

RV COLLEGE OF ENGINEERING®

BENGALURU – 560059

(Autonomous Institution Affiliated to VTU, Belagavi)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



“Deployment of a website on Amazon Web Services”

Application Delivery Controller and Virtualization (18CS7G2)

OPEN ENDED EXPERIMENT REPORT

VII SEMESTER

2022-2023

Submitted by

TJ S L Savitri 1RV19CS171

Under the Guidance of

Dr. Sandhya S.

Associate Professor

Department of CSE, RVCE

Bengaluru-560059

RV COLLEGE OF ENGINEERING®, BENGALURU - 560059

(Autonomous Institution Affiliated to VTU, Belagavi)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING



CERTIFICATE

Certified that the Open-Ended Experiment titled **“Deployment of a website on Amazon Web Services”** has been carried out by **T J S L Savitri (1RV19CS171)** bonafide students of RV College of Engineering, Bengaluru, have submitted in partial fulfilment for the **Internal Assessment of Course Application Delivery Controller and Virtualization (18CSG72)** during the year 2022-2023. It is certified that all corrections/suggestions indicated for the Internal Assessment have been incorporated in the report.

Dr. Sandhya S

Faculty In-charge,
Department of CSE,
RVCE, Bengaluru – 59

Dr. Ramakanth Kumar P

Head of the Department,
Department of CSE
RVCE, Bengaluru - 59

RV COLLEGE OF ENGINEERING®, BENGALURU - 560059
(Autonomous Institution Affiliated to VTU)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

DECLARATION

I, T J S L Savitri (**1RVCS171**) the student of Seventh Semester B.E., Computer Science and Engineering, R.V. College of Engineering, Bengaluru hereby declare that the project titled “**Deployment of a website on Amazon Web Services**” has been carried out by me and submitted in partial fulfilment for the **Internal Assessment of Course: Application Delivery Controller and Virtualization (18CSG72) - Open-Ended Experiment** during the year 2022-2023. I do declare that matter embodied in this report has not been submitted to any other university or institution for the award of any other degree or diploma.

Place: Bengaluru

Signature

Date:

1. T J S L Savitri

Acknowledgement

Any achievement, be it scholastic or otherwise does not depend solely on the individual efforts but on the guidance, encouragement and cooperation of intellectuals, elders and friends. A number of personalities, in their own capacities have helped us in carrying out this project work. I would like to take this opportunity to thank them all.

I am indebted to our guide, **Dr. Sandhya S.**, Associate Professor, Department of CSE, RVCE, Bengaluru, for her wholehearted support, suggestions and invaluable advice throughout our project work and also helped in the preparation of this report.

Our sincere thanks to **Dr. Ramakanth Kumar P.**, Professor and Head, Department of Computer Science and Engineering, RVCE for his support and encouragement.

First and foremost, i would like to thank **Dr. Subramanya K N**, Principal, RVCE, Bengaluru, for his moral support towards completing my project work.

I thank our Parents, and all the faculty members of the Department of Computer Science & Engineering for their constant support and encouragement.

Last, but not the least, I would like to thank our peers and friends who have provided us with valuable suggestions to improve our project.

Course Completion Certificates



Infosys®
Navigate your next

||||| COURSE COMPLETION CERTIFICATE |||||

The certificate is awarded to

TANGIRALA JAYA SREE LAKSHMI SAVITRI

for successfully completing the course

Mastering Docker

on Tuesday, January 3rd 2023



Infosys | Springboard

Congratulations! You make us proud!





Thirumala Arohi
Senior Vice President and Head
Education, Training and Assessment (ETA)
Infosys Limited

Issued on: Tuesday, January 10th 2023
This certificate can be verified by scanning the QR code at <https://verify.onwingspan.com>



Infosys®
Navigate your next

||||| COURSE COMPLETION CERTIFICATE |||||

The certificate is awarded to

TANGIRALA JAYA SREE LAKSHMI SAVITRI

for successfully completing the course

Kubernetes on AWS.

on Tuesday, January 10th 2023



Infosys | Springboard

Congratulations! You make us proud!





Thirumala Arohi
Senior Vice President and Head
Education, Training and Assessment (ETA)
Infosys Limited

Issued on: Wednesday, January 11th 2023
This certificate can be verified by scanning the QR code at <https://verify.onwingspan.com>

Table of Contents

1.	Introduction	1
1.1.	EC2 instance	1
1.2.	Amazon Machine Images (AMIs)	1
1.3.	Auto-scaling groups	2
2.	Course Content	3
2.1.	About the courses	3
2.1.1.	“Mastering Docker” course	3
2.1.2.	“Kubernetes on AWS” course	3
2.2.	Advantages of taking the courses	3
2.3.	Course topics	4
2.3.1.	Topics covered in the “Mastering Docker” course	4
2.4.	Course Outcomes	6
2.4.1.	Outcomes of the course “Mastering Docker”	6
3.	Snapshots	7
4.	References	10

List of Figures

Sl No.	Figure number	Title	Page number
1	3.1	<i>EC2 instances created</i>	7
2	3.2	<i>Amazon Machine Images of the single instances</i>	7
3	3.3	<i>Launch configurations needed for the creation of auto-scaling groups</i>	8
4	3.4	<i>Auto-scaling groups created</i>	8
5	3.5	<i>EC2 Management Console</i>	8
6	3.6	<i>WinSCP screen to connect Windows Power shell to the EC2 Console of specific host address</i>	9
7	3.7	<i>PuTTY generator to convert .pem files to .ppk files</i>	9

1. Introduction

Deploying a website on Amazon Web Services (AWS) offers many benefits to businesses. One of the main benefits is scalability, as AWS allows businesses to easily scale their resources up or down depending on the traffic and usage of their website. Additionally, AWS provides a high level of reliability and availability through its global network of data centres and automatic failover capabilities. Other benefits include cost-effectiveness, as businesses only pay for the resources they use, and security, as AWS offers a variety of security features and compliance certifications to protect data and applications. Additionally, AWS offers a wide range of services and tools that can be used to optimize and manage the performance, security, and cost of a website. This section discusses about the tools and process involved in the deployment of a website in Amazon Web Services.

1.1. EC2 instance

Amazon Elastic Compute Cloud (EC2) is a web service that provides resizable compute capacity in the cloud. It allows businesses to launch and configure virtual servers, called instances, in a matter of minutes. Creating an EC2 instance in AWS involves choosing the appropriate instance type based on the resource needs of the website, configuring the instance's settings, and setting up the necessary storage and networking resources. Once the instance is launched, it can be managed and accessed remotely through the AWS Management Console, command line interface, or APIs. EC2 also allows users to choose the operating system and software they want to use on the instance, and they can also use preconfigured templates called Amazon Machine Images (AMIs) that have the necessary software and configurations to deploy a specific type of application. The files needed for the website deployment are put into the OS created through the command line interface and the IP address of the EC2 instance would lead to the website.

1.2. Amazon Machine Images (AMIs)

Amazon Machine Images (AMIs) are pre-configured virtual machine images, which contains the necessary software and configurations to run a specific type of application. AMIs are stored in Amazon Simple Storage Service (S3) and can be used to launch instances on Amazon Elastic Compute Cloud (EC2).

Using an AMI can save time and effort when deploying an application on EC2, as the necessary software and configurations are already set up and ready to use. Additionally, AMIs can be used

to create multiple identical instances of an application, which can be useful for load balancing and scaling. AMIs also enables the users to share their configurations with others, so they can use the same setup for their own projects. Users can create their own custom AMIs, by installing the desired software and configurations on an EC2 instance and then creating an image of that instance. AWS also provides a wide range of pre-configured public AMIs, which can be used to launch instances with popular software and configurations.

1.3. Auto-scaling groups

Launching a configuration in Amazon Web Services (AWS) refers to the process of creating and configuring the necessary resources and services to host and deliver an application or website to users. This includes setting up virtual servers using Amazon Elastic Compute Cloud (EC2), configuring storage and content delivery using Amazon Simple Storage Service (S3) and Amazon CloudFront, and utilizing other services such as Amazon Route 53 for domain name management and Amazon Certificate Manager for SSL certificates. When launching a configuration, users can choose from a variety of options such as the instance type, operating system, and security settings to ensure that the configuration meets the needs of the application or website.

Auto-scaling groups in AWS automatically adjust the number of instances in a group based on predefined conditions. This allows applications to automatically scale their resources up or down depending on traffic and usage. Auto-scaling groups can be used in conjunction with load balancers to ensure that traffic is distributed evenly across all instances in a group. Users can set up a schedule for scaling based on the time of the day or week, or create scaling policies that respond to CloudWatch alarms. This ensures that the resources are always available to handle the traffic and usage of the application or website, providing high availability and cost-effectiveness.

2. Course Content

The carrying out of this project is an outcome from the learnings of the skills and concepts from two courses - “Mastering Docker” and “Kubernetes on AWS” undertaken on the learning platform “Infosys Springboard.” This section discusses about the courses, advantages of taking them, the topics covered under them and the learnings.

2.1. About the courses

This section discusses about the course contents, objectives and key take-aways of the courses “Mastering Docker” and “Kubernetes on AWS”

2.1.1. “Mastering Docker”

The "Mastering Docker" course on Infosys Springboard is a comprehensive program that aims to teach individuals the concepts and best practices of using Docker, an open-source platform for building, shipping, and running distributed applications. The course covers topics such as containerization, orchestration, and networking, with a focus on hands-on exercises and real-world scenarios. Upon completion of the course, participants will have a deep understanding of how to use Docker to build, test, and deploy applications at scale.

2.1.2. “Kubernetes on AWS”

The "Kubernetes on AWS" course on Infosys Springboard is a program that teaches individuals how to deploy and manage containerized applications on the Amazon Web Services (AWS) platform using Kubernetes, an open-source container orchestration system. The course covers topics such as setting up a Kubernetes cluster on AWS, scaling and managing containers, and integrating Kubernetes with other AWS services. The course is designed to provide hands-on experience in working with Kubernetes on AWS, and will enable participants to deploy and manage containerized applications on the AWS platform with confidence.

2.2. Advantages of taking the courses

There are several advantages of taking the courses “Mastering Docker” and “Kubernetes on AWS.”

1. **Hands-on Learning:** The courses are designed to provide participants with hands-on experience in working with docker and Kubernetes on AWS, which are essential for gaining a deep understanding of the platforms.

2. **Industry-relevant knowledge:** Docker is widely used in the industry for building, shipping, and running distributed applications and Kubernetes is widely used in the industry for container orchestration, and AWS is one of the most widely used cloud platforms. By taking the courses, participants will gain knowledge that is highly relevant to the current job market.
3. **Flexibility:** The courses are available online, which means that participants can take them at their own pace and from any location.
4. **Certification:** Upon completion of the courses, participants may be able to earn a certificate from Infosys, which can be added to their professional portfolio and used to demonstrate their expertise to potential employers.
5. **Networking:** The courses are delivered by experienced industry professionals who can provide valuable guidance and mentorship. Additionally, participating in the courses alongside other professionals from different backgrounds and industries can provide opportunities for networking and collaboration.
6. **Real-world scenarios:** The courses cover real-world scenarios and exercises which will help the learner to understand how to use docker and Kubernetes on AWS in the industry
7. **Integration:** The “Kubernetes on AWS” course also covers the integration of Kubernetes with other AWS services, such as Elastic Load Balancer, Amazon RDS and Amazon S3, which will help the learner to understand how to build a complete solution on AWS.

2.3. Course Modules

This section discusses the modules covered in the two courses.

2.3.1. Modules under “Mastering Docker” course

The "Mastering Docker" course on Infosys Springboard covers a range of topics related to using Docker for building, shipping, and running distributed applications. The topics covered in the course include:

1. **Introduction to containerization and Docker:** Overview of what containerization is and how Docker fits into the picture, and how it can be used to package and distribute software applications.
2. **Installing and configuring Docker:** How to install and configure Docker on different operating systems, including Windows and Linux.
3. **Creating and managing containers:** How to create and manage containers using the Docker command-line interface and API, including how to start, stop, and remove containers.

4. **Working with images:** How to create and manage Docker images, including how to use the Dockerfile to automate the build process, and how to use Docker Hub or other image registries to distribute images.
5. **Networking in Docker:** How to configure networking for containers and understand how it works in a Docker environment, including how to connect containers to one another and to the host.
6. **Volumes and data management:** How to manage data in Docker containers, including how to use volumes and bind mounts to persist data.
7. **Docker Compose and swarm:** How to use Docker Compose and Swarm to orchestrate multiple containers and deploy multi-container applications.
8. **Best practices and security:** Overview of best practices and security considerations for using Docker in production environments.
9. **Deploying and scaling in production:** How to deploy and scale Docker applications in production environments, including how to use Docker in a continuous integration and delivery pipeline.
10. **Troubleshooting and monitoring:** How to troubleshoot and monitor Docker applications, including how to use tools such as Docker logs, Docker inspect, and Prometheus.

2.3.2. Modules under “Kubernetes on AWS” course

The "Kubernetes on AWS" course on Infosys Springboard covers a range of topics related to using Kubernetes for container orchestration on the Amazon Web Services (AWS) platform. The topics covered in the course include:

1. **Introduction to Kubernetes and AWS:** Overview of what Kubernetes is, how it works, and how it can be used to deploy and manage containerized applications on AWS.
2. **Setting up a Kubernetes cluster on AWS:** How to set up and configure a Kubernetes cluster on AWS using Amazon Elastic Kubernetes Service (EKS).
3. **Managing and scaling Kubernetes resources:** How to use Kubernetes to manage and scale resources such as pods, services, and deployments on AWS.
4. **Configuring network and security:** How to configure network and security for a Kubernetes cluster on AWS, including how to use AWS VPC, Security Groups, and IAM roles.
5. **Integrating Kubernetes with other AWS services:** How to integrate Kubernetes with other AWS services such as Elastic Load Balancer, Amazon RDS and Amazon S3.
6. **Deploying and scaling in production:** How to deploy and scale Kubernetes applications in production environments on AWS, including how to use Kubernetes in a continuous integration and delivery pipeline.

7. **Monitoring and logging:** How to monitor and log Kubernetes clusters and applications on AWS, including how to use AWS CloudWatch and Elasticsearch-Kibana-Fluentd stack.
8. **Troubleshooting and disaster recovery:** How to troubleshoot and recover from failures in a Kubernetes cluster on AWS, including how to use Kubernetes self-healing mechanisms.
9. **Best practices and security:** Overview of best practices and security considerations for using Kubernetes on AWS in production environments.
10. **Kubernetes advanced features:** Covering advanced features of Kubernetes such as StatefulSet, DaemonSet, ConfigMap, Secret and Ingress.

2.4. Course Outcomes

This section covers the summary of main concepts, skills, and knowledge that an individual has acquired from taking the online courses “Mastering Docker” and “Kubernetes on AWS”.

2.4.1. Outcomes of the course “Mastering Docker”

The "Mastering Docker" course on Infosys Springboard provides a comprehensive learning experience for individuals looking to gain a deep understanding of using Docker for building, shipping, and running distributed applications. Upon completion of the course, participants will have a solid understanding of containerization, how to install and configure Docker, creating and managing containers, working with images, networking in Docker, volumes, and data management, Docker Compose and Swarm for orchestration and how to deploy and scale in production. They will also have knowledge of best practices and security considerations for using Docker in production environments, as well as the ability to troubleshoot and monitor Docker applications using various tools.

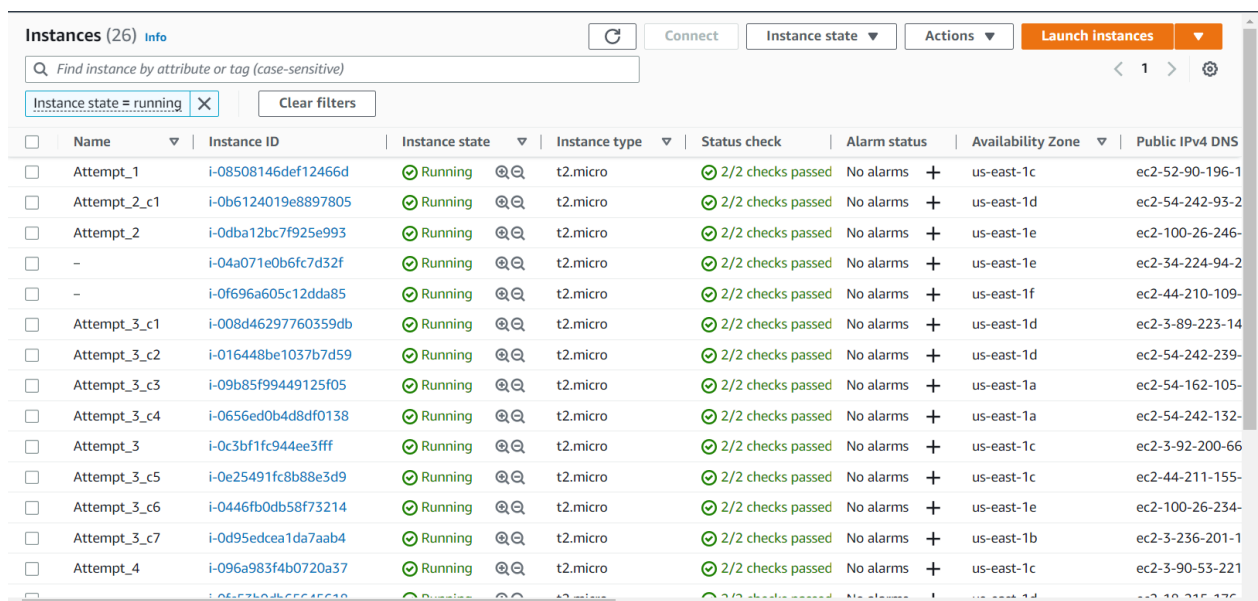
2.4.2. Outcomes of the course “Kubernetes on AWS”

The "Kubernetes on AWS" course on Infosys Springboard provides a comprehensive learning experience for individuals looking to gain a deep understanding of using Kubernetes for container orchestration on the Amazon Web Services (AWS) platform. Upon completion of the course, participants will have a solid understanding of how to set up and configure a Kubernetes cluster on AWS using Amazon Elastic Kubernetes Service (EKS), managing and scaling Kubernetes resources, configuring network and security, integrating Kubernetes with other AWS services, deploying and scaling in production, monitoring and logging, troubleshooting and disaster recovery, best practices and security considerations for using Kubernetes on AWS in production environments and Kubernetes advanced features. The course provides hands-on experience in working with Kubernetes on AWS which is essential for understanding the platform and provides knowledge that is highly relevant to the current job market.

3. Snapshots

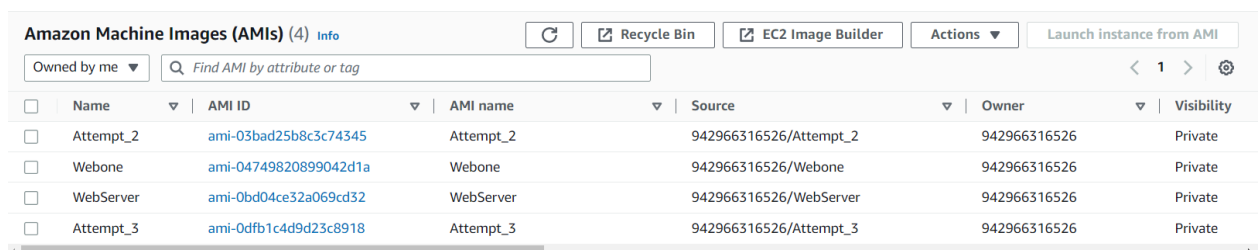
Fig 3.1. shows the EC2 instances created in overall. However, many instances are created using auto-scaling groups. Website files can be put into the instance through the EC2 console shown in the Fig 3.5. or the WinSCP (a free SFTP, SCP, Amazon S3, WebDAV, and FTP client for Windows, it can be used to securely transfer files to and from an Amazon Web Services (AWS) instance) and PuTTY generator (a key generator tool for creating SSH keys, it can be used to generate a private and public key pair for securely logging in to an AWS instance using the PuTTY SSH client.) as shown in figures Fig 3.6 and Fig 3.7.

Amazon Machine Images (AMIs) are created for a single instance created for a website, so that entire snapshot of the OS used is taken and is used to create multiple duplicate instances and the single and actual instances are shown in the figure Fig 3.2. Fig 3.3. and Fig 3.4 shows how the configurations are launched and auto-scaling groups are created in AWS website.



	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
<input type="checkbox"/>	Attempt_1	i-08508146def12466d	Running	t2.micro	2/2 checks passed	No alarms	us-east-1c	ec2-52-90-196-1
<input type="checkbox"/>	Attempt_2_c1	i-0b6124019e8897805	Running	t2.micro	2/2 checks passed	No alarms	us-east-1d	ec2-54-242-93-2
<input type="checkbox"/>	Attempt_2	i-0dba12bc7f925e993	Running	t2.micro	2/2 checks passed	No alarms	us-east-1e	ec2-100-26-246-
<input type="checkbox"/>	-	i-04a071e0b6fc7d32f	Running	t2.micro	2/2 checks passed	No alarms	us-east-1e	ec2-34-224-94-2
<input type="checkbox"/>	-	i-0f696a605c12dda85	Running	t2.micro	2/2 checks passed	No alarms	us-east-1f	ec2-44-210-109-
<input type="checkbox"/>	Attempt_3_c1	i-008d46297760359db	Running	t2.micro	2/2 checks passed	No alarms	us-east-1d	ec2-3-89-223-14
<input type="checkbox"/>	Attempt_3_c2	i-016448be1037b7d59	Running	t2.micro	2/2 checks passed	No alarms	us-east-1d	ec2-54-242-239-
<input type="checkbox"/>	Attempt_3_c3	i-09b85f99449125f05	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	ec2-54-162-105-
<input type="checkbox"/>	Attempt_3_c4	i-0656ed0b4d8df0138	Running	t2.micro	2/2 checks passed	No alarms	us-east-1a	ec2-54-242-132-
<input type="checkbox"/>	Attempt_3	i-0c3bf1fc944ee3fff	Running	t2.micro	2/2 checks passed	No alarms	us-east-1c	ec2-3-92-200-66
<input type="checkbox"/>	Attempt_3_c5	i-0e25491fc8b88e3d9	Running	t2.micro	2/2 checks passed	No alarms	us-east-1c	ec2-44-211-155-
<input type="checkbox"/>	Attempt_3_c6	i-0446fb0db58f73214	Running	t2.micro	2/2 checks passed	No alarms	us-east-1e	ec2-100-26-234-
<input type="checkbox"/>	Attempt_3_c7	i-0d95edcea1da7aab4	Running	t2.micro	2/2 checks passed	No alarms	us-east-1b	ec2-3-236-201-1
<input type="checkbox"/>	Attempt_4	i-096a983f4b0720a37	Running	t2.micro	2/2 checks passed	No alarms	us-east-1c	ec2-3-90-53-221

Fig. 3.1. EC2 instances created



	Name	AMI ID	AMI name	Source	Owner	Visibility
<input type="checkbox"/>	Attempt_2	ami-03bad25b8c3c74345	Attempt_2	942966316526/Attempt_2	942966316526	Private
<input type="checkbox"/>	Webone	ami-04749820899042d1a	Webone	942966316526/Webone	942966316526	Private
<input type="checkbox"/>	WebServer	ami-0bd04ce32a069cd32	WebServer	942966316526/WebServer	942966316526	Private
<input type="checkbox"/>	Attempt_3	ami-0dfb1c4d9d23c8918	Attempt_3	942966316526/Attempt_3	942966316526	Private

Fig 3.2. Amazon Machine Images of the single instances

EC2 > Launch configurations

Launch configurations (4) [Info](#) ↻ Actions ▾ Copy to launch template ▾ Create launch configuration

<input type="checkbox"/>	Name ▾	AMI ID ▾	Instance type ▾	Spot price ▾	Creation time ▾
<input type="checkbox"/>	Attempt_3	ami-0dfb1c4d9d...	t2.micro	-	Wed Jan 11 2023 09:51:58 GMT+0530 (India ...
<input type="checkbox"/>	Attempt_2	ami-03bad25b8c...	t2.micro	-	Wed Jan 11 2023 02:36:18 GMT+0530 (India ...
<input type="checkbox"/>	W1	ami-0474982089...	t2.micro	-	Tue Jan 10 2023 22:42:14 GMT+0530 (India S...
<input type="checkbox"/>	WebServer	ami-0bd04ce32a...	t2.micro	-	Tue Jan 10 2023 20:15:07 GMT+0530 (India S...

Fig 3.3. Launch configurations needed for the creation of auto-scaling groups

EC2 > Auto Scaling groups

Auto Scaling groups (4) [Info](#) ↻ Edit Delete Create an Auto Scaling group

<input type="checkbox"/>	Name ▾	Launch... ▾	Instances ▾	Status ▾	Desired capacity ▾	Min ▾	Max ▾	Availability Zones ▾
<input type="checkbox"/>	Attempt_3	Attempt_3	7	-	7	5	10	us-east-1a, us-east-1b, us-east-1c, us-ea...
<input type="checkbox"/>	Attempt_2	Attempt_2	3	-	3	1	5	us-east-1a, us-east-1b, us-east-1c, us-ea...
<input type="checkbox"/>	W1	W1	5	-	5	3	7	us-east-1a, us-east-1b, us-east-1c, us-ea...
<input type="checkbox"/>	WebServer	WebServer	7	-	7	5	10	us-east-1a, us-east-1b, us-east-1c, us-ea...

Fig 3.4. Auto-scaling groups created

```
aws | Services | Search [Alt+S]
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-1026-aws x86_64)

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:       https://ubuntu.com/advantage

System information as of Fri Jan 13 05:05:11 UTC 2023

System load:  0.080078125      Processes:           101
Usage of /:   28.8% of 7.57GB   Users logged in:     0
Memory usage: 31%              IPv4 address for eth0: 172.31.56.201
Swap usage:   0%

* Ubuntu Pro delivers the most comprehensive open source security and
  compliance features.

  https://ubuntu.com/aws/pro

15 updates can be applied immediately.
To see these additional updates run: apt list --upgradable

*** System restart required ***
Last login: Tue Jan 10 20:57:18 2023 from 18.206.107.29
ubuntu@ip-172-31-56-201:~$

i-0dba12bc7f925e993 (Attempt_2)
```

Fig 3.5. EC2 Management Console

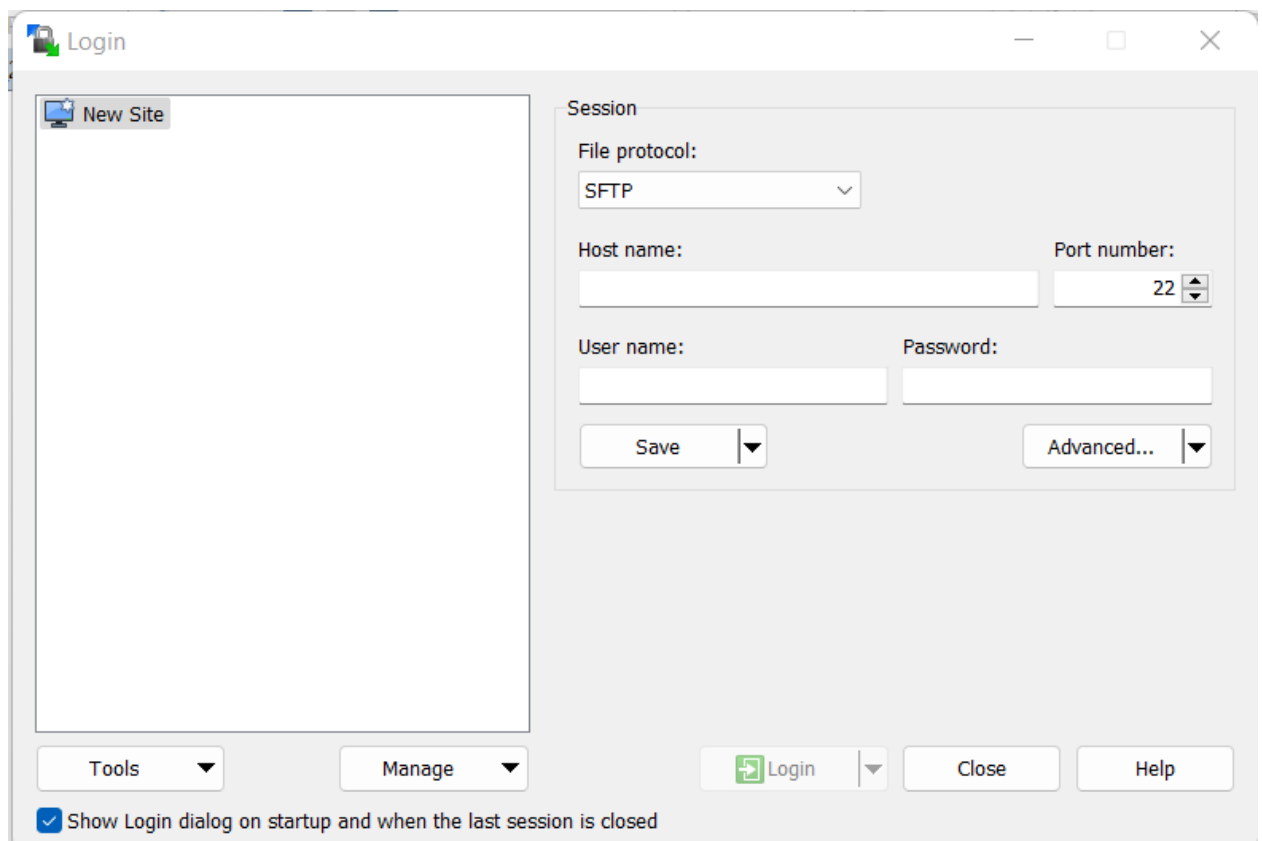


Fig 3.6. WinSCP screen to connect Windows Power shell to the EC2 Console of specific host address

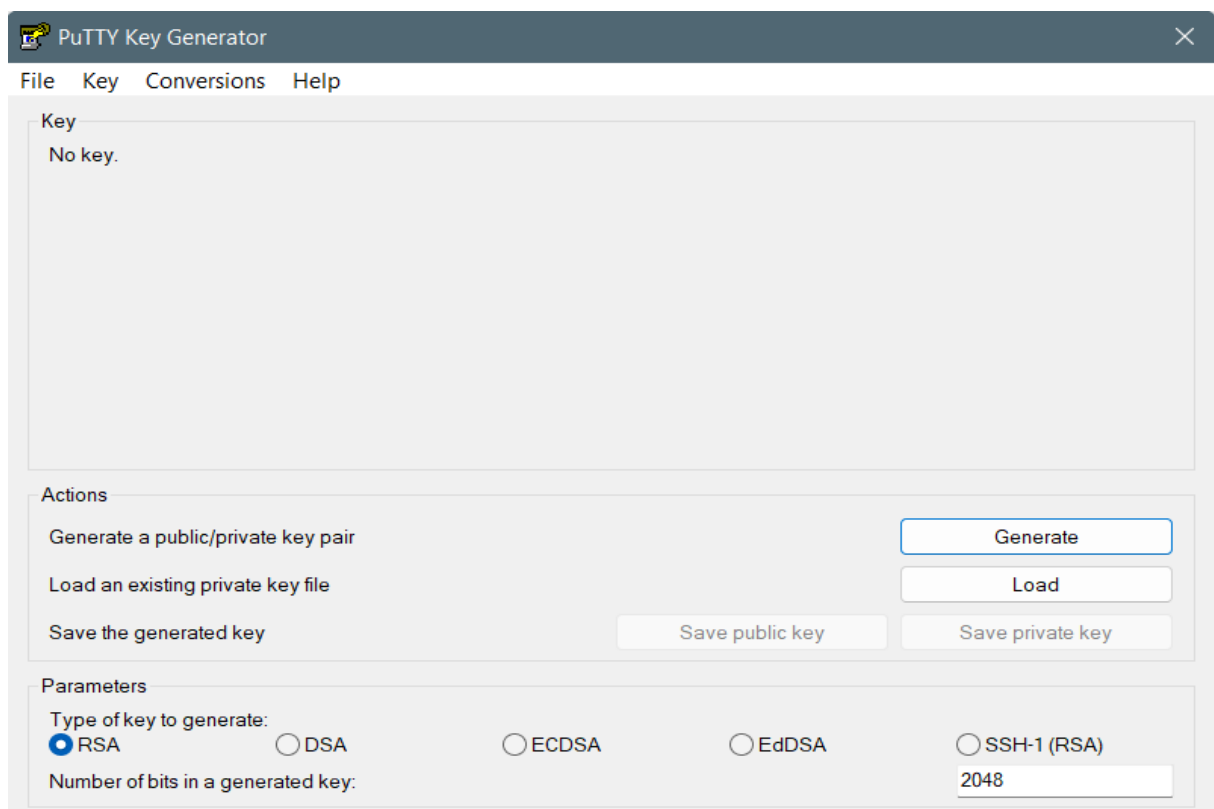


Fig 3.7. PuTTY generator to convert .pem files to .ppk files

4. References

- [1] S. K. Jain, "Deploying and Scaling Web Applications on AWS using Elastic Beanstalk," in Proceedings of the International Conference on Cloud Computing and Big Data, pp. 1-7, 2021.
- [2] R. Gupta, "Deploying and Securing Web Applications on AWS using Elastic Beanstalk and AWS WAF," in Proceedings of the International Conference on Cloud Computing and Big Data, pp. 1-9, 2022.
- [3] A. K. Srivastava, "Deploying and Optimizing Web Applications on AWS using Elastic Beanstalk and AWS Lambda," in Proceedings of the International Conference on Cloud Computing and Big Data, pp. 1-8, 2022.
- [4] Y. Li, "Deploying and Managing Web Applications on AWS using Elastic Beanstalk and AWS CodePipeline," in Proceedings of the International Conference on Cloud Computing and Big Data, pp. 1-7, 2022.
- [5] J. Liu, "Deploying and Scaling Web Applications on AWS using Elastic Beanstalk and Amazon RDS," in Proceedings of the International Conference on Cloud Computing and Big Data, pp. 1-8, 2022.
- [6] Infosys Springboard. "Mastering Docker." Infosys Springboard, Onwingspan. https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_01329491929123225637956_shared/overview, accessed 5 Jan 2023.
- [7] Infosys Springboard. "Kubernetes on AWS." Infosys Springboard, Onwingspan. https://infyspringboard.onwingspan.com/web/en/app/toc/lex_auth_0132945783289118729083_shared/overview, accessed 5 Jan 2023.