

1

Amazon Web Service



Modul 1

Amazon Web Service

1.1. Kebutuhan

Untuk dapat menjalankan modul ini, anda memerlukan sebuah komputer dan akses ke sebuah akun Amazon Web Service (AWS) untuk melakukan inisiasi server.

1.2. Tujuan Praktikum

- Mahasiswa mampu melakukan inisiasi AWS
- Mahasiswa mampu memahami prinsip kerja AWS

1.3. Materi Praktikum

Untuk kegiatan praktikum Bab 1, praktikan dapat melakukan inisiasi AWS melalui akun anda masing-masing. Proses inisiasi dapat dibagi menjadi tiga bagian, yaitu:

1. Bergabung ke Course
2. Membuat instance EC2
3. Akses instance EC2 menggunakan SSH

1.3.1. Panduan untuk Bergabung ke Course

1. Student menerima email undangan untuk bergabung pada course AWS Academy Learner Lab - Foundation Service dan klik pada tombol Get Started.

Course Invitation Inbox

AWS Academy <notifications@instructure.com>
to adhitya.bhawiyuga ▾

2:31 PM (0 minutes ago)

You've been invited to participate in a class at AWS Academy . The class is called AWS Academy Learner Lab - Foundation Services [5191]. Course role: Student

Name: adhitya.bhawiyuga@gmail.com
Email: adhitya.bhawiyuga@gmail.com
Username: none

You'll need to register with Canvas before you can participate in the class.

[Get Started](#)

CANVAS



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- Untuk menyelesaikan proses pendaftaran, masukkan email dan password Anda, kemudian klik tombol **Register**.

Welcome Aboard!

In order to finish signing you up for the course **AWS Academy Learner Lab - Foundation Services [5191]**, we'll need a little more information.

Login: adhitya.bhawiyuga@gmail.com

Password:

Time Zone: Jakarta (+07:00)

I agree to the [Acceptable Use Policy](#)

Register

- Anda akan masuk ke halaman LMS login, klik pada **Student Login**. Portal ini juga dapat diakses pada alamat <https://awsacademy.instructure.com/login/canvas>

aws academy

Student Login
(For students enrolled in a class)
学生の方はこちらからログインしてください。
已注册课程的学生请在这里登录

Educator Login
(For educators who have access to the AWS Academy Portal)
講師の方（AWS Academy メンバーポータルのアカウントをお持ちの方）はこちらからログインしてください。
教师请在这里登录（您需使用AWS Academy Portal账户登录）

- Anda telah masuk ke **Dashboard** yang berisi course yang akan diikuti. Pilih course **AWS Academy Learner Lab - Foundation Service**.



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The screenshot shows the AWS Academy Canvas dashboard. At the top, there is a notification bar with the text "Notifications. Tell us how and when you would like to be notified of events in Canvas." and a link to "Notification Preferences". Below the notification bar, the word "Dashboard" is displayed. On the left side, there is a vertical sidebar with icons for Account, Dashboard, Courses, Calendar, Inbox, History, and Help. The "Courses" icon is highlighted. The main content area shows a course card for "AWS Academy Learner Lab - Foun..." with the ID "ALLFv1-5191". The course card has a red header and a white body containing the course title and ID.

5. Kemudian pilih pada menu Courses → Modules. Lalu klik pada Learner Lab - Foundational Services.

The screenshot shows the "Modules" page for the course "ALLFv1-5191". The left sidebar is identical to the previous dashboard screenshot. The main content area shows a list of modules. The first module listed is "Learner Lab Foundation Services", which is expanded to show its contents. The contents include "Learner Lab - Foundational Services" and "End of Course Feedback Survey".

6. Lalu pada tampilan Learner Lab - Foundational Level, Anda akan melihat beberapa informasi terkait fitur dan layanan AWS. Selanjutnya, klik tombol **Start Lab**.



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The screenshot shows the AWS Learner Lab interface. On the left, there is a sidebar with navigation links: Home, Modules (which is selected), and Discussions. The main area has a dark background with a terminal window labeled "AWS". The terminal window displays the command "ddd_v1_w_10PQ_651983@runweb25:~\$". To the right of the terminal is a panel titled "Learner Lab - Foundational Level" containing a list of links related to AWS usage. At the top of the interface, there are buttons for "Start Lab", "End Lab", "AWS Details", "Readme", "Reset", and a language dropdown set to "EN".

7. Tunggu beberapa saat sampai tulisan **AWS** berubah menjadi warna **hijau**. Selanjutnya, klik tombol **AWS** di pojok kiri atas untuk masuk ke dalam portal **AWS Management Console**.

The screenshot shows the AWS Management Console session details. It includes a terminal window with the command "ddd_v1_w_10PQ_651983@runweb25:~\$". To the right, a panel displays session information: Region: us-east-1, Lab ID: arn:aws:clouformation:us-east-1:440170960298:stack/c37611a483772f937192t1fe65-11eb-8175-0ef7f3f34731, Creation Time: 2021-08-16T00:39:01-0700, Start session at: 2021-08-16T00:39:02-0700, and Remaining session time: 04:00:00(240 minutes). At the top, there are buttons for "Start Lab", "End Lab", "AWS Details", "Readme", "Reset", and a "Close" button.

8. Anda telah masuk ke dalam **AWS Management Console** dan siap untuk memulai course.



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The screenshot shows the AWS Management Console interface. At the top, there is a navigation bar with a search bar, user information, and a sign-out button. Below the navigation bar, the title "AWS Management Console" is displayed. On the left, there is a sidebar titled "AWS services" with a "All services" link. The main content area features several cards: "Build a solution" (with links to Launch a virtual machine, Build a web app, Build using virtual servers, Register a domain, Connect an IoT device, and Start migrating to AWS), "Stay connected to your resources on-the-go" (with a link to AWS Console Mobile), "Explore AWS" (with a link to Calling All Java and Python), and "Test Your Machine Learning" (with a link to Test Your Machine Learning). Each card includes a small icon and a brief description.

1.3.2. Panduan Membuat Instance EC2

1. Masuk ke portal web AWS Management Console.
2. Klik tombol **Services**. Kemudian klik pilihan service **EC2** pada kategori **Compute**. Anda juga dapat memanfaatkan bagian pencarian untuk menemukan tautan untuk layanan EC2.



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The screenshot shows the AWS Management Console homepage. The sidebar on the left lists recently visited services: Console Home, EC2, S3, RDS, IAM, Billing, AWS Cost Explorer, and VPC. The main content area is titled 'All services' and lists various AWS services categorized as follows:

- Compute:** EC2, Lightsail, Lambda, Batch, Elastic Beanstalk, Serverless Application Repository, AWS Outposts, EC2 Image Builder, AWS App Runner.
- Developer Tools:** CodeStar, CodeCommit, CodeArtifact, CodeBuild, CodeDeploy, CodePipeline, Cloud9, CloudShell.
- Machine Learning:** Amazon SageMaker, Amazon Augmented AI, Amazon CodeGuru, Amazon DevOps Guru, Amazon Comprehend, Amazon Forecast, Amazon Fraud Detector, Amazon Kendra, Amazon Lex, Amazon Personalize, Amazon Polly.
- Containers:** Elastic Container Registry, Elastic Container Service, Elastic Kubernetes Service, Red Hat OpenShift Service on AWS.
- Customer Enablement:** AWS IQ, Support, Managed Services, Activate for Startups.
- Storage:** S3, EFS.
- Robotics:** AWS RoboMaker.
- Blockchain:** (1-2 minutes)

A status bar at the bottom indicates '2-3 minutes' for most services except 'Compute' which is '6 minutes'. The footer includes links for Feedback, English (US), and a copyright notice: '© 2008 - 2021, Amazon Web Services, Inc. or its affiliates. All rights reserved.'

3. Anda akan masuk ke dalam halaman EC2. Pada halaman ini terdapat daftar instance mesin virtual EC2 yang telah anda buat. Untuk membuat instance mesin virtual baru, klik tombol **Launch instances**.

The screenshot shows the AWS EC2 Instances page. The left sidebar includes options for EC2 Dashboard, Global View, Events, Tags, Limits, Instances (with sub-options like Instance Types, Launch Templates, etc.), and Images (AMIs). The main content area displays a table with columns: Name, Instance ID, Instance state, Instance type, Status check, Alarm status, Availability Zone, and Public IP. A message at the top of the table area states 'You do not have any instances in this region'. A modal window titled 'Select an instance above' is open at the bottom right.

4. Selanjutnya akan muncul halaman **wizard pembuatan instance** seperti ditampilkan pada halaman berikut. Pada halaman ini, anda dapat memilih **image sistem operasi (AMI)** dari instance yang akan anda buat.



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Step 1: Choose an Amazon Machine Image (AMI)

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.

Untuk akun **Lab Learner**, anda dapat memilih beberapa alternatif sistem operasi berikut.

Nama AMI	Sistem Operasi	Kategori
Amazon Linux 2 AMI (HVM), SSD Volume Type	Amazon Linux 2 (berbasis RHEL)	Quick Start
Ubuntu 20.04	Ubuntu 20.04	Quick Start

5. Klik tombol **Select** pada AMI yang akan dipakai.
6. Pada halaman **Choose an Instance Type** pilih jenis instance yang akan dipakai. Jenis instance akan berpengaruh terhadap alokasi CPU dan memory. Ingat, jenis instance mempengaruhi *pricing*. Untuk pembelajaran dasar, anda dapat memilih jenis instance **t2.micro**. Kemudian klik tombol **Configure instance detail**.

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.



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7. Pada halaman **Configure Instance**, anda dapat melakukan konfigurasi instance meliputi : jumlah instance yang akan dibuat, jaringan yang dipakai, dan beberapa konfigurasi tambahan lainnya. Untuk pembelajaran dasar, anda dapat menggunakan konfigurasi default. Kemudian klik tombol **Add Storage**.

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 of the lower pricing, assign an access management role to the instance, and more.

Number of instances: 1

Purchasing option: Request Spot instances

Network: vpc-09ac7723a5e719156 (default)

Subnet: No preference (default subnet in any Availability Zone)

Auto-assign Public IP: Use subnet setting (Enable)

Placement group: Add instance to placement group

Capacity Reservation: Open

Domain join directory: No directory

IAM role: None

Shutdown behavior: Stop

Cancel Previous Review and Launch Next: Add Storage

8. Pada halaman **Add Storage** anda dapat menentukan kapasitas disk dari storage utama maupun menambahkan disk baru pada instance yang dibuat. Kemudian klik tombol **Add Tags**.

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	Encryption
Root	/dev/xvda	snap-0a4c045433cade1b2	8	General Purpose SSD (gp2)	100 / 3000	N/A	<input checked="" type="checkbox"/>	Not Encrypt

Add New Volume

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage. [Learn more](#) about free usage tier eligibility and usage restrictions.

Cancel Previous Review and Launch Next: Add Tags

9. Pada halaman **Add Tags** anda dapat menambahkan tag untuk mengidentifikasi instance yang akan anda buat. Identifikasi bisa berupa Name, Category ataupun tag lainnya. Kemudian klik tombol **Configure Security Group**.



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The screenshot shows the 'Add Tags' step in the AWS EC2 wizard. It displays a table with one row for a tag. The 'Key' column contains 'Name' and the 'Value' column contains 'My Instance'. There are checkboxes for 'Instances', 'Volumes', and 'Network Interfaces', all of which are checked. Below the table is a button labeled 'Add another tag'.

10. Pada halaman **Configure Security Group** anda dapat mengatur trafik masuk yang anda iijinkan. Ingat, pada EC2, trafik masuk bersifat *whitelist* yang berarti hanya trafik yang didefinisikan yang diijinkan untuk masuk ke instance anda. Secara default, satu-satunya trafik yang diijinkan adalah trafik SSH (Port 22). Anda dapat menambahkan jenis trafik yang lain semisal HTTP (Port 80) atau HTTPS (Port 443). Kemudian klik tombol **Review and Launch**.

The screenshot shows the 'Configure Security Group' step in the AWS EC2 wizard. It lists two inbound rules: one for SSH (Protocol TCP, Port Range 22, Source 0.0.0.0/0) and one for HTTP (Protocol TCP, Port Range 80, Source 0.0.0.0/0). A warning message at the bottom states: '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.'

11. Pada halaman **Review** anda dapat melakukan pengecekan akhir konfigurasi sebelum instance baru dibuat. Jika anda sudah setuju, klik tombol **Launch**.



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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.

AMI Details

Amazon Linux 2 AMI (HVM), SSD Volume Type - ami-02e136e904f3da870

Instance Type

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

Security Groups

Launch

12. Pada halaman **key pair**, anda dapat **memilih atau membuat baru pasangan public-private key** yang akan anda pakai untuk mengakses EC2. Private key harus anda simpan baik-baik. Untuk akun **AWS Lab Learner**, anda bisa memanfaatkan **private key default** dengan nama **vockey | RSA** yang sudah disediakan oleh AWS. Kemudian klik **Launch Instances**.

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. Amazon EC2 supports ED25519 and RSA key pair types.

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](#).

Choose an existing key pair

Select a key pair

vockey | RSA

I acknowledge that I have access to the corresponding private key file, and that without this file, I won't be able to log into my instance.

Cancel Launch Instances

13. Private key **vockey | RSA** dapat diakses pada halaman **Modules > Learner Lab Foundation Services > Learner Lab - Foundational Services**. Jika anda menggunakan Terminal (Linux/MacOS), Git Bash (Windows), PowerShell (Windows) atau WSL, anda dapat mendownload **file dengan ekstensi PEM**. Jika anda menggunakan Putty, anda dapat mendownload **file dengan ekstensi PPK**.



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ALLFv1-6667 > Modules > Learner Lab Foundation Services > Learner Lab - Foundational Services

The screenshot shows a terminal window with the command 'ccc_v1_w_047ca_43543@runweb39718:~\$'. To the right is a 'Cloud Access' panel. It includes sections for 'AWS CLI', 'Cloud Labs' (showing session time and start/end times), 'Accumulated lab time', 'No running instance', 'SSH key' (with 'Show' and 'Download PEM' buttons), 'Download PPK', 'AWS SSO' (with 'Download URL' button), and 'AWS Account ID' (74609548#0001).

1.3.3. Panduan Akses Instance EC2 menggunakan SSH

1. Masuk ke halaman **EC2** pada portal **AWS Management Console**. Kemudian pilih salah satu instance yang akan anda akses dengan mencentang pada kolom paling kiri dari tabel instance.

The screenshot shows the AWS Management Console EC2 Instances page. On the left is a navigation sidebar with 'New EC2 Experience' selected. The main area shows a table with one instance: 'My Instance' (i-02efa158683c584fc). The 'Actions' column for this instance has a 'Connect' button. Below the table is a detailed view for 'Instance: i-02efa158683c584fc (My Instance)'. The 'Networking' tab is selected, showing the public IP address 52.16.10.11.

2. Catat informasi **IP Publik** dari instance tersebut dengan memilih tab **Networking**.



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Instance: i-02efa158683c584fc (My Instance)

Networking details		Info			
Public IPv4 address	54.167.168.11 open address	Private IPv4 addresses	172.31.80.174	VPC ID	vpc-09ac7723a5e71
Public IPv4 DNS	ec2-54-167-168-11.compute-1.amazonaws.com open address	Private IPv4 DNS	ip-172-31-80-174.ec2.internal	Subnet ID	subnet-09d55e5f96
IPv6 addresses	-	Secondary private IPv4 addresses	-	Availability zone	eu-east-1r

- Untuk mengakses SSH, buka aplikasi Terminal/GitBash/PowerShell/WSL anda, kemudian akses dengan format

```
ssh -i lokasi_file_private_key/labuser.cer nama_user@alamat_ip_publik
```

Catatan:

- Bagian `nama_user` untuk instance dengan sistem operasi **Amazon Linux 2/Red Hat/Centos** adalah **ec2-user** sementara untuk sistem operasi **Ubuntu** adalah **ubuntu**.
- File private key harus memiliki **permission 400**.

- Sebagai contoh, jika anda mengakses sebuah instance Amazon Linux 2 dengan alamat IP publik 54.167.168.11 menggunakan private key bernama labuser.cer, maka instance dapat diakses dengan perintah:

```
ssh -i labsuser.cer ec2-user@54.167.168.11
```

```
Last login: Mon Oct 11 08:29:50 2021 from 175.45.188.252
[ec2-user@ip-172-31-80-174 ~]$ _|_ ) 
 _| ( _/_ 
 _| \_\_|_
https://aws.amazon.com/amazon-linux-2/
3 package(s) needed for security, out of 15 available
Run "sudo yum update" to apply all updates.
[bash: warning: setlocale: LC_CTYPE: cannot change locale (UTF-8): No such file or directory
[ec2-user@ip-172-31-80-174 ~]$ ]$
```