Compute - Amazon EC2 Module Report

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1 Overview

In this homework, I have learned the creation and connection processes of an EC2 machine, as well as setting Auto Scaling Groups and Security Groups to that machine using the AWS Homework Account I have been provided. Detailed explanations of these processes are described below step by step, with relevant screenshots.

1.1 Amazon EC2

I learned that Amazon EC2 provides a scalability factor so that you don't have to predict traffic and invest in hardware up front. This is proven in the further steps of this homework, in the Auto Scaling on AWS section to be specific. But first, a web server instance should be created.

1.2 EC2 Linux Hands on Lab

This module provides information and practice chance on creating SSH key pairs to connect to the web server instance we will create as well, but key pair should be created first. The key pair is created according to description given, shown in Figure 1.

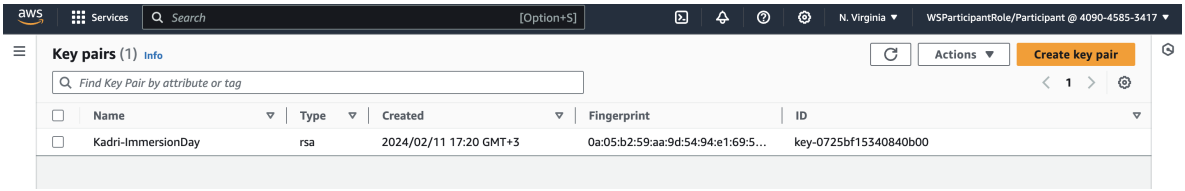

Figure 1: This key pair will be used while connecting to the web server instance.

A web server instance is created using the values provided by the description and the key pair above, shown in Figure 2.

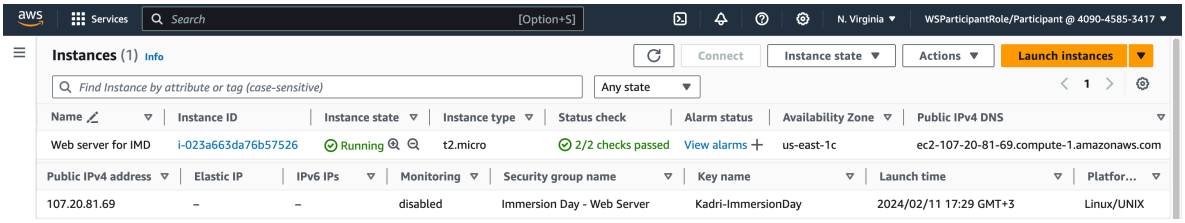

Figure 2: Web server instance created

Up to here, I have learned how to create a web server instance. After the status check is complete and instance starts running, I tried browsing using Public IPv4 DNS. The result is given in Figure 3.

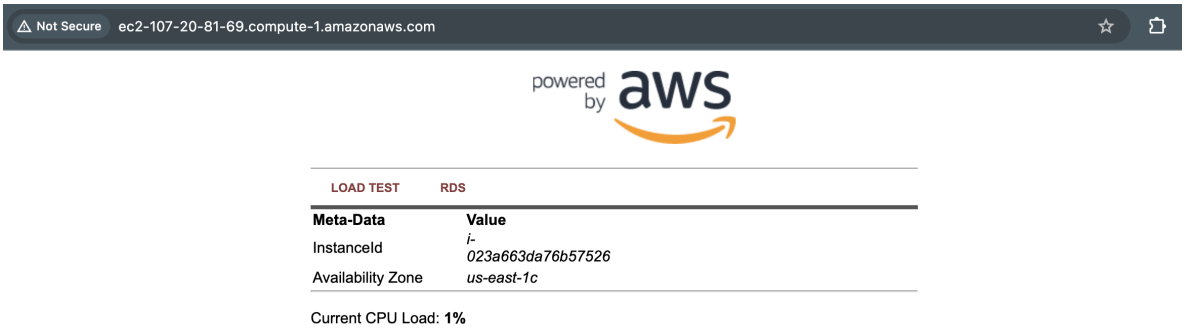

Figure 3: Launched web site Screenshot

I also connected using SSH Client in kernel, screenshot is given in Figure 4

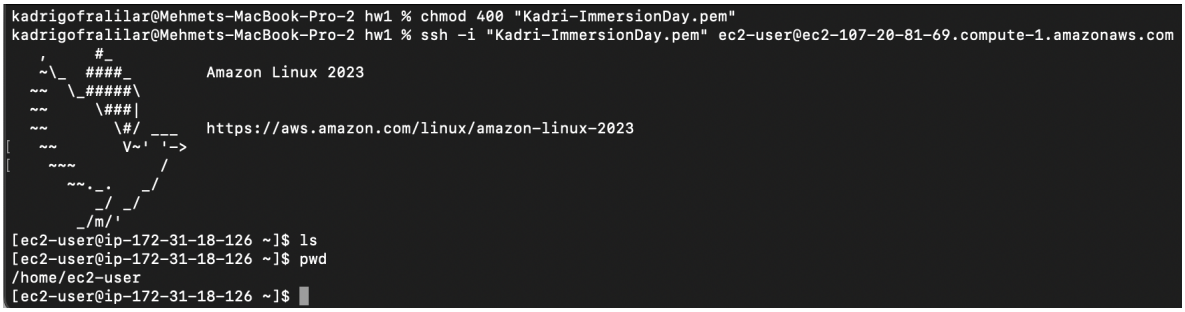

Figure 4: SSH Client connection

1.3 Auto Scaling on AWS

In this module, main point is learned about EC2, which is to update the capacity according to the needs of the application by creating additional instances. We can even monitor the load if needed in further steps. But first, a stack must be created. It is given in the Figure 5.

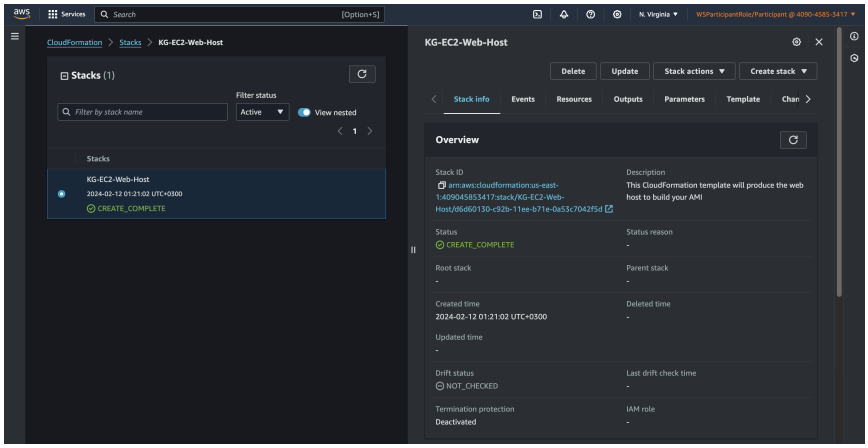

Figure 5: Stack

Afterwards, we check the instance state, given in Figure 6.

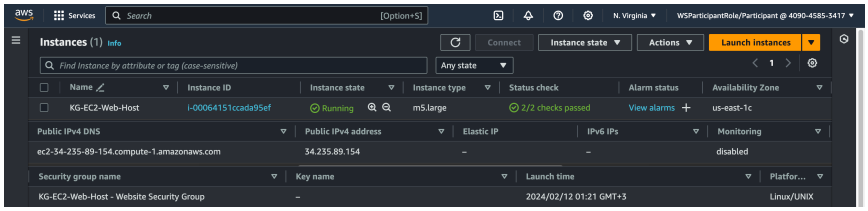

Figure 6: Instance state confirmed

Now, we generate a custom AMI to be used by the Auto Scaling Group later. The AMI is given in Figure 7

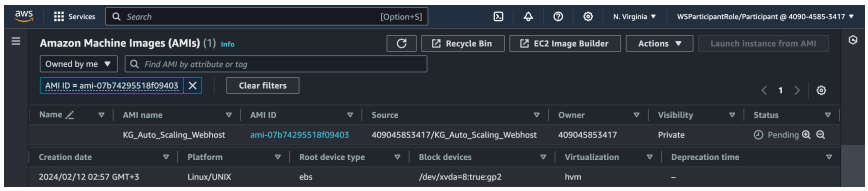

Figure 7: AMI created

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A new security group needs to be created now. It is given in Figure 8.

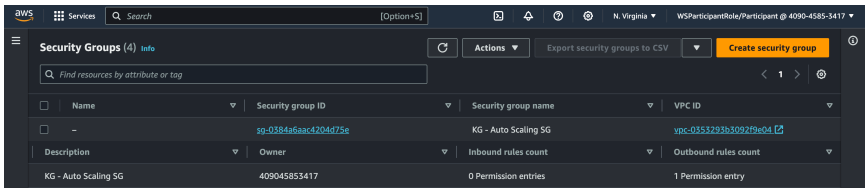


Figure 8: Security group created

Afterwards, a launch template is created, since it is one of the main components of EC2 auto scaling. It is given in Figure 9.

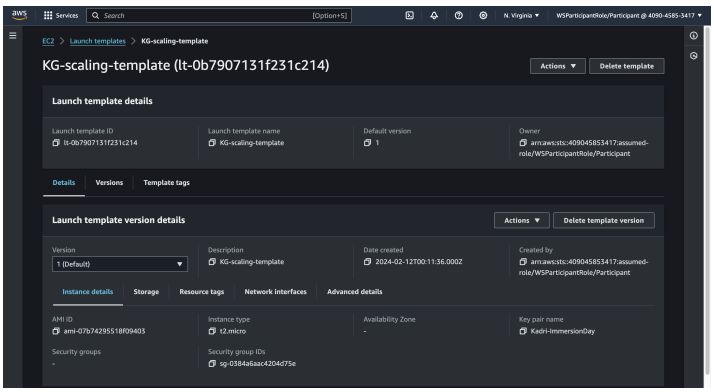


Figure 9: Launch template created

In the next step, Auto Scaling Group is created according to the given descriptions again using the launch template created before and all of the subnets given as options checked. The Auto Scaling Group created is given in Figure 10.

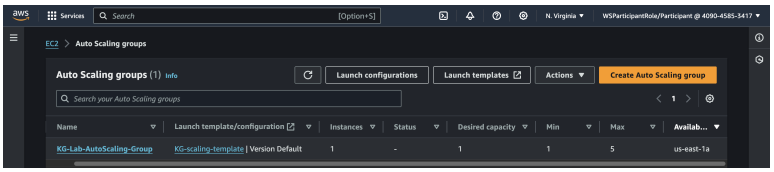


Figure 10: Auto Scaling Group

Later, a load balancer security group is created, given in Fig 11. After, inbound rule added to the security group to prevent direct access from the Internet.

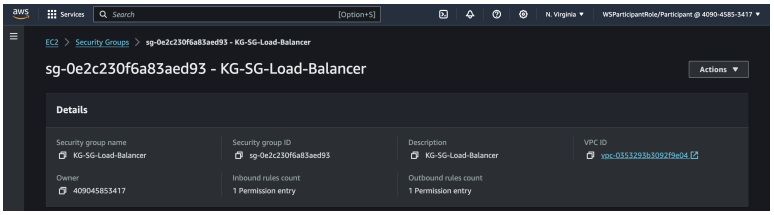


Figure 11: Load Balancer Security Group

After testing, the results are given in Figure 12 and Figure 13 while the load balancer distributes the request among instances.

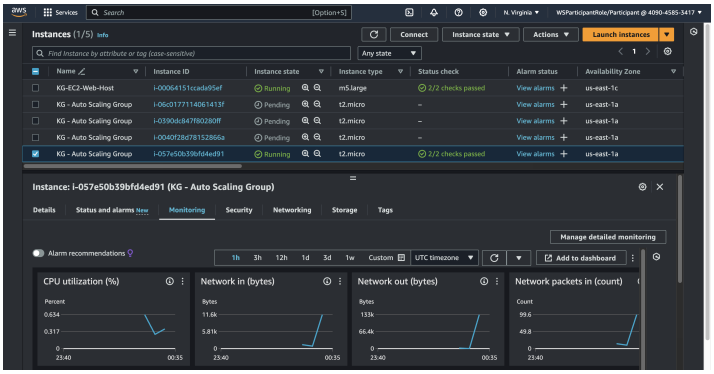
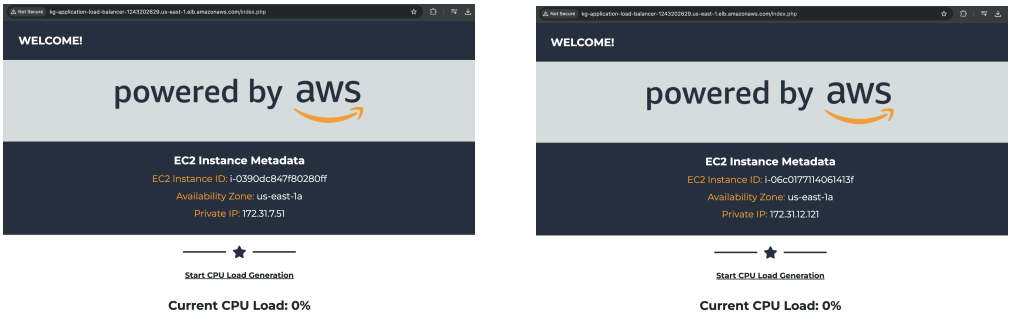


Figure 12: CPU utilization drop observed after request is distributed



(a) Instance A (b) Instance B

Figure 13: Request being distributed