

AWS – EC2 Instance

Lab manual – EC2 Instance

1. Select the AMI image

Options → AMI, Custom AMI, AWS Marketplace, Community AMI

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 1: Choose an Amazon Machine Image (AMI) Cancel and Exit

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. You can select an AMI provided by AWS, our user community, or the AWS Marketplace; or you can select one of your own AMIs.

Quick Start

My AMIs

AWS Marketplace

Community AMIs

☐ Free tier only ⓘ

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-04681a1dbd79675a5
Free tier eligible
Amazon Linux 2 comes with five years support. It provides Linux kernel 4.14 tuned for optimal performance on Amazon EC2, systemd 219, GCC 7.3, Glibc 2.26, Binutils 2.29.1, and the latest software packages through extras.
Root device type: ebs Virtualization type: hvm ENA Enabled: Yes

Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type - ami-0f8a91507177f867
Free tier eligible
The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

2. Select “instance Type”

Options → CPU, RAM, Instance storage, Network performance.

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 2: Choose an Instance Type

Amazon EC2 provides a wide selection of instance types optimized to fit different use cases. Instances are virtual servers that can run applications. They have varying combinations of CPU, memory, storage, and networking capacity, and give you the flexibility to choose the appropriate mix of resources for your applications. [Learn more](#) about instance types and how they can meet your computing needs.

Filter by: All instance types Current generation Show/Hide Columns

Currently selected	Type	vCPUs ⓘ	Memory (GiB)	Instance Storage (GiB) ⓘ	EBS-Optimized Available ⓘ	Network Performance ⓘ	IPv6 Support ⓘ
<input type="checkbox"/> All instance types							
<input type="checkbox"/> Micro instances							
<input type="checkbox"/> General purpose							
<input type="checkbox"/> Compute optimized							
<input type="checkbox"/> FPGA instances							
<input type="checkbox"/> GPU graphics							
<input checked="" type="checkbox"/> GPU instances							
<input type="checkbox"/> GPU compute							
<input type="checkbox"/> Memory optimized							
<input type="checkbox"/> Storage optimized							
<input type="checkbox"/> General purpose							
<input type="checkbox"/> General purpose							

Type → t2, t3, m2, c3, c4

3. Instance Configuration

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Step 3: Configure Instance Details

Configure the instance to suit your requirements. You can launch multiple instances from the same AMI, request Spot instances to take advantage

Number of instances	<input type="text" value="1"/>	Launch into Auto Scaling Group
Purchasing option	<input type="checkbox"/> Request Spot instances	
Network	<input type="text" value="vpc-0f0828582d3efc1f8 VPC-LAB"/>	Create new VPC
Subnet	<input type="text" value="subnet-0b617f71a49a303e9 lab-sub-1 us-east-1a"/> 507 IP Addresses available	Create new subnet
Auto-assign Public IP	<input type="text" value="Use subnet setting (Disable)"/>	
Auto-assign IPv6 IP	<input type="text" value="Use subnet setting (Disable)"/>	
Placement group	<input type="checkbox"/> Add instance to placement group.	
IAM role	<input type="text" value="None"/>	Create new IAM role
Shutdown behavior	<input type="text" value="Stop"/>	
Enable termination protection	<input type="checkbox"/> Protect against accidental termination	
Monitoring	<input type="checkbox"/> Enable CloudWatch detailed monitoring Additional charges apply.	
Tenancy	<input type="text" value="Shared - Run a shared hardware instance"/> Additional charges will apply for dedicated tenancy.	
T2/T3 Unlimited	<input type="checkbox"/> Enable Additional charges may apply	

Options →

Number of Instance

Networking

Shutdown Behaviour

Tenancy

T2 unlimited

▼ Network interfaces ⓘ

Device	Network Interface	Subnet	Primary IP	Secondary IP addresses	IPv6 IPs
eth0	<input type="text" value="New network interface"/>	<input type="text" value="subnet-0b617f71a49a303e9"/>	<input type="text" value="Auto-assign"/>	Add IP	Add IP
Add Device					

We could assign an “Static Private IPv4” or “static Public IPv6” (allocated by AWS)

Also we can add one more network adapter.

4. Add Storage

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Step 4: Add Storage

Your instance will be launched with the following storage device settings. You can attach additional EBS volumes and instance store volumes to your instance, or edit the settings of the root volume. You can also attach additional EBS volumes after launching an instance, but not instance store volumes. [Learn more](#) about storage options in Amazon EC2.

Volume Type ⓘ	Device ⓘ	Snapshot ⓘ	Size (GiB) ⓘ	Volume Type ⓘ	IOPS ⓘ	Throughput (MB/s) ⓘ	Delete on Termination ⓘ	Encrypted ⓘ
Root	/dev/xvda	snap-09ccbc8bc8ae7e4e9	8	General Purpose SSD (GP2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypted
<button>Add New Volume</button>								

Option →

Volume Size → For root volume we can go upto 2TB, and for additional data volume upto 16TB

Volume Type →

General Purpose SSD → AWS provides, 3 IOPS for every 1 GB, MAX IOPS -- 10000

Provisioned SSD → 50 IOPS are provided for every 1GB. Max IOPS -- 32000

Delete on Termination → do u want to delete the Disk once the Instance is terminated.

Note: -- Best practice “keep it Unchecked” if you need the volumes in the future for ever.

Encryption → Root volume CANNOT be encrypted.

Data volume can be , either AWS Encryption or custom Encryption

5. Add Tags

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Step 5: Add Tags

A tag consists of a case-sensitive key-value pair. For example, you could define a tag with key = Name and value = Webserver.

A copy of a tag can be applied to volumes, instances or both.

Tags will be applied to all instances and volumes. [Learn more](#) about tagging your Amazon EC2 resources.

Key (127 characters maximum)	Value (255 characters maximum)	Instances ⓘ	Volumes ⓘ	
Name	WS01	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	✕
Projectcust	PI	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	✕
<button>Add another tag</button> (Up to 50 tags maximum)				

Provide an proper TAGS , that would be very useful on a long run.

Think we are managing 1000 VM's and you have to manage it.

6. Add Security

1. Choose AMI 2. Choose Instance Type 3. Configure Instance 4. Add Storage 5. Add Tags 6. Configure Security Group 7. Review

Step 6: Configure Security Group

A security group is a set of firewall rules that control the traffic for your instance. On this page, you can add rules to allow specific traffic to reach your instance. For example, if you want to set up a web server and allow Internet traffic to reach your instance, add rules that allow unrestricted access to the HTTP and HTTPS ports. You can create a new security group or select from an existing one below. [Learn more](#) about Amazon EC2 security groups.

Assign a security group: ☒ Create a new security group ☐ Select an existing security group

Security group name:

Description:

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	Custom 0.0.0.0/0	e.g. SSH for Admin Desktop

[Add Rule](#)

Warning

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.

The above is the inbound traffic that is listed for this instance. (SSH is allowed for Linux OS, to be access from outside), we would talk about this more in the “AWS SECURITY” session.

By Default ALL TRAFFIC is ALLOWED for outbound traffic.

7. Review

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Step 7: Review Instance Launch

Please review your instance launch details. You can go back to edit changes for each section. Click **Launch** to assign a key pair to your instance and complete the launch process.

Improve your instances' security. Your security group, launch-wizard-3, is open to the world.

Your instances may be accessible from any IP address. We recommend that you update your security group rules to allow access from known IP addresses only. You can also open additional ports in your security group to facilitate access to the application or service you're running, e.g., HTTP (80) for web servers. [Edit security groups](#)

▼ AMI Details [Edit AMI](#)

Amazon Linux AMI 2018.03.0 (HVM), SSD Volume Type - ami-0ff8a91507777f867

The Amazon Linux AMI is an EBS-backed, AWS-supported image. The default image includes AWS command line tools, Python, Ruby, Perl, and Java. The repositories include Docker, PHP, MySQL, PostgreSQL, and other packages.

Root Device Type: ebs Virtualization type: hvm

▼ Instance Type [Edit Instance type](#)

Instance Type	ECUs	vCPUs	Memory (GiB)	Instance Storage (GB)	EBS-Optimized Available	Network Performance
t2.micro	Variable	1	1	EBS only	-	Low to Moderate

▼ Security Groups [Edit security groups](#)

Security group name: launch-wizard-3

Description: launch-wizard-3 created 2018-08-23T12:46:25.346+05:30

Type	Protocol	Port Range	Source	Description
SSH	TCP	22	0.0.0.0/0	

8. Key Selection

For EC2 Instance we would need to assign an “KEY” to access it. This would be the password. There is an DEFAULT “Username” for every IMAGE that we select in the beginning.

The key has 2 parts, Public and Private.

The private key is downloadable only ONCE and AWS DOES NOT STORAGE it.

Select an existing key pair or create a new key pair ✕

A key pair consists of a **public key** that AWS stores, and a **private key file** that you store. Together, they allow you to connect to your instance securely. For Windows AMIs, the private key file is required to obtain the password used to log into your instance. For Linux AMIs, the private key file allows you to securely SSH into your instance.

Note: The selected key pair will be added to the set of keys authorized for this instance. Learn more about [removing existing key pairs from a public AMI](#).

Create a new key pair ▼

Key pair name
Lab-key1

Download Key Pair

... You have to download the **private key file** (*.pem file) before you can continue. **Store it in a secure and accessible location.** You will not be able to download the file again after it's created.

Cancel Launch Instances

Until we download the key pair for the first time, “Launch Instance” button does not get activated.

After the download of the key, Click on “Launch”.

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Output →

Launch Instance Connect Actions

search: i-0c5cc5791d104e766 Add filter

Name	Instance ID	Instance Type	Availability Zone	Instance State	Status Checks	Alarm Status	Public DNS (IPv4)	IPv4 Public IP
WS01	i-0c5cc5791d104e766	t2.micro	us-east-1a	running	Initializing	None	-	-

Instance: i-0c5cc5791d104e766 (WS01) Private IP: 10.20.0.152

Description Status Checks Monitoring Tags

Instance ID	i-0c5cc5791d104e766	Public DNS (IPv4)	-
Instance state	running	IPv4 Public IP	-
Instance type	t2.micro	IPv6 IPs	-
Elastic IPs	-	Private DNS	ip-10-20-0-152.ec2.internal
Availability zone	us-east-1a	Private IPs	10.20.0.152
Security groups	launch-wizard-3 . view inbound rules . view outbound rules	Secondary private IPs	-
Scheduled events	No scheduled events	VPC ID	vpc-0f0828b1
AMI ID	amzn-ami-hvm-2018.03.0.20180811-x86_64-gp2 (ami-0f8a91507f77f867)	Subnet ID	subnet-0b617f77
Platform	-	Network interfaces	eth0
IAM role	-	Source/dest. check	True
Key pair name	Lab-key1	T2/T3 Unlimited	Disabled
EBS-optimized	False	Owner	Amazon Web Services, Inc.
Root device type	ebs	Launch time	August 1, 2018 (less than one hour)
Root device	/dev/xvda	Termination protection	False
Block devices	/dev/xvda	Lifecycle	normal
Elastic GPU	-	Monitoring	basic
Elastic GPU type	-	Alarm status	None
Elastic GPU status	-	Kernel ID	-
		RAM disk ID	-
		Placement group	-