

Experiment 02 - Cloud Computing

December 7, 2022

Aim

Creating an AMI of an EC2 instance and launching another EC2 instance in a different region using that image.

Theory

Amazon Machine Instance (AMI) is a template to configure new EC2 instances. AMIs helps in keeping incremental changes in the OS, application code and system packages. Using system manager automation, we can routinely patch the AMIs with security updates. AMIs are used with LaunchConfigurations. When we want to roll out updates to multiple instances, we make a copy of LaunchConfiguration with new AMI. So an AMI provides the information required to launch an instance. We can turn our EC2 instances to AMIs, so that we can create copies of our servers. AMIs are region specific.

Results

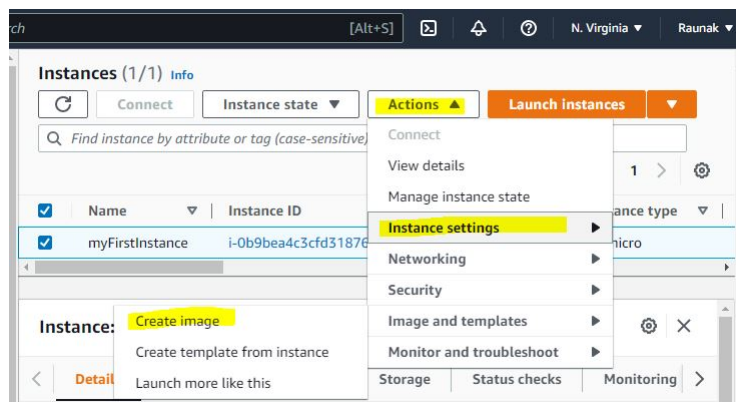


Figure 1: Creating image of existing instance from last experiment

Create image Info
An image (also referred to as an AMI) defines the programs and settings that are applied when you launch an EC2 instance. You can create an image from the configuration of an existing instance.

Instance ID
i-0b9bea4c3cf3d31876 (myFirstInstance)

Image name
myFirstInstanceAMI

Maximum 127 characters. Can't be modified after creation.

Image description - optional
Image description

Maximum 255 characters

No reboot
☐ Enable

Instance volumes

Volume type	Device	Snapshot	Size	Volume type	IOPS	Throughput	Delete on termination	Encrypted
EBS	/dev/...	Create new snapshot fr...	8	EBS General Purpose S...	100		<input checked="" type="checkbox"/> Enable	<input type="checkbox"/> Enable

Add volume

During the image creation process, Amazon EC2 creates a snapshot of each of the above volumes.

Tags - optional
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

☒ Tag image and snapshots together
Tag the image and the snapshots with the same tag.

☐ Tag image and snapshots separately
Tag the image and the snapshots with different tags.

No tags associated with the resource.

Add new tag
You can add up to 50 more tags.

Cancel Create image

Figure 2: Naming and creating the image of the same instance

WS Services Search [Alt+S] N. Virginia Raunak

New EC2 Experience Tell us what you think

EC2 Dashboard
EC2 Global View
Events
Tags
Limits
Instances
Images
AMIs

Amazon Machine Images (AMIs) (1/1) Info

Recycle Bin EC2 Image Builder Actions

Launch instance from AMI

Owned by me Find AMI by attribute or tag

AMI ID	AMI name	Source
ami-0f833334850786b755	myFirstInstanceAMI	303164066091/myFirstInst

Launch instance from AMI
Copy AMI
Edit AMI permissions
Request Spot Instances
Manage tags

Figure 3: Copying the AMI for creation of replicate instance in new region

Copy Amazon Machine Image (AMI)

Original AMI ID
ami-0f8333d850786b755

AMI copy name
myFirstInstanceAMI

AMI copy description
[Copied ami-0f8333d850786b755 from us-east-1] myFirstInstanceAMI

Destination Region
A copy of the original AMI will be created in the destination Region.
Asia Pacific (Mumbai)

☐ Copy tags
Includes your user-defined AMI tags when copying the AMI.

☐ Encrypt EBS snapshots of AMI copy
Encrypts all snapshots in the AMI copy with the same key.

Cancel Copy AMI

Figure 4: Selecting new region as Mumbai from Asia Pacific

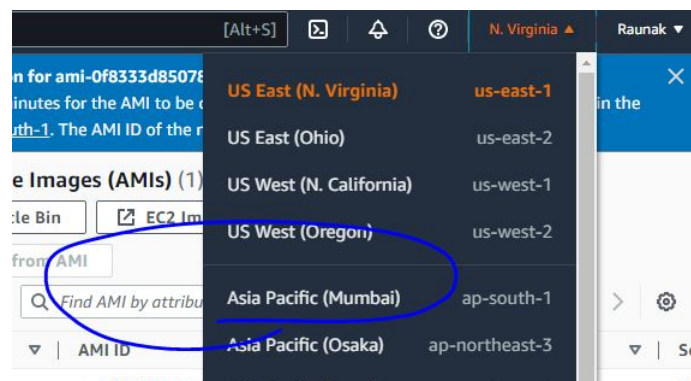


Figure 5: Selecting Mumbai region for checking the changes

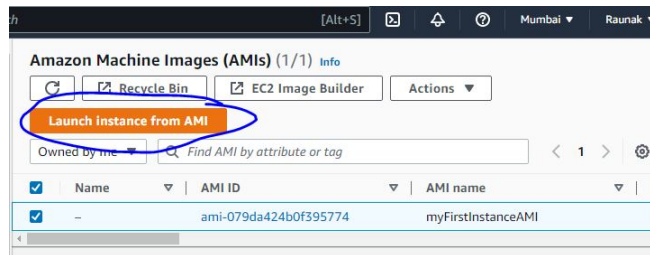


Figure 6: Launching the instance from AMI

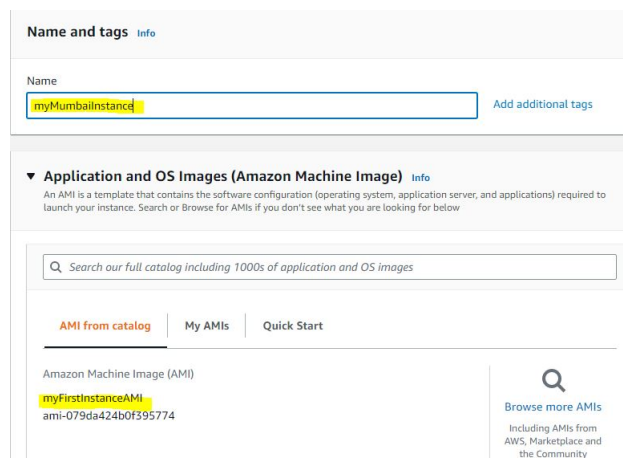


Figure 7: Naming the instance

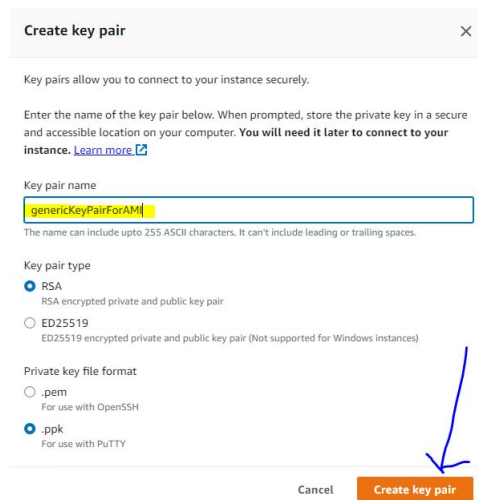


Figure 8: Creating a new key pair

▼ Network settings

Info

Edit

Network

Info

vpc-0a17619407aa93afe

Subnet

Info

No preference (Default subnet in any availability zone)

Auto-assign public IP

Info

Enable

Firewall (security groups)

Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group

Select existing security group

We'll create a new security group called 'launch-wizard-1' with the following rules:

☒ Allow SSH traffic from

Helps you connect to your instance

Anywhere

0.0.0.0/0

☒ Allow HTTPS traffic from the internet

To set up an endpoint, for example when creating a web server

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To set up an endpoint, for example when creating a web server

Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

×

Figure 9: Enabling of HTTP services

▼ Summary

Number of instances

Info

1

Software Image (AMI)

[Copied ami-0f8333d850786b755 ...read more]

ami-079da424b0f395774

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

1 volume(s) - 8 GiB

Free tier: In your first year includes 750 hours of t2.micro (or t3.micro in the Regions in which t2.micro is unavailable) instance usage on free tier AMIs per month, 30 GiB of EBS storage, 2 million IOs, 1 GB of snapshots, and 100 GB of bandwidth to the internet.

×

Cancel

Launch instance

Figure 10: Launching the instance

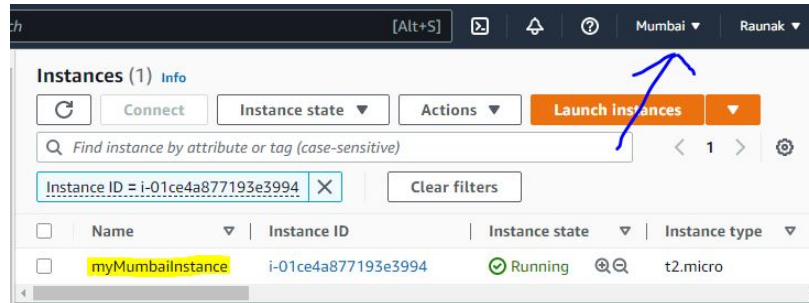


Figure 11: Successful creation of instance in Mumbai region



Figure 12: Successful hosting of the static web-page from last instance

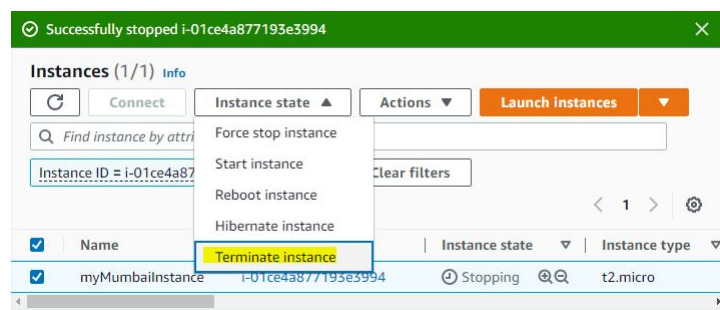


Figure 13: Stopping and Termination of instance. The stop process is already successful.

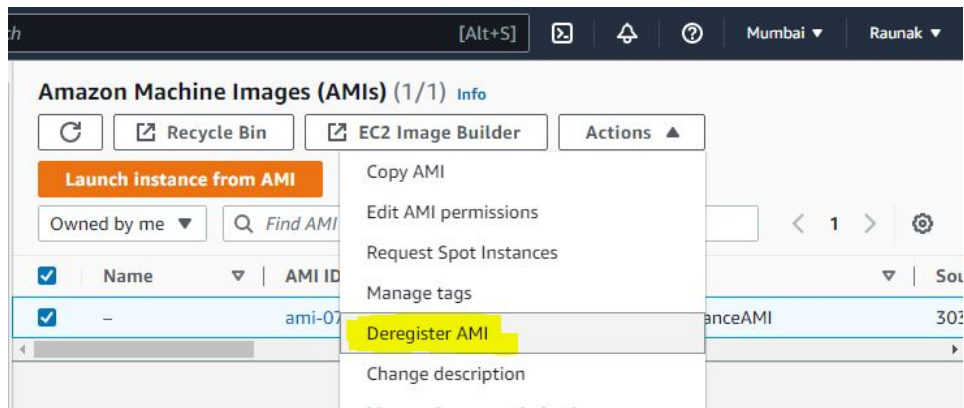


Figure 14: De-registering the AMI from AMI images

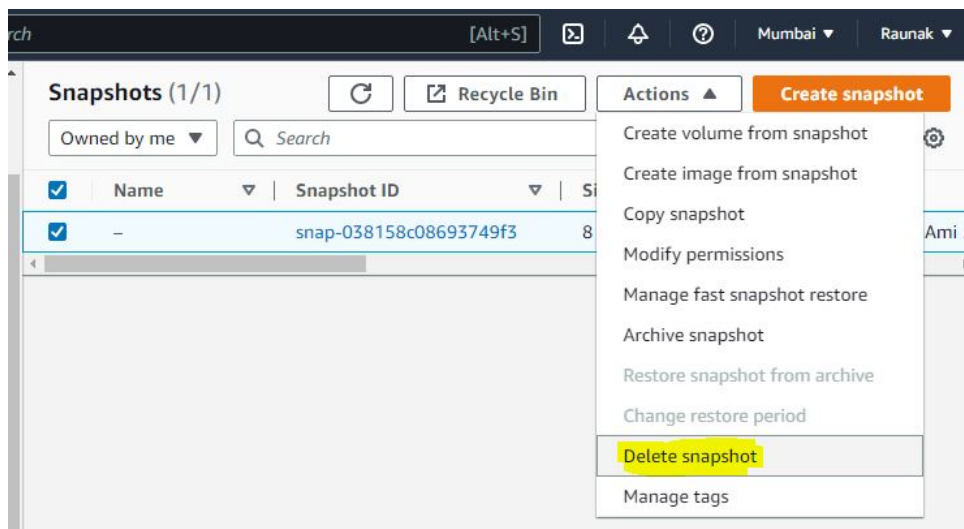


Figure 15: Deleting the Snapshot from EBS section

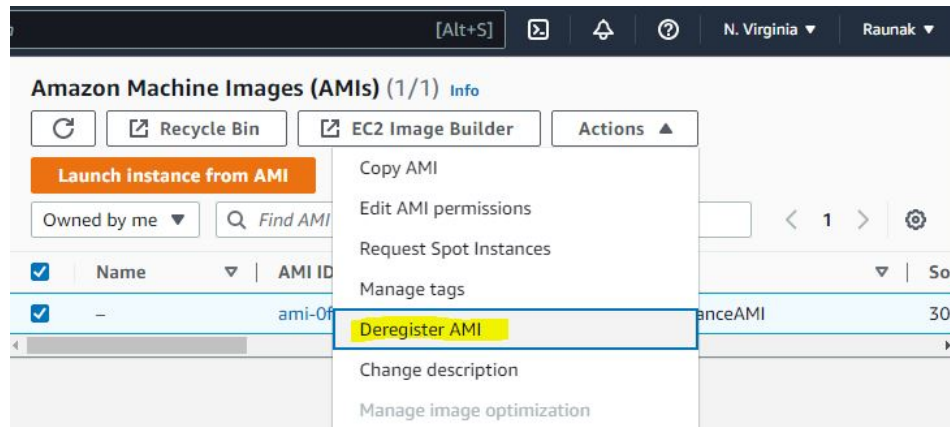


Figure 16: De-registering the AMI from AMI images from N. Virginia location as well

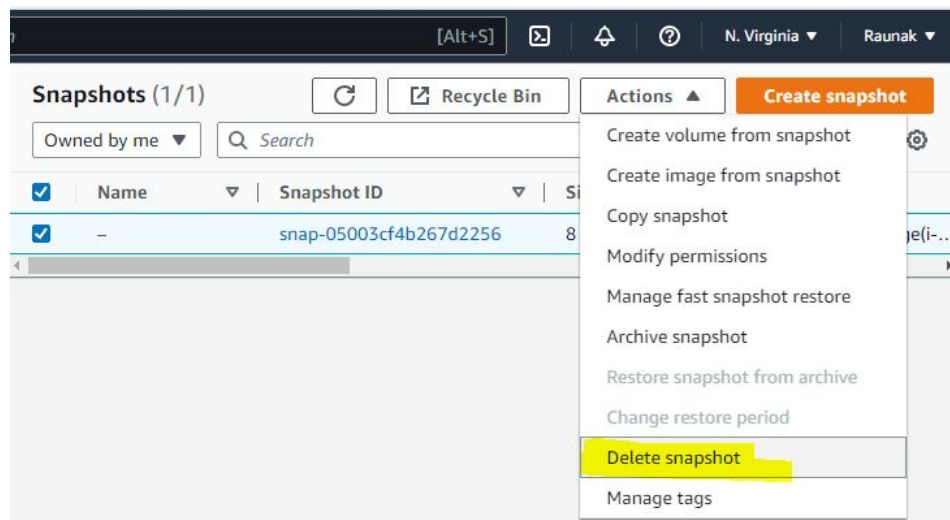


Figure 17: Deleting the Snapshot from EBS section from N. Virginia location as well

Conclusion

In this experiment successful implementation of the Amazon Machine Image abbreviated as AMI is done. The process starts by creating AMI of existing instance in one location. Then the AMI is used for replication of instance in another location. The successful hosting of the static web-page from last experiment was also replicated the way it is without any additional installations. Finally de-registering of the AMI and deletion of snapshots is shown in a successful manner.