

## AMI AMAZON MACHINE IMAGE

An Amazon machine image (AMI) is a pre-configured template that provides the necessary information to launch an EC2 instance in AWS.

It includes:

- Operating System (e.g., Linux, Windows)
- Application servers (e.g., Apache, Nginx)
- Pre-installed software & configuration.

Note → With an AMI, you can launch new EC2 instances with a consistent, predefined configuration.

You can also create custom AMIs to include specific software or settings, allowing for quick replication of environments.

### Types of AWS AMIS

- Public AMIs → Available to all AWS users.  
useful for basic use cases like popular operating system (e.g., Ubuntu, CentOS).

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- = Private AMIs  $\Rightarrow$  Created by a user and only available within that account or shared with specific accounts.
- = Paid AMIs / Marketplace AMIs  $\Rightarrow$  Provided by third parties through AWS Marketplace, offering software like databases, web servers, or pre-configured environments.

### Use Case of Paid AMIs

#### Benefits:

- = Rapid Deployment  $\Rightarrow$  The LAMP stack is pre-configured, eliminating the need to manually install & configure Apache, MySQL, and PHP.
- = Scalability and Load Balancing  $\Rightarrow$  Running on AWS enables quick scaling to match website traffic, while Elastic Load Balancer helps in distributing requests.
- = Cost Efficiency  $\Rightarrow$  You only pay for the infrastructure and the software according to your usage.

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## Templates V/S Images (AMI)

features	Create Launch template	Create Images
Purpose	Create a reusable blueprint for launching instances	Create a custom AMI snapshot of an instance
Content	Contains configuration settings (e.g., AMI, instance type, security group etc.).	Capture OS, applications, configuration & data.
Reusability	Used especially to launch a new instance in a consistent way	Used to create new instances that replicate the capture image.
Use Cases	Auto Scaling, Spot Instances, Standardizing instance settings	Backup, Replication, migrating instance to another region.
Versioning	Can have multiple versions for different configurations.	Typically, an AMI is a point-in-time capture of an instance.

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## Run cleanup Scripts

→ Why clean up before creating an AMI?  
When you create a custom AMI, everything  
currently on the EC2 instances get captured.  
This includes:

- ≡ Configuration files
- ≡ Logs
- ≡ User data
- ≡ Secrets & Credentials.

→ If you don't clean it up, your AMI will contain  
sensitive data, logs, SSH keys, etc. - which is  
huge security risk, especially if that AMI  
is shared or reused.

`#!/bin/bash`

- ≡ # Remove SSH keys.  
`rm -rf ~/.ssh/authorized_keys.`
- ≡ # Clean user credentials & history.  
`rm -rf ~/.aws/credentials` (- AWS keys)  
`rm -rf ~/.git-credentials` (- Github token)  
`rm -rf ~/.bash_history.` (- command history)

- ≡ # Clean system log & temporary files  
`rm -rf /var/tmp/*` (- temporary files)

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rm -rf /tmp/\* (temp file)

## Truncate log file:

file /var/log -type f -exec truncate -s 0 {};

because rm -rf → dangerous delete file & folder.

so use truncate → clears only file content not file & folder itself.

## # Remove User Accounts

deluser tempuser --remove-home

## # What to avoid or Be Carefull With

= ~/.ssh/authorized-key → Only remove if using EC2 key pair injection.

= /etc/nginx/nginx.conf → Don't delete unless you recreate it.  
(# Reset configuration files)

= passwd -l root → Avoid if root is your only access.  
(# lock root account)

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## Summary of AMI :-

- An AMI is essentially a complete snapshot of the instance at the point in time you created the image, allowing you to replicate the exact state of the server, including all software, configuration, & operating system level changes.
- When you create an EC2 instance from this AMI, it will boot up as if it were an exact clone of the original, with all installed software & settings intact.

## # EC2 Image Builders

- # Go to EC2 Dashboard → Images → AMIs
  - # Inside AMIs → EC2 Image Builders.
- EC2 Image builder is on AWS Services that automates the creation, maintenance, testing & deployment of Amazon Machine Images (AMIs). It ensures that your AMIs are
- Up-to-date
  - Secure
  - Consistent across environments.

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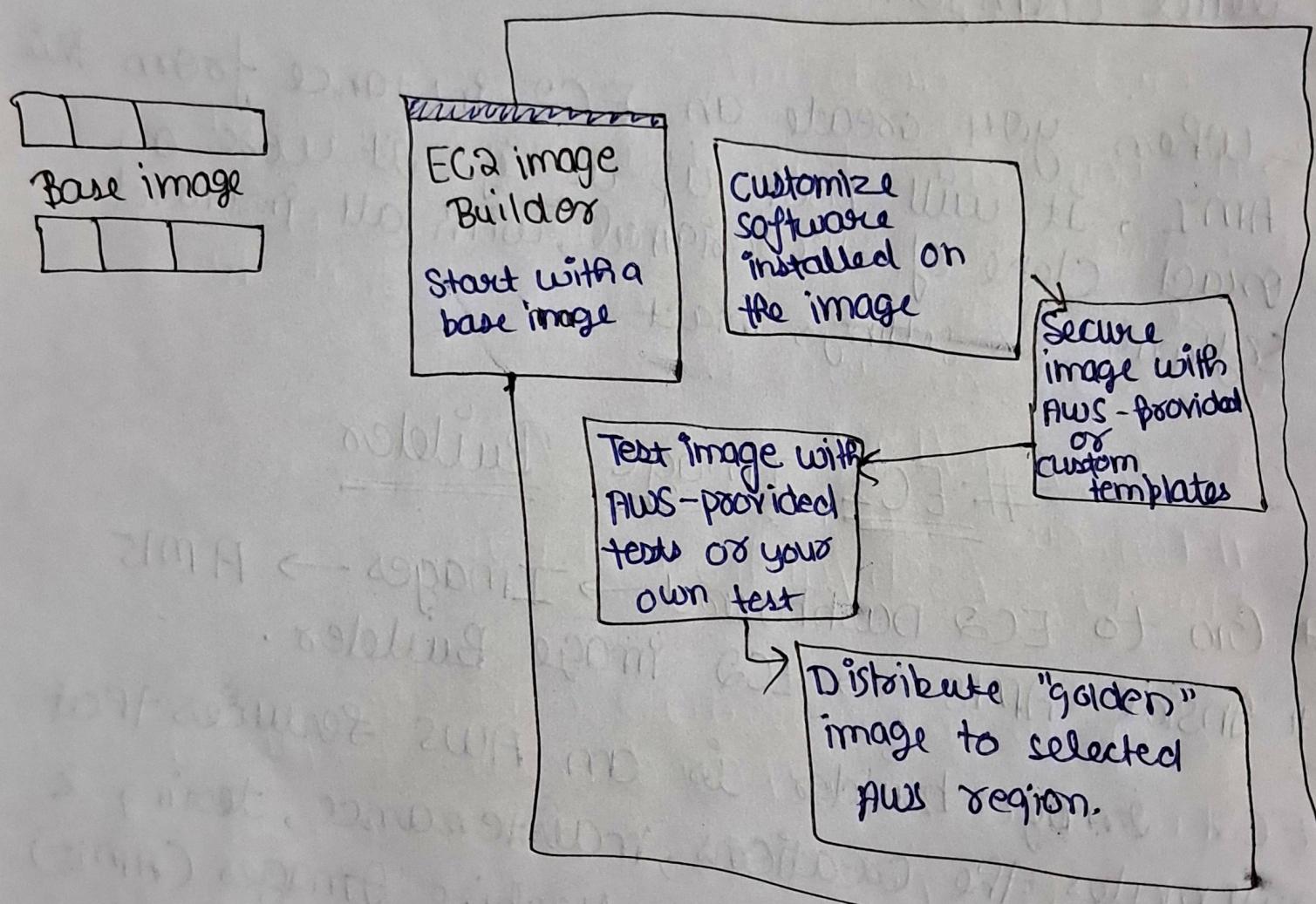
Can be configured to run at regular intervals.

(e.g: daily, weekly, or monthly).

This Service is free of cost.

### # How it works

It works on the basis of pipeline.



### # Use Cases

1. Security :- keeps OS & software up-to-date with patches. (fixes (small)).

2. Automation :- no manual AMI creation or updates

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3. Reusability : Create a consistent environment  
for all developers or servers.

4. Efficiency : Reduce deployment time with  
pre-backed image.

5. Multi-region support - Automatically AMIs distribution  
across regions.