

Pract 1-Infrastructure as a service

Writeup:

1.Cloud Computing architecture

Cloud Computing architecture Cloud architecture consists of a front end and back end. The front end is the client-side interface. The back end consists of the cloud service provider's data centers, servers, storage and applications. A central server administers the system, monitoring traffic and client demands to ensure quality of service. The underlying hardware infrastructure is distributed across various servers and locations

2.IAAS

Infrastructure as a Service (IaaS) provides access to fundamental computing resources such as servers, storage, networks and operating systems over the internet. The cloud provider owns and maintains the physical infrastructure and delivers these resources to customers on-demand.

Why IAAS??

- Flexibility - IaaS provides highly scalable and flexible computing resources that can be provisioned and decommissioned on-demand based on workload needs. This is useful for spiky or unpredictable workloads.
- Lower costs - With IaaS, organizations pay only for the infrastructure resources they use without having to purchase and maintain their own hardware. This eliminates capital expenditures and reduces costs.

3.AWS

Amazon Web Services offers a broad set of global cloud-based products including compute, storage, databases, analytics, networking, mobile, developer tools, management tools, IoT, security, and enterprise applications: on-demand, available in seconds, with pay-as-you-go pricing. From data warehousing to deployment tools, directories to content delivery, over 200 AWS services are available.

4.EC2

Amazon Elastic Compute Cloud (EC2) provides scalable virtual servers that can be launched and terminated on-demand. Key features include:

1. Multiple instance types for varying compute, memory and storage needs
2. Auto scaling and load balancing
3. High availability within and across data centers
4. Secure network connectivity options and access controls
5. Integrated with other AWS services
6. Pay as you go pricing based on instance hours used

Implementing the windows machine using AWS EC2

Go to the AWS console home, select All Services and select EC2 and select launch instance

Windows

[EC2](#) > [Instances](#) > Launch an instance

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.


Name and tags [Info](#)


Name


[Add additional tags](#)


Select windows as application after naming the application


Quick Start


Amazon Linux



macOS


Ubuntu


Windows


Red Hat


SUSE Linux



[Browse more AMIs](#)
Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Microsoft Windows Server 2022 Base
ami-00d59001b2335bdea (64-bit (x86))
Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible ▼

Description

Microsoft Windows Server 2022 Full Locale English AMI provided by Amazon

Architecture	AMI ID	
64-bit (x86)	ami-00d59001b2335bdea	Verified provider

Create a new key pair and download the .pem file

Create key pair

Key pair name

Key pairs allow you to connect to your instance securely.

win_key

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type

☒ RSA

RSA encrypted private and public key pair

☐ ED25519

ED25519 encrypted private and public key pair (Not supported for Windows instances)



Private key file format

☒ .pem

For use with OpenSSH

☐ .ppk

For use with PuTTY

 When prompted, store the private key in a secure and accessible location on your computer. **You will need it later to connect to your instance.** [Learn more](#) 

Cancel

Create key pair

Save the remote desktop file and launch the instance

Connect to instance [Info](#)

Connect to your instance i-0d1ef9c07cb695228 (win) using any of these options

Session Manager

RDP client

EC2 serial console

Instance ID


 i-0d1ef9c07cb695228 (win)

Connection Type

☒ **Connect using RDP client**

Download a file to use with your RDP client and retrieve your password.

☐ **Connect using Fleet Manager**


To connect to the instance using Fleet Manager Remote Desktop, the SSM Agent must be installed and running on the instance. For more information, see [Working with SSM Agent](#) 

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:


 **Download remote desktop file**

When prompted, connect to your instance using the following details:

Public DNS

 ec2-13-126-42-118.ap-south-1.compute.amazonaws.com

Username

 Administrator

Upload the .pem file


Get Windows password [Info](#)

Use your private key to retrieve and decrypt the initial Windows administrator password for this instance.

Instance ID

 i-0d1ef9c07cb695228 (win)

Key pair associated with this instance

 win_key



Private key

Either upload your private key file or copy and paste its contents into the field below.

 **Upload private key file**

Private key contents - *optional*

Open the file from downloads folder and you are ready to go

 win	29-01-2024 19:20	Remote Desktop C...	1 KB
 win_key.pem	29-01-2024 19:17	PEM File	2 KB

Ubuntu

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name

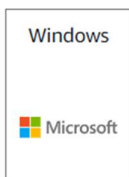
[Add additional tags](#)


▼ Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

 Search our full catalog including 1000s of application and OS images

Quick Start




[Browse more AMIs](#)
Including AMIs from
AWS, Marketplace and
the Community

Create key pair



Key pair name

Key pairs allow you to connect to your instance securely.

ub_key

The name can include up to 255 ASCII characters. It can't include leading or trailing spaces.

Key pair type



RSA

RSA encrypted private and public key pair



ED25519

ED25519 encrypted private and public key pair

Private key file format



.pem

For use with OpenSSH



.ppk

For use with PuTTY



When prompted, store the private key in a secure and accessible location on your computer. **You will need it later to connect to your instance.** [Learn more](#)

Cancel

Create key pair

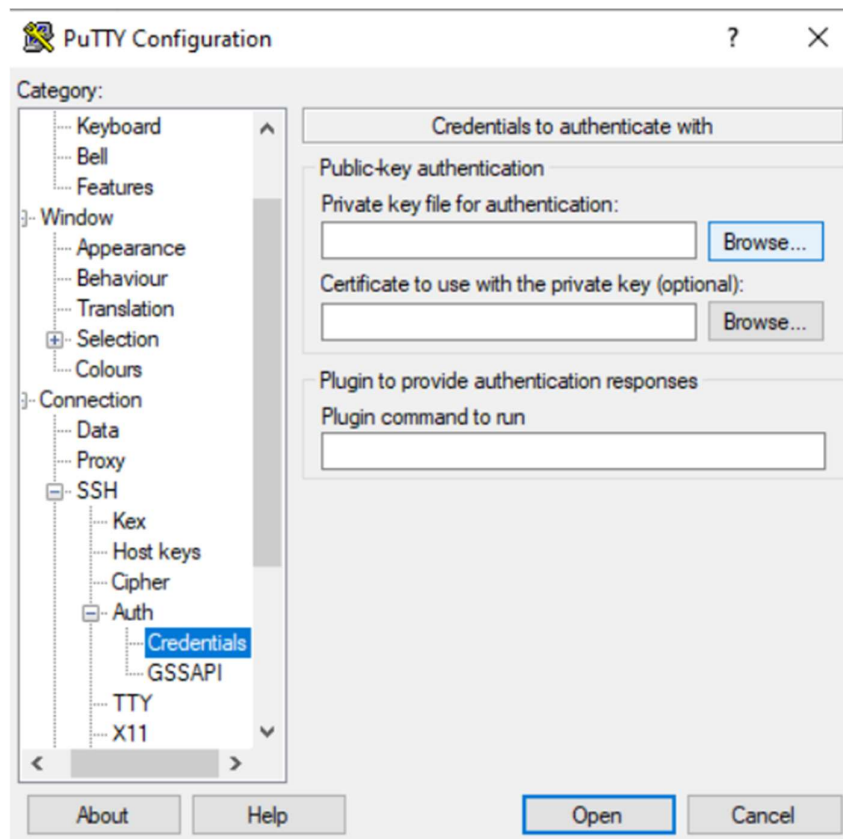
Download putty

putty.exe (the SSH and Telnet client itself)

64-bit x86:	putty.exe	(signature)
64-bit Arm:	putty.exe	(signature)
32-bit x86:	putty.exe	(signature)

Open putty and paste the IP address of instance

Select auth then upload the key in credentials




```
ubuntu@ip-172-31-44-155: ~  
Expanded Security Maintenance for Applications is not enabled.  
  
0 updates can be applied immediately.  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
  
The programs included with the Ubuntu system are free software;  
the exact distribution terms for each program are described in the  
individual files in /usr/share/doc/*/copyright.  
  
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by  
applicable law.  
  
To run a command as administrator (user "root"), use "sudo <command>".  
See "man sudo_root" for details.  
ubuntu@ip-172-31-44-155:~$
```

Make a directory

```
ubuntu@ip-172-31-44-155:~$ mkdir sahil  
ubuntu@ip-172-31-44-155:~$ ls  
sahil  
ubuntu@ip-172-31-44-155:~$
```

Run basic linux commands

```
ubuntu@ip-172-31-44-155:~$ ls  
sahil  
ubuntu@ip-172-31-44-155:~$ cd sahil  
ubuntu@ip-172-31-44-155:~/sahil$ touch file.txt  
ubuntu@ip-172-31-44-155:~/sahil$ ls  
file.txt  
ubuntu@ip-172-31-44-155:~/sahil$ cat> file.txt  
welcome to linux  
^z
```

Run a python code

```
ubuntu@ip-172-31-40-196:~$ mkdir test
ubuntu@ip-172-31-40-196:~$ cd test
ubuntu@ip-172-31-40-196:~/test$ cat > hello.py
Hello World
^Z
[2]+  Stopped                  cat > hello.py
ubuntu@ip-172-31-40-196:~/test$ python3 hello.py
  File "/home/ubuntu/test/hello.py", line 1
    Hello World
    ^^^^^
SyntaxError: invalid syntax
ubuntu@ip-172-31-40-196:~/test$ cat > hello.py
print("Hello World")
^Z
[3]+  Stopped                  cat > hello.py
ubuntu@ip-172-31-40-196:~/test$ python3 hello.py
Hello World
ubuntu@ip-172-31-40-196:~/test$ █
```