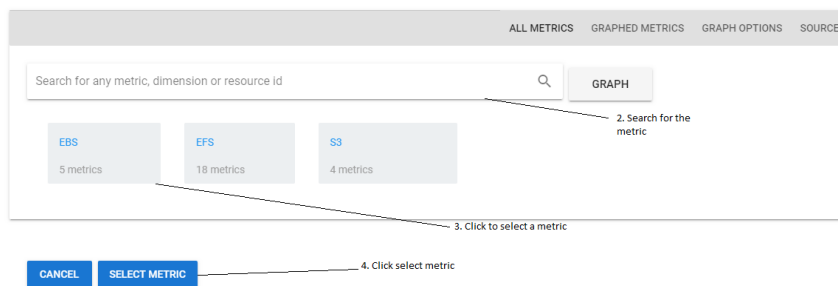


Figure 11: Choose a metric

Namespace

AWS/Cloudfront

Metric name

4xxErrorRate

Region

Global

DistributionId

E2D5UY2120R4CG

Statistic

Average

Period

5. Select period

Figure 12: Specify period

Conditions

Threshold type **6. Select the threshold type**

☐ Static
Use a value as a threshold

☐ Anomaly detection
Use a band as a threshold

Whenever `DisksReadBytes` is...

7. Choose the condition
☐ Greater
>threshold

☐ Greater/Equal
≥threshold

☐ Lower/Equal
≤threshold

☐ Lower
<threshold

then...

Define the threshold value

8. Input the threshold value

Must be a number

Additional configuration

Datapoints to alarm

Define the number of datapoints within the evaluation period that must be breaching to cause the alarm to go to ALARM state

9. Define the datapoints

out of

Missing data treatment

How to treat missing data when evaluating the alarm

10. Specify how to treat missing data

Figure 13: Conditions and additional config

Configure actions

Notification

10. Specify the state

Whenever this alarm state is...

Define the alarm state that will trigger this action.

☐ In Alarm
The metric or the expression is outside the defined threshold

☐ OK
The metric or expression is within the defined threshold

☐ INSUFFICIENT_DATA
The alarm has just started or not enough data is available

11. Select the SNS

Select an SNS topic

Define the SNS (Simple Notification Service) topic that will receive the notification

☐ Select an existing SNS topic

☐ Create new topic

☐ Use topic ARN

Send notification to...

Search

12. You can search through the email list

Only email lists for this account are available

REMOVE

Figure 14: Configure actions

13. Add notification

ADD NOTIFICATION

Auto scaling action

14. You can specify the auto scaling action

ADD AUTO SCALING ACTION

EC2 action

15. Choose the state

Whenever this alarm state is...

Define the alarm state that will trigger this action.

☐ In Alarm
The metric or the expression is outside the defined threshold

☐ OK
The metric or expression is within the defined threshold

☐ INSUFFICIENT_DATA
The alarm has just started or not enough data is available

16. Specify the action to take

Take the following action...

☐ Recover this instance

☐ Stop this instance

☐ Terminate this instance

☐ Reboot this instance

17. Press next to continue

ADD EC2 ACTION

PREVIOUS

NEXT

REMOVE

Figure 15: Choose action

Create alarm

1. SELECT METRIC 2. SPECIFY METRIC AND CONDITION 3. CONFIGURE ACTIONS 4. ADD A DESCRIPTION 5. PREVIEW AND CREATE

Add a description

18. Specify alarm name

Alarm name

19. Specify alarm description

Alarm description - optional
Define a description for this alarm. Optionally you can also use markdown

Alarm description

20. Proceed next

Up to 1024 characters (0/1024)

CANCEL PREVIOUS NEXT

Figure 16: Add description

4. ADD A DESCRIPTION 5. PREVIEW AND CREATE

21. You can edit the condition

EDIT

Preview and create

Namespace

AWS/Cloudfront

Metric name

4xxErrorRate

Dimension

Region

Figure 17: Preview and edit

4.5 Server Creation

To add or create a new server, click on the pink + button in the bottom right corner of the screen. Once clicked a dialog will show where the details of the instance can be specified.

The following details must be specified:

- The Image Id
- The Instance Type
- The Kernel Id
- The Max Count
- The Min Count

Once the values have been set the user can then submit the request by clicking the submit button in the bottom left of the dialog.

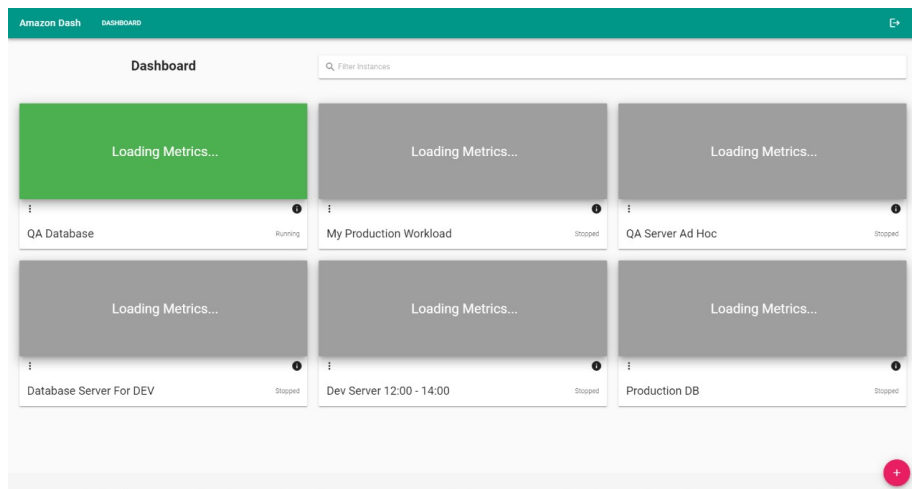


Figure 18: Add or create server

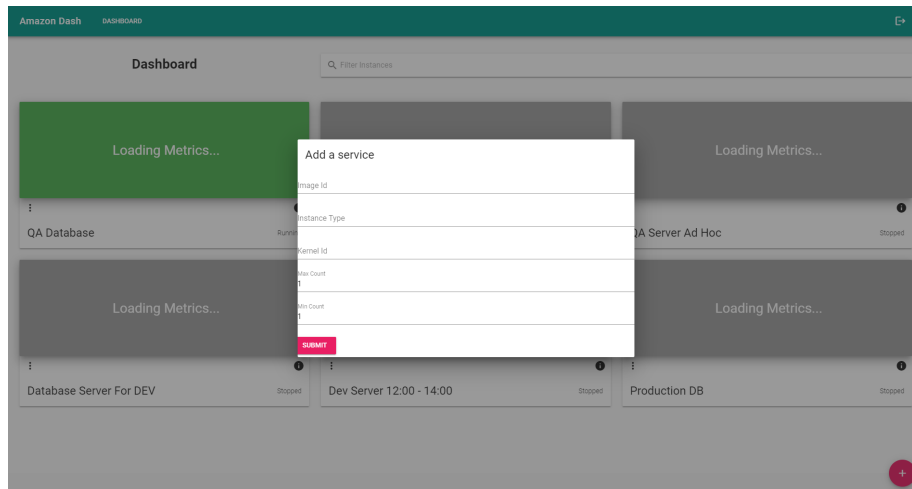


Figure 19: Add or create server

4.6 Button to launch instance from Command Shell

In the drop down menu that shows the options to stop, start and restart the instance, there is a button called "Shell". This button displays a pop-up that gives tells the user what command they need to input into the command line to launch the instance.

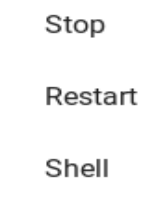


Figure 20: Button for shell popup

Command to launch instance in shell

Copy and paste the following command
into your shell:

```
mssh i-0ef29628ef031d443
```

Figure 21: Popup with shell command

5 Troubleshooting

When the user attempts to login and fails to input the correct password or username, an error will occur and they will have to try to login again.

6

References

- [1] Gouws, M. 2019, 'UP Project Templates-Amazon Dash-V1.2', Project proposal, Advance.